

WIN - DIGIPE T

Das Steuerungsprogramm



Version 2018 • Premium Edition

The Compendium



Win - Digipet 2018 *Premium Edition*

**CONTROL SYSTEM FOR MODEL RAILROADS USING
DIGITAL-SYSTEMS AND INTERFACES OF
MÄRKLIN, ESU, TAMS-ELEKTRONIK, UHLENBROCK, FLEISCHMANN,
ROCO, TRIX, MÜT, RAUTENHAUS, LITTFINSKI DATENTECHNIK, STÄRZ,
CT-ELEKTRONIK, MASSOTH, LENZ, THORSTEN MUMM, FALLER,
D&H-MTTM, MODELLEISENBAHN CLAUS**

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**Program-Version 18.0 - 32 Bit for operating systems
Microsoft Windows Win 7 / Win 8 / Win 10**



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Revision: April 2018



My special thanks apply to Mr. Markus Herzog; Düren, for his ideas and concepts for advancing Win-Digipet and for his in programming.

I'd also like to thank my beta-testers and Mr. Bernd Senger for his efforts writing this manual.

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A demo-version of Win-Digipet available for testing and evaluation, is explicitly labelled for this purpose and may be passed to a third party.

The demo-version controls not more than 12 solenoid devices and 4 locomotives; only a maximum of 20 timetable or tour automatic lines is possible. The track diagram has a size of 50x30 symbol fields.

Despite outmost care with creating and testing the program, errors therein can unfortunately not be excluded. Should errors caused by the program itself occur, I shall do my level best to eliminate them free of charge as fast as possible. Additional information may be found in the Internet at address <http://www.windigipet.de/> and menu item Download.

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Please be aware that due to cost/time issues the pictures in this manual are taken from the German manual using German language.





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WIN - DIGIPET

The control program

Version 2018 Premium Edition

Chapter 1





1. CONCEPT; REQUIREMENTS AND INSTALLATION































The first chapter of this manual describes the philosophy of **Win-Digipet**. It will be explained how the program parts are linked and depend on each other.

Before installing the program please be sure, that you have checked the software and hardware compatibility of your computer with the requirements listed in this chapter.

1.1 *Concept of the program*

1.1.1 *General*

WIN-DIGIPET is a modern, far-reaching, intelligent, and very user-friendly software to control a model railroad, which is equipped with components of




 Ansaloni	
 CAN-digital	 Modelleisenbahn Claus
 CT Elektronik	 modellplan
 ESU,	 MÜT
 Digikeijs	 OpenDCC
 ESU	 Piko
 Faller	 Rautenhaus
 Fleischmann	 Roco
 Games On Track	 Schmidt Electronic
 Helmo	 Stärz
 Lenz	 Switch-COM
 Littfinski Datentechnik	 Tams
 LS-Digital	 Trix
 Märklin	 Uhlenbrock
 Massoth	 Zimo

or another compatible system.



Win-Digipet (32 Bit) has been developed for computers with the operating system **Microsoft Windows**.

Common current versions of Microsoft Windows are:

-  Windows 7
-  Windows 8
-  Windows 10

In principle, **Win-Digipet** can be used also with an older version of Windows such as Windows 2000 and Windows XP. However, these versions should not be used anymore because Microsoft decided to stop supporting these versions. Furthermore, the security features issued by newer updates of Microsoft Windows do not consider those older versions.

Therefore, we strongly suggest to use one of the current versions listed above.




The present **Win-Digipet 2018 Premium Edition** - software offers a comprehensive and comfortable solution to control digital model railway layouts of any size.



1.1.2 The three pillar structure of Win-Digipet

Every software for controlling a model railroad has its own philosophy; this applies also to **Win-Digipet**. In **Win-Digipet** we call this the three pillar structure.

The three pillars of **Win-Digipet** are...

-  The vehicle database containing all data for your locomotives, waggons and function models
-  The track diagram representing your model railroad layout in a simplified way
-  The route database with a list of all routes from start to destination

These pillars are the fundamental program parts and have to be considered to achieve a proper control of your digital model railway..

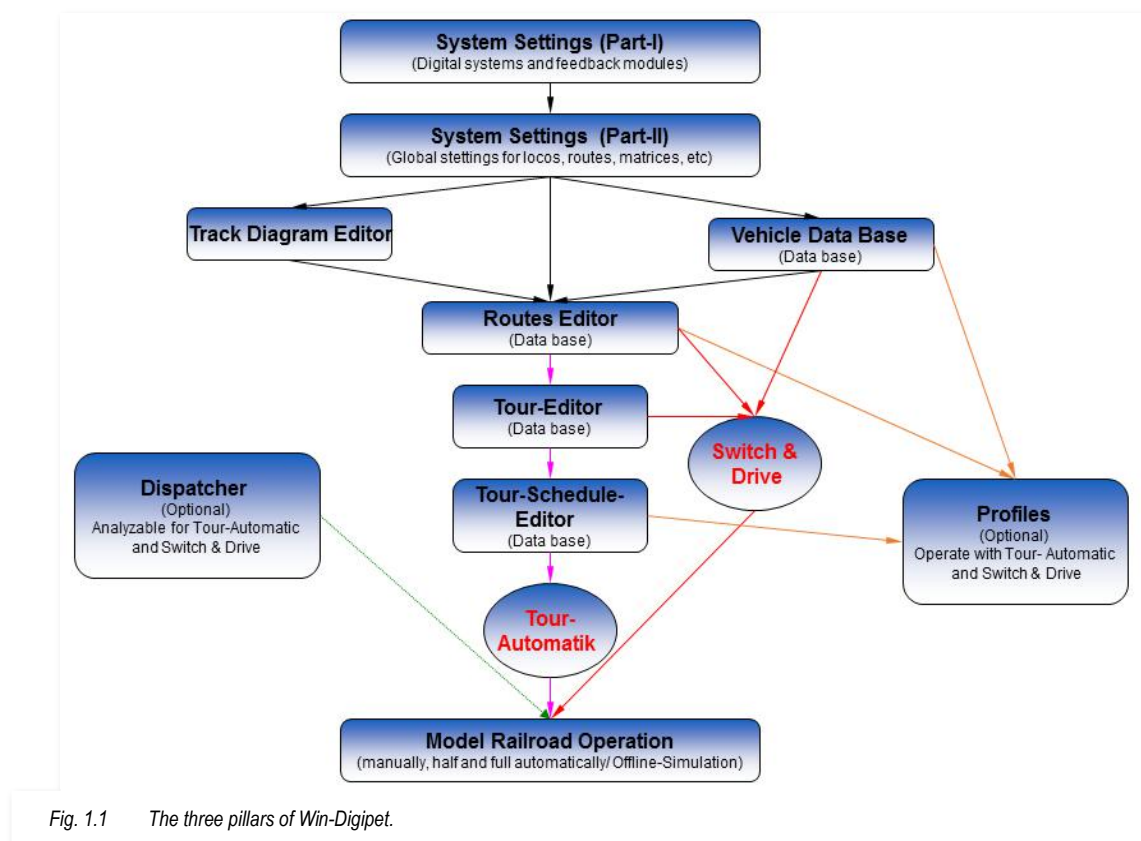


Fig. 1.1 The three pillars of Win-Digipet.

All other program parts such as tours, profiles, tour automatic as well as controlling of turntables, cranes etc. need these three pillars for correct operation.

Therefore, you should take maximal care of this data. False data in these program parts will influence all other parts of the program.



1.1.3 *Controlling the program*

The control of **Win-Digipet** has been designed for the usage of a mouse or another pointer device (e.g. touchpad). In principle all parts of the menu can also be reached by using the computers keyboard. But using the mouse is more comfortable and quicker.

In the graphical part of the program you can select all particular symbols by mouse only.

Tool-tips are embedded in the entire program. These “small” windows reveal their information, if your mouse - without a mouse key being pressed - touches a symbol, a command button, or a list entry in a table, for example.

In the sub program parts (vehicle database, route-, profile-editor etc.) of **Win-Digipet** you can jump from field to field using the **Tab-key** or the **Arrow up/down keys**. Pressing **Shift and the Tab-key** will result in a jump to a previous field. Each active panel will be illuminated. A switch, e.g. "On/Off", will be operated with the **Space-key**.

Active windows in the main program or track diagram editor can be closed using the **ESC-(Escape)-Key**.

Within a window with scroll bars, you can scroll from line to line via the **arrows-up** and **arrows-down** keys. Also with a mouse you may temporarily scroll within a window with roll bars: If you click on the lower horizontal frame bar, it will move forwards, if you click on the top horizontal frame bar, it will move backwards.

The **PgUp-** and **PgDn keys** (page up and page down) will leaf through sideways.

Even if you prefer to use the mouse, you have to enter any text via the keyboard.



Function key	Function
F1	Help function
F2	all Loco-controls get minimized and arranged at the top
F3	all Loco-controls get minimized
F4	all Loco-controls get closed
F5	increases the zoom factor (Zoom +)
F6	decreases the zoom factor (Zoom -)
F7	opens the trains inspector
F8	all locomotives will be stopped or started respectively
F9	causes an emergency stop
F10	
F11	you can get from one open window to the next one







1.1.4 Programming Win-Digipet

For the usage of **Win-Digipet** no programming knowledge is needed. You can program everything using comfortable editors and you get assistance for the search and correction of errors by the powerful check routines integrated in the program.






1.2 Hardware, Interfaces, Connections

1.2.1 Hardware requirements for WIN-DIGIPET












Minimum:

-  Operating system: Microsoft Windows Win 7 / Win 8 / Win 10
-  Processor: Pentium IV 2 GHz
-  Memory: 1024 MB (or least requirement of the used operating system)
-  Graphics Card: Resolution 1.024x768, True Colour
-  Connectors: USB
-  DVD/CD-ROM: (optional)






-  Sound card: (optional)
-  Hard disk: > 200 MB free
-  Equipment: Mouse, keyboard (optional Joystick)
-  Internet Browser: Internet Explorer > V8.0 or alternative browser
-  OPTIONAL: DirectX: > V7 (optional if sound card used)

Recommended:

-  Operating system: Microsoft Windows Win 7 / Win 8 / Win 10
-  Processor: Dual Core Processor
-  Memory: 2048 MB
-  Graphics Card: Resolution 1.024x768, True Colour
-  Connectors: USB, Ethernet
-  DirectX: > V7.0
-  DVD/CD-ROM: (optional; for external applications)
-  Sound card: 100% DirectX V7.0 (or better)
-  Hard disk: > 200 MB free
-  Equipment: Mouse with 3 buttons, keyboard (optional Joystick)
-  Internet Browser: Internet Explorer V8.0 ff. or alternative Browser



In Windows select the following screen settings:

-  Resolution: **1024 x 768** Pixel minimum
-  Colour depth: True Colour 32 Bit
-  Font size: Small size 96 dpi resp. 100% - **important!**

These settings can be found at different locations depending on the Windows version.



For example, for Windows 7 you find the corresponding settings under System settings → Display → Font size.

Here you should select the default size 100%.



For Windows 10 you find the corresponding settings under Settings → System → Display. Also, here you should select the default size 100%.

1.2.2 Digital control of your railroad layout

For controlling your railroad layout, you must have the following things...

-  a digital system
-  locomotives and vehicles equipped with digital decoders



-  digitalized solenoid devices like turnouts, signals etc.
-  and an occupation feedback system for your track sections.

Win-Digipet currently supports the digital systems and interfaces listed in section 3.4 ff... With these digital systems you can control your model railroad layout. The systems differ in their features e.g. the digital format like DCC, Motorola, MFX and Selectrix as well as in their type of interface to the computer.

The connection between your digital system and the computer shall be described in the digital system's manuals and/or on the internet homepages of the manufacturers.

For correct operating we recommend using always the newest firmware version installable on your digital system.

For information regarding the digitalisation of locomotive, turnouts, signals, turntables and so on, which are not equipped with a decoder until now, please inform you in the manufacturers' manuals or search for instructions in the Internet.

For the correct monitoring of the train movements and track occupations the program needs feedback contact information.

By principle we have to distinguish between two types of contacts: permanent and momentary contacts. The characteristic difference between these types of contacts is, that momentary are closed only for a short moment and reopen afterwards immediately. A typical example for such a momentary contact is a so-called reed contact which may be activated by a magnet mounted at the vehicle.

We suggest using permanent contacts because they are more flexible and more failure-safe.. For two rail tracks the permanent feedback is generated by occupancy detectors measuring the current usage of vehicles, while for three rail tracks (Märklin system) the feedback is generated by un-isolated axles connecting the two outer rails.

The forum of **Win-Digipet** at our homepage (<http://www.Win-Digipet.de>) contains some workshops explaining how to convert your tracks to be usable with feedback contact. Furthermore, manufacturers of feedback contact systems provide information concerning the feedback setup.



If possible you should install a nearly all-over feedback system, because at gaps the computer is blind.

As principle we can state: more is better than less, because feedback contacts are the eyes of the computer.

It is, however, not necessary to install a new feedback contact every few centimetres. We'll mention this topic in different sections of this manual, so you will get a feeling to the right dimension of feedback contacts.

1.2.3 Internet -Homepage

If you have access to the Internet, you can open "Service Homepage" at the button "Help" in the meni bar or can directly open a web browser and navigate to the **Win-Digipet** Service Homepage. (<http://www.Win-Digipet.de/>).



There you will find news, updates free of costs as well as an informative user forum, where you can discuss problems, questions and so with other users and our beta testers.

Via this homepage you can also open videos published via YouTube. In these videos different topics concerning **Win-Digipet** will be explained sorted by skill level.




1.3 *Installation, Start and Help*

1.3.1 *General*

Knowledge and operation of Windows operating systems is assumed with regards to this manual. Referring to "Windows" in this manual includes Windows 7 / 8 /10.

"Click" and "Double click" refer to the left mouse button; the "right mouse button" action is underlined in the text.

In this manual...

-  Menu commands are written as <File> <Save>.
-  Buttons and selection fields are written in "*Quotation marks*" and italic.
-  Command button captions are surrounded by '**Apostrophes**' and written italic/bold.

The term radio button stands for a selection within the program where you can choose only one option at the same time.

If we write about solenoid device decoders in this manual, we mean decoder for switching turnouts/signals/uncouplers etc. Each manufacturer might have his/her own term for this kind of decoders. In the Märklin world the terms k83/k84 are used for decoders with momentary resp. permanent outputs. Example of a "Radio-Button" in a **Win-Digipet** Dialog

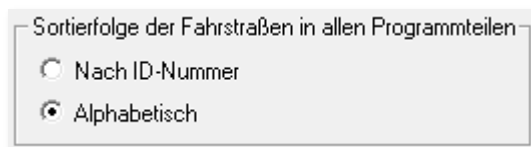


Fig. 1.2 Example of a "Radio-Button" in a **Win-Digipet** Dialogue.

We use the term feedback contacts for any kind of feedback system like S88 bus, RS bus, and feedback modules connected to a Loconet or SX bus and so on.

1.3.2 *Backup of previous data*

If you have already used an older version of Win-Digipet prior to this new one, you should make a manual or automatic backup before the installation of **Win-Digipet 2018 Premium Edition**.

1.3.3 *Backup of symbol files*

If you modified the symbol files supplied with previous versions you should backup your symbols files also, because with **Win-Digipet 2018 Premium Edition** new, completed symbol files are delivered.



1.3.4 Close all applications

Before you install an update of **Win-Digipet** please backup your project(s) and restart your Computer and Windows. **Close** all open applications before installing **Win-Digipet**. This also includes the Microsoft ® Office shortcut. It is advisable to delete all Microsoft ® Office programs from the auto start file.

1.3.5 Installation of Win-Digipet 2018 Premium Edition

The program **Win-Digipet 2018 Premium Edition** is delivered on a USB stick. This media contains all program data which is needed for installation and operation of **Win-Digipet**.

Beside these files also the documentation of program as well as a selection of pictures and sound files can be found on the stick which can be used together with your **Win-Digipet** installation.

The documentations are published in the so called PDF format. These can be displayed with free of cost programs like the Acrobat Reader. You can also print these documents if you like. Regarding printing please consider the size of the manual and estimate if a full print is really useful.

The USB sticks contain a copy protection because of legal issues. This copy protection will be checked from time to time to take sure you have a valid **Win-Digipet** license. We recommend letting the stick be connected to an USB port of your computer.

Connect the USB stick containing **Win-Digipet** to a free USB port of your computer.

After a short time, the USB stick should appear as new drive with the Windows Explorer.

Open the Windows explorer and search for the drive symbol of the **Win-Digipet** USB stick. After a double click on the symbol the content of the drive should appear.

The installation file is placed in the root directory of the stick and called SETUP.

A double click on the file setup will start the program and the dialog similar to that shown in **Fehler! Verweisquelle konnte nicht gefunden werden.** will appear.



Fig. 1.3 The **Win-Digipet** installation dialogue (here version 2015)

Win-Digipet uses for installation the Windows Installer. All copied files will be registered in a database. In case of a de-installation, all relevant and program related files will be deleted from your system. Due to this fact the amount of superfluous data files will be very little.

The "windows installer" needs to expand and prepare the installation routine; hence a minimum of **200 MB free disk space** on your hard drive (**c:**) is required.

All files are expanded and copied to a temp directory. These files and the created temporary directory will be deleted automatically after the installation.

At the beginning of an installation, the Install shield installation routine will check, if the "windows installer" is available on your system; if not, this routine will be installed automatically.

A restart of your computer is eventually necessary. After restart the installation will proceed automatically. Normally you just have to click on '**continue**' or '**OK**', then, the installation will proceed until completion.



First time installation:

As installation path for **Win-Digipet** the path **C:\WDIGIPET** is set as default path. We suggest using this path.


If you would like to change this, click on '**change**' and overwrite the path **c:\wdigipet** in the window "select directory" with your favourite hard drive letter and directory name. Confirm with '**OK**'.

If you already own a previous version of **Win-Digipet**, you **have** to use the existing installation path- and directory where the existing **Win-Digipet**-Version is installed. Already registered data will not be overwritten.

Existing databases for locomotives, routes, etc. will be **automatically** converted to the new version **Win-Digipet 2018**. Please confirm with '**OK**' or '**Start**' when prompted.

At the end of the installation of symbol for the **Win-Digipet Startcenter** will be created on the Desktop. In the start menu there the program group **Win-Digipet** will be created containing the **Win-Digipet Startcenter**.



Symbol	Description
	<p>The Startcenter of Win-Digipet 2018 Premium Edition.</p> <p>Within the Startcenter you can find all functions for start the layout or office version of Win-Digipet.</p> <p>Also all additional programs like data backup, project management and so on can now be found within the Startcenter.</p>



At the end of the installation procedure the computer should be restarted. This restarts ensure, that all config files are created in the correct way and all registration are finished properly.

Now you have installed **Win-Digipet** on your computer and you can start with the quick entrance.

At the first start of Win-Digipet the Original USB-Stick has to be connected to a freed USB-port of your computer.

Later on the stick will be checked every few days. Please take care of your stick if you do not leave it connected to the computer all the time.

WIN - DIGIPET

The control program

Version 2018 Premium Edition

Chapter 2

Document version 1.0 – 2. August 2019



2. THE WIN-DIGIPET STARTCENTER

2.1 General

In the first chapter of this manual we described the installation of **Win-Digipet**. After completing the installation and a restart of your computer, you can now start **Win-Digipet** for the first time.

The installation created an icon on your Windows Desktop of your PC called: **Win-Digipet 2018 Startcenter**

Using the Startcenter you start all other program ports of **Win-Digipet** very comfortable.

Please start now the Startcenter with a double-click on the Startcenter symbol. Next you will see the Startcenter as shown in Fig. 2.1.



2.2 The index cards in the Win-Digipet 2018 Startcenter



Fig. 2.1 **Win-Digipet** startcenter

On the left side of the window you select several index cards. These index card selectors will always be visible independently which one of them is currently selected. After selecting such an index card selector, the window will show different command set according to the selected index card.

The middle and right part of the window is dependent on the selected index card.

The several index cards will be described within this chapter. In the following table we describe the basic meaning of the different index card.



Index card	Description
	<p>The index card "Start project" is used to start the main program or the track diagram editor of Win-Digipet.</p> <p>This index card is default index card when opening the Startcenter.</p>
	<p>The index card "Manage projects" is used to manage different projects for Win-Digipet. On this index card you create new projects and also load, copy and delete existing projects.</p>
	<p>The index card "Data Import/Export" is similar to the old part Data maintenance. Here you can create full and partial backups of your current project. Using this index card you can also restore previously created backups.</p>
	<p>The index card "Ports" informs you about the serial ports (also virtual ones) and network connections on your computer.</p>
	<p>The index card "Symbols" can be used to open the Function symbol editor as well as the Track symbol editor. Using this editor, you can create or change symbols of these two symbol groups.</p>
	<p>The index card "Options/Help" offers several repair options as well as some settings for the Startcenter. Additionally, some links to web content's regarding Win-Digipet can be found here.</p>
	<p>Using this selector, the Win-Digipet Startcenter will be closed.</p>

If you already used former versions of **Win-Digipet** (version 2012 or older) you might recognize some functionality within the Startcenter which were spread over several small programs in the old version. In the old version these small programs as well as the larger programs had been represented by single symbol on the Windows Desktop. In **Win-Digipet 2018** the Startcenter is the only symbol on the desktop and thus it can be used to open any program part.

Within the next sections we describe the functionality of the Startcenter and accompany you with the first steps of **Win-Digipet 2018**.



2.2.1 The index card "Start project"



Fig. 2.2 The index card "Start project"

Looking at the default view of Startcenter you will find four buttons in the middle of the window (see Fig. 2.2).

- 🚂 'Layout version'
- 🚂 'Office version'
- 🚂 'Track Diagram Editor'
- 🚂 'Track Diagram Editor-Office version'

By clicking '**Layout version**' you can start the main program of **Win-Digipet**. When starting the first time the **Original Win-Digipet USB-Stick** has to be connected to an USB port of your computer, later on the PC will demand the stick every few days.


The second button '**Office version**' does also start the main program of **Win-Digipet**. The difference between the Layout version and the Office version is that the Office version is not able to establish connections to your digital systems. In the Office version it is also not necessary to connect the original USB stick to your computer when starting the program.

Using the office version, you may install **Win-Digipet** on a second computer (e.g. a notebook) to configure your layout/program settings far away from your model railroad layout. We'll explain later how to backup or restore data. This is necessary to transfer your data between the installations on the different computers.

The third and fourth button '**Track Diagram Editor**' and '**Track Diagram Editor-Office version**', respectively, is used to start the track diagram editor or to run it on a second remote computer as indicated above. The track diagram editor can also be started from



the main program. The track diagram (editor) is one of the three pillars of **Win-Digipet**. With this program part you can draw the logical track diagram of your model railroad layout for control with **Win-Digipet**. If you have already worked through the Quick start guide, you should already know the track diagram editor.



Important!

Layout version	→	Win-Digipet will be started with connection to your digital systems. The original USB stick is necessary to start the program due to the copy protection mechanism.
Office version	→	Win-Digipet will be started without connection to your digital systems. All other functions can be used. The original USB stick is not necessary for starting the program.

In the right part of the window you will find information about the currently loaded project (see Fig. 2.2). This information consists of the project's name, the date of creation, the date of the last use/changes and a list of the used digital systems.

Under the field containing information on your current project there is a combo box with a lists of all tour automatic files (TA files) of your project. You may select a tour automatic file from this list and this tour automatic will be started immediately after opening **Win-Digipet**. The combo box is empty in Fig. 2.2, because this project does not contain any tour automatic file.

In the right bottom area you see some ensings to select the desired language. Once a language is selected it will be used in all menus and dialogues after the next start of Win-Digipet.



2.2.2 The index card "Manage projects"

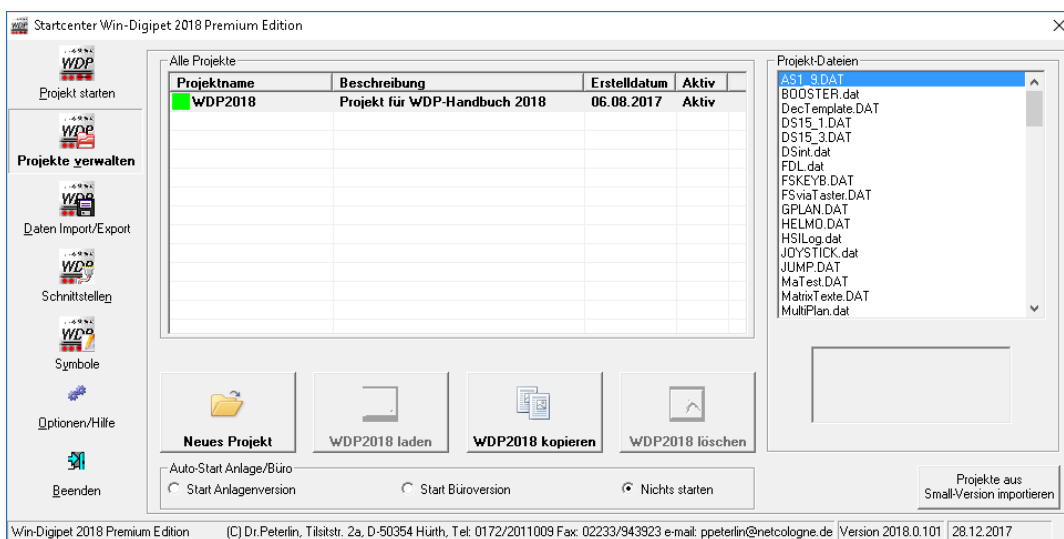


Fig. 2.3 The project management in the Startcenter of **Win-Digipet**

Every detail related to the control of your model railroad with **Win-Digipet** is part of a so-called project. In most cases you will work with one (your) project.

Over the time it might be useful to continue your work in a new project. For example, you can copy your project before you make larger changes. Thus, you can decide afterwards if you want to continue with the changed project or the old one.

You could also open projects provided by other users or example projects from the **Win-Digipet** to reproduce project examples, problems etc. Please remember that in most cases foreign projects do not fit to you model railroad. Thus, you should use the office version of **Win-Digipet** with these projects.

The Startcenter offers several functions for managing projects in **Win-Digipet**.

Fig. 2.3 shows the project management. In the mid of the window you'll see a list with all available projects available in your **Win-Digipet** installation. In our example only the project from the **Win-Digipet** is listed, its name is WDP2015. Until now no own project has been added.



The project WDP2018 is set to "active". This means, that you can have several projects, but only one project can and **must** be the active (currently used) one.

The currently active project cannot be deleted.



The four buttons below the list window are:



New project

Using this button a new empty project will be created.



Load project

This button is used to load the project which selected at the moment in the list for the use in **Win-Digipet**. This project will become the "active" one after it has been loaded.



Copy project

Using this button you can copy an existing project completely into a new one. The program will ask for a new name (one an optional description) for the new project. It is recommended to choose a meaningful name and description.



Delete project

Using this button you can delete old projects which you don't want to use any more. As mentioned before, the project which is active at the moment cannot be deleted.

You can see on all the buttons (except the one for creating a new project) the name of the project selected in the list. The button function will then be applied to this project (e.g. WDP2018 in Fig. 2.3)

In the lower part you can select whether the layout or office should be started after creating, loading or copying a project. By default, it is selected to starting nothing automatically.

On the right side you find a list with all files contained in the selected project. This list has an informal function. When selecting an image file within this list it will be shown below the list.



2.2.2.1 Create a new project

If you select to create a new project within the project management a dialog according to Fig. 2.4 will be shown.

Please enter a freely selectable project name with a maximum of 16 characters. You can also enter a longer description with up to 50 characters. In any case you have to enter a project name, the project name is not optional. Also the description is very useful, it can be used to distinguish different projects later on in the project list.

Fig. 2.4 The dialog "Create new project"

The characters used for the project's name have to be alphanumerical, special characters are not allowed and will be rejected by the program.

You should choose a project related name for your project. When using **Win-Digipet** a names such as "Layout 1", "Layout 2" should be avoided.

The two check boxes for the copying of the system settings or the vehicle database have to be checked if you have already a project for your layout and want to transfer the system settings and/or the vehicle database to the new project.

The project name has only to be entered once at the beginning. After entering the project name and pressing '**OK**' the project will be created. It will become the active project if no other project is active until now.

When starting the Startcenter the next time you don't need to load the project every time in the project management. Just start the project according to section 2.2.1.



The new project created as just described will start with an empty track diagram and you can start with the registration. We suggest proceeding as follows:

- 🔧 Registrations of hardware and basic setting in the system setting of **Win-Digipet**,
- 🔧 Registration of locomotives in the vehicle database,
- 🔧 Registration of the track diagram in the track diagram editor, and
- 🔧 Registration of the routes for the block system.

2.2.2.2 Starting a project from a previous version

After installing you can start **Win-Digipet** using the data of your old project directly according to section 2.2.1 in the Startcenter on the index card '**Start project**'. In this way you access the main program **Win-Digipet** directly.



When starting **Win-Digipet** with the data of a former version (Versions 8.x, 9.x, Pro X, 2009.x, 2012.x, or 2015.x) the first time, some data(bases) will be converted. These will be adapted to new data structures in **Win-Digipet** 2018. Your data will not get lost by this process, but you cannot use this data in older versions any more. During the start of the program Fig. 2.5 appears for some moments¹.

After the full start of **Win-Digipet** you should see your track diagram.

If you want to use the program you don't need to make any changes, but you should check the path to the locomotive pictures (See section 3.11).

If you have used a **Win-Digipet** Version older than **Win-Digipet 2012 Premium Edition** and have not used to drive the locomotives by model speed (km/h), this setting will be changed because in **Win-Digipet 2018 Premium Edition** all locomotives are controlled by km/h and no longer by speed steps.



Fig. 2.5 The **Win-Digipet** Start picture

2.2.2.3 Delete a project

If you want to delete a project, you can do this with the according button on the index card "Project management". The name of the selected project is visible on the button.

When deleting a project, it will be removed from the project list and all files belonging to this project will be deleted from your hard disk.



All projects can be deleted **except** the actual project!

2.2.2.4 The project list contains several projects

If you have more than one project, only one project can be loaded to the main program at the same time. All projects are stored in their project directories. Using the project management the active project can be changed before starting the main program of **Win-Digipet**.

¹ The picture above <Hilfe> <Über...>, the last digits of the version number may be different from the number of your version.



After selecting a project in the list, you can select this project as the active one by pressing '**Load project**'. The name of the selected project is visible on the button.

2.2.2.5 Storage place of your project files

Within this manual we assume you installed **Win-Digipet** in its default directory (C:\WDIGIPET) on your hard disk. If you used another directory, you have to replace the dots (...) in the following description with your installation path.

The project files are stored in folders (one per project) in the folder ...\\PROJEKTE. These subfolders have the same name as the project. The vehicle pictures are stored in the folders ...\\LOKBILDER within each project folder.

2.2.2.6 Using project data from the manual

On the **Win-Digipet 2018** USB stick the project used for creating this manual is also provided. We suggest loading the project "WDP2018" if you want to study this manual in larger extend. Using the **Office Version** of **Win-Digipet** it is much easier to follow the chapters directly in the program than just reading the descriptions.

2.2.3 The index card "Data Import/Export"

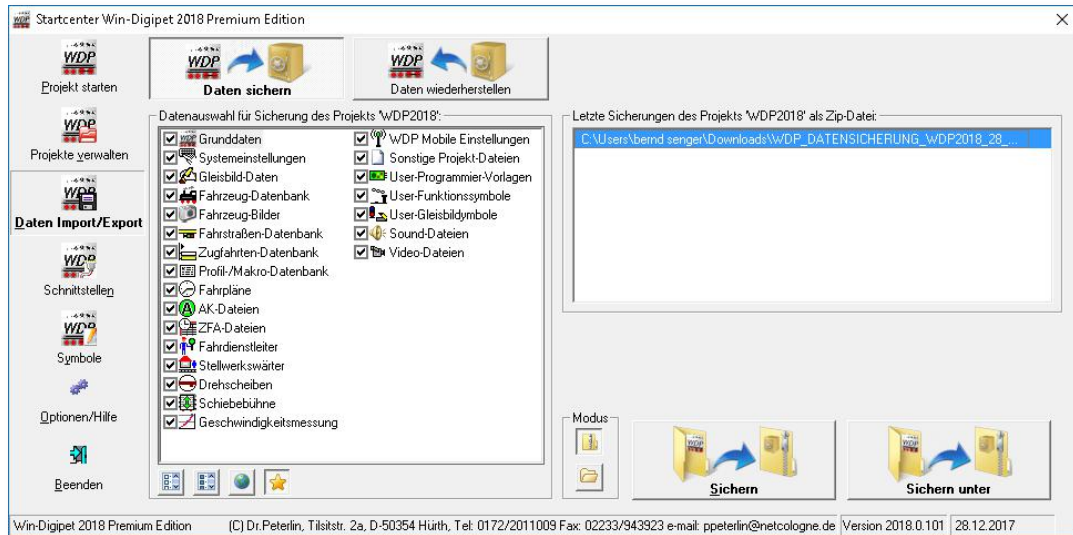


Fig. 2.6 The index card "Data Import/Export" in the Startcenter of **Win-Digipet**

Using the functions accessible by this index card you can easily create backups of your project data or restore these backups if needed.

Win-Digipet offers two ways to create backups of your data/project(s):

-  the automatic backup when closing the main program



- 🚂 backup via Startcenter requested by the user

In section 3.12 the settings for an automatic backup will be explained. In this chapter we explain the manual backup via the Startcenter requested by the user .

Also other ("foreign") projects, e.g. demo projects for special topics on the **Win-Digipet** Homepage in the Internet can easily be loaded to your computer using this tool.

Remember!



Only the **current project** (You can see in Fig. 2.6 in the upper right corner the "Information about current Project") will be backed up with the tools on this index cards.

If you want to backup the data manually from the project directory, you need to backup the files with the following suffixes:

***.DAT, *.MDB, *.TB3, *.ZFA and *.XML.**

2.2.3.1 Backup project data

In the left part of the window you can easily select which data types should be included in the backup and which should be excluded. By default, your last selection appears again after restarting the program. If you select "Select all" (see below) all check marks are set and any type of data is included in the backup.

If you want to transfer your data for example to another user, it might be not necessary to include the track symbols into the backup, because the default symbol tables of **Win-Digipet** are available anyway within every installation. You only need to include the track symbols in your backups, if you have created your own symbols or changed the existing ones.

Below the selection list you can find four icons which can be used to make a quick pre-selection of the data types (from left to right):

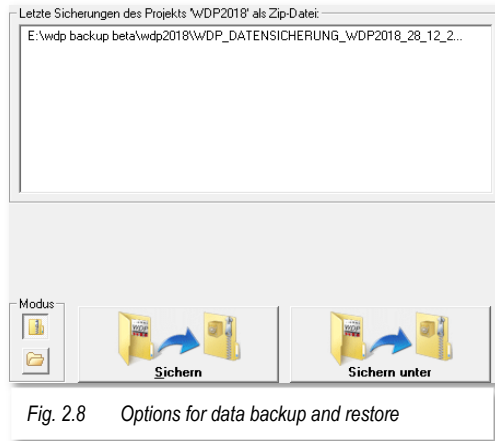
- 🚂 Select nothing
- 🚂 Select all
- 🚂 Minimum (e.g. Forum)
- 🚂 Your own selection



Fig. 2.7 Selection of data types.(Part of Fig. 2..6)



In Fig. 2.8 (part of Fig. 2.6) you find the selection of the different options for backup or restore of your project data. Usually you should use the possibility to backup your data into



so called ZIP files (upper icon on two Modus icons). Using this functionality, you can handle the complete backup as one file. The backedup data in such a ZIP file is also compressed and can be sent easily via mail. We do suggest using the compressed backup method, because these backups can be handled easier.

If you prefer a non-compressed backup, each single file is copied into the selected directory. If this directory contains already saved files, you will be asked, whether you want to overwrite the previously saved files or to select an alternative directory for saving.

Furthermore, the window shown above presents lists which give you a survey about your latest saving operations for each mode.

As destination for backups you could also use external hard disks, USB sticks or network drives if available.

If you choose "Backup" the directory used for the latest backup will appear. Choosing "Bachup at" allows selecting a different directory.

Afterwards a new dialog will appear so that you can enter the file name for your backup.

The field "File name:" does already contain a suggested file name. The file name suggested by Win-Digipet contains all information which might be needed to identify the backup later. We suggest using this name and to confirm it with 'Save'.

If you don't use the backup into a ZIP file all backedup file will be stored in a separate directory.

The suggested file name consists of:

WDP_DATENSICHERUNG_	Project name_	dd_mm_yyyy_	hh_mm
Backup created by the Startcenter	Name of the project	Date of backup	Time of backup

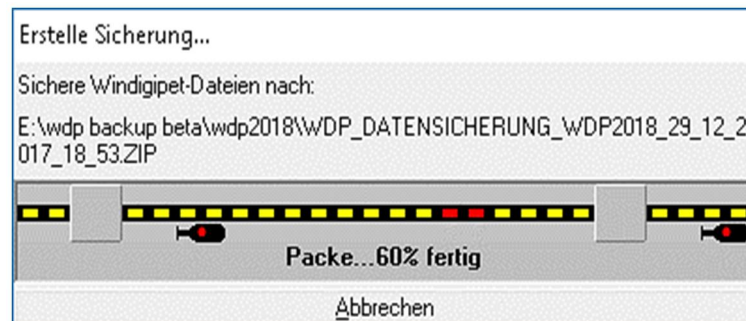


Fig. 2.9 The progress bar shown during the backup and the suggested name for a **Win-Digipet** backup file.

A progress bar similar to that of a train using a route in **Win-Digipet** shows the progress of the backup process. The program informs you when the process has been completed.

2.2.3.2 Restore own project data

Of course, you can also restore your previously backed up data of your project. This is very similar to the backup itself shown in Fig. 2.6 using the index card "Data Import/Export in the Startcenter of **Win-Digipet**.

Instead of pressing the button "**Backup data**" please press the button "**Restore data**" and a dialogue window (Fig. 2.10) will appear.

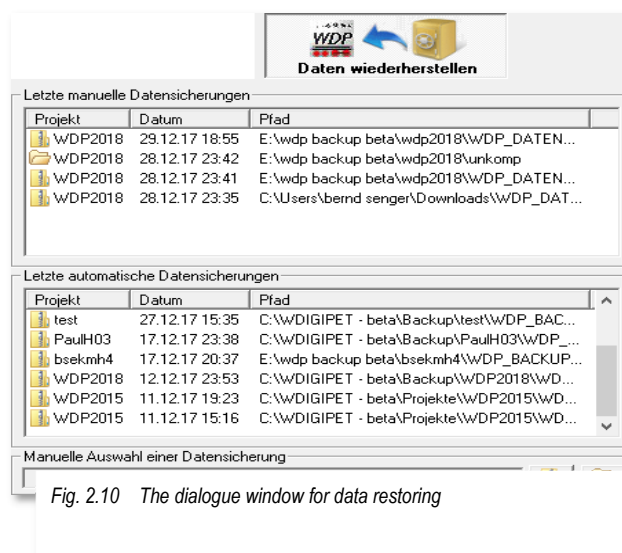


Fig. 2.10 The dialogue window for data restoring

This window contains two lists showing information about the latest backup operations.

The upper list shows the backup operations which have been performed using the **Start center**.

The lower list shows the backup operations which have been initiated automatically when Win-Digipet is shut down. This backup data is stored as Zip-files exclusively, whereas the upper list may also contain backup files stored in a directory. These two kinds up backup storage can be distinguished by the small icons at the left side of the lists. The example presented in Fig .2.10 demonstrates that backup data of different projects are available.



Furthermore, at the bottom of this dialogue window you can manually select the backup data. Here again, two modes – compressed Zip-data as well as a data directory – are available.

As soon as the backup data is selected an additional dialogue window (see Fig. 2.11) opens showing the contents of the backup.

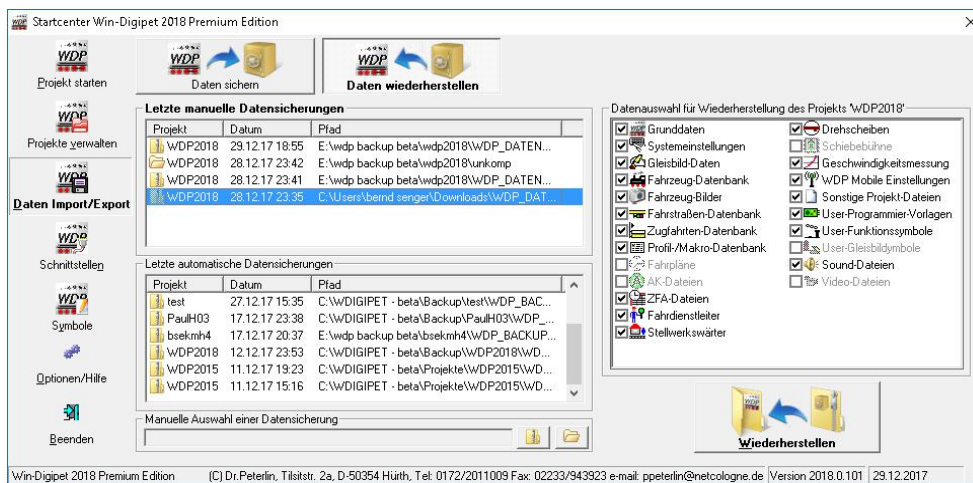


Fig. 2.11 A backup file has been selected.

Using the check marks you can determine whether all available backup data or only part of it are to be restored. Of course, single data which have not been saved previously cannot be selected.

After pressing the bottom “**Restore**” the backup procedure is started. However, first you must answer a security question (see Fig. 2.12).

Press “**Yes**” when you are sure. Otherwise, press “**No**”. After your agreement a progress bar similar to that shown in Fig. 2.9.

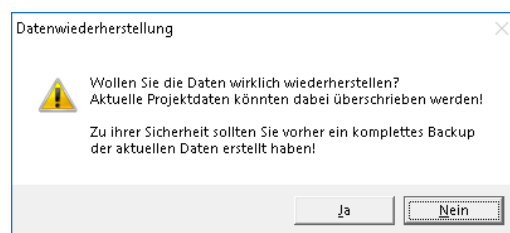


Fig. 2.12 Security question after starting the restore process.



Please remember, that the restore process overwrites the data of your **current** project.

Please take care to restore the data of the **current** project and not the data of another project.






Furthermore, you may import foreign data such as a track diagram or a vehicle data base with vehicle pictures and include them into your project. This may be useful, when you are creating a new project.



If you do restore the vehicle database you should also restore the vehicle pictures, because otherwise the pictures in the project directory might not be the right ones for the vehicles in the database.

Important information regarding restore!






-  The destination directory for the restore is managed by **Win-Digipet**.
-  When selecting the data only select data of your current project unless you are really sure what you are doing, because otherwise your project could get useless.
-  Do use two computers with **Win-Digipet** (one with layout and one with office version)?
If you delete data files on one computer, they might reappear after restoring a backup from the other computer. So: if you delete a tour automatic file for example it has to be deleted on both computers.



2.2.3.3 Restore foreign projects

Of course you can also restore data from own or foreign projects.

You have two distinguish the types of projects:

-  own still existing project
-  own project which does **not** exist any more
-  foreign project

If you think of an existing, but currently not active project, you easily activate/load the project using the project management according to section 2.2.2.

If the project is a foreign project or an own project which does not exist anymore, you need to create a new project before. Please do not transfer any data from the current to the new project when creating the project and do not start the main program.

After creating the new project, you can restore the foreign data into the new project according to section 2.2.2.

The approach just described is especially recommended to beginners and users not much familiar with computers.

A shorter way to restore foreign project data is a shortly explained in the following.

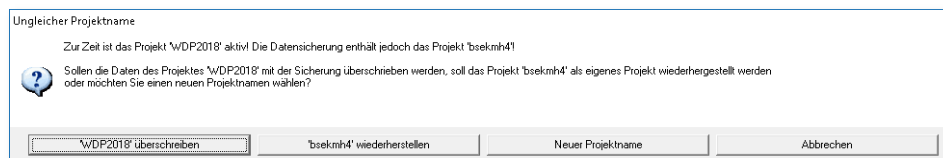


Fig. 2.13 Win-DigiPET has identified the backup data of a foreign project.

We refer to the situation shown in Fig. 2.11. The current project is “WDP2018”. Now we select the project “bsekmh4” of the lower list, although we know that “WDP2018” would become unusable by overwriting with the restored project. Nevertheless, we start the restoring and the safety question shown in Fig. 2.12 appears. You answer with “Yes”. Instead of restoring the data immediately, the dialogue window (Fig. 2.13) appears.

This window offers the option to overwrite the current project (WDP2018), but also the option to restore a foreign project (bsekmh4). If this project is not existing, it will be created by pressing the button “**Restore bsekmh4**”. Furthermore, you can create a new project name for the foreign project data.



2.2.4 The index card "Ports"

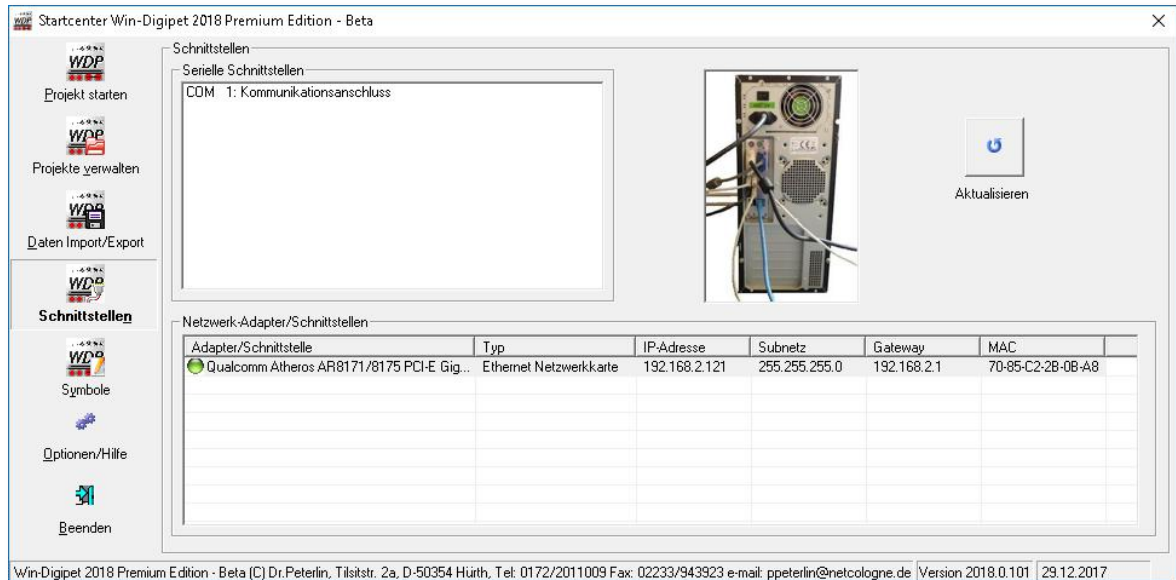


Fig. 2.14 The index card "Ports" in the Startcenter of Win-Digipet

The index card Ports lists the serial and network ports/interfaces of your computer.

In the previous versions until **Win-Digipet 2012** this functionality was part of the "Port searcher".

2.2.4.1 Serial ports in your computer

In the upper part of the window (see Fig. 2.) all serial ports available in your computer will be listed. Older system contained up to four serial ports. The ports usually had the names COM1 to COM4.

Many newer computers don't have any serial ports by factory. If you need serial ports for older digital systems, we suggest installing a serial port interface card.

You could also try to use USB-serial-cables/adapters. In our experience this works for some combinations of cables and digital systems and for others not. Users who installed serial port cards had fewer problems in our experience.

The USB serial adapters need driver manufacturer provided software. This driver emulates a serial port, a so-called virtual COM Port. The virtual COM ports are also listed in the list of available serial ports. In some cases, the Port Name contains also the name of the connected device. This is not possible for real serial ports.

Some digital systems which are connected directly to the USB port of the computer do also need driver software for proper operation. The virtual serial ports created by these drivers will also appear in this list. Usually this solution is much more robust than the solution via a USB serial adapter.



2.2.4.2 Network interfaces in your computer

In the lower part of the index card the network interfaces installed in the computer are listed.

The list contains the name and type of network interfaces as well as its most important address data.

The computer used for the example in Fig. 2. has one network interface. This interface is an ETHERNET network adapter, i.e. cabled interface.

It is most important to assign the correct IP-addresses, subnet addresses etc. to the network adapter.

In chapter 3 covering the System settings of **Win-Digipet** you will find more information regarding different types of digital systems.



2.2.5 The index card "Symbols"

Using this index card you can open the additional tools "Track symbol editor" and "Function symbol editor".

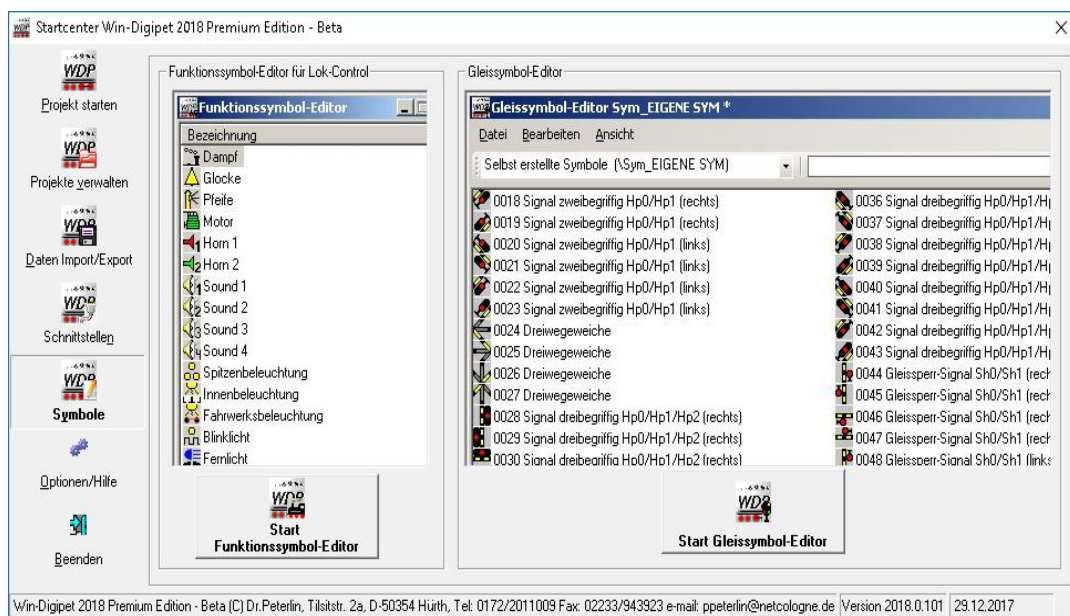


Fig. 2.15 The index card "Symbols"

In principle these two programs are small pixel orientated drawing programs which can be used to change the symbol tables of **Win-Digipet**. Using these tools, you can edit the track diagram symbols as well as the function symbols for locomotives and waggons.

These two program parts are not described within the **Win-Digipet** manual. If you look at "Tipps & Tricks" within the Win-Digipet Forum, you will find information about these program parts.



2.2.6 The index card "Options/Help"

The index card Options/Help includes functions for repairing the databases, settings for the Startcenter and the Online Update functionality.

Further links to **Win-Digipet** in the Internet are placed here.

Win-Digipet Online		Destination
Homepage		The Homepage of Win-Digipet
Win-Digipet Forum		The user forum of Win-Digipet where you can discuss with the developers, betatesters and other users.
Win-Digipet Channel	YouTube	Video-Tutorials at YouTube for different topics
Win-Digipet Downloads		Program updates, Workshops etc. for free
Win-Digipet Mobile		Win-Digipet on your smartphone

For using the links, the computer where **Win-Digipet** is installed needs a connection to the Internet.

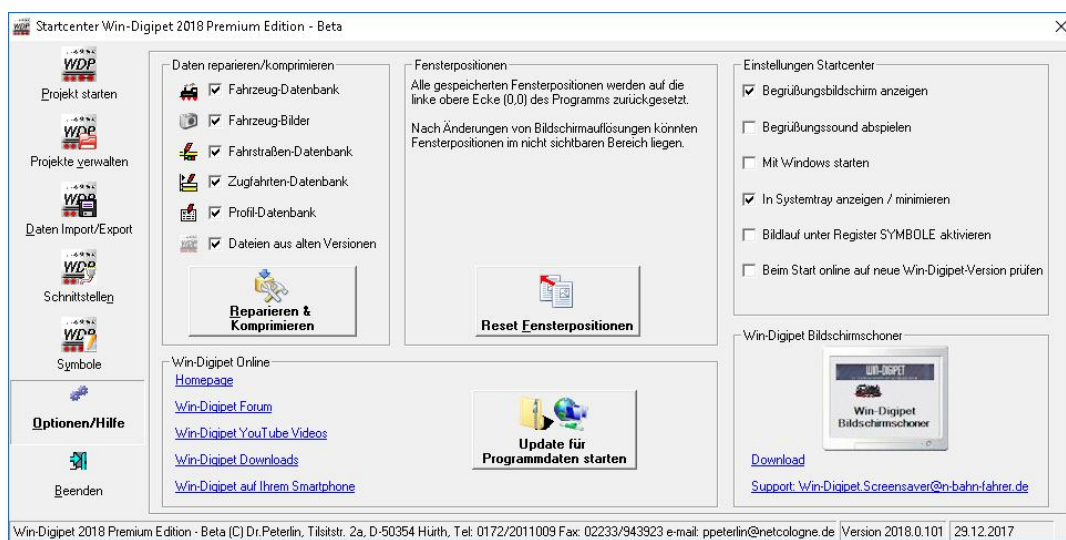


Fig. 2.16 The index card "Options/Help"

You can also download a screensaver with the theme of **Win-Digipet** to your computer. Support for this screensaver is only provided under the mail addresses printed in this section of the window.



Using the button "Start update for program data" you can keep the program data for **Win-Digipet** up to date. After pressing the button, a dialog will appear. Within this dialog you can search for new program data on the **Win-Digipet** web server. If you have no connection to the Internet on the PC where **Win-Digipet** is installed, you also download update files from the download area of www.Win-Digipet.de.

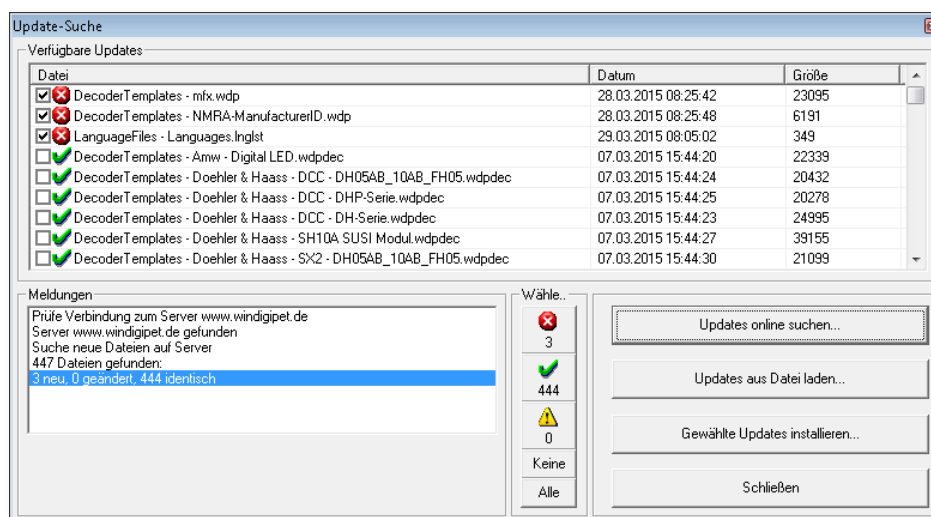


Fig. 2.17 The dialog for installing the updates

After selecting the updates which you would like to download you have to press '**Install selected updates**' to download and install the updates to your installation.

Win-Digipet recognizes if the files found on the server or in the update file are new, changed or identical.

Beside the links explained before regarding the **Win-Digipet** topics in the Internet the index card offers three additional functions.

2.2.6.1 Database repair/compress

The button '**Database repair/compress**' (see Fig. 2.16) is useful to clean up your **Win-Digipet** installation.

- 🗑️ All data in the locomotive picture folder, which do not belong to a vehicle of the current vehicle database are shifted to the sub-direcctory "Trash\<project name>\lokbilder.
- 🗑️ All JPG-pictures of the locomotive picture folder which belong to a vehicle of the current vehicle database and more than 800 x 600 pixels are downsized to maximum 800 x 600 pixels.
- 🗑️ If symbol tables of a zoom level are present as BMP and PNG pictures, the BMP data are shifted to the sub-direcctory "Trash\symbols\symbolname". loc pictures.



- 🔧 If a symbol table of a zoom level present only as a BMP picture, it is converted to a PNG picture and the BMP picture is deleted.
- 🔧 Data of previous versions of Win-Digipet are deleted (This does not pertain to your project data !)

Repairing a database is necessary if you recognize errors when opening the database etc. Compressing a database finally removes deleted records from a database.

- 🔧 Deleted records are only marked as deleted within a database, they also become invisible.
- 🔧 Only when compressing the database these internally marked records will be finally removed from the database and thus the database gets smaller.

You call both functions together by pressing '**Repair + Compress**'. This will apply the repair and compress function to the selected databases.

After a short time, the message "Databases have been repaired and compressed successful!".

2.2.6.2 Reset window positions

Win-Digipet saves the position of all windows and reopens the windows at the same place the next time. If a window does not open when perform the according action for opening it, it might be possible, that the window is settled outside of the current screen.

With the button '**Reset window positions**' (see Fig. 2.16) you have the possibility to reset window positions outside of the main program. The button within the system settings of the main program affects only closed windows. This function is very important when you have used two or more screens and remove a screen afterwards without moving the windows to the main screen before. This might also happen if you use your layout versions with several screens and the office version only with one screen.

The reset functions moves the windows position setting to the upper left corner or default position (window dependent).

The according function in the system setting which only applies to currently closed windows is explained in section 3.8.6 of this manual.

2.2.6.3 Settings Startcenter

In this box you can configure some basic settings for the Startcenter.

- 🔧 Show welcome window
When starting the **Win-Digipet** Startcenter a small window showing you a welcome message would appear.
- 🔧 Play welcome sound
You can select here if the welcome sound should be played or not.
- 🔧 Start with windows
The Startcenter would automatically be loaded after the start of Windows.



- 🚗 Show/minimize in/to system tray
When starting the main program, the track diagram editor or one of the symbol editors, the Startcenter would be minimized to the system tray (regularly in the lower right corner of the screen) and would "sleep" there until the called has been closed. After the called program has been closed you can reactivate the Startcenter by a click on the icon in the system tray.
- 🚗 Activate scrolling for register Symbols
The pictures on the index card Symbols will change from time to time.
- 🚗 Check for new **Win-Digipet** version at start-up
If activated, every time the Startcenter would be loaded, it would be checked online if a program update (not program data which is provide via the function described in 2.2.6) is ready for download on the **Win-Digipet** website. An online connection is needed for this functionality.
- 🚗 When starting check online for a new version of Win-DigiPET

WIN - DIGIPE T

The control program

Version 2018 Premium Edition

Chapter 3



3. SYSTEM SETTINGS

After the installation of **Win-Digipet** within the first chapters and first experience with the Startcenter the next chapter will explain the functions of **Win-Digipet** in detail.

Chapter 3 deals with the system settings of **Win-Digipet**. Within the system settings you can make basic settings for the program's behaviour. Also the settings for the connected hardware and external software have to be made in the system settings.


After you have launched **Win-Digipet**, all program parts are loaded, and you are in the main part of the program. In the upper part of the monitor the **Win-Digipet** toolbars with the most important icons appear for opening different program parts.






Fig. 3.1 The menu, toolbar and locomotive bar of the mainprogram of **Win-Digipet**

The meaning of each icon is displayed as tool tip if you point on the icon with your mouse. The icons of these toolbars - and all the other toolbars of the program - explain themselves; therefore, not all meanings are especially explained in this manual.

If you haven't registered any data until now, **an empty** track diagram appears on the monitor after start of the program.

Ok, let's return the topic "System settings". Click on the symbol  in the toolbar. A new window "System settings" appears.

The settings are split to several index cards. The main index cards are settled at the bottom:

-  Hardware
-  Program settings
-  External software

Each of this main index cards contains several sub index cards. This main sub index cards are settled at the top of the window. These index cards contain the several setting options grouped by topics.

3.1 Index card "Hardware – Digital system"

On this index card you can configure your digital system. Up to 12 digital systems are possible for one layout in the Premium Version.



Your old settings will be converted when updating to version **Win-Digipet 2018 Premium Edition**, but we recommend opening the system settings and controlling the settings!

Within the next sections we'll describe the setting options on the several index cards. Before we start describing the index card handling the digital system we'll explain the possibilities for connecting digital systems to your computer.

3.2 Connecting a digital system via Serial- or USB-port

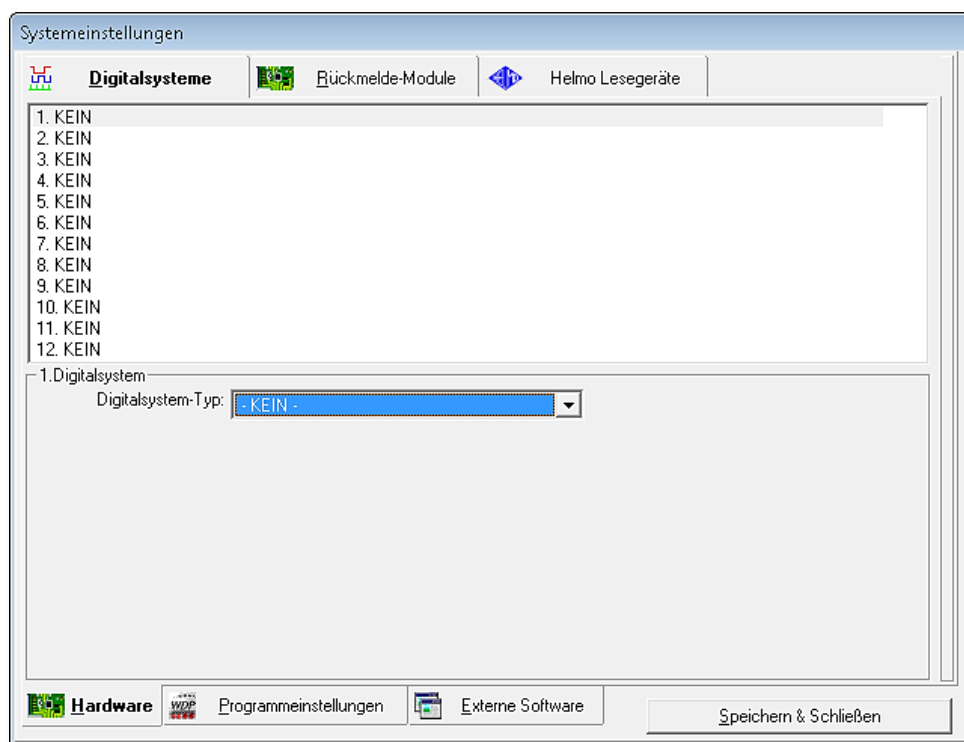


Fig. 3.2 The index card digital systems

Digital system can be connected via serial port, parallel port, USB port or Ethernet (network) connection. The type of connection depends on the used digital system. Please do always read the instructions in the manufacturer's manuals regarding this topic.

Many digital systems are connected to the PC via Serial- or USB port. Most of the used USB solutions in the digital system are emulate serial ports in the PC using their driver.

Serial ports in the PC are addressed via so called COM Port numbers. **Win-Digipet** can address COM 1 up to COM 16. Such emulated serial ports of most USB equipped digital system will then also be available as such a port number.





Within the Startcenter of **Win-Digipet** there is a list of all serial port (real or emulated) which is available in your PC. The system names of available serial ports are also listed in the COM port number selection within the system settings

3.3 Connecting a digital system via Ethernet

Some digital like the ESU ECoS (2), the Märklin Central Station (2), or the new Märklin Central Station (3) have a so-called Ethernet (Network) port und have to be connected to the computer using an Ethernet cable or can be included in an existing Ethernet network. These networks are called LAN (**L**ocal **A**rea **N**etworks).

By principle a working LAN needs to fulfil some preconditions. You have to take care about...

-  the correct cabling
-  the correct addressing of the devices with the network


 the correct configuration of your computer's firewall.



Fig. 3.3 simple Peer-to-Peer Network

3.3.1 The cabling

If you connect your PC and your network enabled digital system directly, this called Peer-to-Peer network. In Fig. 3.3 you can see such a simple network.

Normally you need a so called Crossover Cable for such a connection. Many newer network interfaces in PCs are able to handle such connections also with normal network cables (so called Auto-MDI-X). Such network interfaces swap the signals internally if needed. Using the network wizard of **Win-Digipet** you can check if you installed the right cable and can establish a connection. We'll describe the network wizard later in this chapter.

Such a Peer-to-Peer network can only be used for the connection of up to two devices. If you want to extend your network with further devices, you need to integrate a so called Switch.

For all devices which are connected to a Switch (or a Router which has a



Fig. 3.4 Network with multiple clients and one switch



Switch included in most cases) normal (uncrossed) network cables of category 5 (Cat.5) or higher can be used.

In Fig. 3.4 the network has been extended by an additional computer. The computer is just an example; the device could also be a network enabled printer etc.

All devices (three in our example) are within the same network and can communicate with each other if all addresses have been assigned in the correct way. The Switch is some kind of junction.

The next two examples have been selected because these should cover the most common home/private network installations.

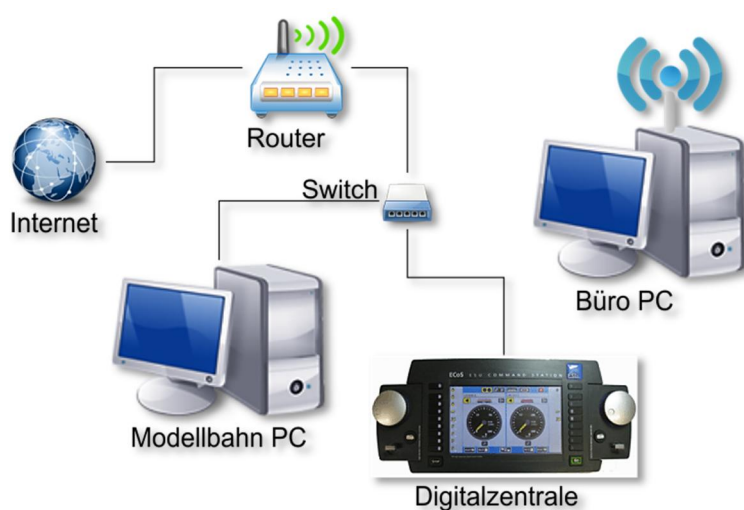


Fig. 3.5 Network with internet connection

In Fig. 3.5 you can see a Router within the network. This Router is used to give all devices a connection to the Internet. This router has two main links: one to our network and a second one to the Internet provided by an Internet service provider.

In this example the office PC has no cable connection to the network, but a Wi-Fi connection to the network. The Switch in this example could also be included in the Router (many Routers have up to 4 network connectors to the internal network).

All devices within the same network can communicate with each other and also with the Internet.

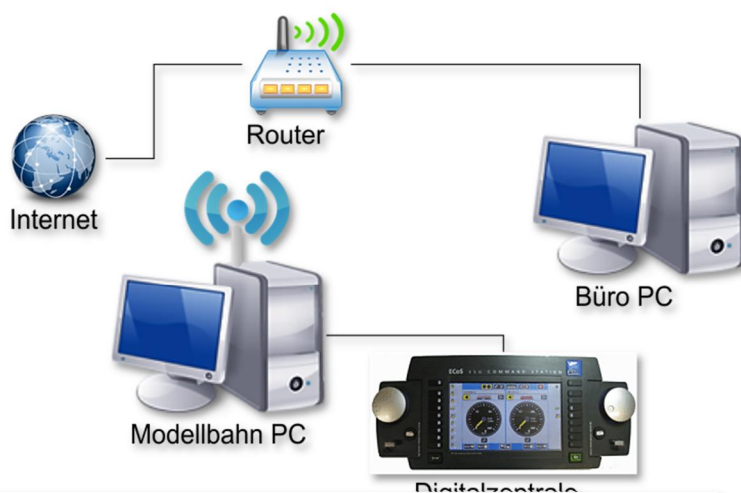


Fig. 3.6 Two networks; the PC with WiFi-connection to the Internet

The next example (see Fig. 3.6) shows a configuration with two networks instead of one in the last example.

The first network links the digital system with the model railroad PC. The second network links the PCs to the Router and via the Router to the Internet. For this example, the model railroad PC needs two network connections. One connection has to be established



via cable to the digital system and one via Wi-Fi to the Router.

The communication is now only possible between digital system and PC and between PC and Router/Internet. But the digital system cannot communicate with the Router/Internet. All other devices have a connection to the Internet.

3.3.2 *The addressing*

By principle one (IP-) address may only be used one time within a network.

When using a simple Peer-to-Peer connection (see Fig. 3.3) it is quite simple, but if you use a small network with several devices you have to take much more care about the selection and setting of the addresses.

If you have to enter IP addresses in the system settings of **Win-Digipet** for a digital system, you always have to enter the IP addresses of digital system and not the IP address of the PC itself.

If you have connected the PC to an additional Wi-Fi network it is essential, that both network use different address ranges. The value of the called subnet mask is responsible for the number of possible addresses within a network. In the common home network installation, a subnet mask of 255.255.255.0 is used. This gives you 254 addresses, not 256 because the first ending with .0 and the last ending with .255 have a special function within the protocol.

In the following table we listed possible configuration example for the network configurations show in Fig. 3.3 to Fig. 3.6. Of course also other address ranges could be used. Especially if a Router is part of your network, the Router has usually a preconfigured address range as factory default. It is advisable not the change address configurations of the Router unless you are really familiar with this stuff. In all examples we used subnet mask 255.255.255.0.

You might notice that all addresses start with 192.168. This address range is by definition reserved for private use/networks. This address range is accessible from the external Internet (routed) by default, the other way private range to Internet is possible. These private networks are not visible by the Internet just like that.



	Fig. 3.3	Fig. 3.4	Fig. 3.5	Fig. 3.6
Modell railroad PC	192.168.1.50	192.168.1.50	192.168.1.50	192.168.2.50
				192.168.1.50
Digital system	192.168.1.53	192.168.1.53	192.168.1.53	192.168.2.53
Office PC		192.168.1.99	192.168.1.99 (WLAN)	192.168.1.99 (LAN)
Switch		No address	No address	No address
Router			192.168.1.1	192.168.1.1
Internet			by ISP ²	by ISP

3.3.3 The network configuration step by step

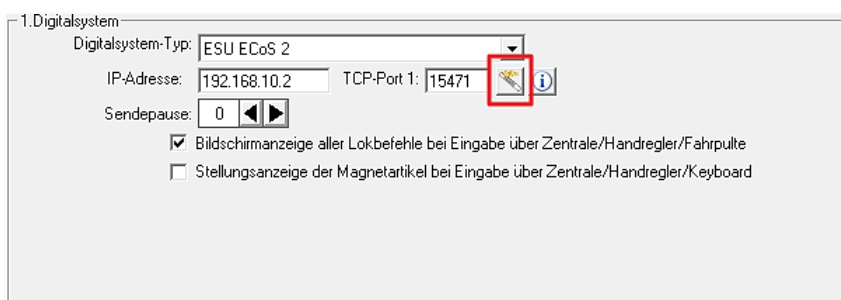


Fig. 3.7 Calling the network wizard

The network configuration is sometimes not really an easy job. For your assistance **Win-Digipet** has a so called network wizard which helps you selecting and configuring the network addresses relevant for **Win-Digipet**.

The assistant can help you with the configuration for a Märklin Central Station 1 and 2 as well as for the ESU ECoS 1 and 2.

In Fig. 3.7 you can see button with a small magic wand. This button is visible after selecting the digital systems mentioned before. Within the next sections we'll describe the usage of the assistant.

3.3.3.1 Port for the interface (Network)

Digital systems with a network port need a network connection to the computer. If your computer is not equipped with a network interface you have to install an add-on network card.

We can distinguish three different ways for connecting the digital system to the computer:

🔌 via cable

² ISP – Internet Service Provider



🚗 via (DSL-)Router

🚗 via network Switch

If you connect your digital system directly to the PC, you need a Crossover Cable in most cases. If you connect the digital system to a Switch or Router you need a normal Patch cable for networks with category 5 (Cat. 5) or higher.

In all case the network connection has to be configured in the model railroad PC. The configuration will be explained in the next sections.

3.3.3.2 Network connection via cable

For a network connection via cable a network card/interface has to be installed in your computer. Otherwise you have to install an add-on card. Most modern PCs have a network interface included one mainboard.

As next step you have to configure the so called LAN connection within Windows. The Windows versions differ a little between each other, most parameters are the same, but

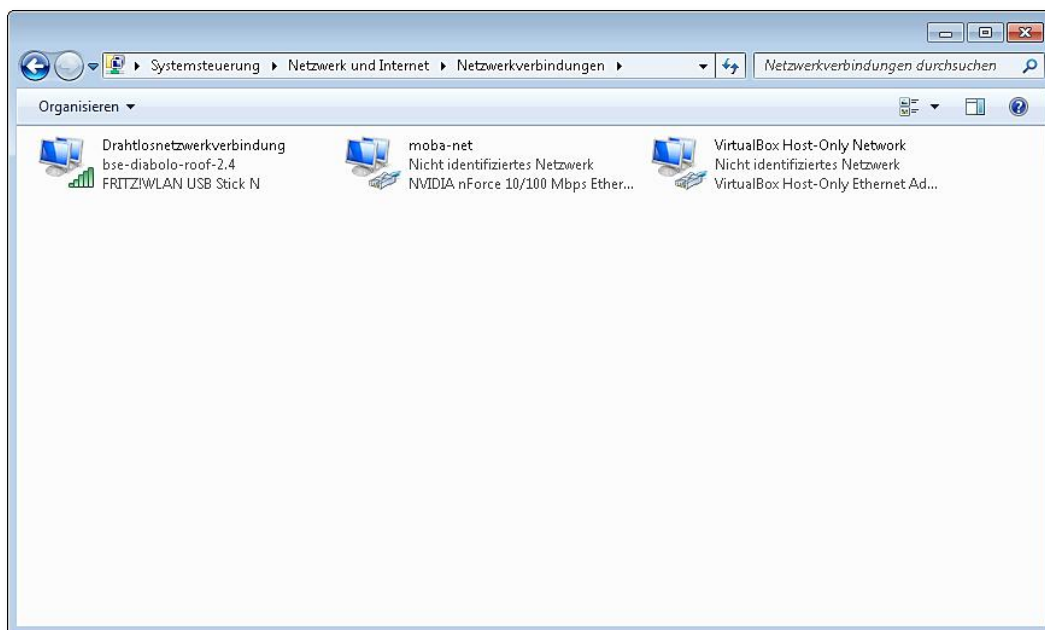


Fig. 3.8 The network interfaces within the computer

the place where you can find the settings might differ. In our example we use Windows 7 for the explanations.

At the beginning take a look at the network connections. Open the Windows control panel and then "Network and Internet". Then select "Change adapter settings" and window similar to Fig. 3.8 will be opened showing you all available network connections of your computer.

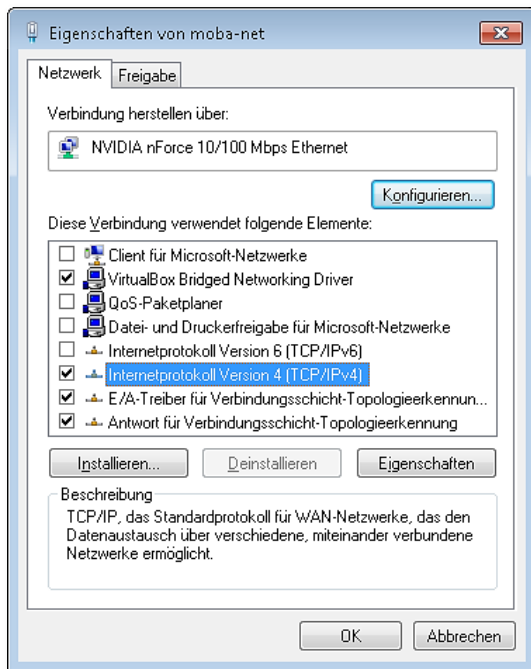


Fig. 3.9 The network connection properties dialog

Select the connection you want to use with the mouse and open the context menu of item using the right mouse button. Now select 'Properties'.

In the properties dialog select the item highlighted in Fig. 3.9 for the assignment of IP addresses Version 4 and select then 'Properties'.

Please take sure to use Version 4 addresses because Version 6 addressing is not supported by any of the digital systems available in **Win-Digipet**.

In the properties windows (see Fig. 3.10) you have to make the necessary settings. Only if these settings are correct a connection can be established to your digital system.

In our example we use the net 192.168.10.0 with a default sub net mask of 255.255.255.0.

The complete address consists of 4 numbers (bytes) which can be split for this subnet mask in the 3-byte network part (192.168.10.0) and 1-byte the device part (192.168.10.1, 192.168.10.2...).

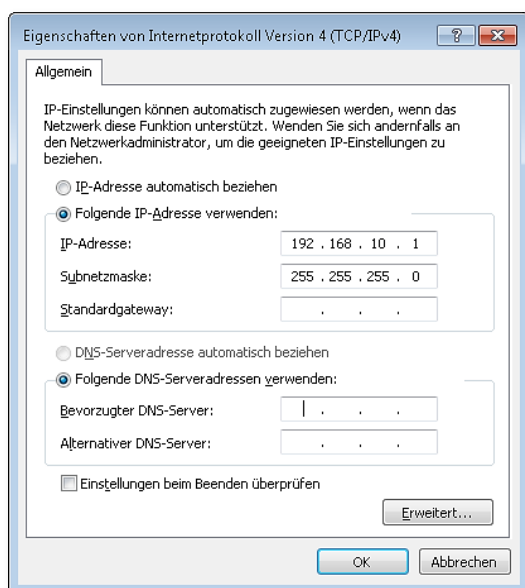


Fig. 3.10 setting an IP address

A Märklin Central Station 2 has a default IP address of 192.168.1.53.



If you don't want to change the value in the CS2 and the computer is only connected to the CS2, the computer has to be in the network 192.168.1.0. For example, the PC could use the IP address 192.168.1.1.

You should now enter an IP address for the PC (see Fig. 3.10). The last number can be chosen between 1 and 254, this is the device specific part.



3.3.3.3 Network connection via (DSL)-Router

For a network connection via cable a network card/interface has to be installed in your computer. Otherwise you have to install an add-on card. Most modern PCs have a network interface included one mainboard. As next step you have to configure the so called LAN connection within Windows.

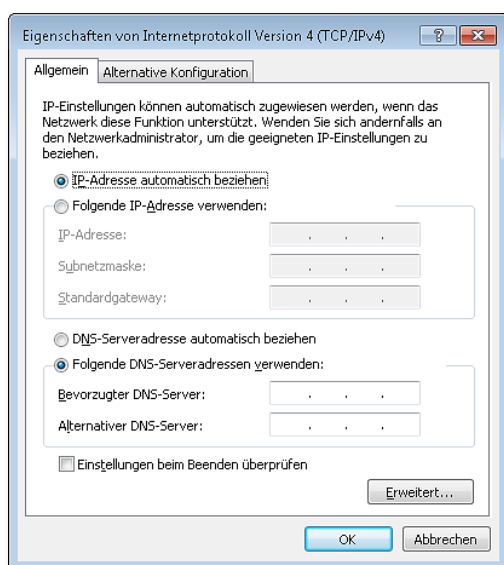


Fig. 3.11 automatic address selection

Open the network connections within Windows according to section 3.3.3.2.

The 79 settings have to be made according to the last section.

In contrast to the last section we assume, that the IP address has been assigned to the PC automatically by the router. Therefore the Router uses the so called DHCP³ Protocol. The DHCP server is in most cases part of your Router.

Now it should be clear why have to assign addresses by yourself when connecting the PC directly to the digital system, because in this case normally no DHCP server is available in your network.

Using the settings in Fig. 3.11 within the PC, the address will be assigned by the Router. Using the address concept within in Fig. 3.5 the model

railroad PC might have gotten the IP address 192.168.1.50 with subnet mask 255.255.255.0.

All other settings which might have been set by the DHCP Protocol are not relevant for the use of **Win-Digipet** and will not be explained.


3.3.3.4 Setup of a digital system via network connection in Win-Digipet

The following dialogs will appear in **Win-Digipet** for address assignment after selecting a network enabled digital system.

The default IP address 127.0.0.1 has to be changed. Based on our address concept explained before we have to enter the IP address of our digital system e.g. here

³ DHCP – Dynamic Host Control Protocol



192.168.10.2. For the selection of a suitable address you can use the network digital system assistant. This wizard can be called using the button  within the configuration dialog.

In the dialog you also have input field for so called TCP or UDP ports. These port settings are device specific and must not be changed. Otherwise, the connection to your digital system get lost.

ESU ECoS, ESU ECoS 2 resp. Central Station Reloaded

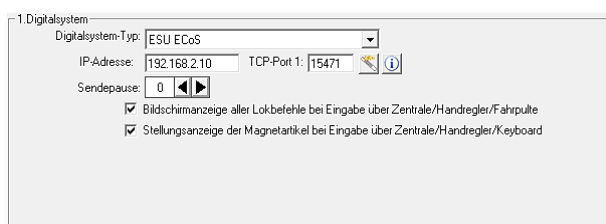


Fig. 3.12 Settings for the ESU ECoS 1

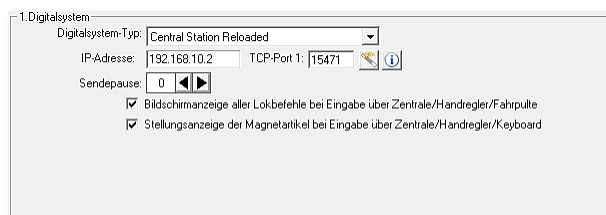


Fig. 3.14 Settings for the Central Station reloaded

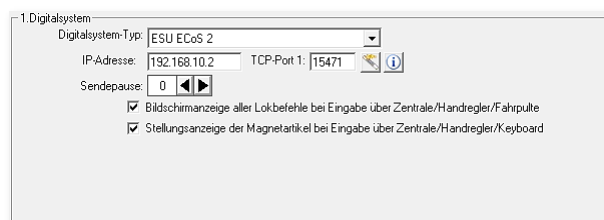


Fig. 3.13 Settings for the ESU ECoS 2



Märklin Central Station 2 resp. Märklin Central Station 3

Fig. 3.15 Settings for the Märklin Central Station 2

Fig. 3.16 Settings for the Märklin Central Station 3 (plus)

3.3.3.5 Using the network digital system assistant

You can open this wizard using the button . Afterwards the wizard will appear on the screen.

- Direct network connection via cable between digital system and PC
- Network connection via cable between digital system and Router
- Network connection via cable between digital system and Switch

Within the next sections we'll describe the different connection methods in detail. In principle the example configurations represent the situations in Fig. 3.3 to Fig. 3.5.

3.3.3.6 Direct link via crossover cable

The option should be used when the digital system and the PC are linked directly.

Before proceeding to the next window you should make a visual check of the network port of your digital system the one at your PC. For most network interface a LED at the port should indicate the correct cabling between the two partners. The second LED flashes according to the communication flow. The colours of the LEDs depend on the product.

If this is not the case, please check the cabling, maybe you have installed an uncrossed network cable instead of a crossover cable. You might also have used a cable with similar

Fig. 3.17 Selecting the connection type within the network wizard

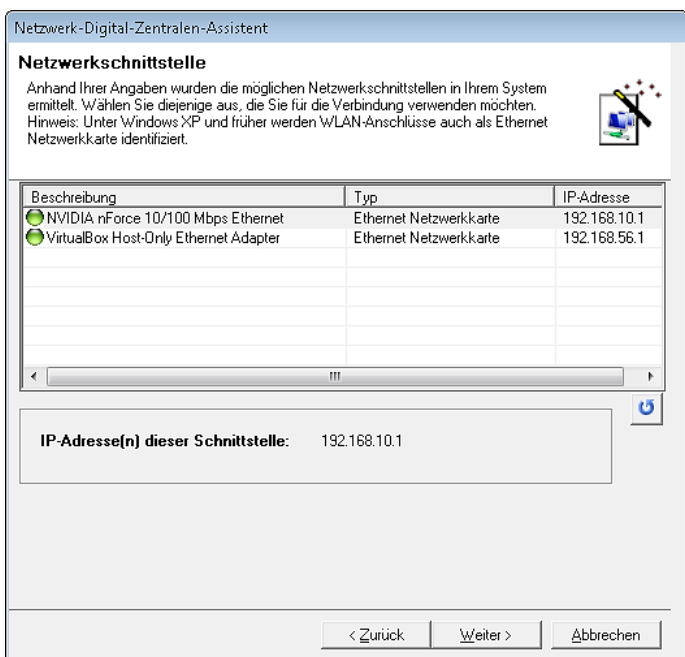


Fig. 3.18 Selecting the network interface for communication with the digital system.

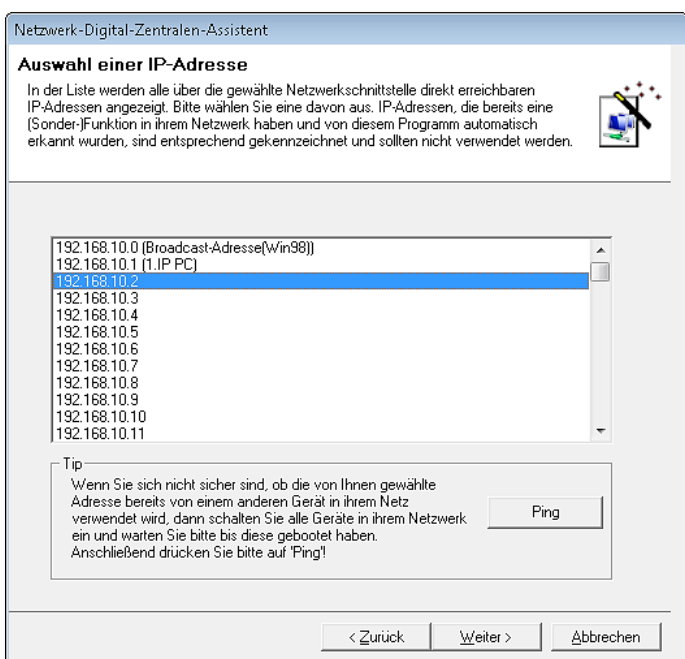


Fig. 3.19 Selecting the IP address.


connector both wrong or too few internal wires (e.g. 2 wire cable for VDSL installation). Until this connection does not work properly you should not continue with the next steps.

After this check you can proceed with 'Next' and the next part of the wizard will appear.

Now the network interface will appear with the data according to section 3.3.3.2.

If more than network interface is listed, please select the network interface which is connected to your digital system.

Below the list window you can see the IP address of the selected connection (Fig. 3.10).

The button  below the list field will reload/refresh the list.

After this check you can proceed with 'Next' and the next part of the wizard will appear.

In Fig. 3.19 all possible local network IP addresses for your interface are listed. IP address which are used by your PC or other known devices are labelled with an additional text. This is our example e.g. the address 192.168.10.1, which is used by your model railroad PC.

Select the desired address (e.g. 192.168.10.2) and click afterwards on the 'Ping'-button to check if the address is used by another active device within your network.

Using 'Ping' a special data pattern is sent to the selected address and the system will wait for an answer for some time. If no answer is received it can be assumed, that the "pinged" address is free. If on the other hand an answer has been received **Win-Digipet** will inform you about this issue.

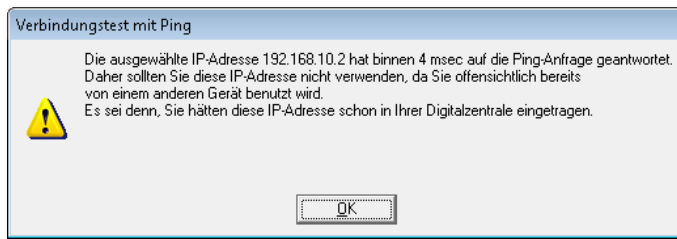


Fig. 3.20 The selected IP address might be already in use

If the selected address is already in use (you might remember that every address within a network may only be used once), then you have to select another address and repeat the test afterwards. The warning message can be ignored if you have already configured the selected IP address in your digital system before or if you used the default IP address

of your digital system (e.g. 192.168.1.53 for Märklin CS2). In this case you interpret the warning message as first indication for correct configuration.

After pressing 'OK' the message will disappear. Now press 'Next' to proceed to the next step.

In our example will show the next steps for the example configuration of an ESU ECoS 2 (see Fig. 3.21).



All digital systems are enhanced by their manufacturers from time to time. Due to this the shown dialogues within in the digital system might differ from the real digital system. But the functionality should be similar.



The network configuration for a Märklin Central Station 2 (or 3) differs slightly from the other digital systems and is split into two index cards. The relevant index cards are the cards IP and CAN (see Fig. 3.22).

After you have made the settings within your digital system you can select 'Test connection' to check the real connection the digital system using the systems interface protocol. This test includes a complete communication between **Win-Digipet** and the digital system while the Ping test just tests if the PC can see the other device.

If the connection test fails, please check the settings within your digital system. It might also be necessary to reboot the digital system to enable the new settings. Afterwards you can repeat the test.

Another common reason for connection problems is an installed (or in Windows included) Firewall on your PC. You can test this by temporarily deactivating the Firewall.

Especially for the other connection types the deactivation of the Firewall should only be a temporary test due to security reasons. If you can establish the connection during the temporary deactivation of the firewall, you have to configure exception rules within your firewall to permit the communication between **Win-Digipet**/your PC and the digital system.

If the test connection has been established, **Win-Digipet** will inform you that the connection has been tested successfully and you can close the wizard by pressing 'Finish'.

The selected IP address will be registered in the system settings of **Win-Digipet** by the wizard.

Now you can press 'Save' and 'Close' to leave the system settings.

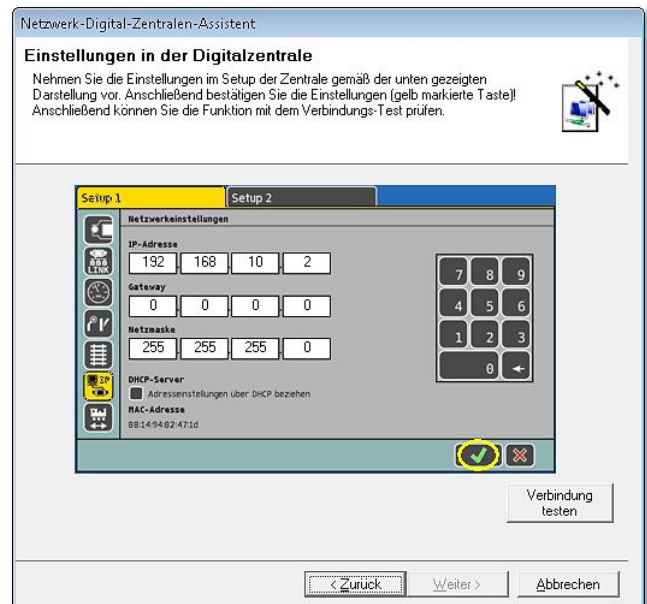


Fig. 3.21 The network wizard shows the settings for the digital system

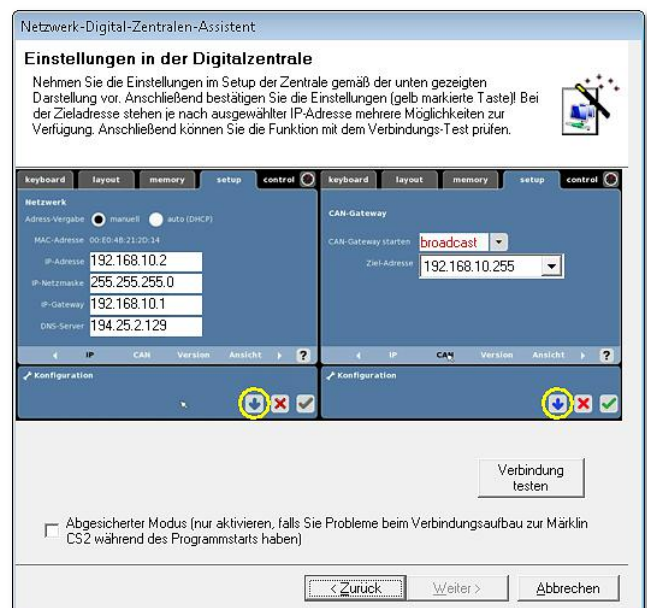


Fig. 3.22 Same settings for a Märklin Central Station 2



3.3.3.7 Network connection via cable between digital system and network Router

The second option within the network assistant (see Fig. 3.17) has to be used if your digital system is connected to a Router. In this example we used the configuration shown in Fig. 3.5.

Before proceeding to the next window you should make a visual check of the network port of your digital system the one at your PC. For most network interface a LED at the port should indicate the correct cabling between the two partners. The second LED flashes according to the communication flow. The colours of the LEDs depend on the manufacturer. If this is not the case please check the cabling, maybe you have installed an uncrossed network cable instead of a crossover cable. You might also have used a cable with similar connector both wrong or too few internal wires (e.g. 2 wire cable for VDSL installation). Until this connection does not work properly you should not continue with the next steps.

After this check you can proceed with 'Next' and the next part of the wizard will appear.

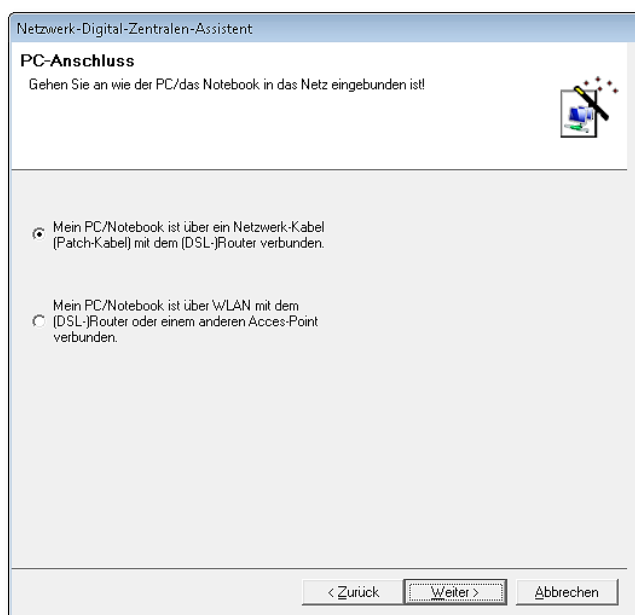


Fig. 3.23 How is the PC connected to the digital system?

Within the next step you can select the connection type between your PC and the Router.

The first option has to be used for a connection via cable and the second for a wireless connection.

After pressing 'Next' a list of all available network interface will appear.

You can see in the same way as in Fig. 3.18 the IP address of your network card.

Within the next steps of the dialog you can now select a free IP address and test the connection with the Ping test. These steps are identical to the steps described in 3.3.3.6.

If your PC is connected to your router via Wi-Fi, you have to select the second option in the dialog (see Fig. 3.23).



You should know that the reliability of a Wi-Fi connection might depend on the local situation. If you have a bad connection, the commands might be delayed or the connection might fail. We recommend using only wired connections between your PC and your digital system for automatic operation.



In our example in Fig. 3.24 you can see the IP address of your Wi-Fi network.

In most cases the IP address of your PC (e.g. 192.168.2.117 here) and the digital system has been assigned to the PC via DHCP by your Router. After pressing 'Next' you proceed to the next step.

On this page you can see again the settings within your digital system. These steps are identical for wired and wireless connections.

Now you have to open the network configuration within your digital system (ECoS 2 in our example) to discover the IP address which has been assigned by your Router to the digital system. In any case this address has to be different

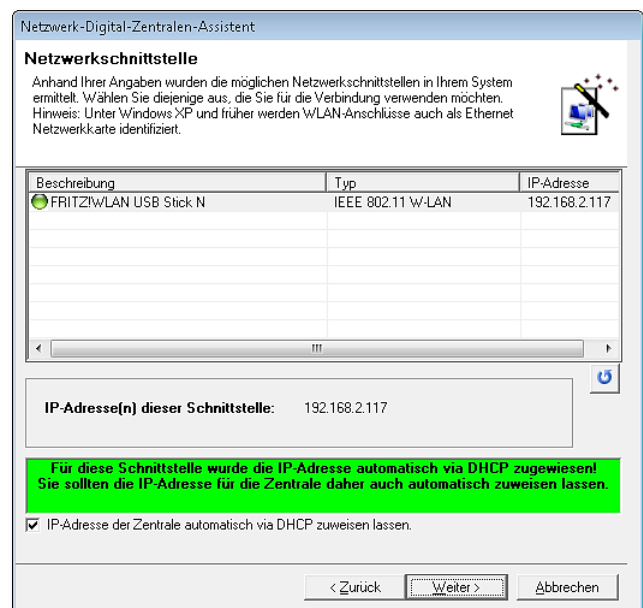


Fig. 3.24 The list of networks shows a Wi-Fi connection

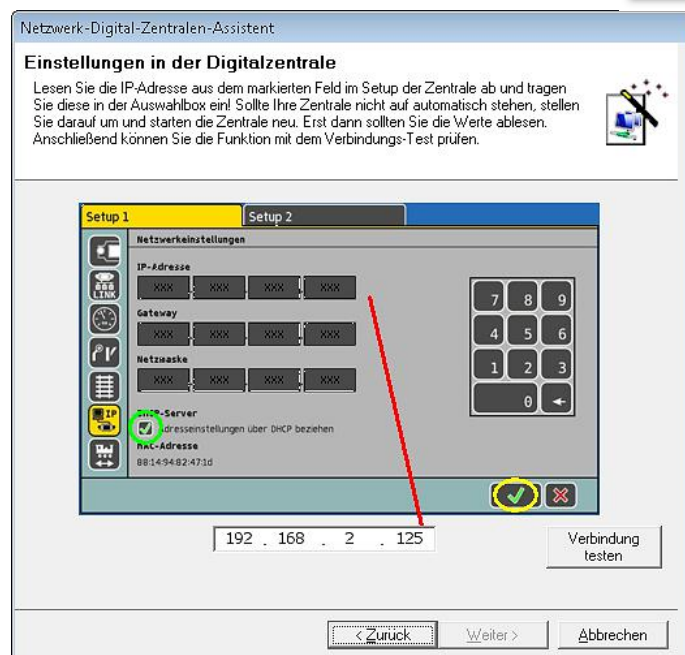


Fig. 3.25 The automatic address selection

from the address of the PC (see. Fig. 3.24 and Fig. 3.25: 192.168.2.117 for PC and 192.168.2.125 for digital system). If both devices use the same address no connection can be established.

After you have made all settings you can proceed with 'Test connection'.

If the connection test fails, please check the settings within your digital system. It might also be necessary to reboot the digital system to enable the new settings. Afterwards you can repeat the test.

Another common reason for connection problems is an installed (or in Windows included) Firewall on your PC. You can test this by temporarily deactivating the Firewall.

Especially for the other connection types the deactivation of the Firewall should only be a temporary test due to security reasons. If you can establish the connection during the temporary deactivation of the firewall, you have to configure exception rules within your firewall to permit the communication between **Win-Digipet**/your PC and the digital system.



If the test connection has been established, **Win-Digipet** will inform you that the connection has been tested successfully and you can close the wizard by pressing 'Finish'.

The selected IP address will be registered in the system settings of **Win-Digipet** by the wizard.

Now you can press 'Save' and 'Close' to leave the system settings.

3.3.3.8 Network connection via cable between digital system and network Switch

If your digital system is connected to a network Switch you have to choose the third option within the network digital system assistant.

Please check the connection LEDs at the port of your digital system as well as on the one on your network Switch as described in the last section, whether a physical connection has been established.

The further dialog steps are nearly equal to the ones explained in section 3.3.3.7. These steps will not be explained once more.

In contrast to a network Router your network will normally not include a DHCP server for automatic address assignment. Because of this you will have to configure your IP addresses manually.



3.3.3.9 Safe mode for connecting to Märklin Central Station 2

If you cannot establish the connection to your Märklin Central Station 2 you can try

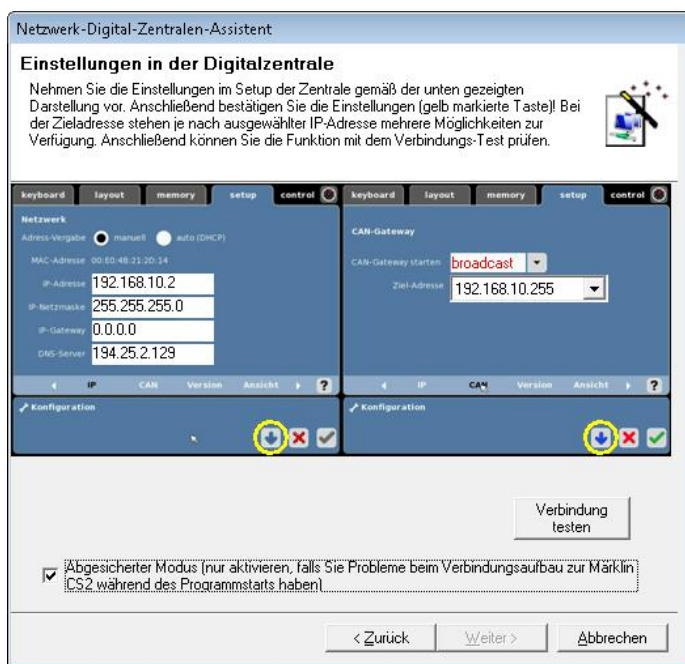


Fig. 3.26 Selecting special mode for Märklin Central Station 2

checking "Safe..." (see Fig. 3.26, especially for PC with multiple network interfaces).

In former versions of **Win-Digipet** the same affect has been achieved by selecting a manual PC IP address for the communication within the external port utility.

3.3.3.10 Network connections to other digital system

The explanations within in the last sections can be also used for systems like the ESU ECoS, Central Station Reloaded and Märklin Central Station. Just the appearance of system wizard steps might differ. The setting on the index card "Can" of a Märklin Central Station 2 is only relevant for this system and not available in the other systems.

3.4 Connected / supported digital systems

The number of digital systems and other hardware on the model train market is increasing steadily. Therefore, new digital systems are continuously considered by **Win-Digipet**. For this purpose, the knowledge of the specific interface protocols is mandatory. Otherwise, **Win-Digipet** cannot communicate with the digital system.

Until now **Win-Digipet** can be used with the following digital systems:



Manufacturer	Name of System
Ansaloni	Roller Stand
BiDiB	BiDiB-Interface
CAN-Digital-Bahn	CC-Schnitte, PC-Schnitte, USB-Tachomesser
CT-Elektronik	ZF5
Digikeijs	DR5000
DinaSys	Turntable Controller
Döhler & Haas und MTTM	Future Central Control, D&H Programmer
Electronic Solutions Ulm (ESU)	ECoS, ECoS 2, Central Station Reloaded
Faller	PC-Modul 161351
Fleischmann	TWIN-CENTER
GamesOnTrack	
Helmo/Littfinski Datentechnik(LDT)	System Inter 10 (for feedback)
Infracar, Karsten Hildebrand	Infracar-System
ISA MBT	
JSP USB-SRCP Server	(beta)
KM1	SC7
KPF Zeller	SpeedCat Plus
Lenz	LAN/USB-Interface, LI100(F) / LI101(F) / LI-USB
Littfinski Datentechnik(LDT)	HSI-88 & HSI-88 USB (for s88-feedback)
Locobuffer (different manufacturers)	Locobuffer
Is-digital	µCon-Manager, µCon-MiniManager & µCon-S88 Master
Massoth	DiMAX
Märklin	Central Station, Central Station 2, Central Station 3 plus
Märklin Systems	6020/6021, Interface 6050/6051
Modelleisenbahn Claus	DCCar
modellplan	Digital-S-Inside, Digital-S-Inside 2, SwitchCom
MÜT	Multi Control 2004
OpenDCC	Z1 P50X
Piko	SmartControl (beta)
Rautenhaus	RMX 952, SLX 825, SLX 852
Roco/Fleischmann	Z21



Manufacturer	Name of System
Schmidt electronic	FETM
SRCP Interface	(beta)
Stärz	SX-Bus-Interface, ZS1 und ZS2 Zentrale
Tams	Master Control, RedBox, RC-Link Interface
Trix	Selectrix
Uhlenbrock	Intellibox (IB I, IB II, IB-COM, IB Basic)
Uhlenbrock	USB LocoNet® 63120
Zimo	MX10



In the most cases you don't have to make any changes when upgrading from a prior version of **Win-Digipet**, because your old data will be converted.

If you make these selections manually take care, that you enter the settings in the same order as in the prior version. Because the settings for vehicles and solenoid devices are matched to the digital system number.

Using the structured combo box (Fig. 3.27) in the mid of the index card (see Fig. 3.2) you can select the used digital system and after the selection it will appear in the list of the index card.

Depending on your choice more or less additional input boxes will appear. This depends of the connection type available in your digital system and

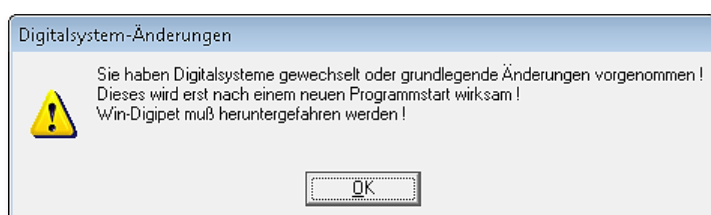


Fig. 3.28 **Win-Digipet** must be closed after changing the hardware.

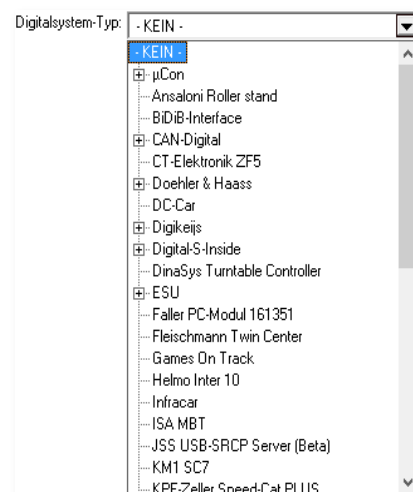


Fig. 3.27 Structured como box listing the supported digital systems.

the communication protocol.

After selecting the digital system(s) **Win-Digipet** must be closed and restarted. The message shown in Fig. 3.28 will appear and after pressing 'OK' and answering an additional question **Win-Digipet** will be closed and has to be restarted.


After a restart of **Win-Digipet** the new digital systems are available on the index card "Feedback modules" for the registration of your feedback modules.



The selections for the addressing, port etc. can be made after the restart of **Win-Digipet**, because after the selection and configuration of the feedback modules **Win-Digipet** must be restarted again.

3.5 *The digital systems and other supported hardware in detail*

In the following sections you will find information regarding the digital system usable in **Win-Digipet**.

	<p>Please do also read the manual of your digital systems.</p> <p>If possible we listed a web address where you can find information regarding the digital systems. The links have been checked while writing the manual. As the content of these websites is not under our control, we cannot assume any liability for such external content. In all cases, the provider of information of the linked websites is liable for the content and accuracy of the information provided. At the point in time when the links were placed, no infringements of the law were recognisable to us. As soon as an infringement of the law becomes known to us, we will immediately remove the link in question.</p>
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3.5.1 *Ansaloni RollerStand*

The Ansaloni RollerStand is a digital system of the company Ansaloni which is offering roller test stands including a speed measurement device. If you want to use this system you have to register it in Win-Digipet as digital system.

The device can be used in the speed measurement functions of Win-Digipet to measure a locomotive's speed.

For connecting to the USB port you need a USB cable type A-connector → B-connector.

For the USB port you need to install the manufacturer's driver. This driver creates a virtual serial port. The port number (COM 1-16) can be identified using the port utility in the Startcenter of **Win-Digipet**.

Further information can be found on the manufacturer's website:

<http://www.ansalonimodena.com>



3.5.2 BiDiB



For the USB interface the driver of the manufacturer must be installed on the PC. This driver produces a virtual serial interface. The interface number (COM 1-16) can be identified with the interface search of Win-Digipet.

Features usable in Win-Digipet	
Track protocol	DCC
Locomotive addresses	1-9999
Solenoid device addresses	1-2040
Special functions per address	F0 – F28
Feedback system	BiDiB
Port	USB
Feedback of manual input at the digital system to Win-Digipet	Loc and solenoid device commands
Included since Win-Digipet Version	2012

Further information can be found at: www.fichtelbahn.de

3.5.3 CAN Digital-Bahn • CC-Schnitte, PC-Schnitte and Tachomesser

Further information can be found on the manufacturer's website: www.can-digital-bahn.com

3.5.3.1 CC-Schnitte

For connecting to the USB port you need a USB cable type A-connector → B-connector.

For the USB port you need to install the manufacturer's driver. This driver creates a virtual serial port. The port number (COM 1-16) can be identified using the port utility in the Startcenter of **Win-Digipet**.

The use of data formats (MM2,MFX, or DCC) supported by the digital system can be restricted by the installation dialogue.

Features usable in Win-Digipet



Feedback system	CAN-Bus
Number of feedback contacts	1584 (99 Feedback modules with 16 feedback contacts each)
Port	USB
Included since Win-Digipet Version	2009

3.5.3.2 PC-Schnitte

For connecting to the USB port you need a USB cable type A-connector □ B-connector.

For the USB port you need to install the manufacturer's driver. This driver creates a virtual serial port . The port number (COM 1-16) can be identified using the port utility in the Startcenter of Win-Digipet



Fig. 3.29 The PC-Schnitte

Features usable in Win-Digipet	
Feedback system	CAN-Bus
Number of feedback contacts	1584 (99 Feedback modules with 16 feedback contacts each In HSI-Mode 31 Feedback modules with 16 feedback contacts each resp. 62 Feedback modules with 8 feedback contacts each)
Port	USB
Included since Win-Digipet Version	2009

3.5.3.3 CAN Tachomesser

The CAN Tachomesser has to be connected directly to the CAN Bus. A direct connection to the PC is not possible. The CAN Tachomesser can be used with the Märklin Central Station 2 and the CC-Schnitte for measuring the speed of locomotives. A roller dynamometer must be connected to the Tachomesser



Fig.. 3.30 The CAN Tachomesser



3.5.3.4 USB Tachomesser

The Tachomesser can be used together with roller dynamometer for measuring the speed of locomotives.

For connecting to the USB port you need a USB cable type A-connector → B-connector.

For the USB port you need to install the manufacturer's driver. This driver creates a virtual serial port. The port number (COM 1-16) can be identified using the port utility in the Startcenter of **Win-Digipet**.

3.5.4 CT Elektronik • ZF5

The digital system ZF5 of CT Elektronik has to be connected to serial port (RS232) of your computer. The port number (COM 1-16) can be identified using the port utility in the Startcenter of **Win-Digipet**.

Further information can be found on the manufacturer's website: www.tran.at



Fig. 3.31 The CAN USB Tachomesser



Fig. 3.32 The digital system ZF5

Features usable in Win-Digipet	
Track protocol	DCC
Locomotive addresses	1-9999
Solenoid device addresses	1-1024
Special functions per address	F0 – F28
Feedback system	None
Port	RS 232
Feedback of manual input at the digital system to Win-Digipet	Solenoid device commands
Included since Win-Digipet Version	ProX



3.5.5 Digikeijs DR5000

The digital system can be used as "Digikeijs DR5000 XPressNet" as well as "Digikeijs DR5000 LocoNet".

When using the LAN mode, the according protocol has to be selected in the configuration program of the manufacturer. The system can also be used via its WiFi-Module. We suggest not to do this for automatic operations. We think the risk of communication problems is to high on the Wireless "route".



Fig. 3.33 The digital system Digikeijs DR5000

Features usable in Win-Digipet

Track protocol	DCC
Locomotive addresses	1-9999
Solenoid device addresses	1-2048
Special functions per address	F0-F28
Feedback system	S88, LocoNet, RS-Bus
Number of feedback contacts	2048 (Gesamtzahl aller Buchsen)
RailCom	Yes
Port	USB, LAN (je LocoNet- oder XpressNet Modus)
Feedback of manual input at the digital system to Win-Digipet	Locomotive and solenoid device commands
Included since Win-Digipet Version	2015.1

For the USB port you need to install the manufacturer's driver. This driver creates a virtual serial port. The port number (COM 1-16) can be identified using the port utility in the Startcenter of **Win-Digipet**.

Further information can be found on the manufacturer's website: www.digikeijs.com



3.5.6 DinaSys • Turntable Controller

The DinaSys Turntable Controller can control the following turntables:

- 🚂 Fleischmann 6052, 6152 and 6154 H0
- 🚂 Fleischmann 6052C, 6152C and 6154C H0
- 🚂 Märklin 3-Schienen 6652 H0
- 🚂 Fleischmann 6680 TT
- 🚂 Fleischmann Spur N 9152
- 🚂 Fleischmann Spur N 9152C
- 🚂 Märklin Spur Z 8998

For the USB port you need to install the manufacturer's driver. This driver creates a virtual serial port. The port number (COM 1-16) can be identified using the port utility in the Startcenter of **Win-Digipet**.



Fig. 3.34 The DinaSys Turntable Controller

Features usable in Win-Digipet

Feedback of manual input at the digital system to Win-Digipet	yes
---	-----

Port	USB
------	-----

Included since Win-Digipet Version	2012.2
------------------------------------	--------

This system does not support a 180° turn.

With Win-Digipet you can enable such a turn by assigning the solenoid address 201 to the turn symbol in the track diagram. For this purpose the turntable must be configured as "intelligent turntable (IDS)", since only in this program part of Win-Digipet the information of the total number of turntable connections is present.

Further information can be found on the manufacturer's website: www.picommit.nl

3.5.7 Döhler&Haas • Future Central Control

For connecting to the USB port you need a USB cable type A-connector → B-connector.

For the USB port you need to install the manufacturer's driver. For installation use the CD delivered with the system containing ST-TRAIN and start the file "setup.bat".



This driver creates a virtual serial port. The port number (COM 1-16) can be identified using the port utility in the Startcenter of **Win-Digipet**.

The baud rate is fixed to 230400 and cannot be changed.

Further information can be found on the manufacturer's website: www.doehler-haas.de



Fig. 3.35 The digital system Future-Central-Control

Features usable in Win-Digipet

Track protocol	SX	SX2	DCC	Motorola
Locomotive addresses	0-111	1-9999	1-9999	1-255
Solenoid device addresses	Max. 896 per SX-Bus			
Special functions per address	F0-F1 F1-F8 (Function decoder)	F0-F16	F0-F16	F0-F4
Feedback system	SX			
Number of feedback contacts	Max. 896 per SX-Bus			
Number of SX busses	2			
Port	USB			
Feedback of manual input at the digital system to Win-Digipet	Locomotive and solenoid device commands			
Included since Win-Digipet Version	2009.4			

3.5.8 Döhler&Haas Programmer

This digital system can be used to programm Selectrix 1, Selectrix 2 and DCC locomotives. Also SUSI modules can be programmed. The programmer does not replace a digital system. Only one locomotive can be driven at the same time for testing purposes.

The programmer can be connected via USB cable. For connecting to the USB port you need a USB cable type A-connector □ B-connector. For the USB port you need not to install a driver.



Features usable in Win-Digipet

	SX	SX2	DCC
Track protocol			
Locomotive addresses ⁴	0-111	1-9999	1-9999
Solenoid device addresses		Not possible	
Special functions per address	F0-F1 F1-F8 (Function decoder)	F0-F16	F0-F16
Feedback system	Not included		
Number of feedback contacts	Not available		
Port	USB		
Feedback of manual input at the digital system to Win-Digipet	no		
Included since Win-Digipet Version	2015.1		

Further information can be found on the manufacturer's website: www.doehler-haas.de

⁴ Maximum 1 DCC or SX1 or SX2-locomotive can be controlled at the same time.

3.5.9 Electronic Solutions Ulm (ESU) • ECoS, Central Station Reloaded, ECoS 2

This digital system has to be connected to the computer using an Ethernet cable or can be included in an existing Ethernet network.

The Central Station Reloaded (Märklin) is after an upgrade sold by ESU similar to an ECoS of the first generation.



Fig. 3.36 Das Digitalsystem ECoS 2

Features usable in Win-Digipet

Track protocol	Motorola	DCC	mfx (M4)	SX
Locomotive addresses	1-255	1-9999	1-9999	1-111
Solenoid device addresses	1-320	1-2048	No	No
Special functions per address	F0-F4	F0-F23	F0-F15	F0-F1
Feedback system	S88, CAN-Bus			
Number of feedback contacts	496 (S88), 1584 via CAN (ECoS Detector)			
RailCom	Yes			
Port	Ethernet			
Feedback of manual input at the digital system to Win-Digipet	Locomotive and solenoid device commands			
Included since Win-Digipet Version	Pro X, 2009 (ECoS 2)			

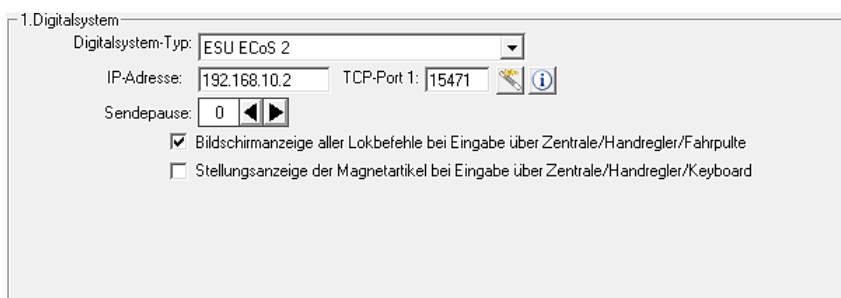


Fig. 3.37 The network settings of an IP-based digital system

When you select a network based digital system like ECoS 2 the dialog for entering the IP address will appear.

The TCP-Port number (here 15471) may not be changed.

The network interfaces and their addresses can be identified using the



port utility in the Startcenter of **Win-Digipet**.

You can also use the network wizard within **Win-Digipet** for configuring the correct addressing. The usage of this assistant is explained in section 3.3.3.5 in detail.

If you cannot get any connection to this/these digital system(s) please check first in the used IP address is correct.

Further information can be found on the manufacturer's website: www.esu.eu

3.5.10 Faller • PC-Modul 161351

The Faller basic module for the Faller Car System has an USB port. For connecting to the USB port you need a USB cable type A-connector □ B-connector.

For the USB port you need to install the manufacturer's driver. This driver creates a virtual serial port. The port number (COM 1-16) can be identified using the port utility in the Startcenter of Win-Digipet.

Further information can be found on the manufacturer's website: www.faller.de



Fig. 3.38 The Faller PC basic module

3.5.11 Fleischmann • Twin-Center



Fig. 3.39 The Twin-Center

The Fleischmann Twin-Center is nearly identical to the Uhlenbrock Intellibox® I. The differences of both products are the available track protocols. Instead of Motorola the Twin Center supports FMZ.

The Twin-Center must be connected to serial port (RS232) of your computer.

Several baud rates are supported. We suggest using the Twin-Center with 19200 bit/s. The selection "Default" uses the baud rate configured in the Twin-Center.

The settings for the read interval apply to the S88-Bus. We suggest values from 100 up to 30 msec

An error message is displayed if "Locking solenoid device within an active route if manual input on keyboard" is activated. This would be the case if you try to access a solenoid device from the external keyboard, within an active route.

Intellibox and TwinCenter offer the possibility to use (nearly) all decoder types on one layout simultaneously (Märklin, Lenz, Trix, Uhlenbrock, Digitrax etc.).



1. Digitalsystem

Digitalsystem-Typ:

Com-Port: Baudrate:

Einlese-Intervall:

☐ Bildschirmanzeige aller Lokbefehle bei Eingabe über Zentrale/Handregler/Fahrpulte

☐ Stellungsanzeige der Magnetartikel bei Eingabe über Zentrale/Handregler/Keyboard

☐ Sperren der Magnetartikel innerhalb einer aktiven Fahrstraße bei Eingabe über Keyboard

Minimale Magnetartikel-Einschaltzeit in msec:

Anti-Lichtflackern:

Fig. 3.40 The settings for the Fleischmann Twin-Center

Under such conditions – and only then - Märklin-Decoder could show a small problem: -lights on locomotives might flicker.

The option "Activate antlight flicker" nearly eliminates completely the flickering of the lights.

Use tests to decide the factor low - medium – strong.

The minimum activation time for all solenoid devices is set here. Values are between 0 to 500 msec.

This minimum activation time is adhered to, even when the program has sent a switching-off command. Recommended value is 100 msec.

Further information can be found on the manufacturer's website: www.fleischmann.de

Features usable in Win-Digipet			
Track protocol	DCC	Trix Selectrix	FMZ
Locomotive addresses	1-9999	0-111	1-119
Solenoid device addresses	1-2000	No	1-396
Special functions per address	F0-F8	F0-F1	F0-F1
Feedback system	S88, LocoNet		
Number of feedback contacts	496 (S88), 2048 LocoNet		
RailCom	no		
Port	RS232		
Feedback of manual input at the digital system to Win-Digipet	Locomotive and solenoid device commands		
Included since Win-Digipet Version	7.0		



3.5.12 Games On Track • GT Position Interface

The Interface GT Position of Games On Track has to be connected to the computer using an Ethernet cable or can

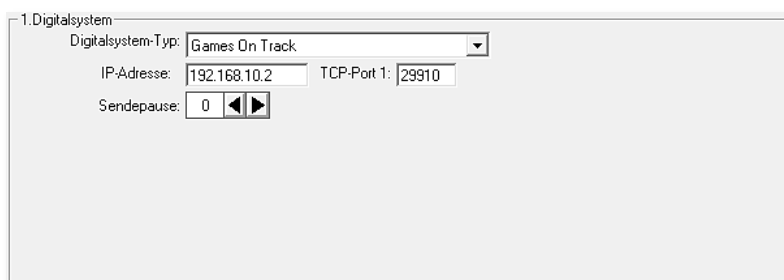


Fig. 3.41 The addressing of a GT Position-Interfaces



Fig. 3.42 The GT Position Interface

be included in an existing Ethernet network.

When you select a network based digital system like GT Position-Interfaces the dialog for entering the IP address will appear.

The TCP-Port number (here 29910) may not be changed.

Further information can be found on the manufacturer's website: www.gamesontrack.de

3.5.13 Helmo/Littfinski Datentechnik(LDT) • System Inter 10

The Inter 10 is a digital system used to read transponder data and to transfer this data to **Win-Digipet**.

It has to be connected to serial port (RS232) of your computer.



Fig. 3.43 The Moduel Inter 10

Features usable in Win-Digipet

Bus system	RS-485
Number of local detectors	99
Port	RS232



Included since Win-Digipet Version	9.1
------------------------------------	-----

Further information can be found on the manufacturer's website: www.ltd-infocenter.com

3.5.14 *Infracar, Karsten Hildebrand • Infracar-System*

The InfraCar PC-Sender is interface to control InfraCar system cars via PC. It has to be connected to serial port (RS232) of your computer.

Features usable in Win-Digipet	
Protocol	CAN-Bus
Car addresses	1-63
Solenoid device addresses	No
Special functions	F0-F6
Port	RS-232
Included since Win-Digipet Version	8.5

3.5.15 *ISA MBT Weiden*



Features usable in Win-Digipet	
Feedback system	System specific
Number of feedback contacts	1024
Number of switch ports	1024
Port	Ethernet
Included since Win-Digipet Version	2015



3.5.16 JSS • USB SRCP-Server



Fig. 3.44 The JSS USB SRCP Server

SRCP is a platform independent protocol for controlling model trains. The USB-SRCP Server is a SRCP Server connecting the model train and the program used for controlling the model train. The protocol provides a client-server structure with the USB-SRCP server representing the interface to the model train. SRCP can handle multiple users.

The USB-SRCP Server is digital system for Motorola Format I/II or DCC. It supports the SRCP (Simple Railroad Command Protocol).

This USB interface requires the installation of the driver of the manufacturer on your PC. This driver

creates a virtual serial interface. The interface number (COM 1-16) can be identified with the tab "Interface" in the startcenter of **Win-Digipet**.

Features usable in Win-Digipet		
Track protocol	DCC	Motorola
Lokomotive addresses	1-9999	1-255
Solenoid device addresses	1-2048	1-320
Special function per address	F0-F12	F0-F4
Feedback system	S88	
Number of feedback contacts	1984	
RailCom	nein	
Port	USB	
Feedback of manual input at the digital system to Win-Digipet	Locomotive and solenoid device commands	
Included since Win-Digipet Version	2015	

Further information can be found on the manufacturer's website: www.jss-elektronik.de



3.5.17 KM1 • SC7



Fig. 3.45 Das Digitalsystem SC7 von KM1

This digital system must be connected to a USB port of the PC.

For connecting to the USB port you need a USB cable type A-connector → B-connector.

The USB interface requires the installation of the driver of the manufacturer on your PC. This driver creates a virtual serial interface. The interface number (COM 1-16) can be identified with the tab "Interface" in the startcenter of **Win-Digipet**.

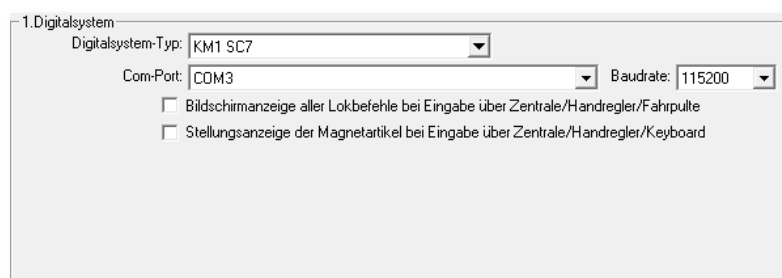


Fig. 3.46 The settings for the Intellibox II of Uhlenbrock

Further information can be found on the manufacturer's website: www.km-1.de



Features usable in Win-Digipet			
Track protokol	Motorola	DCC	SX
Locomotive addresses	1-255	1-9999	0-111
Solenoid devices addresses	1-320	1-2048	Keine
Special functions per address	F0-F4	F0-F28	F0-F1
Feedback system	LocoNet®, S88		
Number of feedback contacts	2048		
Port	USB		
Feedback of manual input at the digital system to Win-Digipet	Locomotive and solenoid device commands		
Included since Win-Digipet Version	2009.3 ⁵		

3.5.18 KPF-Zeller • Speed-Cat und Speed Cat Plus

3.5.18.1 Speed-Cat

Using a roller dynamometer of KPF-Zeller company you can measure the speed curve of a locomotive with this digital system.

This system is directly available in the window for measuring the speed curve and need not be introduced in the system settings of **Win-Digipet**.

The USB interface requires the installation of the driver of the manufacturer on your PC. This driver creates a virtual serial interface. The interface number (COM 1-16) can be identified with the tab "Interface" in the startcenter of **Win-Digipet**.

Please note that the Speed-Cat must be connected to the PC and must be active before starting the the program.

Eigenschaften in Verbindung mit Win-Digipet	
Port	USB
Included since Win-Digipet Version	2012

3.5.18.2 Speed-Cat-Plus

⁵ In WDP versions before 2018 this digital system can be operated as Uhlenbrock Intellibox II .



Using a roller dynamometer of KPF-Zeller company you can measure the speed curve of a locomotive with this digital system. Compared to the normal Speed-Cat this system supplies a 8-fold better resolution.



Fig. 3.47 The Speed-Cat Plus of KPF-Zeller

This system is directly available in the window for measuring the speed curve and need not be introduced in the system settings of **Win-Digipet**.

The USB interface requires the installation of the driver of the manufacturer on your PC. This driver creates a virtual serial interface. The interface number (COM 1-16) can be identified with the tab "Interface" in the startcenter of **Win-Digipet**.

Please note that the Speed-Cat must be connected to the PC and must be active before starting the the program.

Features usable in Win-Digipet	
Port	USB
Included since Win-Digipet Version	2015

Further information can be found on the manufacturer's website: www.kpf-zeller.de

3.5.19 Lenz • Lenz Interfaces LI100(F), LI101(F), LI-USB und Lenz LAN-USB

Lenz offers different interfaces for its digital systems which are usable in **Win-Digipet**. These interfaces are:

- 🚂 LI100(F)
- 🚂 LI101(F)
- 🚂 LI-USB
- 🚂 LAN/USB

Features usable in Win-Digipet		
Track protocol	DCC	
Locomotive addresses	1-9999	
Solenoid device addresses	1-1024	
Special functions	F0-F28	
Port	LI100(F) - RS232	LI-USB - USB



	LI101(F) - RS232	LAN/USB - USB/Ethernet
Included since Win-Digipet Version	depending on the interface	

Further information can be found on the manufacturer's website: www.digital-plus.de

3.5.19.1 Lenz LI100(F) and LI101(F)

The Interfaces LI100(F) resp. LI101(F) have to be connected to serial port (RS232) of your computer.

Das LI100(F) supports the baud rates 9600 and 19200 bit/s, the LI101(F) can be used with baud rates up to 115200 bit/s.



Fig. 3.48 Settings for Lenz-Interfaces LI100(F) and LI101(F) (here: LI101(F))

3.5.19.2 Lenz LI-USB / Lenz LAN/USB

The interface LI-USB resp. also the interface LAN/USB can be connected via an USB cable.

For connecting to the USB port you need a USB cable type A-connector → B-connector.

For the USB port you need to install the manufacturer's driver. This driver creates a virtual serial port. The port number (COM 1-16) can be identified using the port utility in the Startcenter of **Win-Digipet**.

Alternatively you can connect the LAN/USB interface via an Ethernet port. When you select a network based digital system like Lenz-Interfaces the dialog for entering the IP address will appear. The TCP-Port number (here 5550) may not be changed.



Fig. 3.49 The Interface LI-USB



1. Digitalsystem

Digitalsystem-Typ: Lenz LAN/USB-Interface ☒ via LAN

IP-Adresse: 192.168.10.2 TCP-Port 1: 5550

Sendepause: 0 ◀▶

☐ Stellungsanzeige der Magnetartikel bei Eingabe über Zentrale/Handregler/Keyboard

Fig. 3.50 Setting for LAN/USB Interface within the network

The network interfaces and their addresses can be identified using the port utility in the Startcenter of **Win-Digipet**.

3.5.20 Littfinski Datentechnik(LDT) • HSI-88 and HSI-88-USB, DiCo-Station

3.5.20.1 HSI-88

The HSI-88 (**H**igh **S**peed Interface) is an interface for connecting the S88 feedback bus to the computer. It can split the S88 bus in to 3 sub buses. The maximum number of 31 modules with 16 feedback modules each may not be exceeded.

The Interfaces HSI-88 has to be connected to serial port (RS232) of your computer.



Fig. 3.51 The HSI-88

Settings of the RS232 Port

Baud rate	9600 (Default)
Data bits	8
Parity	No
Stop bits	1
Flow control	Hardware



FIFO	active ⁶
------	---------------------

Further information can be found on the manufacturer's website: www.ltd-infocenter.com

Features usable in Win-Digipet	
Feedback system	S88
Number of feedback contacts	496 = 31 Module with 16 feedback contacts each
Port	RS232
Included since Win-Digipet Version	8.0

3.5.20.2 HSI-88-USB

For the USB variant the details for the S88 bus are the same as in 3.5.20.1.

The interface HSI-88-USB can be connected via USB cable. For connecting to the USB port you need a USB cable type A-connector → B-connector.

For the USB port you need to install the manufacturer's driver. This driver creates a virtual serial port.



Fig. 3.52 The HSI-88 USB

Features usable in Win-Digipet	
Feedback system	S88
Number of feedback contacts	496 = 31 Module with 16 feedback contacts each
Port	USB
Included since Win-Digipet Version	ProX.3

3.5.20.3 DiCoStation

The DiCoStation uses special device names. The DiCoStation does not use "COM 1" but e.g. "\\.\HsiUsb 1". In this example the device number is 1.

⁶ Depending on the PC it has to be experimented which FIFO setting is better for a good operation. This setting is settled in the system control of Windows.



In the following picture you see the second device (HSI-88 USB) of the DiCoStation (Direct Command Station) for feedbacks on your model railroad layout.

The control of the locomotives is done via the Software "Digital S-Inside" sold by Modellplan.

Fig. 3.53 The settings for the HSI-88 USB part of the DiCo Station

3.5.21 Locobuffer (different manufacturers)

The Locobuffer is used to connect a LocoNet system to the PC. It is sold by different manufacturers, but it also available as solder kit. Some of these devices have an RS-232 port and some of them have an USB-connector.

For the USB port you need to install the manufacturer's driver. This driver creates a virtual serial port. The port number (COM 1-16) can be identified using the port utility in the Startcenter of **Win-Digipet**.

Features usable in Win-Digipet	
Feedback system	LocoNet
Number of feedback contacts	2048
Port	RS232 or USB
Feedback of manual input at the digital system to Win-Digipet	Locomotive and solenoid device commands
Included since Win-Digipet Version	2009

3.5.22 Is-digital • µCon-Manager und µCon-S88 Master

3.5.22.1 µCon-Manager

When you select a network based digital system like µCon-Manager the dialog for entering the IP address will appear.

The TCP-Port number (here 11082) may not be changed.



The network interfaces and their addresses can be identified using the port utility in the Startcenter of **Win-Digipet**.

You can also use the network wizard within **Win-Digipet** for configuring the correct addressing.

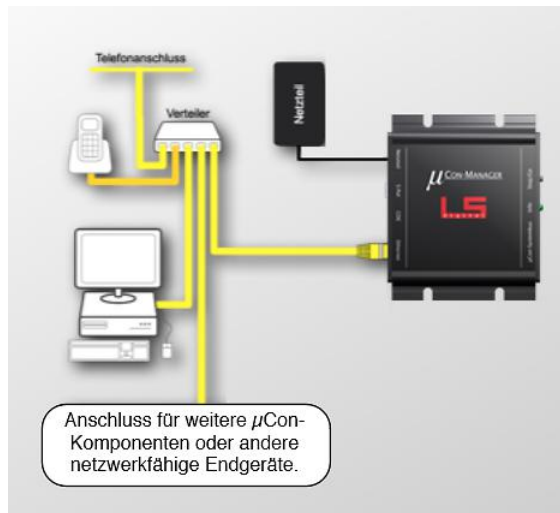


Fig. 3.55 Schematic μ Con-Manager (www.lsdigital.de)



Fig. 3.54 The μ Con-Manager

The functionality of this assistant will be explained later.

If you cannot get any connection to this/these digital system(s) please check first in the used IP address is correct.

The μ Con-Manager is digital system for interfacing other components to the PC and also to **Win-Digipet**, at moment **Win-Digipet** has support for:

- 🚗 μ Con-Booster
- 🚗 μ Con-RAILspeed

Fig. 3.55 shows the schematic of μ Con-Managers in the complete μ Con-System.



3.5.22.2 μ Con-S88-Master

The μ Con-S88-Master can be connected to the PC via Ethernet as well as the μ Con-Manager. For network relevant information please read the section covering the μ Con- Manager.

Fig. 3.56 gives a schematic showing the μ Con-S88-Master's connections.

The μ Con-S88-Master is an interface for connecting the S88 feedback bus to the computer. It can split the S88 bus in to 3 sub buses. The maximum number of 48 modules with 16 feedback modules each may not be exceeded. The single feedback modules are linked with patch cables known from computer networks (S88-N standard).

Further information can be found on the manufacturer's website: www.lsdigital.de

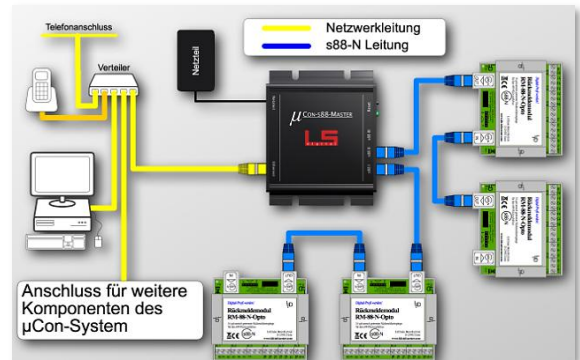


Fig. 3.56 Schematic μ Con-S88-Master (www.lsdigital.de)



3.5.23 Marion Zeller • Geschwindigkeits-Messsystem MAX

Using a roller dynamometer of Marion Zeller company you can measure the speed curve of a locomotive with this digital system.

This system is directly available in the window for measuring the speed curve and need not be introduced in the system settings of **Win-Digipet**.

The USB interface requires the installation of the driver of the manufacturer on your PC. This driver creates a virtual serial interface. The interface number (COM 1-16) can be identified with the tab "Interface" in the startcenter of **Win-Digipet**.

Please note that the Speed-Cat must be connected to the PC and must be active before starting the the program.

Eigenschaften in Verbindung mit Win-Digipet	
Port	USB
Included since Win-Digipet Version	2012

3.5.24 Massoth • DIMAX



Fig. 3.57 DiMAX-System of Massoth

The digital system DIMAX of Massoth has to be connected to the serial port (RS232) of your computer.

Die Portgeschwindigkeit ist in Win-Digipet mit 57600 bit/s fest eingestellt und kann nicht verändert werden

Further information can be found on the manufacturer's website:

www.massoth.de

Features usable in Win-Digipet		
	Track protocol	
	Motorola	DCC
Locomotive addresses	1-255	1-9999
Solenoid device addresses	No	1-2048
Special functions per address	F0-F4	F0-F28



Feedback system	DIMAX-Bus
Number of feedback contacts	1024
Port	RS232
Feedback of manual input at the digital system to Win-Digipet	Locomotive and solenoid device commands
Included since Win-Digipet Version	2009

3.5.25 Märklin • Central Station and Central Station

3.5.25.1 Märklin • Central Station and Central Station 2



Fig. 3.58 the Märklin Central Station 1

Märklin stopped the development of this digital system. The Central Station Reloaded (Märklin) is after an upgrade sold by ESU similar to an ECoS of the first generation, but you can also use the original Märklin version.

Features usable in Win-Digipet		
Track protocol	Motorola	mfx
Locomotive addresses	1-255	1-9999
Solenoid device addresses	1-320	No
Special functions per address	F0-F4	F0-F15
Feedback system	S88, CAN-Bus	
Number of feedback contacts	496 (S88)	
Port	Ethernet	
Feedback of manual input at the digital system to Win-Digipet	Locomotive and solenoid device commands	
Included since Win-Digipet Version	Pro X.3	

This digital system has to be connected to the computer using an Ethernet cable or can be included in an existing Ethernet network.



When you select a network based digital system like Märklin Central Station the dialog for entering the IP address will appear.

Fig. 3.59 The settings for a Märklin Central Station (60212)

The TCP-Port number (here 15471) may not be changed.

The network interfaces and their addresses can be identified using the port utility in the Startcenter of **Win-Digipet**.

You can also use the network wizard within **Win-**

Digipet for configuring the correct addressing. The usage of this assistant is explained in section 3.3.3.5 in detail.

If you cannot get any connection to this/these digital system(s) please check first in the used IP address is correct.

Further information can be found on the manufacturer's website:

www.maerklin.de bzw. unter www.esu.eu



Fig. 3.60 The Märklin Central Station 2

3.5.25.2 Märklin Central Station 2

The Märklin Central Station 2 has to be connected to the computer using an Ethernet cable or can be included in an existing Ethernet network.

Features usable in Win-Digipet

Track protocol	Motorola	mfx	DCC
Locomotive addresses	1-255	1-9999	1-9999
Solenoid device addresses	1-320	No	1-No
Special functions per address	F0-F4	F0-F15	F0-F28
Feedback system	S88		
Number of feedback contacts	1024 (64 with 16 feedback contacts each)		



Port	Ethernet
Feedback of manual input at the digital system to Win-Digipet	Locomotive and solenoid device commands
Included since Win-Digipet Version	2009

When you select a network based digital system like Märklin Central Station 2 the dialog for entering the IP address will appear (see Fig. 3.61). The TCP-Port numbers (here 15730 and 15731) may not be changed.

Fig. 3.61 The settings for the Märklin Central Station 2.



The Märklin Central Station 2 needs for **Win-Digipet** a minimum Firmware-Version 2.0.1 (0).

The current firmware version can be found in the download area of the **Win-Digipet** website. The Märklin Central Station 2 has also an online update feature if it is connected to the Internet.

Please read the manual of Märklin Central Station 2 regarding this topic.

Starting with firmware version 3.7 Märklin changed the communication protocol. Beside better S88 bus it is also possible to address more than one CS2 connected via CAN-Bus. You can also use the network wizard within **Win-Digipet** for configuring the correct addressing. The usage of this assistant is explained in section 3.3.3.5 in detail.

Further information can be found on the manufacturer's website: www.maerklin.de

3.5.25.3 Märklin Central Station 3 (plus)



Fig. 3.62 The Märklin Central Station 3

The Central Station 3 (plus) can be used properly with Win-Digipet only from Firmware 1.2. Only from this version on the necessary commands are available in the CS 3 (plus) and the control can be performed with TCP as well as with UCP.

This digital system must be connected to the computer using an Ethernet cable or can be included in an existing Ethernet network.

A S88N-connection to feedback modules is only possible with the "plus-Version" of the Central Station 3.

When using the S88 Bus with Win-Digipet **please note**, that you have to select „Slave/Device/GFP“ as bus in the feedback contact settings (not: „Master-CS3“). As device number you have to enter the device number of track format processor (GFP) of the CS3 plus (in most cases 1 or 2).

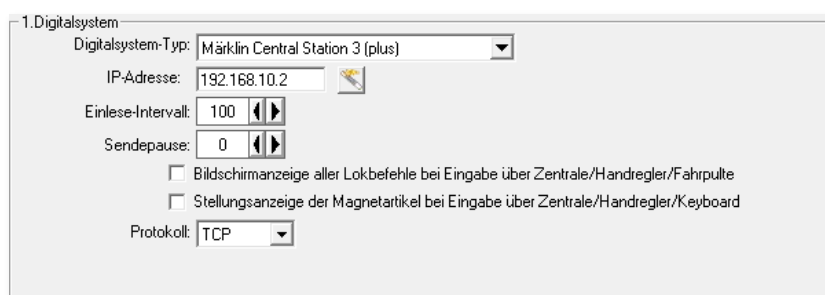


Fig. 3.63 Settings for zur Märklin Central Station 3 (plus).

From the settings for the GFP in the Central Station 3 (plus) you can get the number of the GFP.

In both versions of the digital system feedback modules can be connected also via a "Märklin Link s 88" (ArtNr. 60883).

Please note that most S88-modules have 16 inputs However, Win-Digipet always assumes 8 inputs per module so that a 16-modul corresponds to two 8-modules in Win-Digipet.



Features usable in Win-Digipet			
Track protocol	Motorola	mfx	DCC
Locomotive addresses	1-255	1-9999	1-9999
Solenoid device addresses	1-320	No	1-No
Special functions per address	F0-F4	F0-F31	F0-F28
Feedback sytem	S88-N ⁷ , CAN-Bus ⁸		
Number of feedback contacts	1024 (64*16 Module á 16 RMK)		
Port	Ethernet		
Feedback of manual input at the digital system to Win-Digipet	Lok- und Magnetartikelbefehle		
Included since Win-Digipet Version	2012.3 ⁹ , 2015.2		

Further information can be found on the manufacturer´s website www.maerklin.de

The transfer of vehicles from the Win-Digipet vehicle data base to the Central Station 3 data base is not possible due to the current firmware of the Central Station 3. nicht möglich.



Fig. 3.64 Märklin 6021/6051

3.5.26 Märklin Systems • 6020/6021 with Interface 6050/6051

The digital system Märklin 6020/6021 can be used in **Win-Digipet** only together with the Interface Märklin 6050/6051.

Das Interface has to be connected to serial port (RS232) of your computer. The baud rate is 2400 bit/s and cannot be changed.

Features usable in Win-Digipet

Track protocol	Motorola
----------------	----------

⁷ a S88N-connection is available only with CS3 plus.

⁸ Until now no Märklin products available. For products compatible with CAN-Bus please look at Can-Digital-Bahn.

⁹ In versions earlier than 2015.2 you must select "Märklin Central Station 2" in Win-Digipet.



Locomotive addresses	1-80
Solenoid device addresses	1-255
Special functions per address	F0-F4
Feedback system	S88
Number of feedback contacts	496
Port	RS232
Feedback of manual input at the digital system to Win-Digipet	No
Included since Win-Digipet Version	1.0

This digital system is relatively old. Compared to newer devices it is not very powerful. Therefore, you might not be able to use all functions **Win-Digipet** to your satisfaction.

3.5.27 Modelleisenbahn Claus • DCCar

DCCar is a system for controlling DCCar equipped model railroad street vehicles.

Further information can be found on the manufacturer's website: www.wiki.dc-car.de

3.5.27.1 DCCar via IR-LEDs

The IR-LEDs have to be connected to the track output of a digital system which support DCC digital format. The vehicles are controlled via Infrared up to distance of 30 meters. The cars are controlled via DCC protocol and 28 speed steps.

Features usable in Win-Digipet	
Track protocol	DCC (28)
Car addresses	1-9999
Solenoid device addresses	1023
Special functions per address	F0-F8

3.5.27.2 DCCar PC-Sender

The DCCar PC sender is connected via USB port or a serial port to the computer.

Features usable in Win-Digipet				
Track protocol	InfraCar	DCC (28)	DCC (28)	DCC (28)



Car addresses	1-63	1-127 (until 08.2008)	1-1023 (since 09.2009)	1-1023 (since 08.2011)
Solenoid device addresses	No	1023	1023	1023
Special functions per address	F0-F6	F0-F8	F0-F8	F0-F9

3.5.27.3 DCCar Booster

The DCCar Booster has to be connected to the track output of a digital system which support DCC digital format. The cars are controlled via DCC protocol and 28 speed steps.

Features usable in Win-Digipet	
Track protocol	DCC (28)
Car addresses	1-9999 (since 07.2008)
Solenoid device addresses	1023
Special functions per address	F0-F8

3.5.28 Modellplan • Digital-S-Inside, Digital-S-Inside 2, Switch-Com

3.5.28.1 Switch-Com

The Switch-Com system is a digital system which is intended for the use at analogue model railroads. The control of locomotives is not possible. This is not sold and produced any more and so we suggest not to invest further money in this system.

Features usable in Win-Digipet	
Track protocol	Motorola
Locomotive addresses	No
Solenoid device addresses	1-255
Special functions per address	No
Feedback system	S88 similar
Number of feedback contacts	496
Port	Parallel port (LPT)
Feedback of manual input at the digital system to Win-Digipet	No
Included since Win-Digipet Version	5.0/6.0



The system is connected to the computer via a parallel port (old printer port). Most new computers don't have a parallel port on board. For these computers an additional add-on board must be installed in the computer.



Fig. 3.65 The settings for Switch-Com

3.5.29 MÜT • Multi Control 2004

The digital system Multi Control 2004 of MÜT has to be connected to serial port (RS232) of your computer. The baud rate can be set between 2400 bit/s and 38400 bit/s .

Further information can be found on the manufacturer's website: www.muett-digirail.de



Fig. 3.66 The Multi Control 2004

Features usable in Win-Digipet	
Track protocol	SX
Locomotive addresses	0-103
Solenoid device addresses	Max. 824 per SX-Bus
Special functions per address	F0-F1 (for locomotive decoders) F1-F8 (for function decoders)
Feedback system	SX
Number of feedback contacts	Max. 824 per SX-Bus
Number of SX busses	2
Port	RS232
Feedback of manual input at the digital system to Win-Digipet	Locomotive and solenoid device commands
Included since Win-Digipet Version	9.1



3.5.30 OpenDCC • Z1 P50X

The digital system OpenDCC Z1 P50X of the Open Source project OpenDCC has to be connected to serial port (RS232) or USB port of your computer.

For connecting to the USB port you need a USB cable type A-connector → B-connector.

For the USB port you need to install the manufacturer's driver. This driver creates a virtual serial port. The port number (COM 1-16) can be identified using the port utility in the Startcenter of **Win-Digipet**.

Further information can be found on the manufacturer's website: www.opendcc.de



Fig. 3.67 The Z1 of the OpenDCC-Project

Features usable in Win-Digipet

Track protocol	DCC
Locomotive addresses	1-9999
Solenoid device addresses	1-2048
Special functions per address	F0-F28
Feedback system	S88
Number of feedback contacts	2048 (128 Module with 16 feedback contacts each)
Port	RS232 or USB
Feedback of manual input at the digital system to Win-Digipet	Locomotive and solenoid device commands
Included since Win-Digipet Version	2012

3.5.31 Piko • SmartControl

This digital system is connect via Ethernet with the PC or integrated into existing network using a switch.

Further information can be found on the manufacturer's website: www.piko.de



Fig. 3. 68 The Piko SmartControl



Features usable in Win-Digipet	
Track protocol	DCC
Locomotive addresses	1-9999
Solenoid device addresses	1-2048
Special functions per address	F0-F28
Feedback system	CAN-Bus, (LocoNet) ¹⁰
Number of feedback contacts	1584 (99 Module á 16 Rückmeldekontakte) via CAN (ECoS Detector)
port	Ethernet
RailCom	Ja
Feedback of manual input at the digital system to Win-Digipet	Locomotive and solenoid device commands
Included since Win-Digipet Version	2015.1b

The Piko SmartControl uses a data base. To control turnouts and locomotives with Win-Digipet these must be connected with digital system. For this Win-Digipet offers comfortable assistants. Their usage will be detailed in chapter 4 in context with the vehicle data base.

3.5.32 Rautenhaus • RMX 952, SLX 825 and SLX 852

3.5.32.1 RMX 952

The Multifunction interface RMX 952 of Rautenhaus Digital has to be connected to serial port (RS232) of your computer. The baud rate can be set to 57600 bit/s or 115200 bit/s.

The addresses of the SX bus can be used for locomotive decoders (only SX0), solenoid devices decoders (8 solenoid devices per address) or feedback information (8 feedback inputs via address). Each address can only be used one time.

Further information can be found on the manufacturer's website: www.rautenhaus.de



Fig. 3. 69 Rautenhaus RMX 952

¹⁰ According to the manufacturer the LocoNet®-Function will be included in future updates. Only then this feature will be supported by Win-Digipet.



Features usable in Win-Digipet			
Track protocol	SX	SX2	DCC
Locomotive addresses	1-111	1-9999	0-9999
Solenoid device addresses	Max 896		
Special functions per address	F0-F1	F0-F16	F0-F23
Feedback system	SX/RMX		
Number of feedback contacts	Max 896 on RMX-1 Bus		
Port	RS232		
Feedback of manual input at the digital system to Win-Digipet	Locomotive and solenoid device commands		
Included since Win-Digipet Version	2009		

3.5.32.2 SLX 825

The Interface SLX 825 of Rautenhaus Digital has to be connected to serial port (RS232) of your computer. The baud rate can be set to 2400 bit/s or 19200 bit/s.

Features usable in Win-Digipet	
Track protocol	SX
Locomotive addresses	0-111
Solenoid device addresses	Max 896
Special functions per address	F0-F1 F1-F8 (Function decoder)
Feedback system	SX
Number of feedback contacts	Max 896
Number of SX busses	1
Port	RS232
Feedback of manual input at the digital system to Win-Digipet	Locomotive and solenoid device commands



Fig. 3.70 Rautenhaus SLX 825



Included since Version	Win-Digipet 9.1
------------------------	-----------------

3.5.32.3 SLX 852

The Interface SLX 852 of Rautenhaus Digital has to be connected to serial port (RS232) of your computer. The baud rate can be set between 9600 bit/s and 115200 bit/s.



Fig. 3. 71 Rautenhaus SLX 852

Features usable in Win-Digipet	
Track protocol	SX
Locomotive addresses	0-111
Solenoid device addresses	Max 896
Special functions per address	F0-F1 F1-F8 (Function decoder)
Feedback system	SX
Number of feedback contacts	Max 896 per SX-Bus
Number of SX busses	2
Port	RS232
Feedback of manual input at the digital system to Win-Digipet	Locomotive and solenoid device commands
Included since Version	Win-Digipet 9.1



3.5.33 Roco/Fleischmann • Z21

The digital system has to be connected to the computer using an Ethernet cable or can be included in an existing Ethernet network.



Fin 3.72 Digital system Z21

1. Digitalsystem

Digitalsystem-Typ: Roco-Fleischm. Z21

IP-Adresse: 192.168.10.2 TCP-Port 1: 21105

Sendepause: 0

☒ Bildschirmanzeige aller Lokbefehle bei Eingabe über Zentrale/Handregler/Fahrpulte

☐ Stellungsanzeige der Magnetartikel bei Eingabe über Zentrale/Handregler/Keyboard

Fig. 3.73 The settings for a Z21

When you select a network based digital system like Z21, the dialog for entering the IP address will appear. The TCP-Port number (here 21105) may not be changed.

The network interfaces and their addresses can be identified using the port utility in the Startcenter of **Win-Digipet**. If you cannot get any connection to this/these digital system(s) please check first in the used IP address is correct.

Further information can be found on the manufacturer's website: www.z21.eu

Features usable in Win-Digipet

Track protocol

Motorola

DCC

Locomotive addresses

1-255

1-9999

Solenoid device addresses

1-320

1-2048

Special functions per address

F0-F4

F0-F15

Feedback system

LocoNet, R-Bus

Number of feedback contacts

2048 (LocoNet), 160 ((20x8) R-Bus)

Port

Ethernet

Feedback of manual input at the digital system to Win-Digipet

Locomotive and solenoid device commands

Included since Win-Digipet Version

2012.2



3.5.34 Schmidt electronic • FETM

This digital system is mainly intended for users of analogue model railroad layout which want to start with digital control of feedback and switching.

This module communicates with the computer using an IP-based network connection and has to be connected to the computer using an Ethernet cable or can be included in an existing Ethernet network.

When you select a network based digital system like FETM, the dialog for entering the IP address will appear.



Fig. 3.75 Settings for FETM

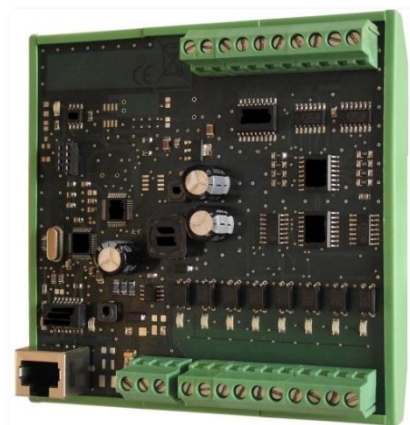


Fig. 3.74 FETM

Further information can be found on the manufacturer's website: www.schmidt-electronic.com

Features usable in Win-Digipet	
Number of inputs	8
Number if outputs	8
Port	Ethernet
Included since Win-Digipet Version	2012.3



3.5.35 SRCP Interface

The following table shows the maximum number of addresses supported by the program. The actual numbers of available of addresses and protocols depends on the SRCP-Server used .

Eigenschaften in Verbindung mit Win-Digipet	
Number of vehicles per bus	9999
Number of solenoid devices per bus	2048
Number of feedback contacts	1984
Feedback system	S88, 6051, 8255
Port	Ethernet
Feedback of manual input at the digital system to Win-Digipet	Locomotive and solenoid device commands
Included since Win-Digipet Version	2015

Further information can be found on the manufacturer´s website srcpd.sourceforge.net

3.5.36 Stärz • SX-Bus Interface, ZS1 and ZS2Fehler! Textmarke nicht definiert. system

3.5.36.1 SX-Bus Interface

The SX-Bus Interface of Stärz has to be connected to serial port (RS232) of your computer. The baud rate can be set between 2400 bit/s and 57600 bit/s.

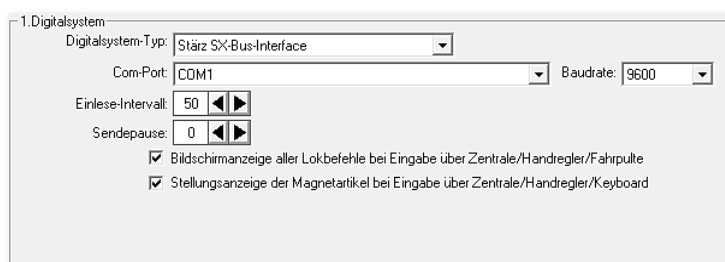


Fig. 3.76 The settings for a SX-Bus Interface of Stärz



Fig. 3.77 Stärz SX-Bus Interface



Features usable in Win-Digipet	
Track protocol	SX
Locomotive addresses	0-111
Solenoid device addresses	Max. 896
Special functions per address	F0-F1, F1-F8 (Function decoder)
Feedback system	SX
Number of feedback contacts	Max. 896
Number of SX busses	1
Port	RS232
Feedback of manual input at the digital system to Win-Digipet	Locomotive and solenoid device commands
Included since Win-Digipet Version	2009

3.5.36.2 Stärz ZS 1 and Stärz ZS 2

The digital systems ZS 1 and ZS 2 of Stärz have to be connected to serial port (RS232) of your computer. The baud rate can be set between 9600 bit/s and 57600 bit/s.

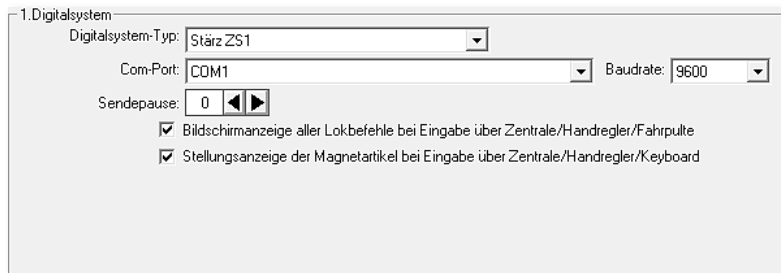


Fig. 3. 79 The settings for a ZS1 of Stärz



Fig. 3. 78 Stärz ZS1

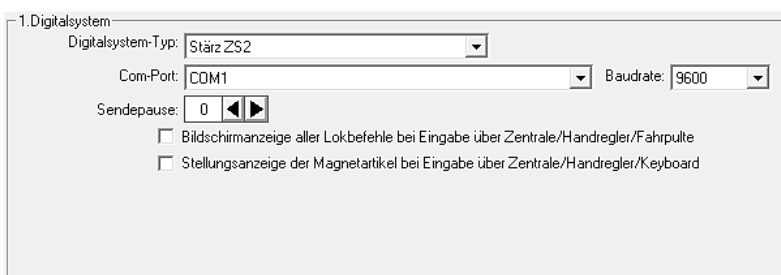


Fig. 3. 81 The settings for a ZS2 of Stärz



Fig. 3. 80 Stärz ZS2



ZS 1 - Features usable in Win-Digipet	
Track protocol	SX
Locomotive addresses	0-111
Solenoid device addresses	Max. 896
Special functions per address	F0-F1, F1-F8 (Function decoder)
Feedback system	SX
Number of feedback contacts	Max. 896
Number of SX busses	1
Port	RS232
Feedback of manual input at the digital system to Win-Digipet	Locomotive and solenoid device commands
Included since Win-Digipet Version	2009

ZS 2 - Features usable in Win-Digipet			
Track protocol	SX	SX2	DCC
Locomotive addresses	0-111	1-9999	1-9999
Solenoid device addresses	Max. 896 per SX-Bus		
Special functions per address	F0-F1, F1-F8 (Funkte.)	F0-F16	F0-F16
Feedback system	SX		
Number of feedback contacts	Max. 896 per SX-Bus		
Number of SX busses	2		
Port	RS232		
Feedback of manual input at the digital system to Win-Digipet	Locomotive and solenoid device commands		
Included since Win-Digipet Version	2009		

Further information can be found on the manufacturer's website: www.firma-staerz.de



3.5.37 Tams • Tams Master Control und RC-Link Interface

3.5.37.1 Tams Master Control

The Tams Master Control has to be connected to serial port (RS232) or USB port of your computer. When connecting via serial port you have to select the baud rate according to the settings in the system itself. The manual of the Master Controls helps you identifying a suitable baud rate.

For connecting to the USB port you need a USB cable type A-connector → B-connector.

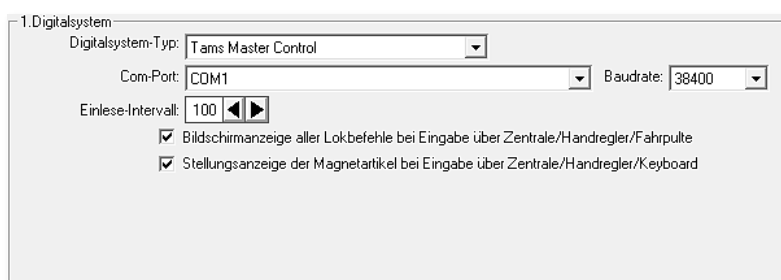


Fig. 3.82 The settings for a Tams Master Control



Fig. 3.83 Master Control

Features usable in Win-Digipet			
Track protocol	Motorola	DCC	m3 ¹¹
Locomotive addresses	0-255	1-9999	1-9999
Solenoid device addresses	1-1020	1-2040	None
Special functions per address	F0-F4	F0-F28	F0-F15
Feedback system	S88		
Number of feedback contacts	832 (52 Module with 16 feedback contacts each)		
Port	RS232 (COM) und USB		
Feedback of manual input at the digital system to Win-Digipet	Locomotive and solenoid device commands		
Included since Win-Digipet Version	9.1		

For the USB port you need to install the manufacturer's driver. This driver creates a virtual serial port. The port number (COM 1-16) can be identified using the port utility in the Startcenter of **Win-Digipet**. The two ports of the Tams Master Control can be used by different programs at the same time (we suggest not to do this while using automatic operation).

¹¹ m3 – is as special format for controlling mfx locomotives (since Firmware 1.4.5)



To use all features in **Win-Digipet** the minimum firmware which has to be installed on the Master Control is version 1.4.7. You can download the current firmware on the website of Tams Elektronik.

3.5.37.2 Tams Red Box



Fig. 3.84 The Red Box of Tams Elektronik

The two ports (USB) of the Tams Red Box can be used simultaneously by different programs. genutzt werden. The corresponding driver of Tams company must be installed on the PC. The driver creates a virtual serial port. The port number (COM 1-16) can be identified using the port utility in the Startcenter of **Win-Digipet**.

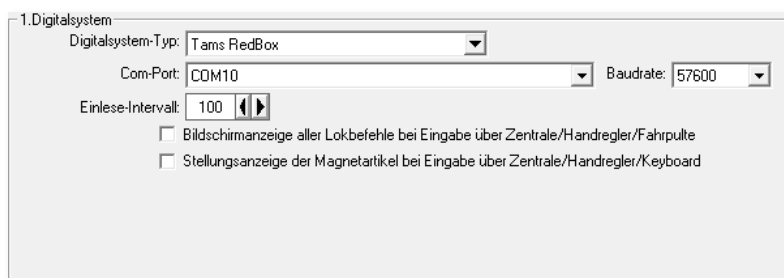


Fig. 3.85 The settings of the Tams Red Box.

Please note that most S88-modules have 16 inputs. However, Win-Digipet always assumes 8 inputs per module so that a 16-module corresponds to two 8-modules in Win-Digipet.



Features usable in Win-Digipet			
Track protocol	Motorola	DCC	m3 ¹²
Locomotive addresses	0-255	1-9999	1-9999
Solenoid device addresses	1-1020	1-2040	None
Special functions per address	F0-F4	F0-F28 ¹³	F0-F31
Feedback system	S88-N ¹⁴		
Number of feedback contacts	832 (52 Module á 16 RMK) ¹⁵		
Port	USB		
Feedback of manual input at the digital system to Win-Digipet	Locomotive and solenoid device commands		
Included since Win-Digipet Version	9.1, 2015.2 ¹⁶		

3.5.37.3 Tams RC-Link Interface

The RC-Link is a digital system for receiving address- and cv-messages of local RailCom detectors and sending them to **Win-Digipet**.

The Tams RC-Link Interface has to be connected to serial port (RS232) or USB port of your computer. For the USB port you need to install the manufacturer's driver. This driver creates a virtual serial port. The port number (COM 1-16) can be identified using the port utility in the Startcenter of **Win-Digipet**.

¹² m3 – is as special format for controlling mfx locomotives (since Firmware 1.4.5)

¹³ F9 to F12 available not until Firmware 1.4.4, F13 not until Firmware 1.4.6g and WDP-version 2009.5c, ab F13 not until Firmware 1.4.6h and WDP-Version 2012

¹⁴ S88-N uses a different plug than that of the old S88-modules. Adapters are available on the market. Further informations also here: <http://www.s88-n.eu/>

¹⁵ 52 S88-N modules not until Firmware 1.4.5, earlier 32 modules (each a 16 input module)

¹⁶ The digital system can be used with WDP 9.1 and later with the selection „Tams Master Control“, with WDP Version 2015.2 the digital system can be selected directly with the program.



Fig. 3. 86 Tams RC-Link Interface



Fig. 3. 87 The settings for a Tams RC-Link Interface

Features usable in Win-Digipet

Bus system	RS-485
Number of local detectors	24
Port	RS232 (COM) and USB
Included since Win-Digipet Version	2009.2

Further information can be found on the website: www.tams-online.de

3.5.38 Trix • Selectrix

The Trix Selectrix digital system (e.g. interface Trix 66842) has to be connected to serial port (RS232) of your computer. The baud rate can be set between 2400 bit/s and 57600 bit/s.



Fig. 3. 88 Trix Selectrix digital system



Fig. 3. 89 The settings for a Trix Selectrix digital system

Features usable in Win-Digipet



Track protocol	SX
Locomotive addresses	0-111
Solenoid device addresses	Max. 896
Special functions per address	F0-F1, F1-F8 (Function decoder)
Feedback system	SX
Number of feedback contacts	Max. 896
Number of SX busses	1
Port	RS232 (COM)
Feedback of manual input at the digital system to Win-Digipet	Locomotive and solenoid device commands
Included since Win-Digipet Version	9.1

Further information can be found on the manufacturer's website: www.trix.de

3.5.39 Uhlenbrock • Intellibox (IB, IB II, IB Basic, IB-COM)

The Uhlenbrock Intellibox is available in different versions with different features. In the following sections we'll describe the use with **Win-Digipet**.

Further information can be found on the manufacturer's website: www.uhlenbrock.de

3.5.39.1 Intellibox (65000 und 65050)

The Uhlenbrock Intellibox® I is nearly identical to the Fleischmann Twin-Center. The differences of both products are the available track protocols. Instead of FMZ the Fleischmann Twin-Center supports Motorola.

The Uhlenbrock Intellibox® I has to be connected to serial port (RS232) of your computer. Several baud rates are supported. We suggest using the Uhlenbrock Intellibox® I with 19200 bit/s. The selection "Default" uses the baud rate configured in the Uhlenbrock Intellibox® I.



Fig. 3. 90 The Intellibox first generation

1. Digitalsystem

Digitalsystem-Typ: Uhlenbrock Intellibox

Com-Port: COM1 Baudrate: 19200

Einlese-Intervall: 100

☒ Bildschirmanzeige aller Lokbefehle bei Eingabe über Zentrale/Handregler/Fahrpulte

☒ Stellungsanzeige der Magnetartikel bei Eingabe über Zentrale/Handregler/Keyboard

☒ Sperren der Magnetartikel innerhalb einer aktiven Fahrstraße bei Eingabe über Keyboard

Minimale Magnetartikel-Einschaltzeit in msec: 100 msec

Anti-Lichtflackern: Aus

Fig. 3. 91 The settings for the Uhlenbrock Intellibox I

An error message is displayed if "Locking solenoid device within an active route if manual input on keyboard" is activated. This would be the case if you try to access a solenoid device from the external keyboard, within an active route.

Intellibox and TwinCenter offer the possibility to use (nearly) all decoder types on one layout simultaneously (Märklin, Lenz, Trix, Uhlenbrock, Digitrax etc.).

Under such conditions – and only then - Märklin-Decoder could show a small problem: - lights on locomotives might flicker.

The option "Activate anti light flicker" nearly eliminates completely the flickering of the lights.

Use tests to decide the factor low - medium – strong.

The minimum activation time for all solenoid devices is set here. Values are between 0 to 500 msec.

This minimum activation time is adhered to, even when the program has sent a switching-off command. Recommended value is 100 msec.

Features usable in Win-Digipet

Track protocol	Motorola	DCC	SX
Locomotive addresses	1-255	1-9999	0-111
Solenoid device addresses	1-320	1-2000	No
Special functions per address	F0-F4	F0-F8 (F28 ¹⁷)	F0-F1
Feedback system	S88, LocoNet		
Number of feedback contacts	496 (S88), 2048 LocoNet		
Solenoid device addresses	1-2048 (LocoNet)		
RailCom	No		

¹⁷ Ab Firmware 2.0 und Win-Digipet 2012



Port	RS232
Feedback of manual input at the digital system to Win-Digipet	Locomotive and solenoid device commands
Included since Win-Digipet Version	7.0

Special settings in the menu of the Intellibox:

- Interface → Computer → PC
 - Syntax → 6050 and IB
 - Data rate → 19200 (recommended)
- Special options → SO5=2
 - SO97=0

3.5.39.2 Intellibox II (65100)

The digital system Intellibox II has to be connected to an USB port of your computer.

For connecting to the USB port you need a USB cable type A-connector → B-connector.

For the USB port you need to install the manufacturer's driver. This driver creates a virtual serial port. The port number (COM 1-16) can be identified using the port utility in the Startcenter of **Win-Digipet**.



Fig. 3. 92 The Intellibox II

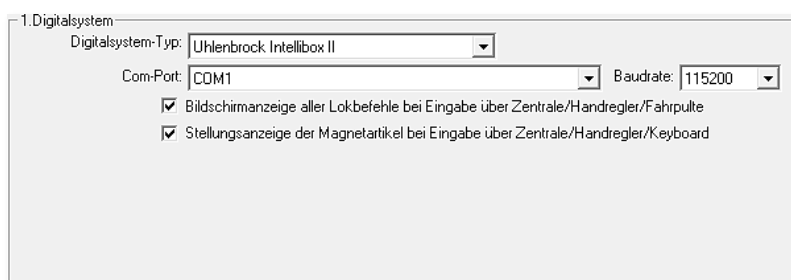


Fig. 3. 93 The settings for the Intellibox II of Uhlenbrock

Features usable in Win-Digipet

Track protocol

Locomotive addresses

Motorola

DCC

SX

1-255

1-9999

0-111



Solenoid device addresses	1-320	1-2048	No
Special functions per address	F0-F4	F0-F28	F0-F1
Feedback system	LocoNet		
Number of feedback contacts	2048		
Port	USB		
Feedback of manual input at the digital system to Win-Digipet	Locomotive and solenoid device commands		
Included since Win-Digipet Version	2009.3		

3.5.39.3 Intellibox Basic (65060)

The digital system Intellibox Basic has to be connected to an USB port of your computer.

For connecting to the USB port you need a USB cable type A-connector → B-connector.

For the USB port you need to install the manufacturer's driver. This driver creates a virtual serial port. The port number (COM 1-16) can be identified using the port utility in the Startcenter of **Win-Digipet**.

The LNCV 4 of the installed PC interface has to be set to 0. Please check this setting if you have problems with the PC communication.



Fig. 3. 94 Intellibox Basic

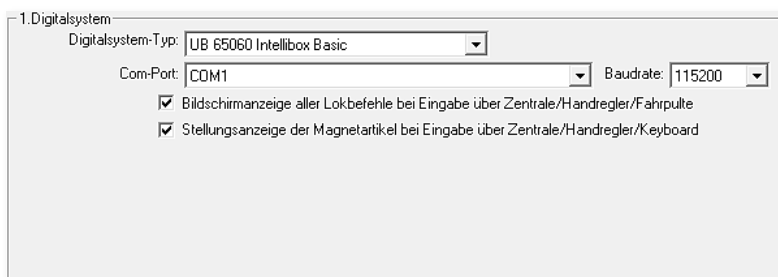


Fig. 3. 95 The settings for the Intellibox Basic of Uhlenbrock

Features usable in Win-Digipet

Track protocol	Motorola	DCC
Locomotive addresses	1-255	1-9999
Solenoid device addresses	1-320	1-2048
Special functions per address	F0-F4	F0-F28
Feedback system	LocoNet	



Number of feedback contacts	2048
Port	USB
Feedback of manual input at the digital system to Win-Digipet	Locomotive and solenoid device commands
Included since Win-Digipet Version	2009


3.5.39.4 Intellibox Com (65070)

The digital system Intellibox Com has to be connected to an USB port of your computer.

For connecting to the USB port you need a USB cable type A-connector → B-connector.

For the USB port you need to install the manufacturer's driver. This driver creates a virtual serial port. The port number (COM 1-16) can be identified using the port utility in the Startcenter of **Win-Digipet**.

The LNCV 4 of the installed PC interface has to be set to 0. Please check this setting if you have problems with the PC communication.



If you have problems using the S88 with the IB-Com you have to set the number of used S88 modules with the IB-Tool provided by Uhlenbrock. Uhlenbrock published the following note regarding this issue:

*"You have to use the IB-Com-Tool to change the programming of the IB-Com. In the menu there is a command called LocoNet-CV (LNCV). Sometimes the S88 module of the IB-Com starts to fast. Using the LNCV-Programming start the programming to article number 63880, address 1, LNCV-No.2. Try to set LNCV-No.2 to 20 (equal to 10 seconds start-up delay after power-on; of course you may not start **Win-Digipet** before). In some cases you even need to enter higher values."*



Fig. 3. 96 Intellibox Com

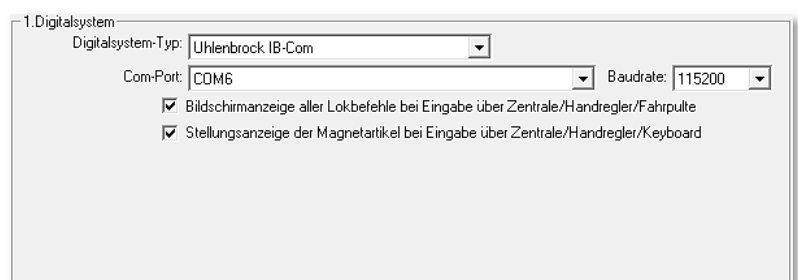


Fig. 3. 97 The settings for the Intellibox Com of Uhlenbrock

Features usable in Win-Digipet

Track protocol

Motorola

DCC



Locomotive addresses	1-255	1-9999
Solenoid device addresses	1-320	1-2048
Special functions per address	F0-F4	F0-F28
Feedback system	LocoNet (newer versions also with S88)	
Number of feedback contacts	2048	
Port	USB	
Included since Win-Digipet Version	2009	

3.5.40 Uhlenbrock • USB LocoNet Interface 63120

The interface has to be connected to an USB port of your computer.

For connecting to the USB port you need a USB cable type A-connector → B-connector.

For the USB port you need to install the manufacturer's driver. This driver creates a virtual serial port. The port number (COM 1-16) can be identified using the port utility in the Startcenter of **Win-Digipet**.



Fig. 3. 98 Uhlenbrock LocoNet Interface

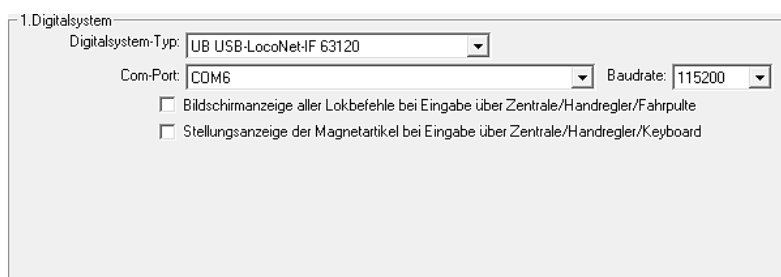


Fig. 3. 99 The settings for the LocoNet Interface of Uhlenbrock

Features usable in Win-Digipet	
Locomotive addresses	1-9999 (only with additional digital system)
Solenoid device addresses	1-2048
Special functions per address	F0-F28
Feedback system	LocoNet
Number of feedback contacts	2048
Port	USB
Included since Win-Digipet Version	2009



3.5.41 Zimo • MX10



Fig. 3.100. The Zimo MX10 Basic device

This digital system can be connected to the PC via a USB port. It is also possible to use an ETHERNET cable or to use the system integrated within a network.

For the USB port you need to install the manufacturer's driver. This driver creates a virtual serial port. The port number (COM 1-16) can be identified using the port utility in the Startcenter of **Win-Digipet**.

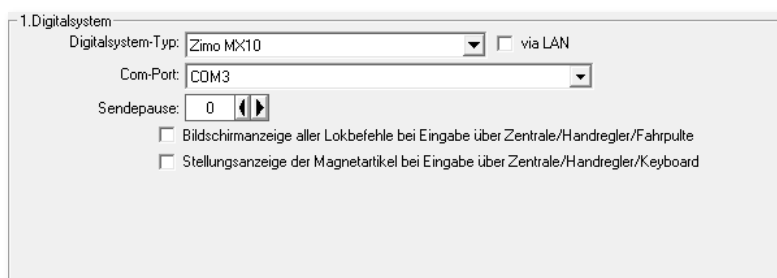


Fig. 3.101 The settings for the Zimo MX10 and USB-communication

Features usable in Win-Digipet

Track protocol	Motorola	DCC
Locomotive addresses	1-255	1-9999
Solenoid device addresses	1-320	1-2048
Special functions per address	F0-F4	F0-F28
Feedback system	CAN-Bus, X-Net	
Number of feedback contacts		
Port	USB	
Feedback of manual input at the digital system to Win-Digipet	Locomotive and solenoid device commands	
Included since Win-Digipet Version	2018	



Further information can be found on the manufacturer's website: www.zimo.at

3.5.42 No port assignment

Within the combo box for selecting the serial port number (COM-No.) there is also one list item called "None". This means the digital system is not physically connected. You can use this setting for testing purposes without connected interface.

3.5.43 Communication speed (Baud rate)

For most digital systems communicating via serial- or USB-port you can select the baud rate which should be used. You have to set them according to settings within your digital system.

For some digital systems the baud rate is fixed and cannot be changed. For other systems the baud rate depends on the used port (for example Tams MC: for serial port selectable for USB-port fixed to 57.600 Baud).

3.5.44 Reading interval

For some digital system you have the possibility to change the reading interval. Using this setting you can configure how often feedback will be transferred from your digital system to the PC. You can set the value between 100 msec. and 2000 msec. The default value is 100 msec. This means the digital systems is asked 10 times a second if need feedback information is available. A lower value means more frequent feedback requests. Such a request requires some time and calculation power.

If you use more than one digital system only the digital system used for the generation of feedback information should be set to low values, the other system can be set to higher value to reduce load. If you use for example an Intellibox for control locomotives and switching solenoid devices and the S88-feedback-modules are connected to the PC via a HSI-88, then you can set the reading interval of the Intellibox to 2000 msec.

When making experiments with this value take a look at the CPU load of your PC and test if the trains stop at the suitable places.



For other digital system this option is not available in the system settings. For this digital systems the feedback information is automatically send to **Win-Digipet** and the PC does not need a "poll/reading" interval.

3.5.45 Transmission break

For some digital systems you will see an option called "Transmission break". You can choose values ranging from 0 to 100 msec. The default value for some system is 10 msec. If you have the feeling for the system where this option is available that solenoid device switchings got lost, then you should increase the value slightly.



3.5.46 *Feedback of the digital systems*

Most digital systems can send information to the PC if the user controls the locomotives and/or solenoid device via the input device of the digital system. This function provides a feedback of the current commands to these devices.

3.5.47 *Display of solenoid device position changes done via digital system/throttle*

When activating this option in **Win-Digipet** changes to solenoid device position made on the digital system/throttle are transferred to **Win-Digipet** and will be visible within the track diagram.

This option is not available for all digital system (protocol dependent).

3.5.48 *Display of all locomotive commands done via digital system/throttle etc.*

When activating this option in **Win-Digipet** speed and function commands sent to locomotives/vehicle generated by the user via the digital system/throttle are transferred to **Win-Digipet** and will be visible on the locomotive control.

This option is not available for all digital system (protocol dependent).

3.5.49 *Save settings*



After changing the settings for the digital systems you have to press 'Save & Close'.

A restart of **Win-Digipet** is necessary for most cases.

After restarting **Win-Digipet** the new digital system will be accessible on the index card "Feedback modules".

The topic feedback modules will be covered within the next sub chapter.

Win-Digipet saves the settings for the current project in the file Projekt.xml. This file is settled in subfolder with the project name within the folder "Projekte" of the **Win-Digipet** main directory. All files for the current project are stored in this folder.

Please do not edit this file with a text editor.



3.6 Index card Hardware "Feedback modules"

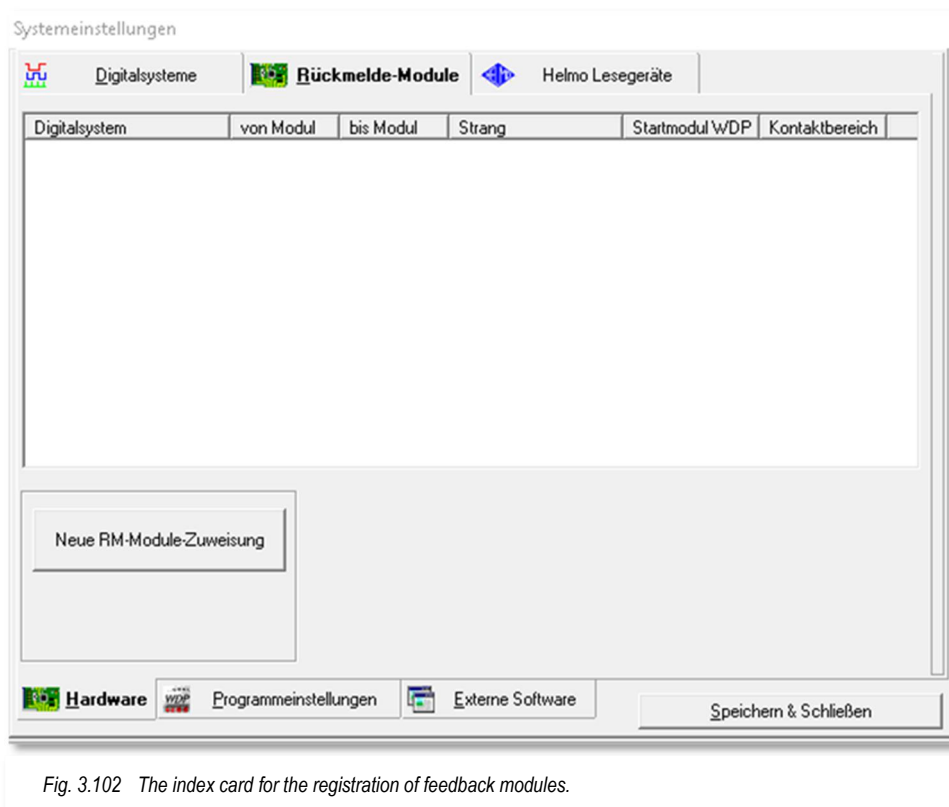


Fig. 3.102 The index card for the registration of feedback modules.

After registering your digital systems according to the last section you have to save and close the system settings and restart **Win-Digipet** afterwards. Now you can open the system settings again to assign the feedback contacts to your digital systems.

3.6.1 Feedback contact registration

In each row of the feedback contact list you can select a digital system for feedback contact usage. **Win-Digipet** supports up to 256 feedback contact modules (1984 feedback contacts).



The calculating scheme for the counting of feedback modules used feedback modules with 8 inputs. Users using feedback modules with 16 contacts have to make some calculations.

If you use feedback modules with 16 inputs you have to register 2 modules (with 8 inputs) per each 16 input module.

By clicking on '**New FB-module assignment**' (see Fig. 3.102) some additional input fields will appear (Fig. 3.102):



🚂 "Digital system"

🚂 "From Module" and "To Module"

🚂 "Start-Module WDP"

By default the first digital system is selected. In our demo project the ESU ECoS 2.

Fig. 3.103 The assignment of feedback modules.



In some digital systems the feedback modules are settled one after the other on a string (e.g. S88). For some feedback system like Lenz RS-Bus, Loconet and Selectrix the modules are addressed directly at any position on the bus.

For any kind of digital system you have to tell **Win-Digipet** which and how many modules are connected to the system.

But we want to use the LDT HSI-88-USB for the feedback modules in our example. This digital system is registered as second digital system within our demo project and can be chosen within the combobox "Digital system". The LDI HIS-88 has a special functionality for connecting S88 modules. The feedback bus is split into three separate lines and you have to select which and how many modules are connected to each line. After choosing the HSI-88 the combo box for selecting the line will become visible.

The HSI-88 labels the three lines with "Left", "Middle" and "Right". **Win-Digipet** uses the more general labelling "Line 1", "Line 2" and "Line 3". The numbering of the modules restarts with 1 for every line. Very important is the selection of the start module within the **Win-Digipet** numbering space, because this value defines the assignment of the external feedback modules to the internal numbering in **Win-Digipet**.

Digitalsystem	von Modul	bis Modul	Strang	Startmodul WDP	Kontaktbereich
2.LDT HSI-88-USB	Modul 1	Modul 3	Strang 1	Modul 1	001 - 024
2.LDT HSI-88-USB	Modul 1	Modul 3	Strang 2	Modul 4	025 - 048
2.LDT HSI-88-USB	Modul 1	Modul 4	Strang 3	Modul 7	049 - 080
2.LDT HSI-88-USB	Modul 4	Modul 5	Strang 1	Modul 11	081 - 096
2.LDT HSI-88-USB	Modul 5	Modul 8	Strang 3	Modul 13	097 - 128
1.ESU ECoS 2	Modul 1A	Modul 1B	ECoSDetector	Modul 17	129 - 144

Fig. 3.104 Assignment of feedback modules to a HSI-88



In our example (see Fig. 3.104) we use 10 feedback modules which have been split to the 3 lines. At lines 1 and 2 three feedback modules (8 contacts per module) have been installed each. Another four modules have been connected to line 3. In total this configuration has 80 feedback contacts.

After making your selections you can transfer the data to the table using '**Transmit**'.

If you want to register feedback modules press '**New FB-module assignment**' again.

Using '**Delete FB-contact assignment**' you can remove the selected list row.

If click on the table's headings, you can change the table's sorting.

After changing the feedback contacts, you have to press '**Save & Close**'.

3.6.2 Adding additional feedback modules to your model railroad

If you enlarge your model railroad layout you will most likely also install additional feedback modules. For the **Win-Digipet** you can place the feedback module at any place within the S88 bus. In **Win-Digipet** feedback modules can be freely assigned to the internal numbers.

A reservation of numbering spaces is not needed for further extensions.

The additional feedback modules can easily be added to the index card. In Fig. 3. of the last section we see the current example configuration.

Now we want to add two additional s88 feedback modules with 8 inputs to the first line. Later we want to use this additional contact within the track diagram of **Win-Digipet**. We register these additional modules in a new line of the configuration. In our example we had already installed three modules at line 1. Because of this the new modules are the modules 4 to 5 of this line. So we need to enter "Line 1", "Module 4" to "Module 5".



We also want to extend line 3 with additional 4 modules. This has to be registered as "Line3", "Module 5" to "Module 8" (before the extension 4 modules were installed at this line).

Last but not least we also want to add an ECoSDetector to the Bus of the ECoS 2.

The numbering within **Win-Digipet** depends on the selection of the 'Start module WDP' for each configuration line. It is important, that each internal contact number within **Win-Digipet** is used only once. If you used a contact number twice the list item will be coloured in red.

This example should illustrate, that you freely assign the external modules to the internal numbering space in **Win-Digipet** (see also Fig. 3.103).

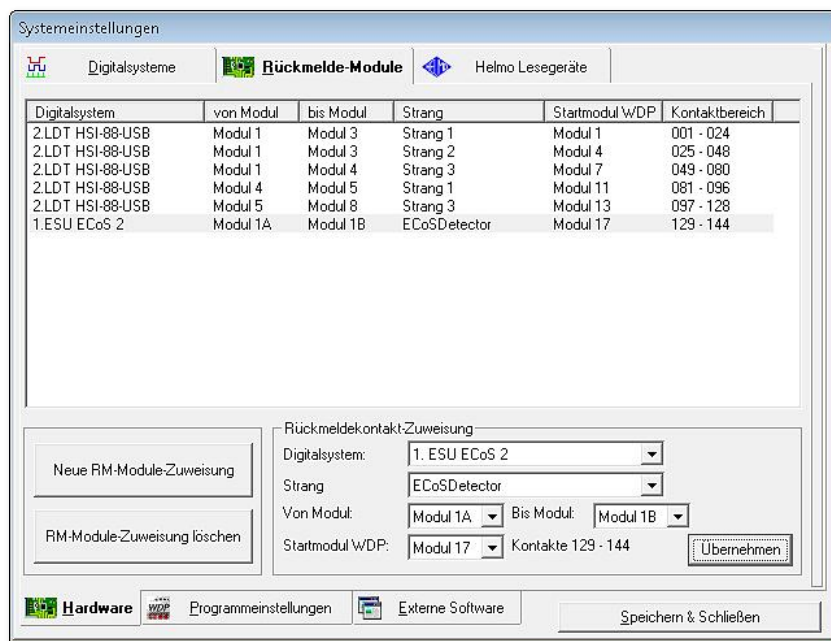


Fig. 3.105 The feedback modules after the "Extension"

3.6.3 Specialities of different digital systems

3.6.3.1 Digital system Zimo MX10

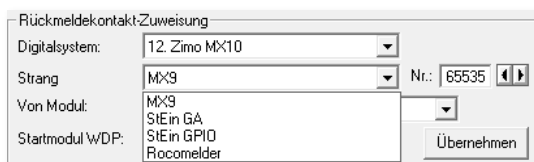


Fig. 3.106 Feedback connections with Zimo MX10

The digital system Zimo MX10 allows different ways of connecting feedback modules via its interfaces. These sources (e.g. MX9 Track section module, StEin – Stationary Equipment module or als Z12 Roco-detector 10808) can be selected explicitly using the list shown in Fig. 3. Please note that this window is shown only when applying the system Zimo MX10.

3.6.3.2 Digital system Roco/Fleischmann Z21

Similar to the digital system Zimo MX10 the digital system Roco/Fleischmann Z21 allows connecting different feedback systems. These can be selected in the settings dialogue of



the feedback modules – similar to Fig. 3.106. You can select between R-Bus, LocoNet®, or CAN

3.6.4 Saving the feedback modules

After changing the feedback contacts, you have to press '**Save & Close**'. Afterwards you will be forced to restart the program to reinitialise the feedback contact system.

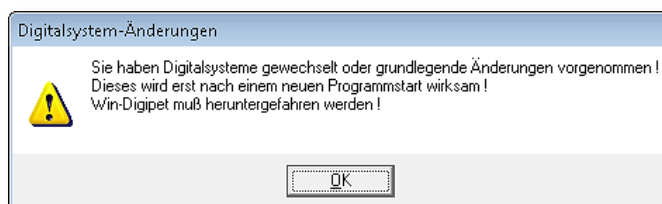


Fig. 3.107 Restart of **Win-Digipet** is necessary

3.6.5 Feedback modules and several digital systems

If you use S88-feedback modules with an ECoS, Central Station, Intellibox or Twin Center, you have to register the number of these feedback modules in the system settings of **Win-Digipet** and also in the menu of these systems.

But be careful in this case you have count in groups of 16 for some digital systems and some digital system are able to configure 8-port as well as 16-port modules.

Example:

You have connected 12 s88-feedback modules with 16 inputs to your digital system. Then you have to register 24 modules in the system settings of **Win-Digipet**. But in the menu of the digital system (e.g. Intellibox) you have to register 12 modules.

These settings in the menu of the digital system are very important because otherwise will possibly not receive feedback contact messages from these digital systems



If you add later new feedback modules in the configuration of **Win-Digipet** please remember to make the according settings within your digital system. When using the Märklin Central Station 2 please remember the following: You have to register a feedback contact in the central stations track diagram with the highest used feedback contact number in **Win-Digipet** for this system. By this registration the Märklin Central Station 2 recognizes how many S88 modules have been connected.



3.7 Index card Hardware – "Helmo reading devices"

Using the Helmo train number identification system with special reading devices and

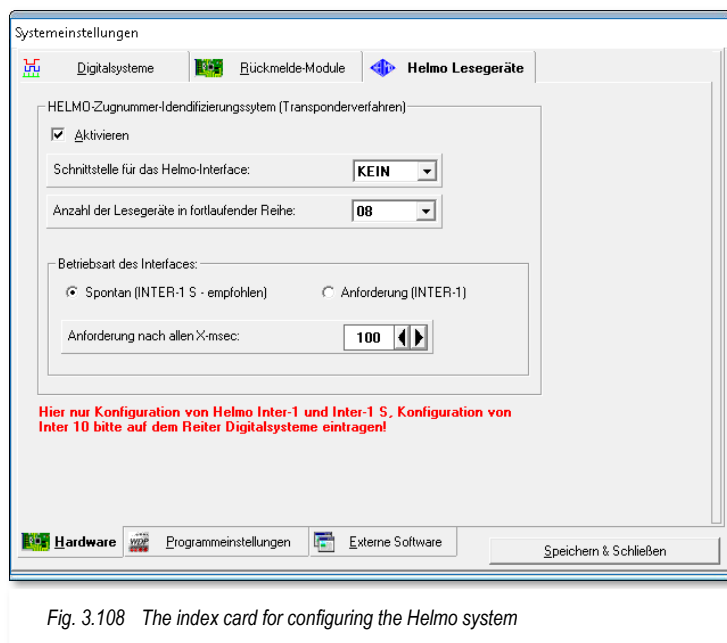


Fig. 3.108 The index card for configuring the Helmo system

transponders installed in the locomotives you can read the locomotive's addresses while passing the reading devices.

A maximum of 30 reading devices can be installed per layout.

Using an interface connected to a separate COM-Port the data read by device can be transferred to the PC. Helmo offered 3 different devices with different functionality:

Inter1-S

This interface reports directly – without specific demand of the program – any change from the reading devices. This is the faster and recommended method, because additional data, which increases the data stream and slow down the system, are not necessary.

Inter1

This interface just works on demand by the program. The inquiry time can be individually adjusted.

When you have activated a HELMO-interface, the switch button in the main program will be activated and the amount of reading devices will be displayed and are ready for identifying the addresses.

Inter10:

The Interface Inter10 is a newer interface. This interface has to be configured in the



same way as a normal digital system on the index card "*Digital systems*" using the selection "*Helmo Inter 10*"

Further information can be found on the manufacturer's website: www.ldt-infocenter.com

3.8 Index card "*Program settings – General*"

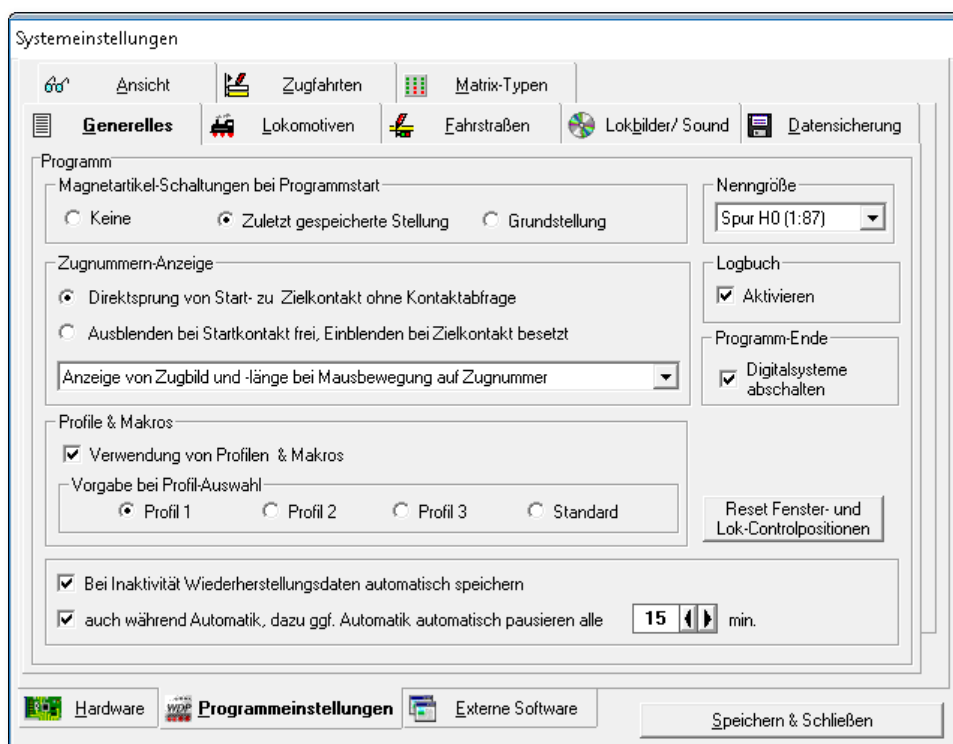


Fig. 3. 109 The index card "*Program settings – General*" showing the standard settings

The index card "*Program settings*" is split in eight sub index card. By default, the sub index card "*General*" is shown.



It is not necessary to save each separate setting on the index card using '**Save & Close**'.

You can make settings on the several index cards. After you have made all settings you can press '**Save & Close**' for saving and closing the system settings.

3.8.1 Solenoid device setting at program start

You can select if and under which condition the solenoid devices should be switched after starting the program:



No solenoid devices are switched



- all solenoid devices are switched to their last saved setting according to their actual switching position on the screen or
- To their basic settings.

The last two options are only useful, if you make frequent manual changes on the keyboard while the program is not running, because when using this options, the program starts is more or less delayed depending on the number of the installed solenoid devices.

3.8.2 Settings under "Train number display"

Here you define whether the train number display is performed, using feedback contacts or not.

- If no, select: *"Jump from start to destination contact without contact interrogation"*.
Using this option, the train number will be transferred immediately from the start to the destination contact train number display after the route has been switched.
- If yes, select: *"Blank, if start contact is free, display, if destination contact is occupied"*.
Using this option, the train number will disappear from the start train number display after the route has been switched and will appear later at the destination train number display after the destination contact got occupied.

The first option is the safer version, especially if your travelling train stops or does not occupy a contact any more. Even if you release the route manually, it will be visible on the destination train number display.

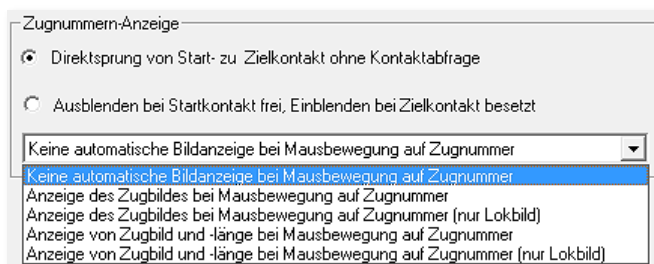


Fig. 3.110 Several options for the display of the locomotive/train settled on a train number display

If you move the mouse cursor over a train number display within the track and a train has been registered to this display an image of train/locomotive will appear in a small window.

Using the selection box you can decide if you want to see only the locomotive or the whole train. You can also decide whether also the train length you we be displayed or not.

3.8.3 Usage of profiles and macros

Here you can activate the usage of profiles and macros. Profiles are used in **Win-Digipet** for the assignment of special events/actions to routes. Macros are frequently used sequences which can be activated manually as well as in profiles.



Only when checked the menu commands <File> <Profile-Editor> and the symbol  in the toolbar are active. The profiles will become available in manual and automatic operations.



If you activate this option once, it does not make sense to deactivate it later. The profiles will still be available, only the editor will be hidden or not.

3.8.4 Automatic Backup to restore data

In case of a program- or PC-crash previous versions of **Win-Digipet** demanded a restoration of the state of trains before the crash and of the corresponding relationships between trains and train number displays at the restart of the program.

With the current version of **Win-Digipet** you can activate an automatic backup of data with intervals 60 sec so that the last program state before the crash can be automatically restored. Furthermore, you can activate the backup of data even during the automatic operation. Here an interval between 1 and 120 min can be chosen (standard interval 15 min). During the active automatic operation the backup interval is delayed until all operations are finished.

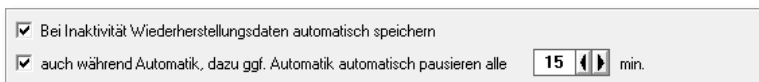


Fig. 3. 111 Activation of backup of data for restoration

The following the data are saved:

- Track diagram
- Train number displays
- Position of the intelligent turntable
- States of dispatcher
- States of vehicles
- Composed tractions
- State of joystick(s)
- Settings
-

The automatic backup is only performed, if

- no route is active.
- the simulation is switched off.



- the editors for routes, tours, tour-automatic, profiles, profiles/macros, intelligent turntable, and vehicles are not active.

After a crash you will be notified at the restart of **Win-Digipet** that there are data for restoring which will be loaded automatically.

In the main folder you find a symbol which presents the date and time of the latest backup if you tip to the symbol with your mouse. If you press on the symbol a backup of your data is activated.

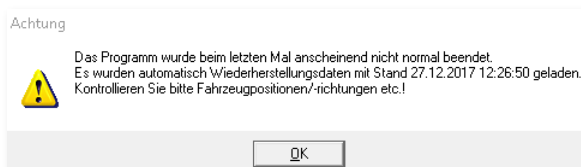


Fig. 3.112 Restart with indicating the restoration of data



Fig 3.113 Symbol and Tooltipp with information of last backup

3.8.5 Pre-setting at selection

If you have created profiles you can preselect which profile to use with the "Start/Destination function", so you don't have to change from "Standard" to "Profile 1" every time. If no "Profile 1" exists automatically "Standard" would be used. When using "Standard" the route will be executed as defined in the routes editor without any profile.


3.8.6 Reset window positions

For user of **Win-Digipet**, who use more than one displays the button "Reset windows positions" has been created. Also when moving a window by mistake out of the screen area this function can be used.

When pressing this button all saved positions for the several windows in the program would be reset to their standard position on the first screen (0, 0). This is very useful to restore a one-display-operation after using more than one display.



If the windows to be reset are open at the moment you have to close **Win-Digipet** and reset the window positions with the corresponding button in the Startcenter on the index card "Options/help" (see 2.2.6.2).

You can reset the positions of the locomotive controls with a click on the symbol  or with the key "F2". This symbol is located at the toolbar "Loc-control". By default, this toolbar is not shown. It becomes visible after a right click at the free area of the toolbars and activating the button "loc-control".



3.8.7 Scale

Here you can select the scale of your model railroad layout. The standard value is H0 (1:87).

Within the combo box you can select the other scale.

If you have parts on your layout with a different scale size e.g. N for a narrow-gauge track you should select here your main scale. Setting the correct scale is very important for the stopping by centimetres, the intelligent train number display and the locomotive measurement process.

For single locomotives using another scale you can select the differing scale in the vehicle database.

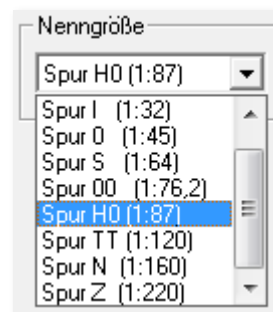


Fig. 3.114 Setting the scale

3.8.8 Logbook

If you activate the logbook **Win-Digipet** will list all important messages of the program in the logbook. The logbook is some kind of operation protocol for **Win-Digipet**. You can move the logbook to any part of your screen or hide it later. Even if you hide the logbook **Win-Digipet** will continue with the log of the actions/operations.

The meaning of the different entries in the logbook and the other functions of the logbook will be explained in section 14.5.

3.8.9 End of program

When checking this option **Win-Digipet** will switch off (stop) your digital systems when closing. Using this option, the track power will be off after closing the program until you reopen the program or you manually turn on the track power again.



3.8.10 Recommended settings on the index card "General"

In Fig. 3. 115 you can see the recommendation of the author of this manual for the settings

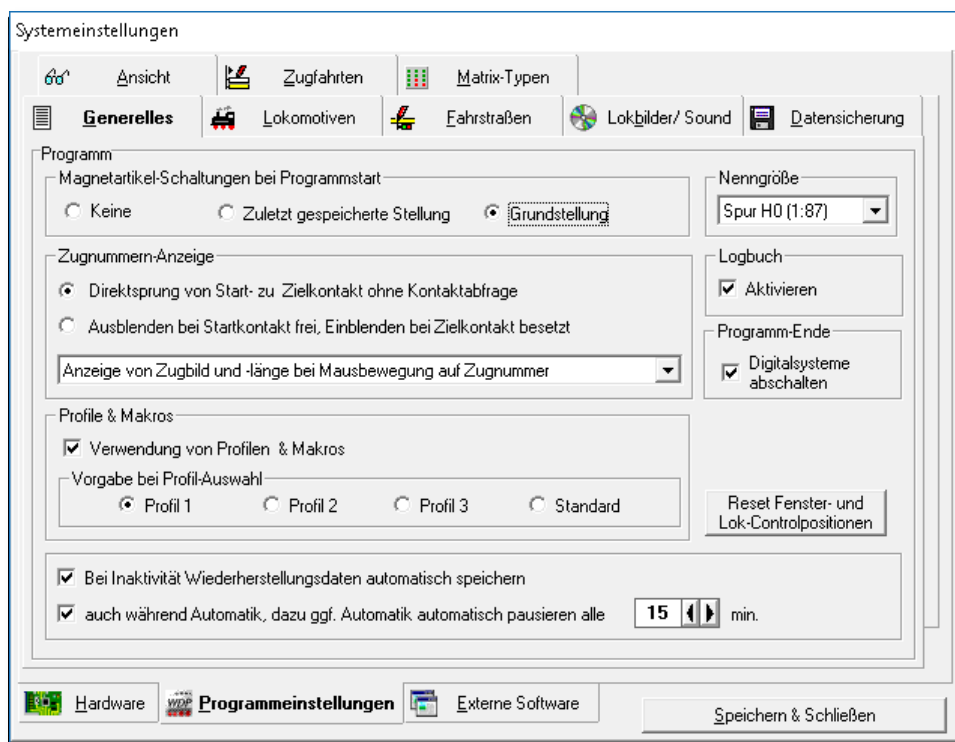


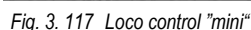
Fig. 3. 115 The recommended settings on the index card "General"

on this index card. Of course you might also have good reasons for choosing different ones.

- 🚂 If you select to the basic setting at the program start you do always have a clear situation even if you switched turnouts manually in the meantime while the program was not active. Of course this option consumes some time.
- 🚂 The reason for selecting the direct jump has been explained in section 3.8.2.
- 🚂 The type of locomotive or train image is very subjective. I would suggest trying the different options.
- 🚂 The usage of profiles has been activated. When using **Win-Digipet** you will recognize, that you don't need very much profiles, but for some functionalities they are essential. The usage of macros is a very interesting opportunity to register frequently used control sequences.
- 🚂 The logbook should be activated always in **Win-Digipet**. The logbook helps the user identifying problems while operating the model railroad layout with the program. You can also reproduce the routes a train has been used etc.



3.9.1 Settings under "Locomotives"



At the "Locomotives" index card, you can determine to open the "Loco Controls" in small size ("Mini"), if you click on the locomotives in the loco selection bar with a left-button-mouse-click, otherwise they will open in large size ("Maxi").

If you switch a route with the "Start-Destination" function and the digital address of a loco is marked in a train label display on the track layout and

this train is available on its start contact, then the button "Switch + Drive" will be activated. On this frame you can determine to open the Loco-Control simultaneously to the start of the train.

If yes, also the feature "Close Loco-Control automatically after '**Switch + Drive**' will be activated. Depending on your statement, the Loco-Control will be automatically closed (or not), after the train has reached its destination.





3.9.2 *Preselection of the decoder protocol for new vehicles*

At "Decoder type for new vehicles" you can preselect, which decoder protocol should be applied when installing new vehicles. Later you may change the protocol individually for each vehicle.ii

3.9.3 *Drive locomotives also manually*

If you activate this option an additional button will become visible in the locomotive control.


By clicking the button (small hand symbol) in the locomotive controls "Maxi" or "Mini" you can force **Win-Digipet** to disable any (semi)automatic driving of the locomotive.

The computer will switch the routes, but it will be your task to drive the locomotive like a real engine driver e.g. via loco control, throttle, joystick or Smartphone App.

Locomotives set to manual mode will be indicated in the locomotive bar with a red frame (an eventual yellow frame indicating the maintenance state will be covered).



Fig. 3.119 manual control of a locomotive



When pressing the button your locomotive will be stopped immediately and you will become responsible for any further driving control.

In the manual mode it is your task to start the locomotive after a route has been switched and also to stop locomotives in front of red signals. You are the only one who controls the locomotive.

This function is intended for taking over the complete control over a locomotive. If you just want to decelerate or accelerate a locomotive shortly you don't need to activate this button.

3.9.4 *Open RailCom-/MFX-assistant automatic when detecting...*

When activating this option, the RailCom-/MFX-assistant will open automatically whenever a new locomotive is detected by one of the supported systems. Using this assistant, you can enter the locomotive's data very quickly (some data is also transferred from the detector directly to the new dataset; depending on the type of detector). If you use such locomotives and detectors it is advisable to activate this function.

3.9.5 *Push button time for the (Locomotive)-function and f1 – f28*

Fundamentally, "definition as push key or sound push-key" means, that after switching of a function via mouse click, this switch will be deactivated after a (adjustable) time – the second mouse click for deactivating the function is therefore not necessary. For example, this is meaningful for functions like "Horn" or "Bell" or "Telex".



In the Locomotive-Database you are able to determine, if such functions shall be defined as a (sound) push key or not. If these functions are defined as a push key, they will be deactivated (switched off) after the selected time.

The push buttons time in **Win-Digipet** can be set manually for normal push buttons and sound push buttons.

The time for **push buttons** (e.g. Telex) can be set from 1sec to 8sec.

The time for **sound push buttons** can be set from 0,1sec to 2sec.

The right value depends on your digital system and your decoder; you should make some experiments.... If you can hear a sound twice you should shorten the sound push button time.

Tasterzeit für die Funktion und f - f28, wenn als Taster definiert	3 Sek
Tasterzeit für die Funktion und f - f28, wenn als Sound-Taster definiert	0.5 Sek

Fig. 3.120 The two push button times

3.9.6 Handling of locomotive's sounds at the end of the program

You can select different options how **Win-Digipet** shall handle activated locomotive's sounds when closing the program. You can see the different options in the picture Fig. 3.121).

☛ The option "don't change" will result in no change of the activation state of sound function when closing **Win-Digipet**.

☛ The second option "switch off and reactivate at next start of program" will cause a deactivation of all active locomotive sound function when closing the program. All these sound functions will be reactivated when restarting **Win-Digipet**.

☛ The option "switch permanently off" will cause a deactivation of all active locomotive sound function when closing the program. The function will not be reactivated after restarting the program.

The additional buttons offers the option to interrupt and restart a sound being played by pushing the corresponding function button.

Lokomotiv-Sounds beim Programmende....

unverändert lassen
unverändert lassen
abschalten und beim nächsten Programmstart wieder aktivieren
komplett dauerhaft abschalten

Fig. 3.121 The options for the locomotive's sound handling at the end of the program



3.9.7 Recommended settings for the index card "Locomotives"

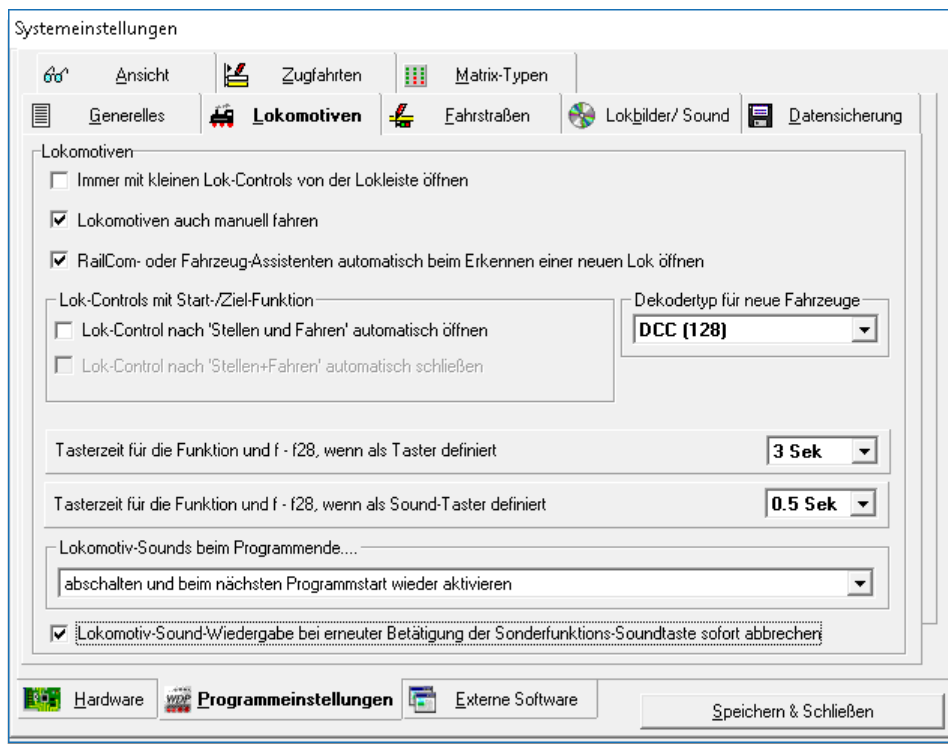


Fig. 3.122 recommended settings for the index card "Program settings – Locomotives"

The manual's author recommends the following settings:

- 🚂 You should activate the option for driving locomotives manually. If you want to use this function by activating the small hand in the locomotive control you don't need to open of the system settings again.
- 🚂 The option to open RailCom-/mfX-assistant should only be activated if you own such decoders and if you have also installed a suitable detection system or if your digital system is equipped with according detectors.
- 🚂 The preselection of the decoder type depends on a your personal model train environment.
- 🚂 The selected option to switch of the locomotive's sound functions at the end of the program and to reactivate them after restart was a subjective decision of the author. You have to decide yourself which option is your favourite.
- 🚂 The interrupt and restart of vehicle sounds may be useful in case of long lasting sounds.



3.10 Index card "Program settings – Routes"

The settings on this index card define the handling of routes in **Win-Digipet**. A route is the

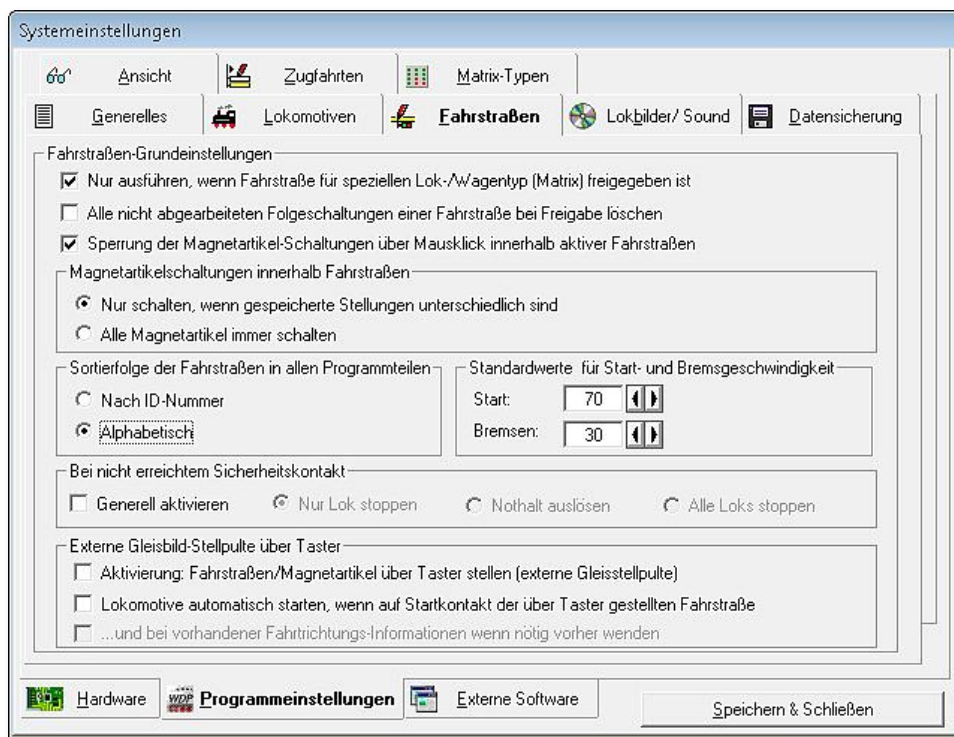


Fig. 3.123 The index card "Program settings – Routes" with its default settings

simplest form of an itinerary between two train number displays in **Win-Digipet**.

3.10.1 Switch only, if the route isn't locked for a special loco-/wagon type

If you activate this feature, the program checks, whether the designated route is locked for a specific loco- / wagon type (e.g. E-Loco is not valid for tracks without power cable). If you do not activate this feature, there will be no check. All entries in the routes-editor or in the locomotive-database or the tour automatic would be ignored.

3.10.2 Delete all remaining add-on switching of a route after release

By this option all outstanding add-on switching is deleted when the release condition of a route is fulfilled. It is recommended using this feature quite carefully, because it also compensates bugs in your configuration (wrong settings in the Routes-Editor) or conflicts with not proper working feedback contacts on your model railroad.



Be careful with this function, because in many cases this function just masks your own errors and can lead to strange symptoms.



3.10.3 *Inhibit solenoid device switching in active routes via mouse click*

All solenoid devices, which should be manually switched via a mouse click in an active route, are blocked are in an active route, if the switch is checked. A message is displayed, informing you about the event.

3.10.4 *Solenoid devices switching within routes*

If you select the function: *"Switch only, if last stored position is different"*, only solenoid devices inside selected routes will be switched, if their settings are different to the current settings registered in the program.

With this function, the serial data stream will be decreased dramatically and the performance of other commands will speed up rapidly, because if the switching of the solenoid devices is already in a correct position, it's not necessary to switch them again.



If you switch solenoid devices manually by hand, or routes have just been tested by the program, problems may occur or the program will identify the switch positions in a wrong setting.

To ensure, that this won't happen, please reset to default settings of all solenoid devices before you start the timetable operation or the tour automatic.

Also the activation of the application of basic settings after starting the program (see 3.8.1 and 3.8.10) will minimize this risk.

Remark for Intellibox I users:



You can also speed up the switching of solenoid devices, if you don't connect any keyboards to your Intellibox and the **special option 33 is set to zero**. Due to this setting, there will be no feedback from the solenoid devices to the keyboards and this will save time in addition.

3.10.5 *Sorting function of routes in all program parts*

Please determine if the routes shall be sorted and displayed by ID-number or in alphabetical order in all program parts.

3.10.6 *Standard values for start- or breaking speed*

These values will be used when pressing the standard speed button in the route editor or when creating new routes in the route editor or with the route wizard.



If you want to create a larger set of routes e.g. for faster trains, it is advisable to change these setting before the route creation to the values for the faster trains (e.g. 120 and 30). Otherwise you would have to change the value for each route.



3.10.7 *If Safety-contact is not reached*

Because of problems on model railroad layouts caused by not properly switching turnouts this function was implemented as a **minimal** protection to your trains.

By using this option, you have to select for every route in the routes editor a "Safety-contact".

When checking "*activate generally*" you have the choice between three actions being executed by the program if a safety-contact is not reached within the selected time.



In general, you should invest some time in proper working hardware and shouldn't use this option, because it just compensates the effect of bad hardware.

If the safety contact has not been reached within the selected time...

- 🚂 Just stop the affected locomotive or
- 🚂 release an emergency stop or
- 🚂 Stop all locomotives.

Indeed, this function does not protect against a possible crash, but, nevertheless, can help to decrease the amount of damage.

It is your decision which one of the three options you choose. We suggest using the emergency stop option only in exceptional cases, it is better to stop all locomotives.

3.10.8 *Switch routes and solenoid devices by push key (external switchboard)*

This fundamental switch activates the switching of routes and solenoid devices with an external track layout switchboard by feedback contact keys. The contacts will be defined in the Routes-Editor.

To register a contact in the Routes-Editor, this feature has to be enabled in general in the system settings.

If you quit the Routes-Editor, all such contacts will be stored with its ID-number of the corresponding route in a separate file.

With one button, you are able to switch several solenoid devices / routes. The interrogation will be performed every 500 milliseconds; therefore, you have to push a button for at least half a second. The following functions will be taken into account...

- 🚂 the switch conditions

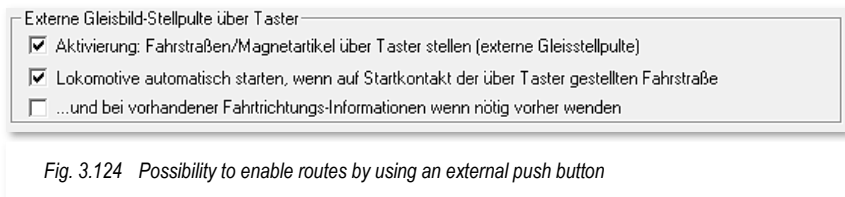


- 🚂 the (partial) release of routes
- 🚂 And the add-on switchings.

The route will be indicated in yellow until the release condition has been fulfilled. If no release-condition is registered, the route will just be indicated very shortly.

If you **do not** use an external track layout switchboard, please keep this switch definitely **deactivated**.

If you activate the first as well as the second option also the locomotive on the start train number display will be started and driven according to settings in route or if available, the according profile.



When using the third option the locomotive will also be turned automatically if necessary to match the direction recorded for the start train number display in the route. This option can only be set after checking the second option.



3.10.9 Recommended settings for the index card "Routes)

The manual's author suggests using the default settings for the beginning. After making some tests and experiments you first might want to change the default speed values. In our example we changed the starting speed to 80 km/h (Fig. 3.125).

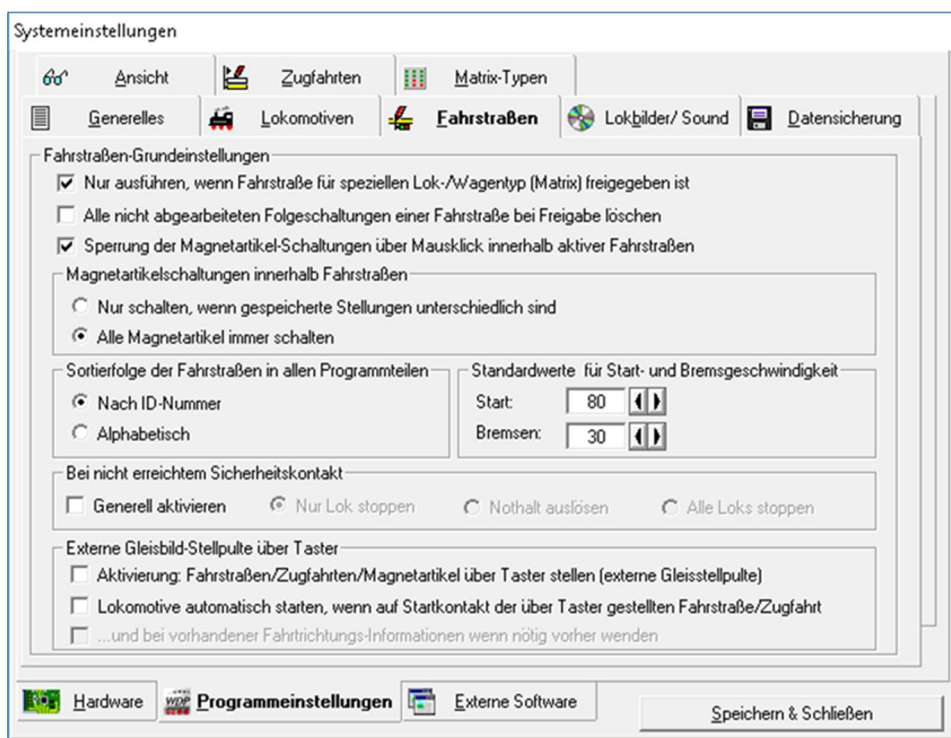


Fig. 3.125 Recommended settings for the index card "Routes"

It is also advisable to activate the option to switch solenoid devices always if you have any problems with problematic turnouts etc.



3.11 Index card "Program settings – Loco-Pictures / Sound"

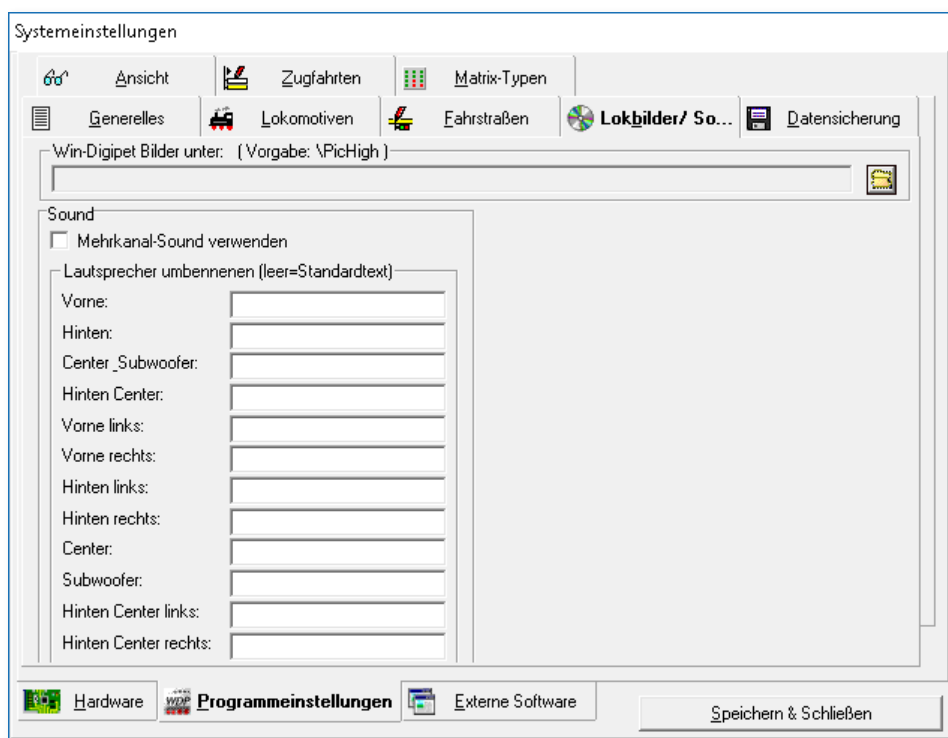


Fig. 3. 126 Index card "Program settings – Loc-Pictures / Sound" with its default settings

On this index card you have to select the path to the locomotive pictures delivered with **Win-Digipet** (e.g. C:\Wdigipet\PicHigh). Without this setting **Win-Digipet** cannot find the pictures.

If you use the office version frequently and you don't want to take the **Win-Digipet** USB stick with you, you can copy the complete folder PicHigh from the USB stick to your hard disk. In This case you have to select the correct path to this folder.

In the frame "Sound" you have the choice to use multi-channel sound. Up to **16** channels may be used simultaneously. Due to this, a long sound won't be stopped, if a new sound will be released by a contact event.

You can rename the several speakers which can be connected to a multi-channel sound card.



3.12 Index card "Program settings – Backup data"

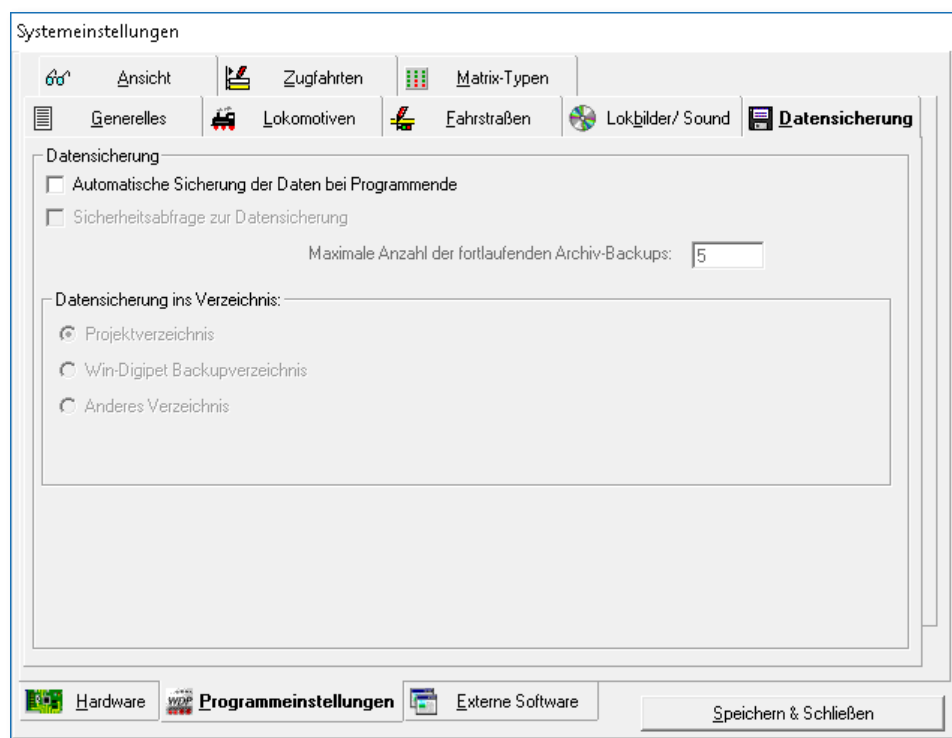


Fig. 3. 127 Index card "Program settings – Backup data" with its default settings



3.12.1 Automatic save of data after end of program

On this index card you can decide if you want to make automatic backup copies of your data and select the relevant options. If you work with several projects or change your project very often you should check *"Automatic save of data after end of program"*.

This option helps to prevent you from losing data!

When you check *"Safety request for data backup"* a safety request will be displayed every time you leave the program, this request allows you decide whether to make a backup this time or not.

You can choose where to backup your data...

-  into the project folder
-  into the **Win-Digipet** backup folder
-  into another folder

The data will be stored as ZIP file.



3.12.2 Data backup into the project folder

This is the default setting.

You don't have to make any further settings for selecting the backup folder. After the first automatic backup the program settings will show the project's folder as backup folder. The backups will be made as compressed Zip-Files.

It is your decision if you do also check "Safety request for data backup". In many cases it makes sense to decide by yourself when finishing **Win-Digipet** if you want to backup your data this time or not.

You cannot manually change the backup directory if you have selected to backup in the project folder.

3.12.3 Data backup into Win-Digipet backup folder

Using this option the data are saved into C:\WDIGIPET\BACKUP\<Name of Project>

3.12.4 Data backup into another folder

If you want to backup your data to another folder select "*Another folder*" and a dialogue window as shown for selecting a folder. After "ok" the selected folder name is in another window (Fig. 3.128)

You can select any drive of your computer similar to the data maintenance as destination for your backup. You can even select network drives if created. In this folder **Win-Digipet** creates automatically creates compressed ZIP-Backup-files.



Fig. 3.129 Auswahl zur Datensicherung in ein anderes Verzeichnis

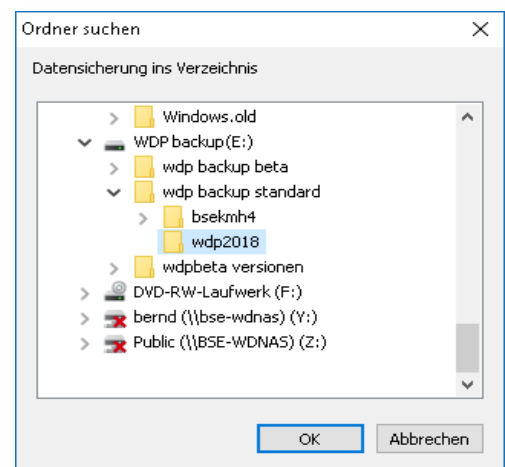


Fig. 3.128 Dialogue to select a folder

3.12.5 Name convention for the automatically created backups

Win-Digipet creates in the backup folder ZIP-Files using the following nomenclature:

WDP_BACKUP_<Name of project>_<Date>_<Time>_<seq. No>

The numbers 0001 to 9998 are used for the sequential number. When reaching the maximum, the sequence will restart with 0001.

The date and time values are formatted as follows: DD_MM_YYYY_HH_mm



Fig. 3. 130 A data backup as zipped file shown in the Windows Explorer

3.12.6 Maximum amount of serial backup copies

Independent to, which folder you selected as backup folder, you can select a "*Maximum. amount of serial backup copies*" between 1 and 9998 to be created by the backup routine. Normally you should select a value between 5 and 20 to get sufficient results.

If you select for example "20" as maximum amount of backup copies, the oldest backup copy will be deleted when the 21st backup copy is created.

When decreasing the maximum amount of backup copies and caused by this more than one backup copy would have to be deleted a security request will be displayed.

After answering this question with "Yes" the older backups will be deleted and a new backup will be created.

Using the index card "Data Import/Export" in the **Win-Digipet** Startcenter you can easily restore older backups.

3.12.7 Data backup concept

By principle we can state, that a 100% protection against data loss cannot be realized with reasonable effort (this applies of course to all your data and not only the one of **Win-Digipet**). But the risk can be minimized if you keep some things in mind.

Create a small backup concept. You should consider the following questions:

- 🚗 When should the backup be executed?
- 🚗 What should be backedup?
- 🚗 Where do you want to store the backup?

In fact, the answers are quite simple. The question regarding the time should be answered after reading the last sections:

Every time you close the program!

Also the second question is easy to answer:

All working data of all of my projects!

The third answer is little bit more complicate and you need to think a little more. Depending on your answer you will also need to change the answer to the first question.

A backup to the project folder might lead to a confusing situation if you use a large number of backups. A backup to another folder would be better in this case. It would be better to



place this backup folder on another physical drive (or network drive) to prevent data loss due to hardware failure.

In the Startcenter you find the index card for data im- and export. Using this function, you can create additional backups from time to time and store them e.g. of an external media (like an USB stick etc.).

If you consider these points you will achieve a maximum of safety for your data. Let's summarize:

- 🚂 Automatic backup of the data at the end of the program
- 🚂 Frequent backup of all data using the Startcenter
- 🚂 Automatic backup to a second drive
- 🚂 Additional backups to an external media

3.13 Index card "Program settings – View"

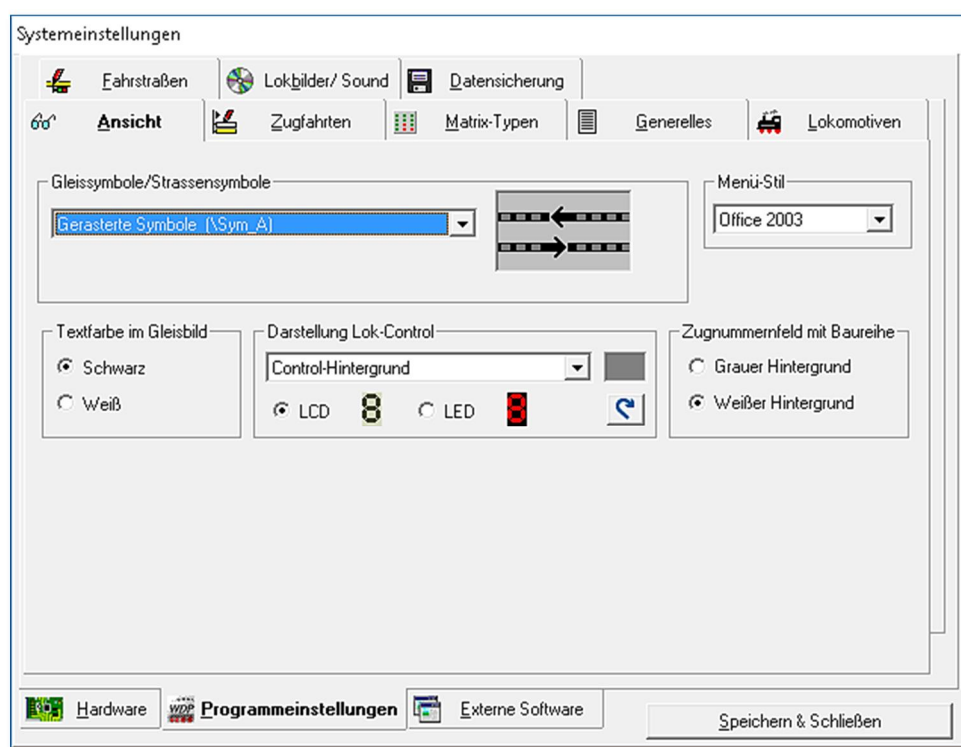


Fig. 3.131 Index card "Program settings – View" with its default settings

3.13.1 Settings under "Track / road symbols"

Within the main program a great variety of track symbol table is available...

- 🚂 3D-Symbols Sym_3D



☞ Screened symbols	Sym_A
☞ Symbols	Sym_ADIF
☞ Street and railway symbols	Sym_Auto_Bahn
☞ Drawn through symbols	Sym_B
☞ Railway and street symbols	Sym_Bahn_Auto
☞ Railway standard, street simple	Sym_Bahn_Auto_B
☞ Screened symbols Belgium	Sym_Bel_A
☞ Symbols with signals in the centre of track	Sym_C
☞ DB-Standard symbols	Sym_DB
☞ DB-Standard symbols 2	Sym_DB_2
☞ Drawn through symbols Denmark	Sym_DK_B
☞ Alternative symbols FS	Sym_FS_A
☞ Screened symbols FS	Sym_FS_L
☞ Screened symbols Italy	Sym_Italia_A
☞ Screened symbols Nederlande	Sym_NL_A
☞ Screened symbols Spain	Sym_RENFE_A
☞ Screened symbols Switzerland	Sym_SBB_A
☞ Swiss car symbols	Sym_SBB_A_C
☞ As before (for red/green blind)	Sym_SBB_A_G
☞ Drawn through symbols Switzerland	Sym_SBB_B
☞ Alternative symbols	Sym_SP
☞ Alternative symbols 2	Sym_SP2
☞ Alternative symbols 3	Sym_SP3
☞ User symbols	Sym_U

3.13.2 Settings under "Colour of text within track"

Here you have the choice between black and white text colours, so that the text colour can be selected according to the background colour, for example when using the German railroad symbols (DB) you has to select the white text colour.



3.13.3 Display of Loc-Controls

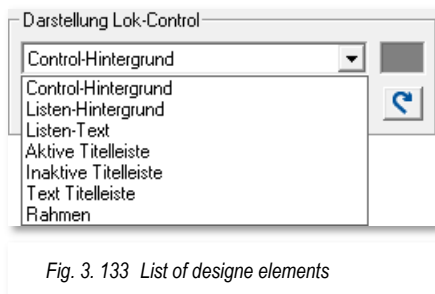


Fig. 3.133 List of design elements

Here you can choose a design which is similar to a LED display and a LCD display, respectively.

Furthermore, the colour of the loc-control is freely selectable. For this purpose, you click into the list shown here and select the design element to be altered. In the small field right of

the list the selectable colours are shown.

If you finally don't like the selected colours, you can reset to the standard colours by clicking on .




Fig. 3.132 Coloured loc-Control

3.13.4 Menu style

Here you can choose a design which is similar to a LED display and a LCD display, respectively.

Furthermore, the colour of the loc-control is freely selectable. For this purpose, you click into the list shown here and select the design element to be altered. In the small field right of the list the selectable colours are shown.

If you finally don't like the selected colours, you can reset to the standard colours by clicking on .

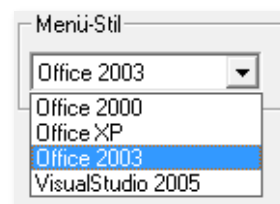


Fig. 3.134 Menu style selection

3.13.5 Background colour for train number displays with class

In the track diagram of Win-Digipet you can place three train number displays with identical feedback contact number as shown in Fig. 3.135

In the system settings of the program you can choose the back colour of these displays.



Fig. 3.135 Placing different train number displays in the track diagram editor.



Fig. 3.136 A train number display created out of three symbols with gray background

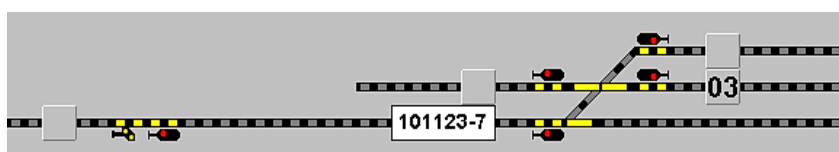


Fig. 3.137 A train number display created out of three symbols with white background

The different optical results for the two selectable colours can be seen in the graphics (Fig. 3.136 and Fig. 3.137).

A single train number display shows only the digital address of the locomotive. The larger train number displays show the class of the locomotive (for a single locomotive

assigned by the locomotive database) or the train name (assigned by the train composition).



3.14 Index card "Program settings – Tours"

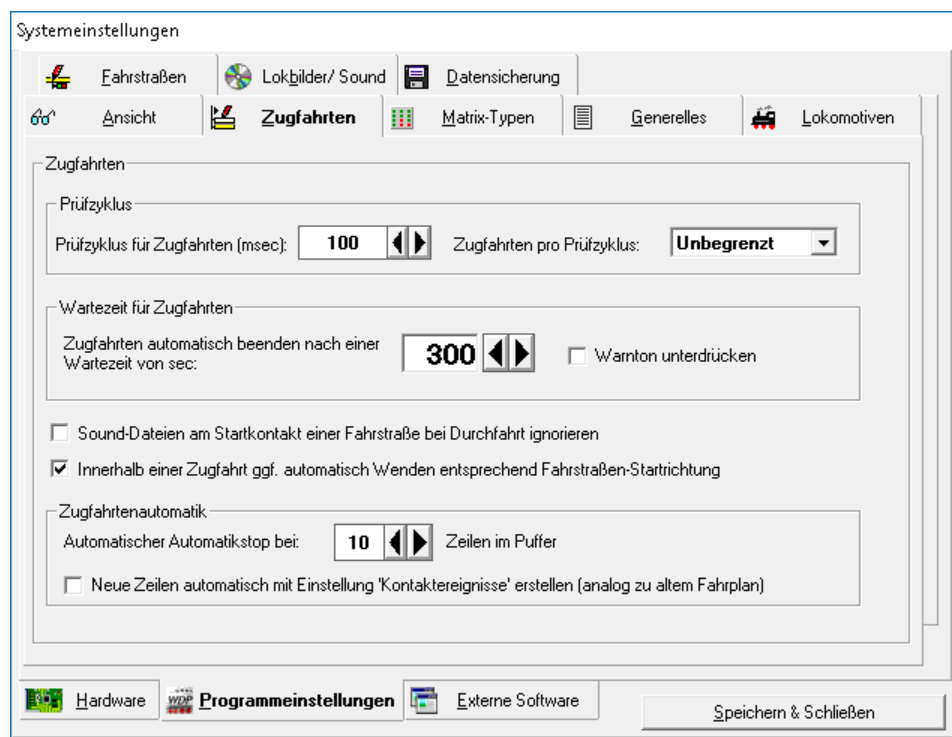


Fig. 3.138 Index card "Program settings – Tours" with its default settings.

3.14.1 Check cycle for tours

This value defines the time between two examinations of check contacts in active routes used in tours. When the checked contact has been reached and the next route of a tour is free, the route will be switched automatically.

You should keep in mind, that a smaller check cycle time results in a higher processor load. In dependence to the power of your PC and the size of your model railroad layout 250 msec. could cause better results in operation than a value of 100 msec.

You will have to find out the ideal value by experimenting.

3.14.2 Tours per check cycle

With this option you can change the check cycle for tours to improve the performance of **Win-Digipet** on your PC (especially for slow PCs).

The standard setting is unlimited and can be changed to values from 1 to 100.

We'll explain this setting with a small example:





In your tour automatic 25 tours are running and you set the value to check 5 tours per cycle, then the first check cycle will test 5 tours after reaching the next check cycle time the next 5 tours will be tested and so on until all tours have been checked and the cycle will start again from the beginning.

This setting can be used to decrease the processor load on your computer if you have a slower PC or not much RAM is installed in the PC.

3.14.3 *Automatically cancel tour after a waiting time*

With this setting you determine, the case to cancel a tour if it cannot be continued. Reasons for discontinuation could be...

-  the next routes are still occupied
-  the next route is not allowed for this type of train (Check for error in tour!).

If the tour cannot be continued after the selected time, a short message will be displayed and an alert will be played ("Ding-Dong"). By checking "Disable audio warning" no alert will be played.

The affected tour will be treated differently...

Using "Switch + drive":



the tour stops



the tour in the tour event inspector window marked by a red hourglass



the colour of the train number remains green



no further warnings will be displayed



In the tour automatic operation with unchecked "With tour departure time".



the tour stops



the tour in the tour event inspector window marked by a red square



the colour of the train number remains green



no further warnings will be displayed

in the tour automatic operation with checked "With tour departure time" and without alternative route or tour:



the tour stops



the tour in the tour event inspector window marked by a red hourglass




the colour of the train number switched back from green to black/white



a short warning message will be displayed and a warning will be played if not disabled



You will have to clear the blocking situation on your layout. Afterwards you need to select the according tour in the tour event inspector and reactivate it using the button . You could also drive the route manually using Switch+Drive to another place, the tour will automatically be cancelled within the tour event inspector.



In the tour automatic with checked "With tour departure time" and with alternative DC route or tour...



the tour stops



the tour in the tour event inspector window marked by a red hourglass



the colour of the train number switched back from green to black/white



a short warning message will be displayed and an alert will be played if not disabled



the tour will remain in the inspector until a next tour has been started by the automatic. The old tour will then be removed from the inspector.

A short waiting time for this setting you can eventually be used to create a more fluent operation on your layout. If you enable the possibility to quit tours relatively fast and if you have additional routes/tours starting for all positions on your layout installed in your automatic, this options solves blocking situations faster. But you need much more rows in the automatic because a train could be blocked at any position.

The default value of 300 sec. can be changed according to your needs/wishes. You'll have to find the value suitable for your use by experiment.

3.14.4 Ignore sound-files at start-contact of route while passing through

This function in **Win-Digipet** was created to control the operation of tours using profiles. If you have registered a sound-file at a start, contact of a route (e.g. a platform announcement) you can decide here if this sound should also be played if a train just passes this contact within at tour.

3.14.5 Turn within a tour

By activating this option it is possible to turn automatically within a tour. For purpose the program evaluates the start direction of the next route within the tour and the train is turned if necessary.

3.14.6 Number of lines in the routes buffer

Routes and tours which could not be switched in a time controlled tour automatic at the given time are filed into a buffer.

The automatic stops automatically when the buffer is full.



Select the size of the buffer between one and 100 lines; default is 10.

3.14.7 New rows in the tour automatic

If you activate this option new rows in the tour automatic will automatically be created with selection 'Contact events' (same as in old timetable in former versions of Win-Digipet)

3.14.8 Reommended settings for the index card "Tour"

The manual's author suggests using the default settings for the beginning. After making some tests and experiments you first might want to change the check cycle for tours to adapt this value to slower PCs.

If you use profiles, you should check the sound files ignore option.

The option "turn within a tour" is addressed especially to advanced users who want to realise operations of push-pull trains.

3.15 Index card "Program settings – Matrix-Types"



Fig. 3.139 Index card "Program settings – Matrix-Types" with its default settings

The global definitions for loco-/wagon types will be done and saved here. Feel free to overwrite the predefined settings with any inputs you like. You will find the registered Loco-/ wagon types in the vehicle-database and the routes-editor to allow or lock routes for specific loco-/ wagon types.

You can lock routes for specific loco-types, but also for trains, which are (for example) too long for the selected routes.



The names of the columns three and four can be adapted to your own needs.

In the small column "Prio" you can choose values between 1 and 10 for different types of waggons. Waggon-types with higher priority (lower value) will have priority compared to these with lower priority (higher value). These values will be taken into account for concurring tours.

3.16 Index card "External Software"

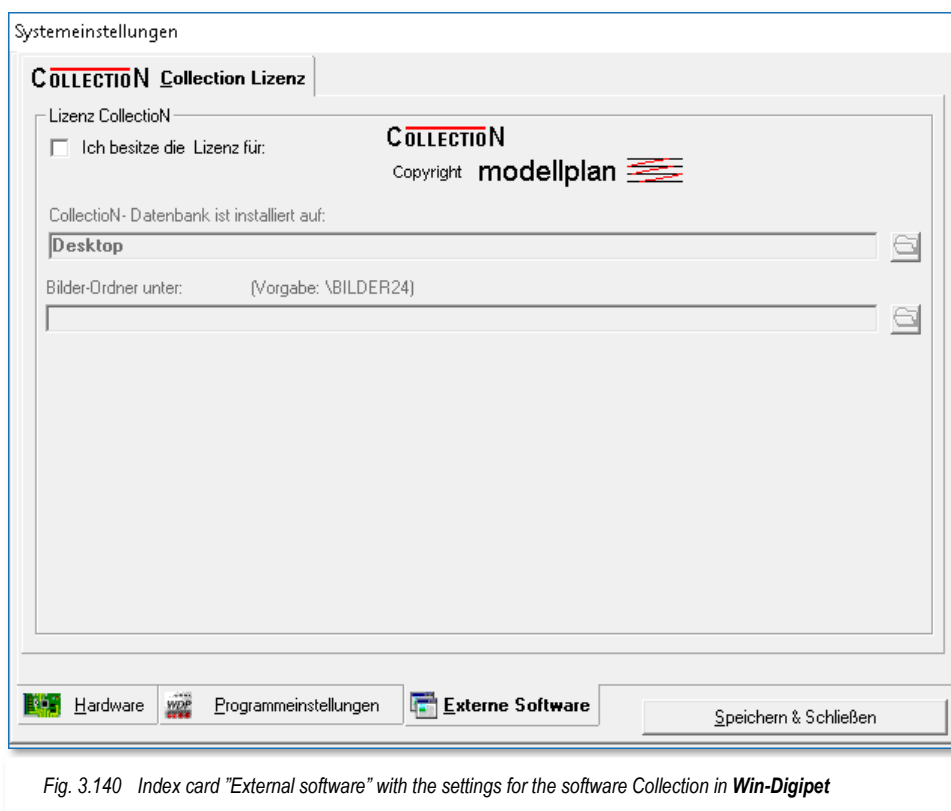


Fig. 3.140 Index card "External software" with the settings for the software Collection in Win-Digipet

Win-Digipet enables you to represent each of your **locomotives** with its **picture**. For this purpose, picture data has to be entered into your system.

Win-Digipet comprises the picture data of many Märklin locomotives with the reference numbers 26xx, 36xx, 37xx and 39xx; this is a database containing more than **375** pictures. The last pictures are from the year 2005, newer pictures are not available due to licensing issues.

There are also various programs by third parties on the market. Well known is the data base "Collection", by Modellplan in Göppingen.



Collection contains the numerical data and picture data of all locomotives in gauge 00 and H0 manufactured by Märklin between 1935 until the production data of the Collection CD.

3.16.1 Installation of the Software "Collection"

If you purchased the data base "Collection" by Modellplan, insert it into your DVD-ROM drive and carry out the installation according to the Modellplan manual.

The installation path **C:\COLLECTION\MAERKLIN\HO** is set to default value; if you do not modify it, the executable program (.exe) of "Collection" will be installed in this directory.

3.16.2 Integration of theinde Software "Collection"

Click on the index card "Collection License" and tick yourself as licensee in the upper left-hand corner.

Select the drive and folder in the middle of this index card in which "Collection" was installed. At the left you will see this message "Collection is installed on "C:\COLLECTION\MAERKLIN\HO". If you modified the installation directory during the installation of "Collection", you should set the correct directory in which the executable program is stored.

If the attempt to get access to the database of Collection fails, you will get the message: "Collection (.EXE) not found!".

In the right part of this index card you can select the exact path to your collection pictures e.g. "D:\BILDER24" if the files are still on the DVD or "C:\COLLECTION\MAERKLIN\HO\BILDER24" if you have copied the pictures to your hard disk.

If you want to store the pictures of the Collection database on your hard disk and don't want to keep the DVD in the drive, the program Collection offers an internal function to copy all pictures to the hard disk.

For leaving the system settings just click '**Save & Close**', you'll return to the main window of **Win-Digipet**.

Version 2018
Premium Edition

Chapter 4



4. VEHICLE DATABASE

In this part of the program you can register and manage your locomotives, function models and other vehicles. You can register an unlimited number of vehicles. On your layout you can operate up to 999 vehicles at the same time (up to 250 of them may be locomotives).

Using **Win-Digipet** you can control the special functions f1 to f31¹⁸.

Using this functionality, you can manage the data of your locomotives, which can also have represented by their coloured pictures.

Locomotives are controlled in **Win-Digipet** using locomotive control's which are available in three different sizes ("Maxi", "Mini" or "Micro") which can be placed anywhere on the screen.

You can also control up to 20 locomotives using the control bar of the locomotive bar without the need to open a locomotive control. All actions will be synchronized in both directions between the control bar and the locomotive's control.

4.1 Upgrading from previous versions



Fig. 4.1 The toolbar of the vehicle database

Win-Digipet converts your old settings in most cases. Anyway we suggest checking the following settings especially when upgrading from relatively old versions.





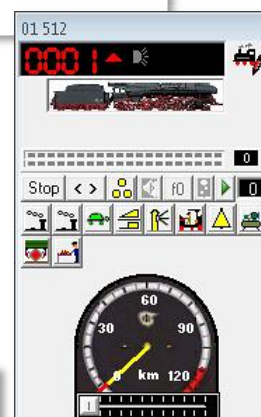



-  Decoder types
-  Function (f0) and special functions (f1-f31 Fehler! Textmarke nicht definiert.)
-  Minimal rated speed for- and backwards
-  Maximal rated speed for- and backwards

Fig. 4.2 A locomotive control while editing



¹⁸ Depending on your digital system



-  Acceleration and deceleration
-  Function decoders
-  As well as the matrix settings.

In **Win-Digipet** 2012 Premium Edition the locomotive database has been renamed to vehicle database. Starting with this version the database does not only contain locomotives and cars as well as cranes, but now also waggons or trains (waggon groups) with and without function decoder(s).

You might ask, why?

The reason is quite simple, start with **Win-Digipet** a train is not represented only by its locomotive(s) but also by its waggon/its train composition.





In the past **Win-Digipet** only controlled or registered locomotive, all information regarding the whole train had to be registered for the locomotive leading the train. Because of this a change of waggon type, train length etc. resulted always in a change of the locomotive attributes. Now with **Win-Digipet** offers the possibility to register locomotives as well as wagons and to combine them to trains. So now it is very easy to combine waggons and locomotives to a complete train without any need to change attributes of its parts

These changes had to be done in the former locomotive database for the case that the composition resulted for example in a change of a waggon type and/or Length (X).

If you use such changing train compositions on your model railroad layout, then you can register the locomotives and the waggons (waggon groups) separately.

The definition of the matrix type "Length (X)" is not necessarily needed in any case because of the new functionality train length LoB (Length over buffer in cm). Because of this you can also change the heading of this matrix type in the system settings (see section 3.15).


When registering vehicles, you should distinguish between...

-  a single locomotive
-  a single waggon
-  a group of waggons
-  a crane

In the following descriptions, we always use the term locomotive, even if it is a car. When talking about waggons we also mean a group of waggons.

Cranes have to be registered also as waggons. Compared to former version now also more than one crane of the same type is supported.



Now open the vehicle database by clicking on the symbol  in the main toolbar. The vehicle database will open showing the first registered locomotive. By default, the vehicle database contains two example dataset which can be overwritten.

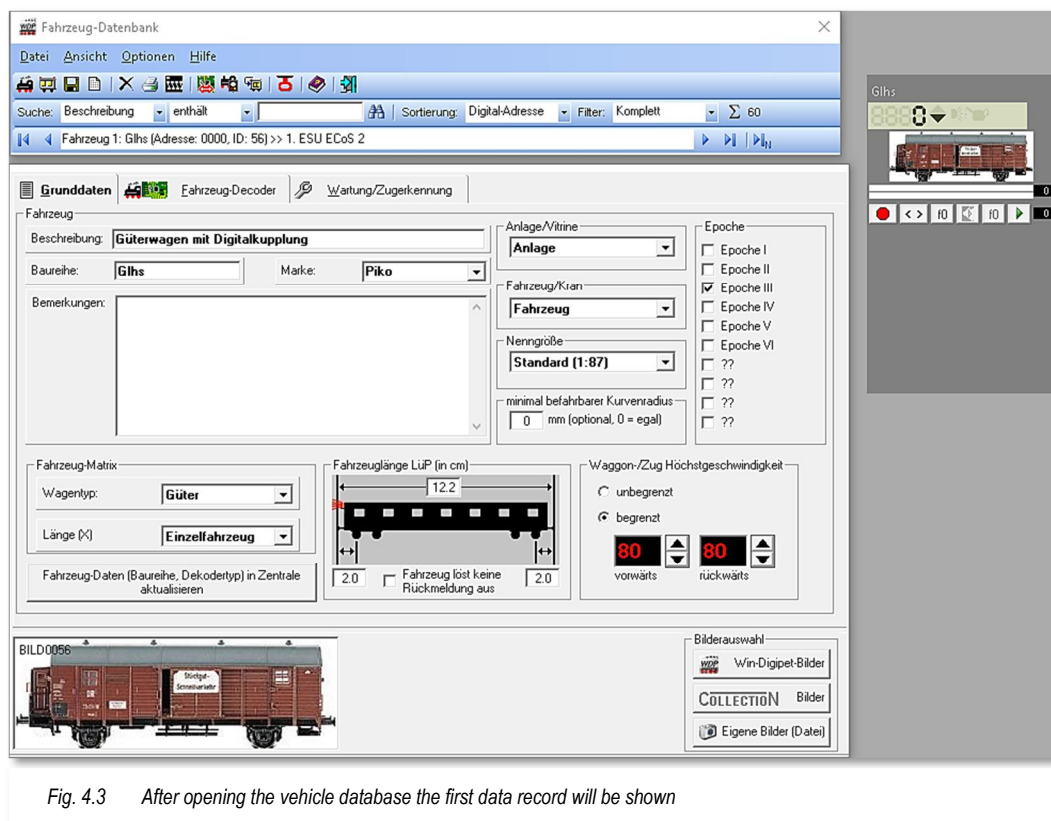



Fig. 4.3 After opening the vehicle database the first data record will be shown

In this manual we use the demonstration project (WDP2018) from the **Win-Digipet** data medium. Using this project, you can easily follow all settings explained in the manual.

In a new project the vehicle database contains two example dataset which can be overwritten.

4.2 Creating a new locomotive

To create a new locomotive, click to the switch  in the toolbar. For creating a further locomotive just click on the symbol again. Complete the form with the data of your locomotives.



If you don't need the example locomotives, you can overwrite them with the characteristics of your own locomotives. You can register an unlimited number of locomotives in your vehicle database, but only 250 of them can be set to "On layout" at the same time.

4.3 Choosing a locomotive picture

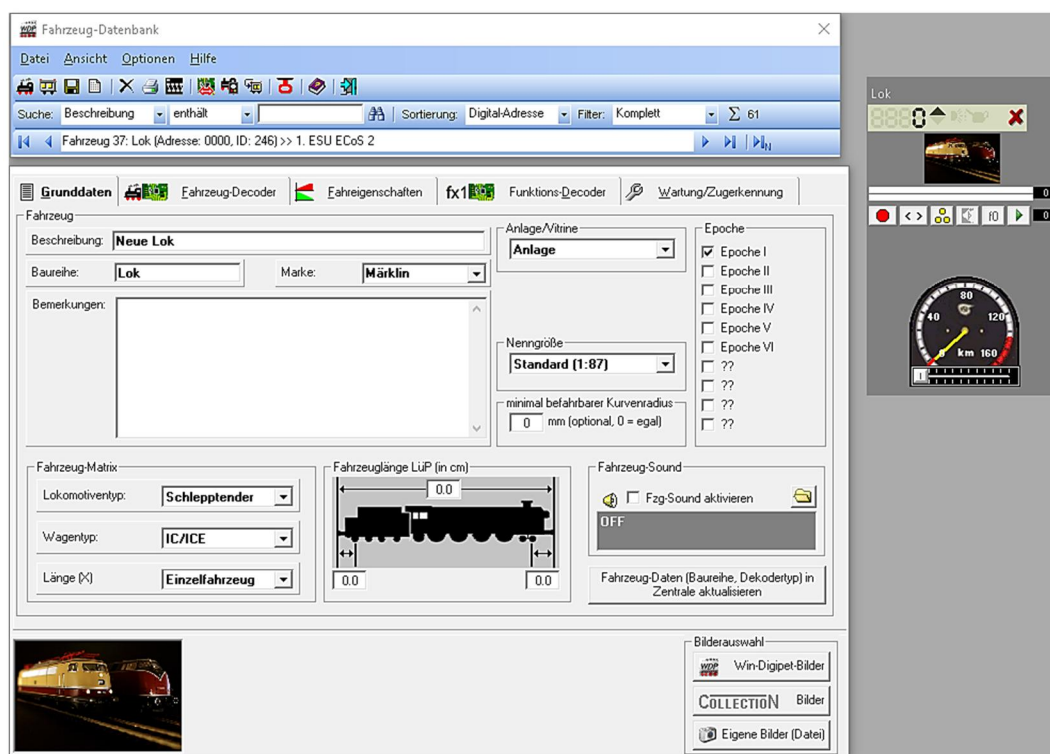





Fig. 4.4 A new, still empty, record for a locomotive

First select a picture matching the locomotive you intend to record; you can choose between 3 sources...

-  **WIN-DIGIPET** pictures
-  Collection pictures
-  Own pictures.

4.3.1 Win-Digipet -Pictures and Collection Picture

Select the button "**Win-Digipet** Pictures ".A list with 375 Märklin-Digital locomotives of the series 26xx, 36xx, 37xx and 39xx until year 2005 opens. With a mouse click into the list select the locomotive you want.

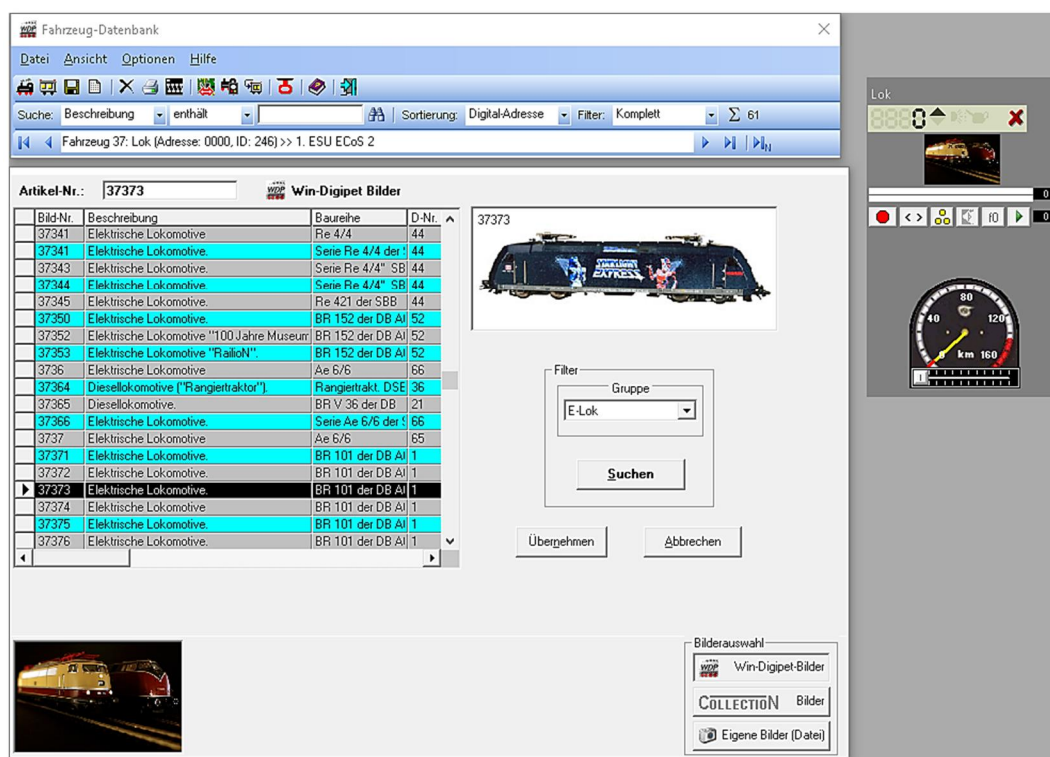


Fig. 4.5 The list of pictures available on the **Win-Digipet** data medium

Using the "Filter" you can reduce the list to represent only selected types of locomotives. For selection define "Group" followed by a click on **'Search'**. You will see the selected group immediately in the list window.

The filtered group (here 'E-Lok') will be displayed in the left hand list.

Now click on the line in the list describing your locomotive; at the same time the picture is displayed at the upper right. Click on **'Transfer'**: Now you will be asked if you want to transfer the basic description from the database to your locomotive's data.

If you use Märklin locomotives you will say **'Yes'** in the most cases, the system changes to "Vehicle database", and the picture appears in the picture box at the bottom. The pictures can also be used for locomotives of other manufacturers; in this case you just need to adapt the description and class.

Collection pictures can be used the same way. The only difference is that you use the button Collection.

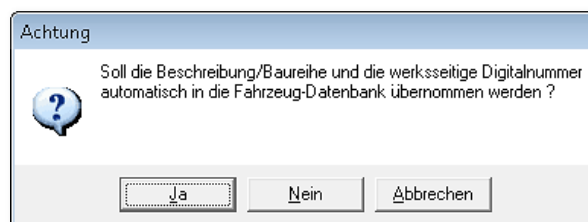


Fig. 4.6 Dialog asking for data transfer



4.3.2 Custom pictures

If you have already pictures of your locomotives or want to create them by yourself, select the button "Custom pictures". If you have already the picture of the locomotive stored on your computer, use the button '**Browse**'.

Please browse your computer for the picture.

WIN-DIGIPET supports pictures in the BMP-, JPG-, and PNG-Format.

If possible the pictures should have an aspect ratio of 5 : 2 to avoid blurred pictures representations. For good results we give a recommendation to a picture size of 352 x 142 Pixel with a resolution of 72 dpi. The driving direction of the locomotive on the picture should always be left to right.

After you have found a suitable picture on your computer, select the file and press '**Open**', the file browser window will be closed and the picture will be shown.

Finally, you can enter an individual caption for the upper left corner of the picture and '**Transfer**' the picture to the vehicle database.




In the field "Picture legend" normally "BILD0xxx" is preassigned by **WIN-DIGIPET** automatically, where "xxx" is the current ID No. of the locomotive to be registered in the database.

The picture description is displayed in the picture on the top left and should not be too long. All pictures supplied by **Win-Digipet** use the Märklin article number as picture description.

If you delete the preassigned legend the program will acknowledge this with "No picture".

4.3.3 Export of locomotive pictures from Win-Digipet to Märklin Central Station 2

The pictures stored in the locomotive database of **Win-Digipet** can be transferred very easily to the Märklin Central Station 2.

Just press the button  in the toolbar of the vehicle database (see 5.8), now select the vehicle the in the list and press the button for the picture export to your digital system. Now the pictures of all selected vehicles will be transferred to C:\WDIGIPET\LOKBILDER\Export_CS2 in "PNG"-Format.

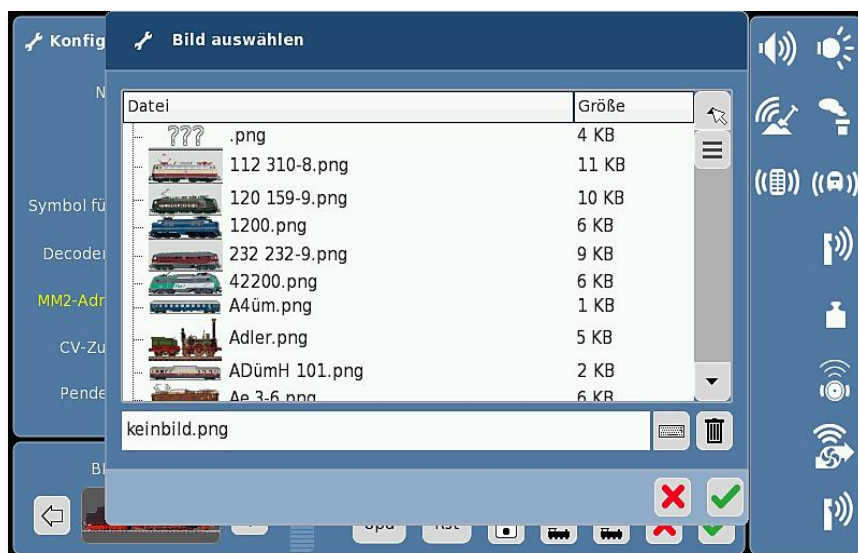
The transfer to the Märklin Central Station 2 can be done using an empty USB-stick. In the main folder of the USB-stick you have to create a folder named "icons". Now copy all exported pictures to this folder and afterwards plug the USB stick into the Märklin Central Station 2.



The main directory of the USB stick must not contain any CS2 firmware files.



Now use the menu <setup> in the Märklin Central Station 2 and select <Program update>. Now the pictures will be transferred from the USB stick in to the CS2.




In the picture selection of the Märklin Central Station 2 you can now find the new pictures and select them for the usage with your locomotives.

Fig. 4.7 Transferring pictures to a Central Station 2 with an USB-Stick (Screenshot of user interface of CS2)



4.3.4 Export of locomotive pictures from Win-Digipet to ESU ECoS 2

The pictures stored in the locomotive database of **Win-Digipet** can be transferred very easily to the ESU ECoS 2.

Just press the button  in the toolbar of the vehicle database (see 4.5.7), now select the vehicle the in the list and press the button for the picture export to your digital system. Now the pictures of all selected vehicles will be transferred to C:\WDIGIPET\LOKBILDER\Export_ECoS2 in "BMP"-Format.

For transferring the pictures to the ESU ECoS 2 start a web browser and open the main site of the ECoS 2 (e. g. <http://192.168.10.2>).

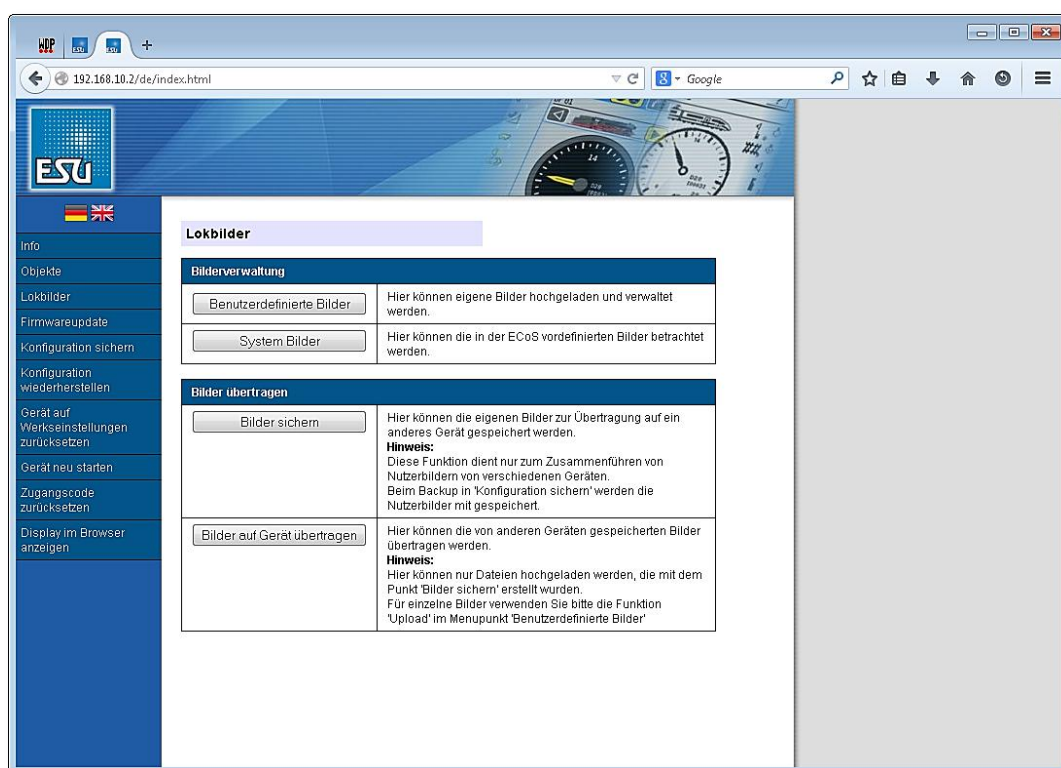


Fig. 4.8 The web interface of the ECoS 2

Using the menu buttons on this website you can transfer picture by picture into the ECoS2. For more information, please refer to the ESU user manuals and descriptions: www.esu.eu.

4.4 Index card "Vehicle-Database – Basic data"

This index cards contains the basic data of your locomotive/your vehicle. You can also choose the picture for the vehicle here.

We use the data record of the 01 0525-4 available in the demo project for the explanations in the next sections.

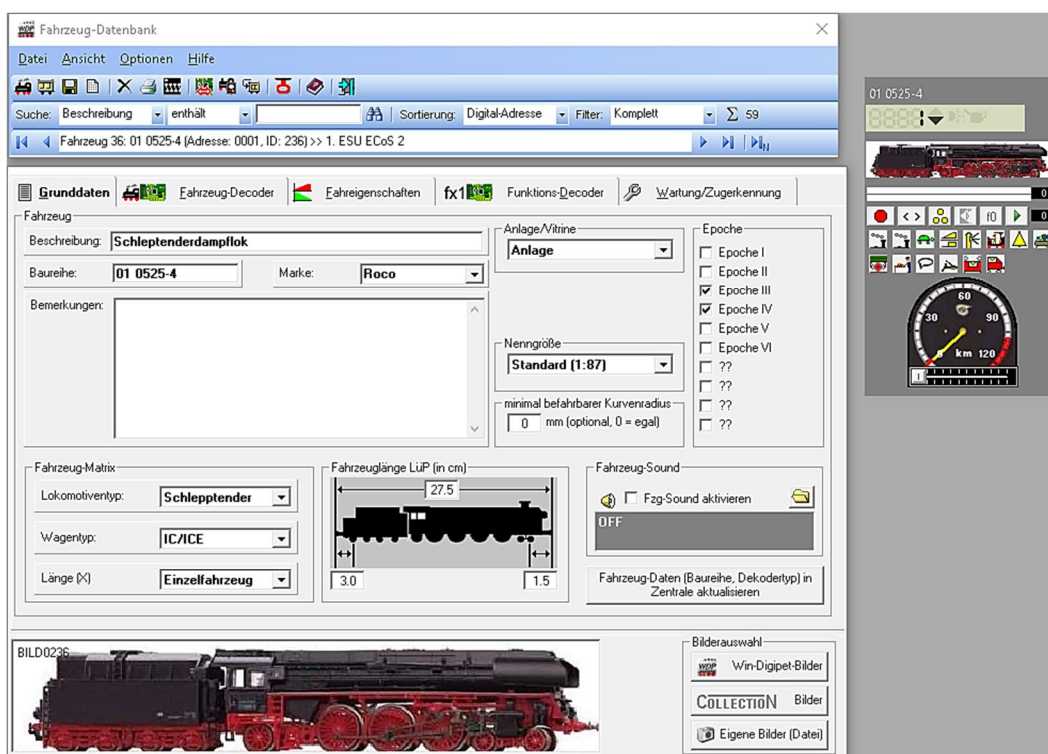


Fig. 4.9 The index card „Basic data“ of an already registered locomotive

4.4.1 Description, Class, Brand, Comments

The panel "Description" should contain a description of this locomotive; it is frequently fetched from the databases.

You can also enter your own description, e.g. "Steam locomotive 01 0525-4". Up to 60 characters are allowed.


Entering a class is mandatory. A maximum of 9 characters is allowed e.g. 01 0525-4. If you do not make any registrations in this field, you will be reminded when saving the data record.

Some special characters which are used internally in the program will be blocked automatically.





We suggest to use the locomotive number printed on the model as class e.g. "143 573-4".

This has the following advantages:

 using this number, you can normally identify your locomotive even if it stayed in the display case for a longer time



-  when sorting the locomotives by class it can be easily found
-  it can also be easily found when making registrations in the profile editor

Register all your locomotives in the vehicle database (even the ones in the display case). Using the vehicle database, you will never have to guess digital addresses again.

The panel "Brand" should contain the manufacturer of your locomotive. A maximum of eight letters is possible. You can also select the manufacturer from a list.

The field "Remarks" can be used for any remarks concerning this locomotive (like date of purchase, price etc.).

Using this function an additional documentation might be obsolete. Please be informed, that **Win-Digipet** offers no possibility to search within this field.

4.4.2 Vehicle type, vehicle length LoB and Loco sound

In the left part of the graphic you can determine the so called matrix. Here you can determine to which loco-/wagon-/length-type your train belongs. This list depends directly on your input, which you have done in the system-settings.

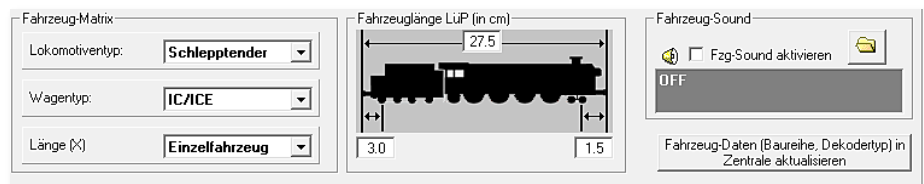


Fig. 4.10 Sections for vehicle type, vehicle length LoB and Loco sound.

You may consider to skip the settings for the length category in the case you use the real vehicle lengths over buffers (LoB) in cm in **Win-Digipet**. In this case you can relabel this category field in the system settings for other types of categorisation.

For the LoB enter the length of each locomotive, an entire train set, an individual wagon or a wagon group. The indicator measures the length of the vehicle length over buffers from buffer to buffer. Consider also the length of the coupling distance, because the set of features added to the coupling distance added to the buffer length measurements. Thus, the overall dimension is greater than the sum of the individual dimensions.



In the graph with the stylized Tender locomotive always provided the direction from left to right and you should also create your own pictures the same way.

The two dimensions of the first and last axle to the buffer at the beginning and end of the locomotive (see Fig. 4.10) always refer to the first or last axis causing an occupation message. This information will be considered later, when using trains to calculate the exact stop position.



If you work on your layout with occupancy detectors (sensors, power), then the first and last axle is not always causing an occupation message, it can also be any other axis of the locomotive.

In this case you have to measure from the bumper to the first and last feedback capable axis.

If you use Märklin metal tracks and current sensors to realize the feedback you need to measure the distance from the buffer to the pickup shoe and add the dimension of the front or rear.

If you want to assign a Loco-Sound to the locomotive, you register a sound file here. This feature adds a loco-specific sound to the corresponding loco-control.

You can browse for a sound in every folder of your computer by '*Browse*'.

Select a sound: Immediately the sound-button will be activated in the loco-control and can be switched on and off whenever you want.

If you have defined a specific loco sound, it will also be available for the profiles and the automatic operations. You can deactivate the loco sound by uncheck "*Activate loco sound*".

The button in the lower right corner can be used to transfer a single data record to your digital system (if supported by your digital system e.g. for ESU ECoS 2).

4.4.3 *Layout/Display case, Locomotive/Crane, Scale, Loco-Stop, Epoch*

Here you determine by "*Layout/In display case*" whether the locomotive belongs to the bulk of not more than 250 locomotives actually operating on your layout.

Only vehicles of the category "*On layout*" will be activated and included for operation in the main program. As described at the beginning of this chapter you can operate up to 999 vehicles at the same time (up to 250 of them may be locomotives). These can be operated using the locomotive control.

In the field scale you can select the scale size of your locomotive, normally you don't have to make any registrations here because the value from the system settings will be used (see 3.8.6). Only if you have locomotives of different scales on your layout you will have to make changes. This setting is important when performing speed measurements and calculating stop distances for locomotives later on.

In the field "Epoch" you can select the epoch of the locomotive. This can be used later as criterion in the tour automatic. The last for options of this category can be adapted to you needs in the system settings.

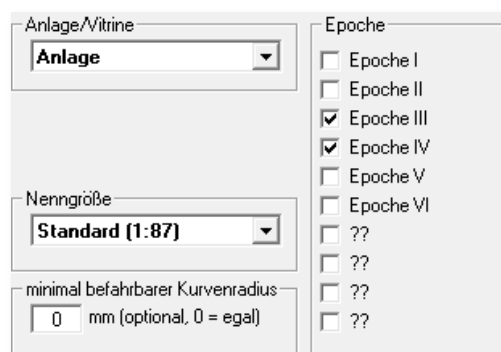


Fig. 4.11 Settings for Layout/Display case, Locomotive/Crane, Scale, Loco-Stop, Epoch.



4.5 Index card "Vehicle-Database – Vehicle-Decoder"

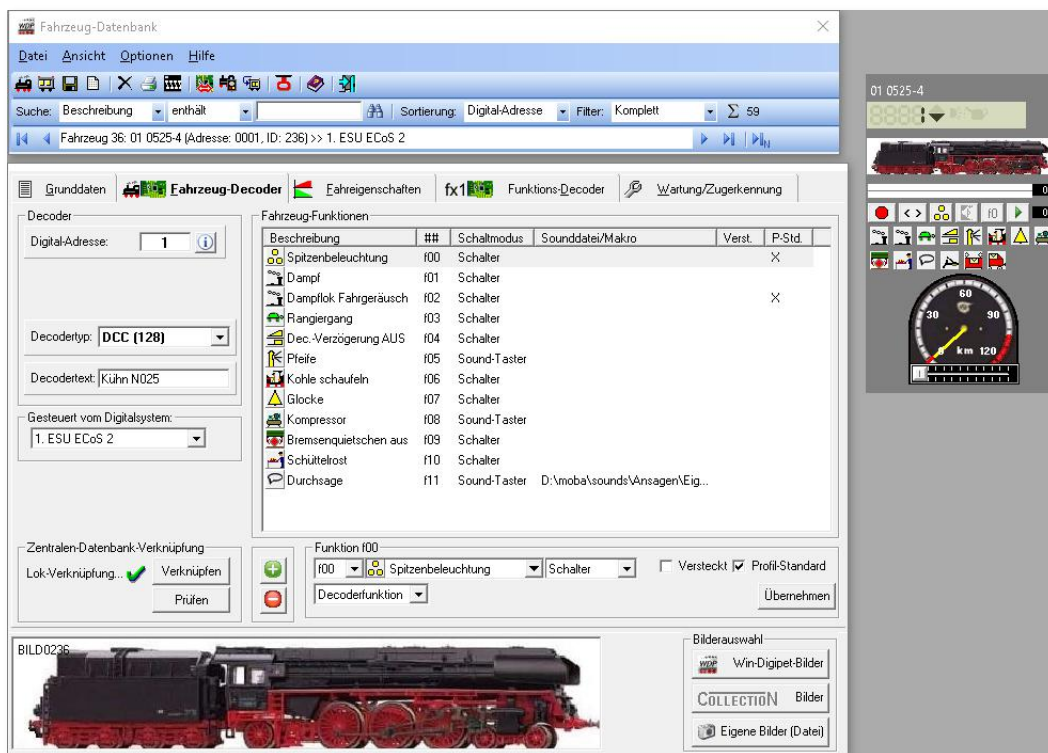


Fig. 4.12 The index card Vehicle decoder with the locomotive's special functions

On this index card you can register all settings regarding the control of the locomotive's decoder.

4.5.1 Digital-Address

In the input field "Digital-Address" you have to enter the digital address of the locomotive. The digital address has to be identical which has been programmed into your decoder. Some exceptions of this rule have to be made for mfx locomotives with several digital systems, but we won't discuss this here.

This number is when driving with **Win-Digipet** the train number, as you can see in the small train number displays in the right part of the following pictures. In the large train number displays the locomotive's class (see Fig. 4.13) or train name (see Fig. 4.14) will be shown.



Fig. 4.13 Digital address and class in a train number display




Fig. 4.14 Digital address and train name in a train number display



In both pictures the same locomotive has been used on the train number displays. This can be achieved by assigning the same feedback contact number to both train number displays. On the left picture we just used a solo locomotive, while on the right picture the locomotive was part of train called "IC 6".

The maximum address is different for each digital system. Further information regarding this topic can be found in the digital system descriptions in chapter 3.

The button  can be used to list already used addresses for the selected digital system. Beside the used addresses you can see here also the status "Layout" or "Display case".

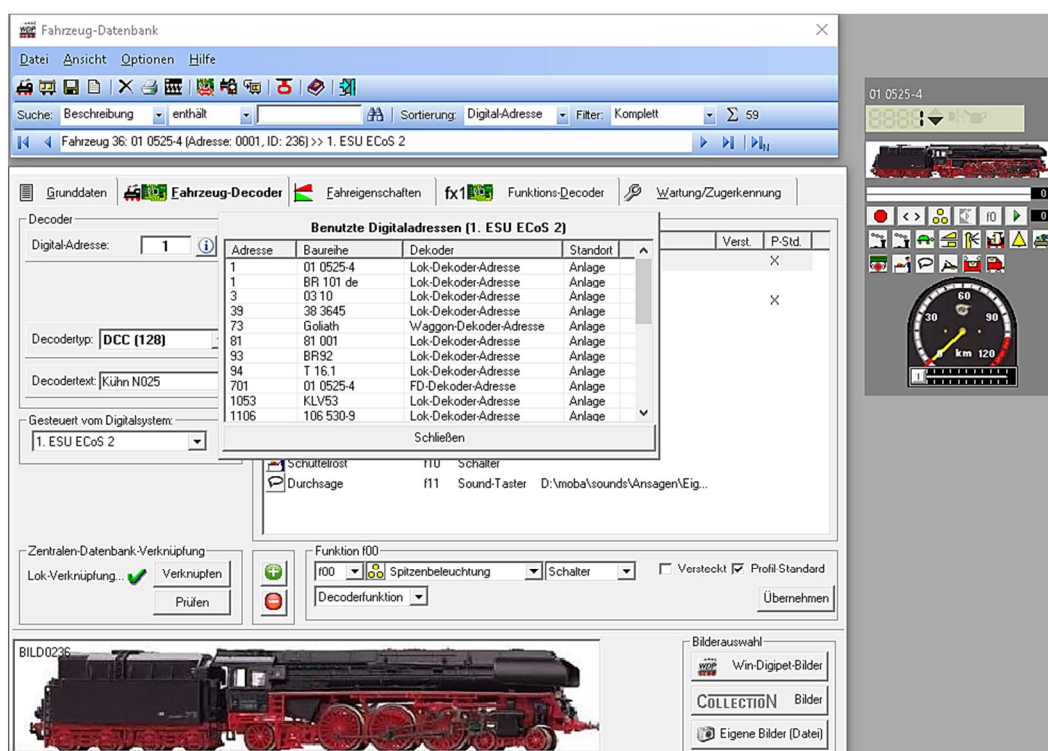


Fig. 4.15 Liste der im Digitalsystem bereits verwendeten Adressen



Tip for DCC users:

For controlling analogue locomotives, the following systems use a fix address:

Märklin Digital= : Address "80"

Lenz Digital-Plus : Address "0".




Important – only for Märklin Digital-System 6050/51:

Digital-Address 68 is reserved for internal use of the program and could not be used as a locomotive address.



4.5.2 Micro switch settings for older Märklin decoders

After giving a decoder address, you can take a look to the settings of the 8 dip-switches in formerly Märklin decoders.

To do this, open the window "locomotive decoder using the switch  in the toolbar by clicking on the address of the locomotive in the loco control.

By clicking on the switches the digital addresses will change in the insert field "decoder address" as in the locomotive control too.

You'll get an error message if you try to set an invalid address here.

Only valid addresses of the Märklin-Digital-System (1 - 80) are correctly displayed. Addresses greater than 80 will be ignored.

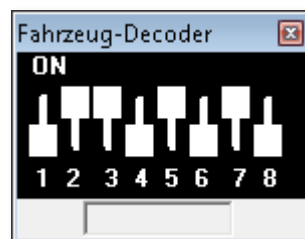


Fig. 4.16 Micro switch of older Märklin decoders

4.5.3 Decoder-type, Decoder-Text, Custom description

The precise data about the decoder types is necessary and important for all functions and features of **WIN-DIGIPET**.

Click on the arrow near decoder type and a selection list will open. Select the decoder type (decoder protocol) which is installed in each of your specific locomotives. The numbers in the brackets will show you the amount of different speed-steps.

The protocol selection is also dependent of your used digital system. If your digital systems for example can only control Motorola locomotives, then you have to select Motorola in any case, even if the decoders support DCC as well as Motorola.

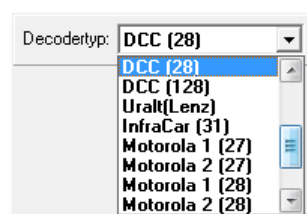


Fig. 4.17 List of decoder types



The "old" Lenz-Decoders were installed in former Arnold-locomotives for the DCC-System as well as in DCC Märklin= decoders. If you have selected this type of decoder, speed step one will be transmitted if you turn. These decoders need speed-step one, otherwise they will not change their direction



Important for Märklin CS, ESU ECoS and Tams Master Control!
If you use on of this digital systems it is important to select the correct type of Motorola decoder, because you can get extended driving behaviour by selecting the correct type of decoder (6 different types available). This is important because these digital systems support Motorola old and new format with 14, 27 and 28 speed steps.

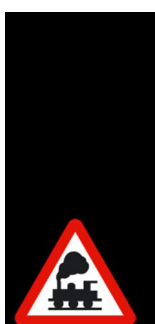


The input field "*Decoder-Text*" is for custom use. For example, you can enter here the decoder type and manufacturer.






4.5.4 *Tips for choosing a decoder*

We get frequently question which decoder type should be used, especially for the Motorola decoders. The following table lists some examples without claiming to be complete.

Decoder type	Used for
Motorola 1 (14)	old Märklin 6080 and delta decoders, Tams LD-W1 and old Uhlenbrock decoders
Motorola 2 (14)	newer Uhlenbrock decoders, "PIC"-Decoder by Märklin (for example hobby locomotives)
Motorola 2 (27a)	Märklin 6090x decoder, old Tams LD-W-2 as well as mfx decoders, which have problems with the operation under Motorola 2 (27b)
Motorola 2 (27) of the ESU ECoS	Märklin 6090x decoder, old Tams LD-W-2
Motorola 2 (27b)	Märklin mfx-Decoder, Kühn-Decoder, ESU Lokpilot/Loksound 2.x/3.x/4.x-Decoder
Motorola 2 (28) of the ESU ECoS	Märklin mfx-Decoder, Kühn-Decoder, ESU Lokpilot/Loksound 2.x/3.x/4.x-Decoder
MFX (128)	Märklin mfx-Decoder, Loksound mfx-Decoder of ESU
Motorola 1 FD	Some Märklin wagons with FD-Decoder of older type e.g. dancing wagon



If you use one of the following digital systems it is important to select the correct type of Motorola decoder, because you can get extended driving behaviour by selecting the correct type of decoder.

-  ESU ECoS,
-  ESU ECoS 2,
-  Central Station Reloaded,
-  Märklin Central Station,
-  Tams Master Control,

It is also important to use the same decoder type selection in your digital system and in **Win-Digipet**, because a differing setting might result in problems.

4.5.5 *Digital system for a locomotive*


If you use multiple digital-systems for your model railroad you can easily change the digital system, which controls your locomotive using the selection box "*Controlled by Digital-System*". Of course this digital system has to be configured in the system settings before.



4.5.6 Functions F1-F31, Sound definitions

In the vehicle database you can configure for each vehicle resp. function decoder many additional functions. In **Win-Digipet** we support function f0-f31, but this not supported by every digital command station. The maximum function number is different for each digital system; you can find additional information regarding the capabilities of your digital system in chapter 3.

For a newly registered locomotive the locomotive function f0 has been set to default function "Headlight". This can be changed in the combo box showing the text "Headlights".

During the conversion of the older locomotive databases (prior version 9.2) the descriptions are transferred for functions (f0-f16) and are assigned to the icon  for "Miscellaneous". Only activated functions are converted. After the conversion you should select the proper icons for the function and the special functions f1-f28.

Grundsätzlich müssen Sie nach einer Konvertierung der Fahrzeug-Datenbank aus älteren Versionen von **Win-Digipet** (Version 9.2 und älter) die Funktion (f0) und die Sonderfunktionen (f1 bis f28) neu einstellen. Somit werden auch die neuen Piktogramme in den Lok-Controls korrekt dargestellt.

In the following picture on the index card "Vehicle decoder" you can see an example of registered special functions for the 01 0525-4. In our example we registered 11 special functions.

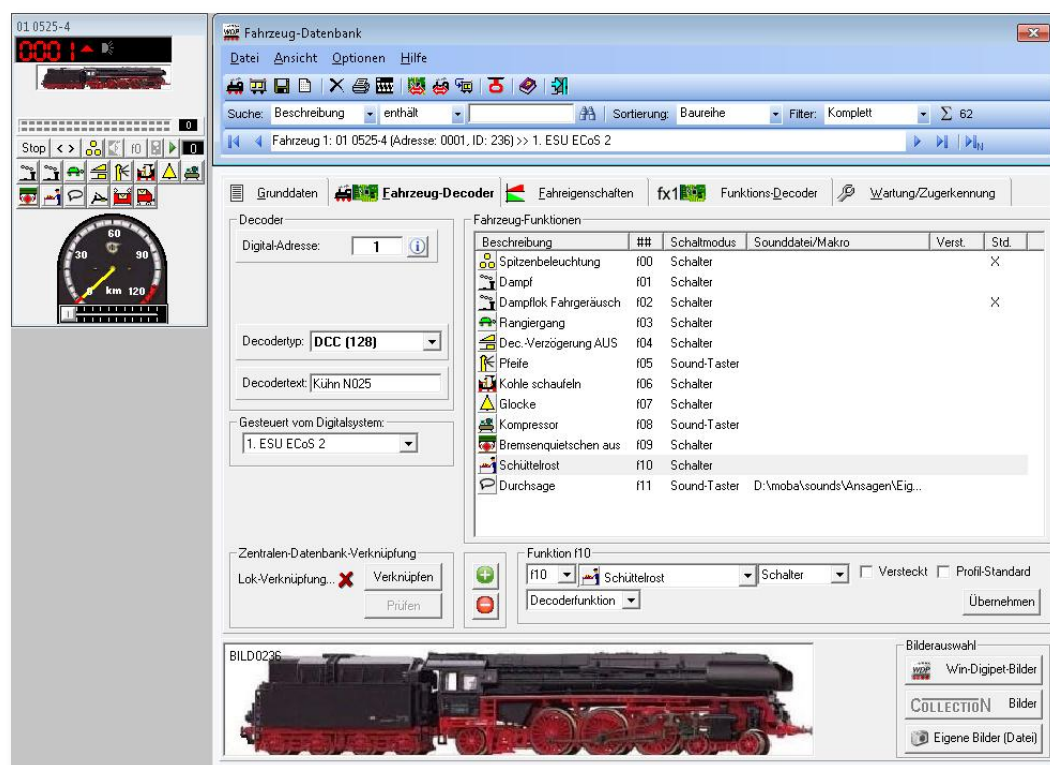



Fig. 4.18 11 special functions have been registered for this locomotive



The functions will be added, configured or deleted in the dialog boxes below the list. Some functions symbols are defined as sound functions (can also be created with function symbol editor). These symbols have an additional (S) within the list. Let's take a look at the different functions.

For adding an additional function press , for removing a function select the function in

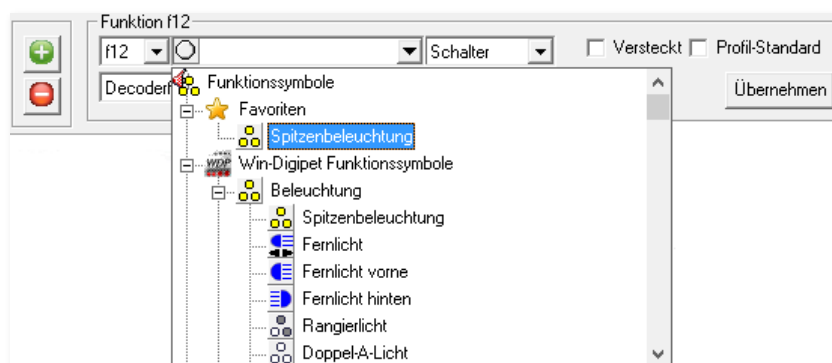


Fig. 4.19 Structured list for selecting the vehicle functions

the list and press .

You can register the function in any order; **Win-Digipet** will sort the list automatically by function number.

The selection of the functions is supported by a structured list with groups of symbols according to their theme. Select a function by a click on the specific entry. The function name appears in the selection field and is transferred to the function list of the locomotive after pressing the button "Take over".

It is possible to select a symbol directly, by typing its first letters, so that **Win-Digipet** skips to the corresponding entry.

Often used function symbols can be marked as favourites in the additional option "function symbol editor" of the start centre. They will appear in the theme group "Favourites".

In our example (Fig. 4.18) we selected special function f10. This function f10 has been assigned to the revolving grate sound. The function has been assigned to f10 by selecting f10 in the list in the upper left corner of the configuration area. It is important to select the correct number which is used by your decoder for this function. This is called function mapping.

A number of function symbols are defined as sound symbols or can be assigned as sound symbols using the "function symbol editor". Such sound functions are marked with an (S) in the vehicle data base. These functions will be considered at a switch-off (switch off sounds of all locomotives) via the symbol list of main program

In the name- and symbol list **Win-Digipet** offers a large number of different functions. You can also add additional symbol to the list using the function symbol editor. You can edit the



symbol's description by selecting the function in the list and pressing the right mouse button, afterwards select '**Rename**'.

The same functionality can be achieved by selecting the list entry with the left mouse button and pressing again on the entry after a short while. This will also activate the edit mode. Confirm your changed text by pressing the Enter key.





The original description can be restored by reselecting the used symbol in the symbol selection list. Afterwards you have to confirm the change using 'Take over'.

The changes have to be confirmed now using the button '**Take over**'. The changes will be shown afterwards in the function list. Now you will be able to test the function in the locomotive control.

4.5.6.1 Function properties

For all special functions you can choose between the options "Switch/Push-button/Sound-Push-Button".

Let's explain Switch/Push-button/Sound-Push-button:

-  With a **Switch** you switch the function with a first click on and with a second click off.
-  A **Push-button** is used to switch the function with one click on and it is automatically switched off after a predefined time (see system settings) e.g. for a Telex function.
-  The **Sound-Push-button** mode is similar to the push-button mode, but with a different activation time for the button. This is necessary for some sound functions because otherwise it would be played twice for some decoders. The sound-push-button-time can also be set in the system settings.
-  Using **Button indiv.** you can change the duration of functions in steps of 0.1 sec.

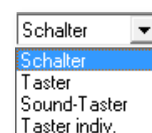




Fig. 4.20 Function properties

4.5.6.2 Type of functions

By default, each special function activated will be sent to the decoder to cause a decoder action. **Win-Digipet** two additional options (see Fig. 4.21).

-  **Decoder function**
Function will be executed by the decoder (e.g. decoder sound, smoke generator, additional light functions etc.)
-  **Sound file**
Win-Digipet plays a sound file when activating the assigned special function button using the PC speakers. The sound file can be chosen from the hard disk.

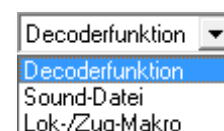


Fig. 4.21 Possible types of functions.



Loco-/Train-Macro

This option is used to activate Macros defined in the Macro editor. Using macros programmed, recurring sequences of functions and/or driving commands can be activated by a special function button.

4.5.6.3 Selection of a sound file

After choosing the option to play a sound file when activating a special function button, you need to choose as sound file, which shall be assigned to this button.


Therefor click the button  beside the grey text box and select the sound file you want to use in the File-Open dialog. Confirm your selection in the dialog using the button '**Open**'.



Fig. 4.22 Selection of a sound file

You can see the name and path of the selected sound file in the list of configured functions as well as in the grey textbox. If the path string is

to long for the textbox just move the mouse pointer over the textbox and the full path will appear as tooltip.

4.5.6.4 Assigning a loc-macro to a function button

A selected function button can be configured in a way, so that one can decide using a selection dialogue, whether it behaves as a single macro or as an on-off-macro.

To define an on-off-macro two macros must be assigned to a function button. When switching on the function the button appears in green and in grey when switched off.

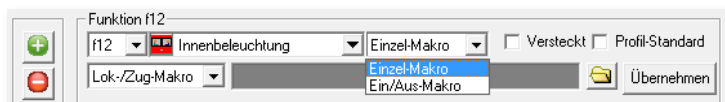




Fig. 4.23 Assigning of one or two macros, respectively, to a function

The sequence is:

-  Function button grey "off" → clicking on the button activates macro 1 ab → Function button becomes green
-  Function button green "on" → clicking on the button activates macro 2 ab → Function button becomes grey

4.5.6.5 Indicator of active loc-train-macros

The "Play-Button" at Lok-Control flashes, when a macro of locomotive or train is

4.5.6.6 Options for function buttons

Two additional options are available when configuring functions. If you check "hide", the configured functions will appear in the list, but not on the locomotive control. This can be





useful for example if you have functions like announcements available in your decoder which you will never use.

A function with activated profile standard option will be set to on when you create locomotive specific profiles for this locomotive. In our example the headlight and steam function have been set as profile standard (see Fig. 4.18)

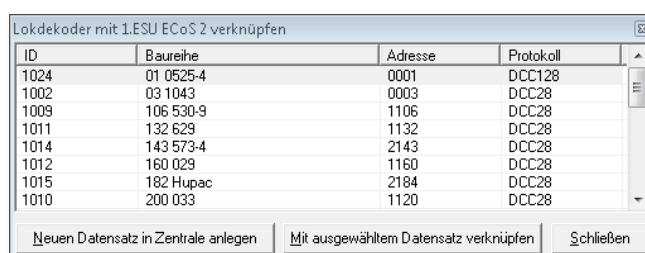
4.5.7 Linking a locomotive to your digital system

If you use the ESU ECoS, ESU ECoS 2, Central Station Reloaded or a Märklin Central Station (Märklin Central Station 2 only for mfx-locomotive) for controlling your locomotives you have to link the data records of the digital system and the data record in **Win-Digipet**. When creating a locomotive for this digital system you need to create such a link between **Win-Digipet** and the internal database of your digital system before you can control the locomotive.

The red  indicates that a locomotive is not linked to your digital system. Start the link process press the '**Link**' button.

If your locomotive is linked correctly this is indicated by a green . Using the button '**Check**' you have the possibility to verify and existing link.

When linking a locomotive, a new window appears showing you the locomotives registered in your digital system.



ID	Baureihe	Adresse	Protokoll
1024	01 0525-4	0001	DCC128
1002	03 1043	0003	DCC28
1009	106 530-9	1106	DCC28
1011	132 629	1132	DCC28
1014	143 573-4	2143	DCC28
1012	160 029	1160	DCC28
1015	182 Hupac	2184	DCC28
1010	200 033	1120	DCC28

Fig. 4.24 Data records available in a digital system

Please select the data record in the digital system, which you want to link with your locomotive in **Win-Digipet** and press '**Link to selected data record**'.

If the locomotive is not already registered in your digital system, you can create a new record in your digital system by pressing '**Create new data record within Central unit**'. This function is only available for non-mfx locomotives as mfx-locomotive have to be created by the digital system itself.



Please take care, that no double records will be created in your digital system. This could result in malfunction.


4.6 Linking an mfx-locomotive to a Märklin Central Station 2

After the registration of a new mfx-locomotive in the vehicle database and selecting the decoder type "MFX(128)" and the digital system "Märklin Central Station 2" a '**Link**' button will appear.

After clicking this button, a window similar to the one in . 4. will appear listing all the locomotive data records in the Märklin Central Station 2.



After selecting a locomotive and pressing '**Link to selected data record**' the record in the Märklin Central Station 2 will be linked to the one in **Win-Digipet**.

The successful link will be indicated by the green .

An existing link can be removed using the button '**Delete**'.

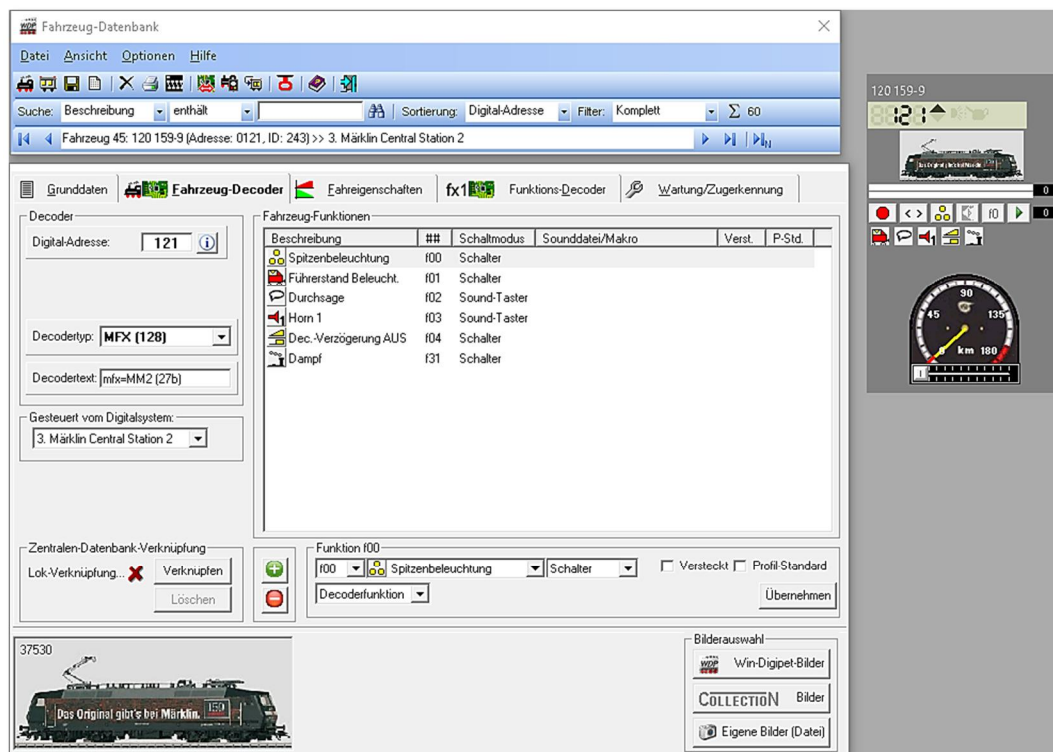


Fig. 4.25 Linking a mfx-locomotive to a Märklin Central Station 2



Only if the green check mark appears the mfx-locomotive can be controlled by **Win-Digipet**.

In contrast DCC- and Motorola-locomotives, which shall be controlled by a Märklin Central Station 2, need no link.



Important!

For mfx locomotives:

As long as one mfx locomotive is used on your model railroad with mfx protocol, all mfx locomotives have to be controlled by mfx protocol as long as you are not able to deactivate mfx completely in the decoder (only possible for some newer decoders).



4.7 Index card "Vehicle-Database – Riding Properties"

On this index card you register the important data of the locomotive. These are the settings

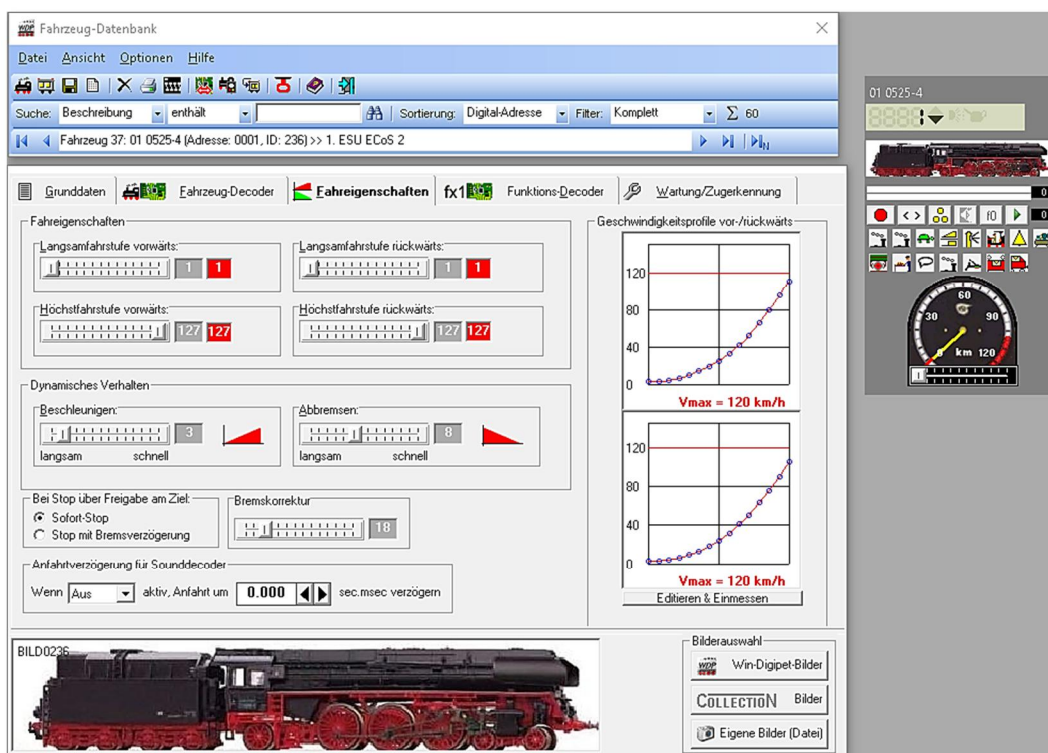


Fig. 4.26 Die Registerkarte Fahreigenschaften in der Fahrzeug-Datenbank

for minimum/maximum rated speed forward and backwards, the deceleration and acceleration rate as well as the starting speed and the current direction.



If you have upgraded from versions 8.x of **Win-Digipet** you have to check or register completely new all explained functions in this section for all locomotives.

When upgrading from Version 9.x or newer no adaptations are necessary.

All speed-adjust-ranges are divided in **128** steps. However, the number of speed-steps is depending on the type of decoder, which you have selected on the index card "Vehicle-Decoder".



4.7.1 Riding properties

Under "Running properties" you register the number of steps for "min. rated speed" and "max. rated speed"; in the red panel on the right hand side, you will find the ordinal number to the related speed-step. You can differ between back- and forward direction for the speed settings.

In this example (Fig. 4.27), we use a decoder which has 28 speed-steps, which are – like for all decoder-types – divided into 128 steps. In this example the values for forwards and backwards are the same.

For the "min. rated speed" we have selected step "1", for the "max. rated speed 127". On the right hand side, you will find the speed step "1" respectively "28". These numbers will be automatically calculated by **Win-Digipet** and will be represented like in this.

Using this setting you can use all speed steps of the decoder, in our example 28.

The Minimum rated speed determines at which speed the locomotive just moves at lowest speed without any interrupts, e.g. step "1" for easy moving, step "4" for "stiffer" moving locomotives.

In most cases you should use "1" to be able to use as much speed steps as possible.

Before increasing resp. reducing minimum and maximum rated speed in **Win-Digipet** you should configure these speeds in the decoder. For a sensitive speed setting it is necessary to be able to use as much speed steps as possible.

You should only use the functionality in the program if you are not able to configure the speed settings in the decoder itself.

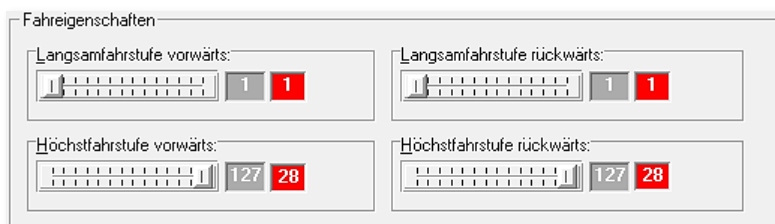


Fig. 4.27 Regulators for setting the minimum and maximum used speed step

4.7.2 Dynamic behaviour

You can differentiate between the acceleration and deceleration rate.

In Fig. 4. we configured different values for acceleration and deceleration. The locomotive has been configured for relatively low acceleration rate and a faster deceleration rate.

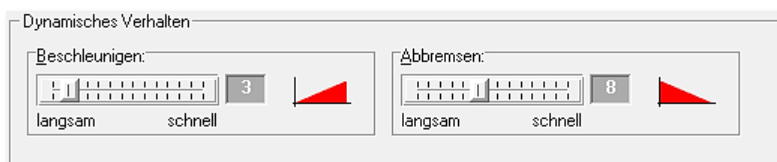



Fig. 4.28 Regulators for controlling the locomotive's dynamic behaviour

Acceleration: The acceleration rate determines whether the locomotive is accelerated fast or slow.



 **Deceleration:** The deceleration rate determines whether the locomotive is decelerated fast or slow.



The settings are independent from the settings in the decoder of your locomotive. For older Märklin decoders with mechanical potentiometers you should set the potentiometer for (de)acceleration to circa 60° position. Using this setting a stop command will case the locomotive to stop after 2-3 turns of their wheels.

For modern decoders where you can separate values for acceleration and deceleration via so called **CV-Values**¹⁹, you set **low** values for the deceleration value. It is recommended that you test your locomotives on your layout to find the best values of minimum/maximum rated speed and acceleration rate.

4.7.3 Stop via release at destination

Using the radio buttons “Immed.-Stop” or “Stop with delay” you determine, how the locomotive stops at the destination.

When choosing “Immed.-Stop” the locomotive stops promptly at the destination, while a certain deceleration defined in the vehicle data base is ignored.

This setting does not influence the settings of acceleration and deceleration in the loc-decoder. For some decoders you can switch off this function with the function button f4.



This setting is only important for routes with the start/destination function, but not when using profiles and for automatic profile creation.

4.7.4 Acceleration delay for sound decoder

When using locomotives with sound decoders you might notice that the locomotive does not start driving immediately after sending the first speeds because the engine sound starts first or the sound for break release is played first. This delay is dependent on the sound configuration of your decoder.

To keep speeds in **Win-Digipet** and locomotive as synchronic as possible you have to register here the delay time in sec.msec between first speed command and the driving reaction of the locomotive. You need to do some experiments to find the correct value. Activate the sound of your locomotive, set speed step 1 and measure the time until the locomotive starts to move.

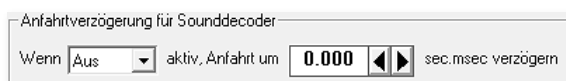


Fig. 4.29 delayed start for sound decoders

¹⁹ CV = Configuration Variable



Additionally, you have to choose the function button which activates the sound. Using this function **Win-Digipet** does know when the sound is activated and the delay has to be taken into account.

This delay will be considered as soon as the sound function is active and you accelerate the locomotive out of a stopped situation.

4.7.5 Driving direction

The option "Direction" is only available to users of 6050/6051 because all other systems support absolute driving directions. The program stores the "direction of travel" of the locomotive. At the panel "Direction" enter the present direction of travel, i.e. forward or reverse. You have to do this once only: after a direction test of the locomotive. The program "remembers" the direction of travel, displays direction changes and saving it by leaving the program.

In the top line of the locomotive control panel, the direction of travel of the locomotive is displayed next to the digital address.




Red/black arrow to the top = forward, red/black arrow to the bottom = backwards.

If this indication is wrong, pick up the loco with 6080-decoder from the track, use the reversal command and put the loco back on the track again. This is not possible for other types of decoders because they use absolute driving direction.

4.8 Driving with kilometres per hour (km/h)

For driving locomotives with scaled real world speed (km/h), the locomotive's speed behaviour needs to be measured. Driving with kilometres per hours was one of the most important developments since Win-Digipet Version 2012. Using this functionality, you cannot only achieve, that all locomotives travel with the same speed under the same conditions, but also for exact stop points driving with kilometres per hour is essential. For this functionality **Win-Digipet** uses a path-time-calculation to stop the vehicles at defined positions.

The speed measurement can be made in **Win-Digipet** using...

-  a measurement track with known distance between contacts
-  a roller dynamometer²⁰
-  an optical measurement²¹ while passing through

...the measurement is processed automatically.

²⁰ Roller dynamometer of: CAN digital-bahn (CAN (USB) Tachomesser), KPF Zeller (SpeedCat / SpeedCat Präzision), Marion Zeller (MAX).

²¹ railSpeed of ls-digital



For the last two listed possibilities additional hardware is necessary. Please inform yourself on the manufacturer's web sites. Information how to configure these systems in **Win-Digipet** can be found in the documentation as well as on www.Win-Digipet.de.

When using km/h-mode in **Win-Digipet** you should calibrate the decoder settings (via potentiometer for some older decoders or decoder programming) in such a way, that the highest available running step shall result in a scaled real world speed, that is in the range of the real world's locomotive maximum speed. We suggest using locomotive decoders with load regulation, because only these decoders guarantee relatively reproducible speed values. A good tool for programming decoders is the **Win-Digipet** locomotive programmer. This tool will be explained later on in this manual. You have to inform yourself of course in the decoder manufacturer's manual which values you need to change to take influence on the speed behaviour.

The adequate setting of the maximum speed is very important, so that **Win-Digipet** can use a maximum number of speed steps for speed regulation (see section 4.7.1). This is important, because otherwise you would lose precision in the regulation of the locomotive.

For example; if the real world maximum speed of a locomotive is 200 km/h and the decoder support 14 speed steps, then a decoder setting resulting in an equivalent of e.g. 200 km/h already for speed step 6 would just use 6 speed steps for selecting intermediate speeds instead of the possible 14 speed steps.

The maximum speed set in the decoder is the one which will be achieved when the program sends the highest possible speed step (e.g. 28). Our example loco (01 0525-4) should have a maximum speed of 120 km/h and the CV values have been changed until this value has been achieved.

The minimum/starting speed in the decoder should be programmed in such a way, that the locomotive starts to move without bucking when sending speed step 1.

In the next sections we'll explain how to measure the speed curve of the locomotive.

4.8.1 Speed measurements using a roller dynamometer

Speed measurements using a roller dynamometer connected to a measurement system can be done relatively fast in most cases

You should always start with measurement and configuration of the maximum speed of the locomotive.


Therefore, you should connect the roller dynamometer with the digital power of your layout. The measurement system has to be connected depending on the type of interface to the USB port of the PC or the CAN-Bus of the Central Station 2.



Please remember to establish the USB port connection between PC and measurement system before you start **Win-Digipet**.

Measurement tools/software supplied by the measurement system's manufacturer may not be loaded at the same as **Win-Digipet**.



The maximum speed of the locomotive can be measured using the simple measure function reachable by the symbol  in the toolbar of **Win-Digipet**.

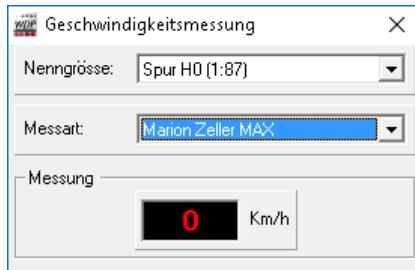


Fig. 4.30 Speed measurement window

In the measurement dialog you have to select under "Measurement type" your measurement system. In our example we use the system MAX by Marion Zeller.

Now place your locomotive on the roller dynamometer and accelerate the locomotive to its maximum speed using your digital system.

In most cases the locomotive will be faster as its real world archetype. Thus you should start to change the locomotive maximum (via CV-values of the decoder

for example) to achieve a realistic scaled maximum speed.

The speed of many German locomotives can be found on the web site www.loks.jimdo.com or in Wikipedia²². A suitable value for the model railroad is the maximum speed of the real world archetype plus 0 to 10%. Using this method, you can measure and configure the maximum speed of all your locomotives.

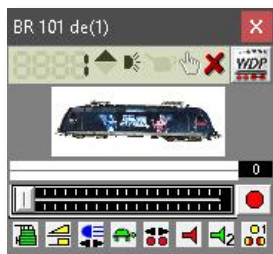


Fig. 4.31 For this locomotive no speed profile has been measured.

In Fig. 4.32 you can see the speed profile of a locomotive we have already measured.

Unmeasured locomotives will have a textual hint in the diagram.

You can see also in the small and large locomotive controls if a locomotive has already been measured or not via a red cross (see Fig. 4.31).

After setting the values for the dynamic behaviour of the locomotive, you don't need to change any other values and can now press the button '**Edit & Measure**' on the index card "Properties". A new window called "Measure speed profile" will appear.

Measuring track

The default measurement type for **Win-Digipet** is the usage of a measurement track. In our example we want to use the MAX roller dynamometer, so we have to choose this in the combobox at the upper left corner of the window.

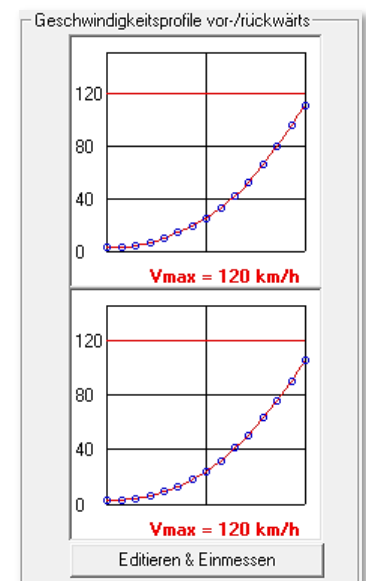


Fig. 4.32 Speed profile of a locomotive.

²² We cannot guarantee, that this website is available all times in the future.



Please remember, that some kinds of measurement system will not appear until they have been configured in the system settings of **Win-Digipet**.

You will find some information/hints regarding your Measurement type in the window.

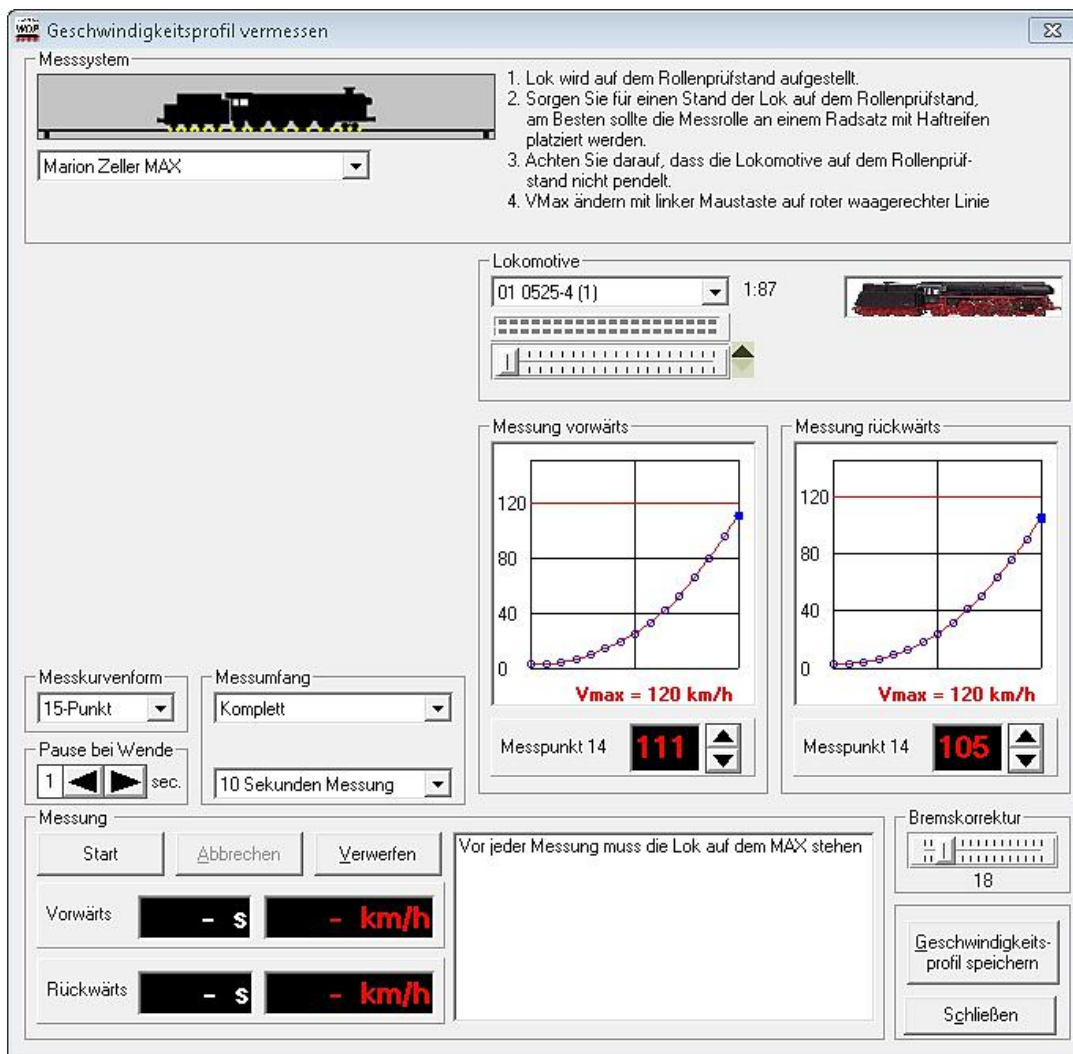


Fig. 4.33 The window "Measure speed profile" with the settings for a MAX system

Please take care about this information to achieve a good measurement result.



Locomotive

In the locomotive section of this window can see the picture of the locomotive as well as a speed slider and a direction control. Using these two you can drive the locomotive to its start position on a measurement track or you can use it as alternative to measurement process for the maximum speed explained below. The current speed values appear in the lower left corner of the window.






Measurement curve



In this section you choose if you want a 3 or 15 point measurement curve. Using this setting the program select depending on the decoder's number of speed steps 3 resp. 15 relatively equally spaced speed steps. The speed in km/h will be measured for this speed steps. The values in between will be interpolated.

When using the default 3-point measurement the following speed steps will be measured:

-  Measurement point 0 with the first speed step
-  Measurement point 1 with half of the maximum speed step
-  Measurement point 2 with the maximum speed step.

The 15-point is more accurate, but not necessary in every case. Especially for decoder settings with a linear speed curve, a 3 point Measurement will only differ slightly from the 15-point curve.

For exponential speed curve we suggest to the 15-point measurement, because in most cases the interpolated 3-point curve will not fit the real curve accurate enough.

Measurement extend

In the section "Measurement extend" you can choose if you want to measure all points (3 or 15) or only single points. For the single points measurement, you can select single points you want to measure in a list. This list will appear after you have selected to measure single points.

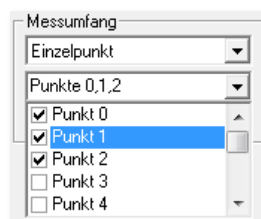


Fig. 4.34 Selecting measurement points

The single point measurement should be used if you see spikes in the measurement curve. Using this function, you don't need to repeat the complete measurement, but you can just measure the dubious points again.



If you change the number of measurement points you need to reconfigure the measurement extend. When reducing the number of points from 15 to 3 you will have to confirm, that you lose measurement value/accuracy.

Finally, you choose in this section the measurement duration between 5 sec and 120 sec. The default value is 10 sec.

Measurement forward and backward

The both graphs show the measured speed values. The curve should correspond to the speed curve configured in your decoder. In Fig. 4.35 we selected the second measurement point. **Win-Digipet** labels for a 15-point measurement the points with 0 to 14, thus this is measurement point 1. In our example we measured 3 km/h for forward and backward driving.

In the input boxes below we can see the value of the selected measurement point. You can change this value using the small arrows or by moving the point in the graph. Such



changes will change the speed behaviour of your locomotive. Thus you should be careful using this option.

Using this example can see the advantage of a 15-point measurement compared to 3-point measurement. Just image a straight line between the first and eight as well as the eight and fifteenth measurement points. You will recognize that this line would be above the real measured curve. Thus the locomotive would drive with a slower speed than you think. This difference might result in inaccurate stop results in later operation of **Win-Digipet**.

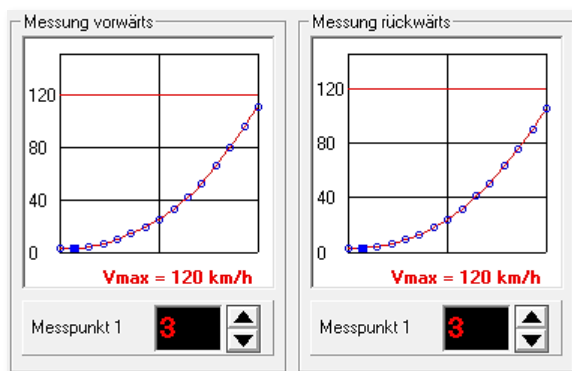


Fig. 4.35 A non-linear speed profile

A red line, here set to 120 km/h limits the maximum allowed speed value (V_{\max}) for this locomotive. This line can be dropped down from the top line of the graph. The values can be set independently for forward and backward driving.

In our example the selected V_{\max} is a little bit higher than the maximum measured speed. Thus we can use all speeds steps for regulating the locomotive's speed.

If you would now reduce the V_{\max} to 60 km/h for backward driving, you would lose around a third of speed steps for finer speed regulation.

Using a right click on the graphs you can save the graphs as PNG²³ picture or as CSV²⁴ text file.

Measurement

For starting the measurement press '**Start**' and the locomotive will start to operate with the speed step for the first measurement point.

Using the buttons '**Cancel**' and '**Discard**' you interrupt the measurement and/or discard the measured values to return to the former values.

Fig. 4.36 During the measurement the current values will appear here

²³ PNG – Portable Network Graphics

²⁴ CSV – Comma Separated Values



The measured speed and time values will appear in the appropriate text boxes. In the small log window all steps/events of the measurement will be listed. You can scroll through the log.

Using the selected measurement type in our example the locomotive will measure first all speed points forwards and afterwards in the same order backwards.

When using a measurement track or an optical system beside the track the locomotive will measure each speed step forwards and then backwards before it will proceed with the next speed step.

Brake correction

The brake correction is used to align program settings and physical behaviour of your locomotive/digital system which could be caused by signal delays between digital system and decoder or the physical mass/mass inertia of the locomotive.

This function should not be used to compensate a decoder programmed deceleration rate. This should be set to minimum value or turned off completely.

You should only use this function to reduce influences of mass inertia/flywheel mass and so on. This function results in a steeper brake ramp sent out by the program, the higher the value the steeper the ramp. The correct value can only be found by experiment.




You should configure the brake correction only after measuring and configuring all other parameters/speed values!

After successful measurement you can save your results using '**Save speed profile**' to your vehicle database.

4.8.2 Speed measurements using a measurement track

As alternative to the measurement with a roller dynamometer you can use a measurement track for measuring your locomotives.

When using a measurement track, the length of the measurement track is the most important detail when having the aim of getting the best possible measurement results. To receive good results at gauge H0 a track should have a minimum length of 150cm.

A simple speed measurement tool for e.g. just measuring a locomotive maximum speed can be reached via the button  in the toolbar.



In the window just select the way over time method and enter the start and destination contact and the distance from start to end.

Now you can measure e.g. the locomotives maximum speed by driving the measurement track using your digital system with the highest available speed step.

In most cases the locomotive will be faster as its real world archetype. Thus you should start to change the locomotive maximum (via CV-values of the decoder for example) to achieve a realistic scaled maximum speed.

After setting the values for the dynamic behaviour of the locomotive, you can now press the button '**Edit & Measure**' on the index card "Properties" as described in section 4.8.1. A new window called "*Measure speed profile*" will appear

Fig. 4.37 Speed measurement by calculation of way divided by time

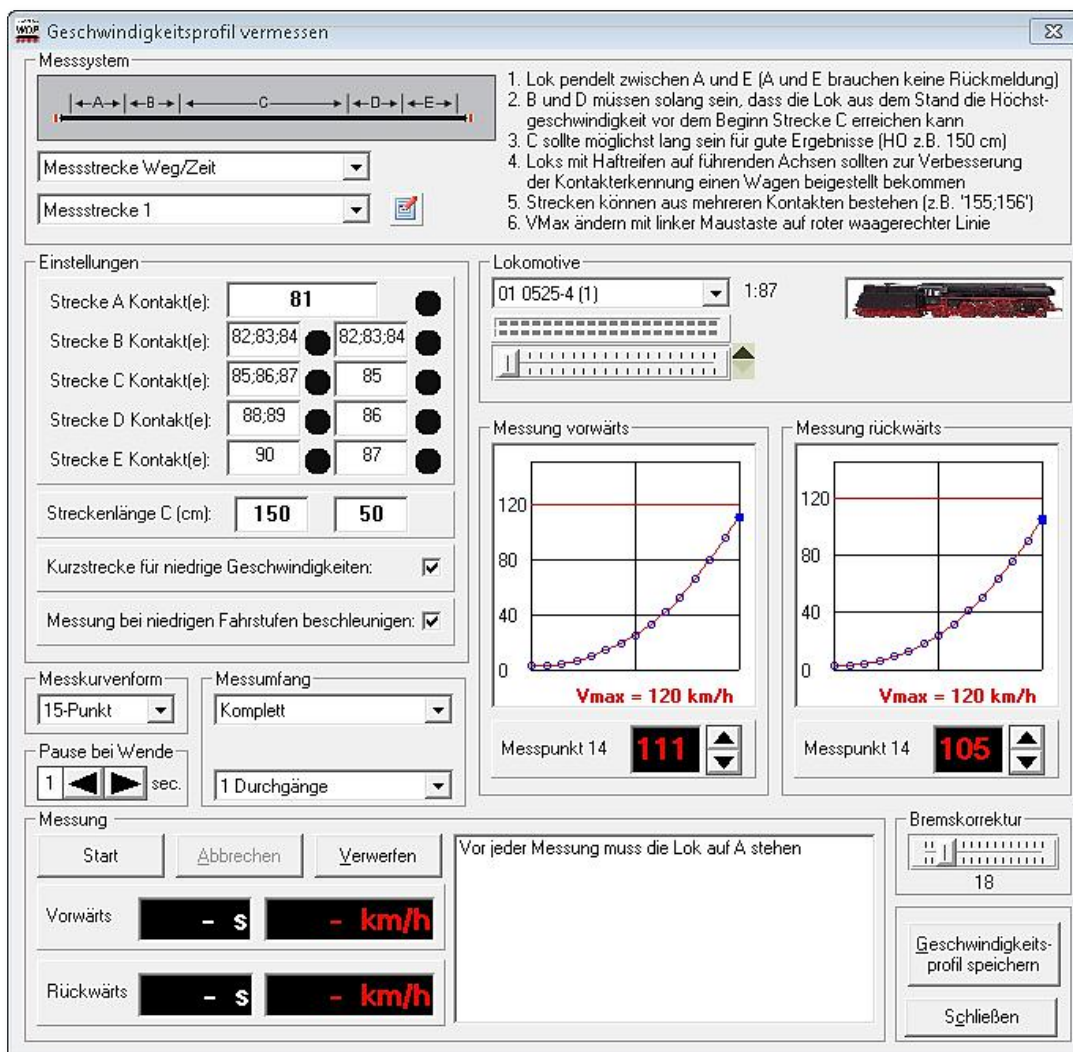


Fig. 4.38 Das Fenster "Geschwindigkeitsprofil vermessen" mit den Einstellungen für die Weg/Zeit-Berechnung

Measuring track

The default measurement type for **Win-Digipet** is the usage of a measurement track.

In this window we see a small picture of the 5-part-measurement track needed for the measurement via tracks. On the right some additional textual information are shown.



Fig. 4.39 Die skizzierte Darstellung einer Messstrecke

The 5 parts have to be equipped with feedback contacts resp. track occupancy detectors. Otherwise no speed calculation would be possible. The only exceptions are part A (start) and E (destination) which do not need feedback capability in any case.

The locomotive will drive this measurement with maximum speed forward and backwards. Please consider this when selecting a measurement track on your layout.








Track parts B and D are used for acceleration resp. deceleration of your locomotive. The parts have to be long enough, that a locomotive starting at A resp. E for backwards can accelerate to its maximum speed before reaching C.

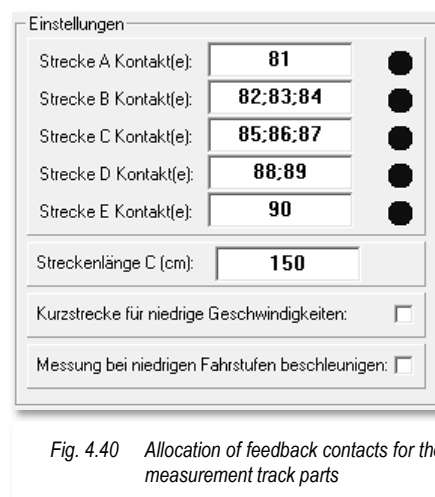
The main measurement part C should not be settled on a rising or falling part of your track layout to reduce influence of the locomotives mass.

We do know that it is quite impossible to find such a 5-part-measurement on an existing model railroad layout, which meets all requirements, so **Win-Digipet** offers the possibilities to combine several real feedback contacts to one virtual block contact. The contacts can be entered into the window separated by a semicolon.

In our example (see Fig. 4.40) the complete measurement track consists of...

-  Track part A with feedback contact 81 (optional)
-  Acceleration track part B with the feedback contacts 82, 83 and 84
-  The main track part C with the feedback contacts 85, 86 and 87
-  Deceleration track part D with the feedback contacts 88 and 89
-  Destination track part E with feedback contact 90 (optional)

...with a main track part length C of 150 cm.



Einstellungen	
Strecke A Kontakt(e):	81
Strecke B Kontakt(e):	82;83;84
Strecke C Kontakt(e):	85;86;87
Strecke D Kontakt(e):	88;89
Strecke E Kontakt(e):	90
Streckenlänge C (cm): 150	
Kurzstrecke für niedrige Geschwindigkeiten: <input type="checkbox"/>	
Messung bei niedrigen Fahrstufen beschleunigen: <input type="checkbox"/>	

Fig. 4.40 Allocation of feedback contacts for the measurement track parts

Place the locomotive for measurement on block A now. The direction of the locomotive becomes very important now; you have to place the locomotive driving forward for travelling from block A to block B and so on. After positioning the locomotive on block A, the blocks B to E have to be free. The current driving direction on the digital system is not so important, because **Win-Digipet** will set the correct direction for you.

First you should with a three-point curve and a single measurement for point 2. This is the highest speed step for the locomotive. Afterwards press '**Start**'. If needed the program will turn the locomotive's driving direction if needed and will accelerate the locomotive to its maximum speed.

The measurement process in detail:

The locomotive will now start to drive along the measurement track and when reaching part B, the measurement will be armed and when reaching C, the clock will start to run and stop when reaching part D, simultaneously the speed of the locomotive will be reduced if necessary to a speed of maximal 50% (of available speed steps). The locomotive will stop after part D is free again (and so the locomotive is standing completely on part E). Then the direction of travelling will be reversed for the opposite measurement in direction from part E to part A will be done.




When reaching part D, the measurement will be armed and when reaching C, the clock will start to run and stop when reaching part B, simultaneously the speed of the locomotive will be reduced if necessary to a speed of maximal 50% (of available speed steps). The locomotive will stop after part B is free again (and so the locomotive is standing completely on part A). Then the direction of travelling will be reversed.

All other settings/actions are accordingly to the one in section 4.8.1 and should not be explained again in the section.

A 15-point measurement will last relatively long on a measurement tracks as the locomotives needs especially for low speed steps a long time for travelling over the measurement track.

If you need to measure many locomotives it might be a good idea to take an investment in an alternative measurement system into account.



There are situations where measurement part “C” is different between forward and backward. The reason is that the measurements stops only, when the next contact (B or D, respectively) is reached. This problem may occur, if you have a turnout, for example, without a feedback contact within the measurement track. In this case you type two values – separated by semicolon - for forward and backward in the field “track length”. The first value refers to the track from A to E, and the second one to the opposite direction.

We show this again in the following figure. The arrows indicate the critical parts.

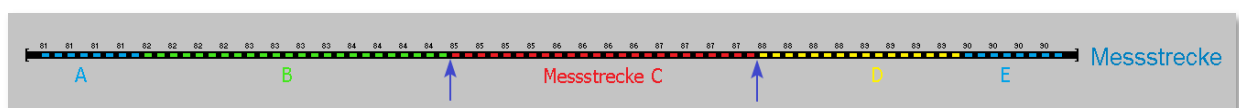


Fig. 4.41 Figure showing a measurement track divided into part A to E

The measurement track shall always be a clean track with good contact. If your locomotive has traction tires on the first or last axle you shall couple on the affected side an additional wagon (which is able to case of an occupation message).

4.8.3 Speed measurements on a combined measurement track






Speed measurements for lower speed steps usually last very long.

Because of the dilemma that you want a speed measurement for many speed steps and the long time for lower speed steps on the other side, **Win-Digipet** includes a combined measurement track for low speeds (until 20 km/h).

Therefor check "Short track for slow speed". Now you can register additional contacts B-short to E-short and the length of C-Short.



In our example (see Fig. 4.2) the complete measurement track consists of...

-  Track part A with feedback contact 81 (optional)
-  Acceleration track part B with the feedback contacts 82, 83 and 84
-  The main track part C with feedback contact 85
-  Deceleration track part D with feedback contact 86
-  Destination track part E with feedback contact 87 (optional)

...with a main track part length C of 50 cm.

Einstellungen			
Strecke A Kontakt(e):	81		<input type="radio"/>
Strecke B Kontakt(e):	82;83;84	<input type="radio"/>	82;83;84 <input type="radio"/>
Strecke C Kontakt(e):	85;86;87	<input type="radio"/>	85 <input type="radio"/>
Strecke D Kontakt(e):	88;89	<input type="radio"/>	86 <input type="radio"/>
Strecke E Kontakt(e):	90	<input type="radio"/>	87 <input type="radio"/>
Streckenlänge C (cm):	150	50	
Kurzstrecke für niedrige Geschwindigkeiten:	<input checked="" type="checkbox"/>		
Messung bei niedrigen Fahrstufen beschleunigen:	<input checked="" type="checkbox"/>		

Fig. 4.42 Allocation of feedback contacts for the short measurement track parts

The shortened measurement track is as sub-part of the complete measurement track. The settings for parts B, C and D have been reduced to a single feedback contact.

During each measurement the program decides after passing the shorter measurement track C-short (when reaching contact 86) if the measured speed is exact enough or if the longer track shall be used to get an exacter result (speeds up to 20 km/h are considered as exact for the short track). If yes, the rest of the measurement cycle will be processed using the D and E contacts registered in the second column. The decision will be made every time the locomotive travels from A to E.

If the program recognizes when reaching the feedback contact 86 that the measurement section C has been passed with a speed greater than 20 km/h the measurement results from the long distance are used.

You can change this threshold value of 20 km/h to any value between 5 km/h and 100km/h by pressing the right mouse button at the checkbox "Short track for slow speeds".



Track B of the short-range must always be such long that the engine can accelerate from zero to half the number of speed steps before the test section C of the short-range is achieved.

The length D of the short distance on the other hand can be quite short, because the engine has to accelerate from a standing to a maximum of only 20 km / h.




4.8.4 *Accelerate measurement for slow speeds*

Optionally you can check this option to reduce the measurement time for lower speed steps (see Fig. 4.).

Especially for lower speed steps the measurement takes quite a long time. When activating this option, the program will accelerate the locomotive measured with lower speed steps than the half of the maximum speed step to half of the maximum speed step when leaving C to D (forward measurement) resp. B (backward measurement). Using this function, A resp. E will be reached earlier.

4.8.5 *Different measurement tracks*

The program supports up to 5 different measurement tracks per layout which can be chosen from a combo box. You can give each measurement track an individual name using the button .



If you have measured your locomotive already with **Win-Digipet 2009** should consider completing the measured values with the measurement of speed step 1 (measurement point 0).
This is important for the intelligent train number display.

After successful measurement you can save your results using '**Save speed profile**' to your vehicle database.



4.9 Index card "Vehicle-Database – Function-Decoder"

This index card is used to define all relevant data for function decoder which can be

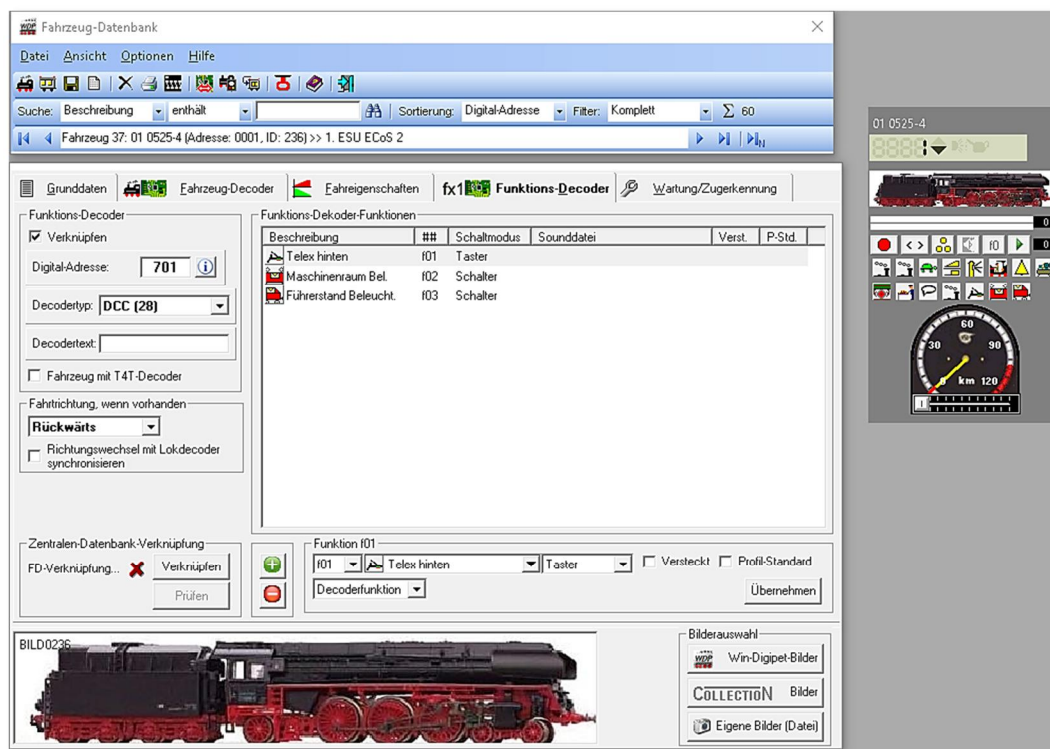


Fig. 4.43 Index card "Vehicle-Database – Function-Decoder"

assigned to the locomotive.

All data can be entered similar to the normal vehicle decoder and will not be explained in detail again (see section 4.5).

Just enter the "Digital-Address" of the function decoder, check "Link" to activate the function decoder.

Afterwards you have to select the "Decoder type" of the used decoder. The functions of the function decoder will appear as additional functions in the locomotive control (see Fig. 4.43). All functions can be tested by clicking the according button/pictogram.

In the panel "Direction" enter the present direction of travel, i.e. forward or reverse. You have to do this once only: after a direction test of the function decoder. The program "remembers" the direction of travel and saves it by leaving the program.

If this indication is wrong, pick up the loco with 6080-decoder from the track, use the reversal command and put the loco back on the track again. This does not work for other types of decoders, because they use absolute direction information in the protocol.

If you check "Synchronize change of direction with Loco-decoder" the program changes the direction of function decoder every time the locomotive changes its direction. This is






for example interesting if you have a trainset with a different decoder in the second engine end.

4.9.1 *Registration of T4T-Decoders*

The decoders produced by Tec4Trains offer for example the possibility to uncouple wagon/train parts at every position within the train. These so called TCCS-decoders use a special protocol which has to be activated in **Win-Digipet** before you can use it.

Please check the according option on the Index card "Vehicle-Database – Function-Decoder" if your locomotive is equipped with a T4T decoder. The second address (TCCS address) of the decoder has to be registered as function decoder address.

Default functions of this type of decoders are:

-  F1 – uncoupling behind the locomotive
-  F2 – uncoupling of last vehicle in train
-  F5 – set this locomotive as main locomotive of train

The function of these decoders can also be activated using profiles and macros.

4.9.2 *Selectrix function decoders*

Within the vehicle database you can also select the decoder type "Selectrix 1 FD" for a vehicle. This can be used to control vehicles with a Selectrix 1 function decoder. This can be used to switch special functions F1 to F8. This is only possible for "real" Selectrix digital system like Rautenhaus SLX (not RMX), Trix, Doehler & Haass FCC, MÜT Multi Control and Stärz ZS1&2).



4.10 Index card "Vehicle-Database – Maintenance/Train detection"

This index card can be used to register all maintenance data for your locomotive.

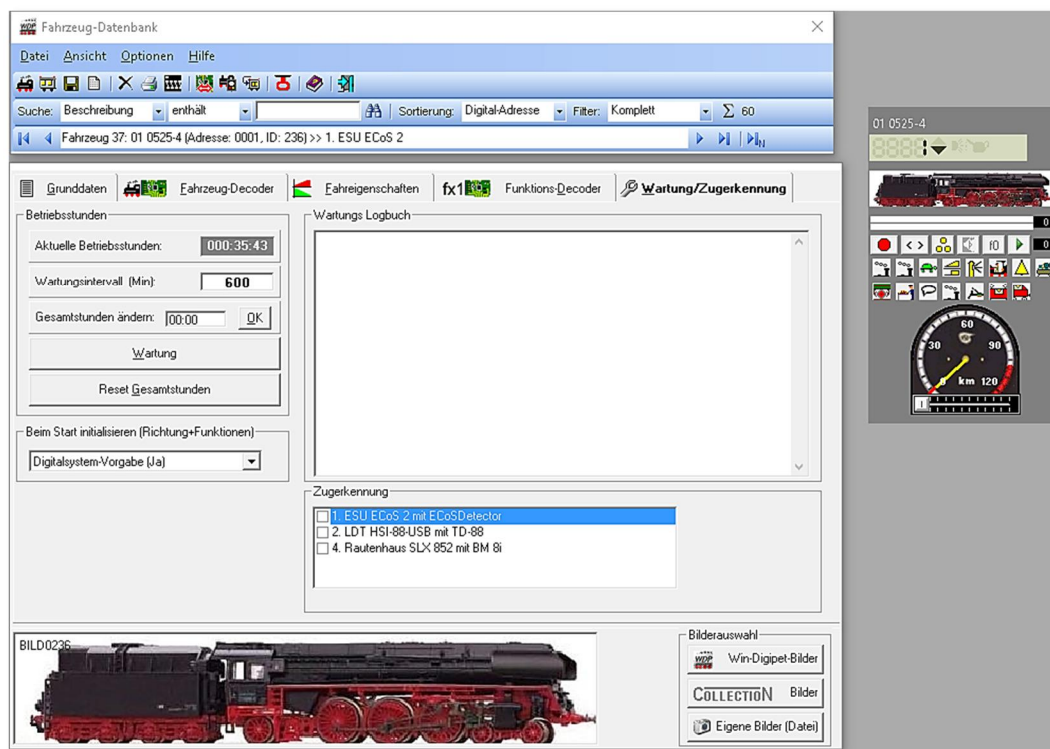




Fig. 4.44 The Index card "Vehicle-Database – Maintenance/Train detection"

Current operating hours, Total hours and Maintenance rate can be set in the panel "Hours of operation". The maintenance rate can be changed to your needs. The default interval is 600 min.



Current operating hours

In this field you can see the time passed since the last maintenance.

If the hours of operation (display = hours: minutes: seconds) exceeds the pre-set maintenance interval, a **small oil can**  or  appears in the big Loco-Control to the right of the speed control.

The locomotive will also get a yellow frame in the locomotive bar and the locomotive monitor under this condition.



Maintenance rate

Here, you can also adjust the maintenance interval; the range is between 1 up to 6000 minutes.



Change total hours

In this field you can change the operating hours. This is e.g. useful if you know the number of hours from other recordings and register the locomotive for the first time in **WIN-DIGIPET** and like to take over this value.



Reset operating-/total hours

After maintenance (lubrication) of the locomotive, use the button "Reset operating hours", to reset the counter to **000:00:00**. The hours of operation since the last maintenance are added to the total hours of operation = "Live expectancy of locomotive added to the field "Total hours" (Display = hours: minutes). With a click on "Reset total time" you can reset the display back to **0000:00**.



Maintenance logbook

Here you can enter all data and remarks concerning the service of the locomotive. It would be conceivable here e.g. to enter the data of a general overhaul, repairs of the locomotive etc.




Train detection

The assignment of a locomotive to a train detection system has to be done here. You have to check which system(s) should be used for detecting this locomotive.

4.11 Registering a new waggon or group of waggons

As described before you can also register waggons or groups of waggons in the vehicle database.

Therefore, click on the symbol  in the toolbar. Now you can enter the basic data according to section 4.4 ff. The registration of waggons is very similar to locomotive therefor we will only shows the registration of a group of 3 goods waggons.

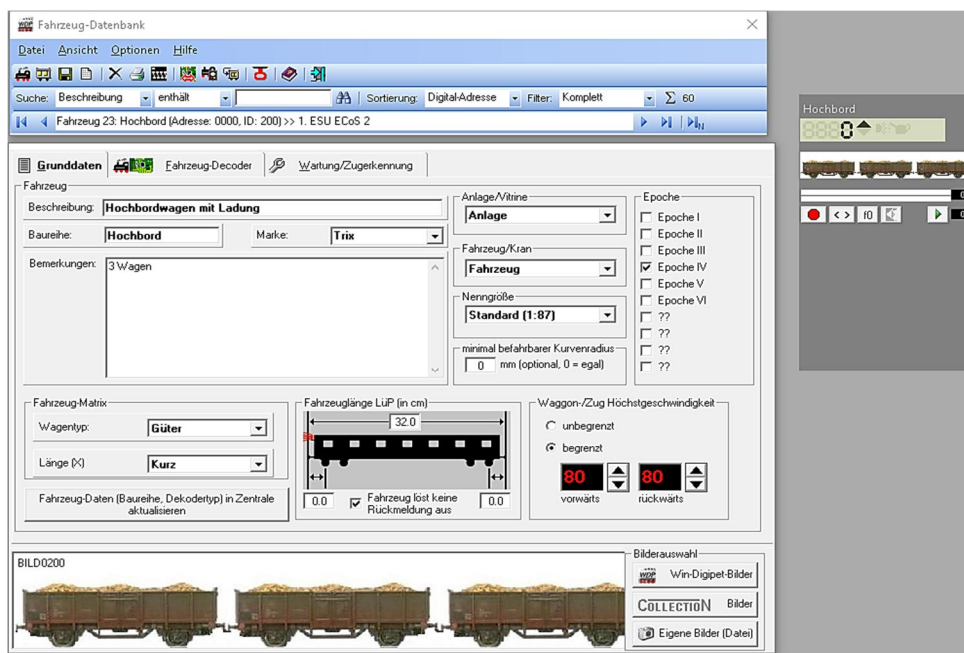


Fig. 4.45 Registering a group of waggons

For waggons it is interesting to limit their speed to a maximum speed. By this option the maximum speed of the whole train containing this waggon can be limited. This is interesting if you couple low speed heavy weight waggons to a high speed universal locomotive. Even if this high speed locomotive has a higher maximum speed than the waggon, it will never drive faster than the maximum speed of the waggon.

In most cases you will use your own already existing pictures. Please remember, that you use small pictures. Good values are file sizes around 20Kbyte and a size of 352 x 142 Pixel. Greater pictures are not necessary.



Fig. 4.46 The File menu in the vehicle database

The picture in the registration field for the vehicle length LoB changed to a waggon and indicates with its red back light on the left side, that the pictures for waggons should also be registered with the driving direction left to right (so back of train to the left). The direction of the waggon in the picture can be changed using the mirror command in the menu <File>.



When creating images for groups of wagons you should not add all vehicles in the picture. The picture should only show one wagon and you should add a text to the picture saying e.g. "16x".

This text can be added for example using a graphic program like paint.

In our example we added '3 Güterwagen' for three goods wagons.



Fig. 4.47 added text

On the index card "vehicle-Decoder" it is advisable to give the waggon a virtual decoder address (and to check "No decoder in vehicle", of course only for waggons without function decoder). This makes a search or sorting of waggons easier.

If a function decoder is installed, please register all special functions in the same way as for a locomotive (see section 4.5.6).

This index card can be used to register all maintenance data for your waggon.

Current operating hours, Total hours and Maintenance rate can be set in the panel "Hours of operation". The maintenance rate can be changed to your needs. The default interval is 600 min.

The assignment of a waggon to a train detection system has to be done here. You have to check which system(s) should be used for detecting this locomotive.

4.12 Registering cranes/function models



Cranes/function models have to be registered as waggons in the vehicle database. We have explained the most relevant input fields before. We will explain here only the crane specific registrations.

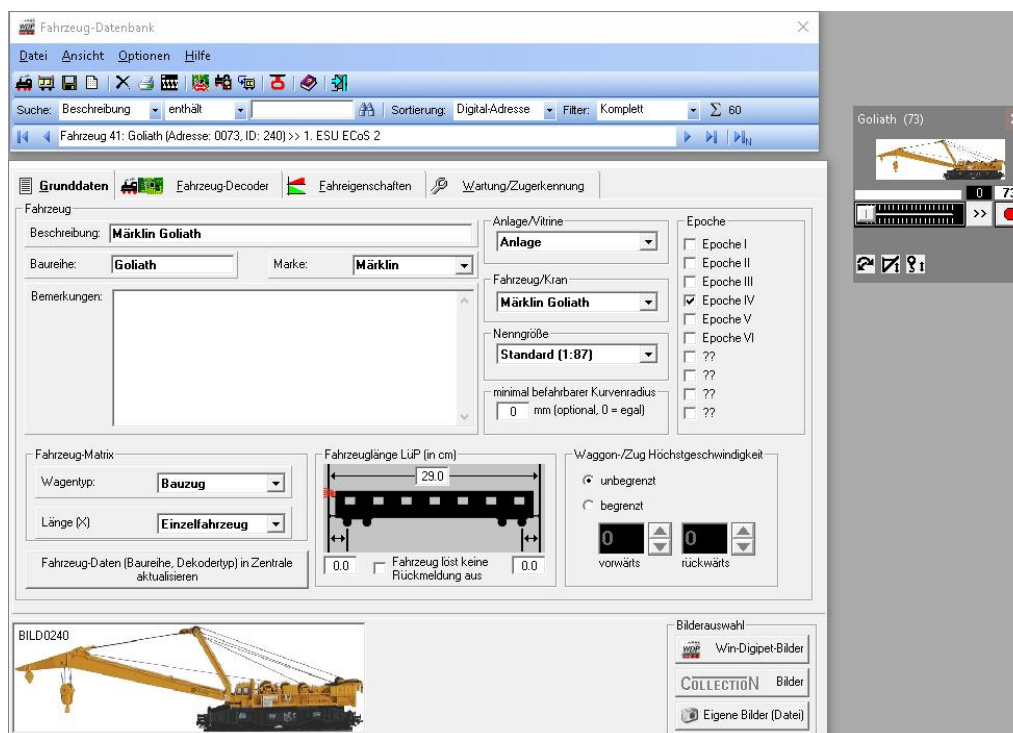


Fig. 4.48 The registration of a crane in the vehicle database

In the combo box "Vehicle/Crane" you can select whether the wagon is a normal wagon or a crane.

The predefined crane/function wagon types are listed in the file KranControl.wdp. This file is placed in the program main directory of **Win-Digipet**.

The most current version is also available in the **Win-Digipet** Forum which is part of the **Win-Digipet** website.

If a newer version of this file is available this file can also be updated using the update functionality in the **Win-Digipet** Startcenter.

In the following we list the crane types which are available in **Win-Digipet** at the moment.




Win-Digipet supports the following cranes at the moment:


Heljan	Heljan Container terminal
Lux	Lux vacuum cleaner
	Lux track cleaner
	Lux catenary cleaner
Märklin	Märklin Goliath
	Märklin Gantry crane 76501
	Märklin Gantry crane 76500
	Märklin Crane 7651
	Märklin Coaling facility
	Märklin Crane 76515
	Märklin Tower motor car
	Märklin Torpedo ladle waggon
Roco	Märklin small waggon crane
	Roco Gantry crane
	Roco Gantry crane control variant 2
Uhlenbrock	Roco waggon crane
	Uhlenbrock Gantry crane

4.13 Converting a locomotive to a waggon

If you used wagons in former versions before 2012 as locomotive dataset or cranes you have to/should convert them to waggon datasets. Therefor we included a conversion function.

By pressing  and answering a security question afterwards you are able to convert the old dataset to a waggon dataset.

After the confirmation with **'Yes'** the dataset type will be changed from locomotive to wagon.

Afterwards you should make the waggon specific registrations described before. Especially the registration of the LoB is important. Afterwards you can save your dataset using the button  .

For waggons it is interesting to limit their speed to a maximum speed. By this option the maximum speed of the whole train containing this waggon can be limited. This is interesting if you couple low speed heavy weight waggons to a high speed universal locomotive. Even




if this high speed locomotive has a higher maximum speed than the waggon, it will never drive faster than the maximum speed of the waggon.



The conversion of a locomotive to a waggon cannot be undone! So take care only to convert real wagons!

4.14 Transferring/Linking all locomotives to your digital system

When pressing the button  in the toolbar of the vehicle database, **Win-Digipet** offers the possibility to transfer its complete database to a digital system.

This function is only available for few digital systems. If you select a digital system where this function is not available **Win-Digipet** will inform you about this issue.






4.14.1 Transferring to a Tams Master Control


For a Tams Master Control, you can only transfer your complete database to the digital system.

After answering a security question, the old database in the Tams Master Control will be deleted and your complete database will be transferred.

4.14.2 Transferring to a Central Station or an ECoS

For the digital system

-  Märklin Central Station2
-  Märklin Central Station 3,
-  Central Station Reloaded
-  ESU ECoS,
-  ESU ECoS 2

Clicking the symbol  will open the Transfer/Link-Manager. The listed digital systems manage the vehicle in a database similar as **Win-Digipet**. But compared to **Win-Digipet** these digital systems list in their database only the locomotives resp. vehicles which contain function decoders. Only these have to be addressed by the digital system for controlling your trains. The Transfer/Link-Manager arranges the connection between the vehicle database of **Win-Digipet** and the one in your digital system.



For the listed digital systems, the vehicles can only be controlled by **Win-Digipet** if linked to the digital system (Central Station 2 only for mfx).
If you can't control your vehicles by **Win-Digipet** and you use such a digital system, please check the link status.

The window will always open showing the first digital system which offers a transfer/link functionality.

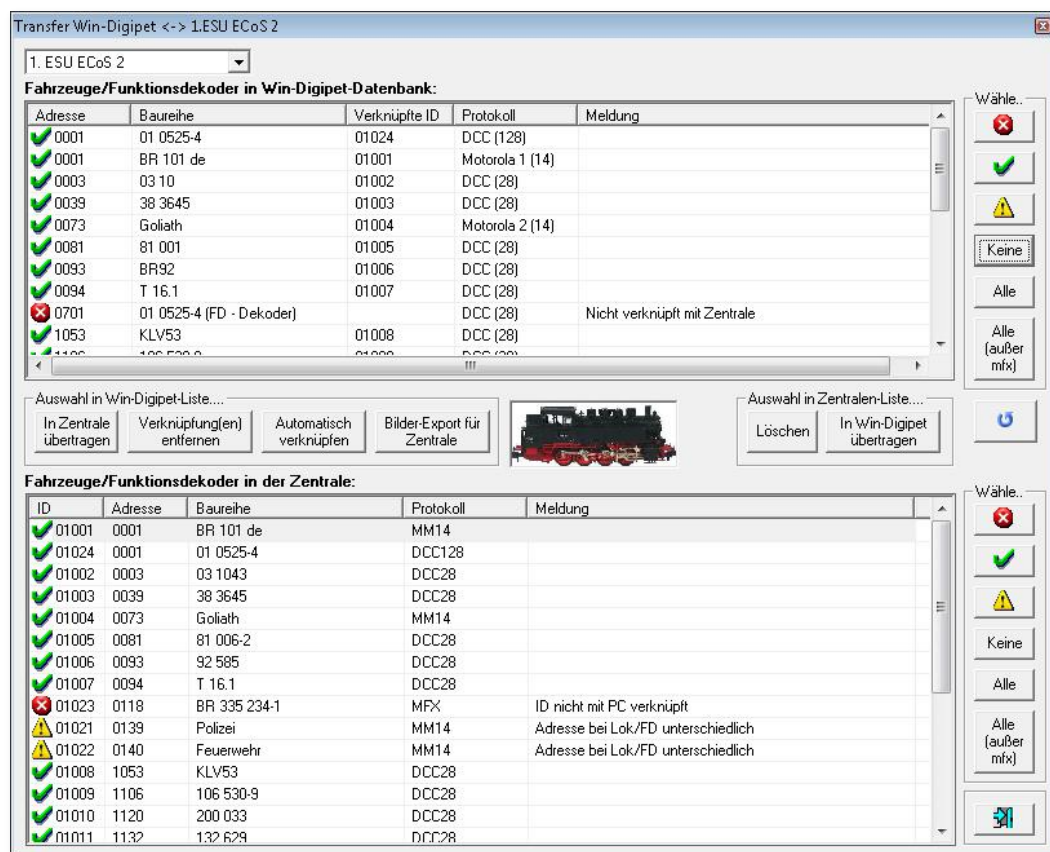


Fig. 4.49 The window lists **Win-Digipet**'s database at the top and one of the digital system at the bottom

First you have to select the digital system which you want to edit.

If you select an unconnected digital system, you will see a message.

In Fig. 4.49 an example of a filled transfer/link-manager is shown. We used for this figure our demo project and an ESU ECoS 2.

The upper list shows you all vehicles which are configured in the **Win-Digipet** database for the control by the first digital system, in our case an ESU ECoS 2. The list only shows the vehicles which are currently on your layout and not the ones in the display case.



In the lower part of the window you see list with a vehicles registered in the database of the digital system. The symbols at the left side of the table indicate the status of the according database record. The symbols are:



The data record is correctly linked




No link found for this database



The link might be incorrect (e.g. decoder type mismatch)

For transferring vehicles to the digital system you have to select the according vehicles in the upper list. You can also use the filter buttons at the right side of the list. After you have made your selection you can press '**Transmit to central unit**'.

A progress indicator is shown while the data records are transmitted, after the end of the transmission a message will inform you.

You can refresh the data in both lists by pressing  (in most cases this is done automatically).



If you use Märklin Central Station 2 with **Win-Digipet** your minimum firmware should be 2.0.1 or higher.

The buttons '**Connect automatically**' and '**Delete**' are not available for the CS 2 due to protocol issues.

4.14.3 Linking to a digital system resp. relinking

The links between **Win-Digipet** and the digital system can be created and restore with the



Fig. 4.50 Several actions for link/transferring

transfer-/link-manager at any time.

The several possible actions are for the Selection in the **Win-Digipet** list:



Transmit to central unit

The selected data records will be transferred from **Win-Digipet** to your digital systems and automatically linked.



Remove link(s)

The links for the selected records will be removed.



Connect automatically

Win-Digipet tries to link existing records of both databases which are currently not linked.



Picture export

The **Win-Digipet** pictures will be converted into a file format suitable for your digital system and will become available in sub folder of your project folder.

The several possible actions are for the Selection in the central list



Delete


You can delete records in the database of your digital system. During this process the database of your digital system should not be opened at the digital system's screen.



Transmit to **Win-Digipet**

The selected data records will be transferred to the database of **Win-Digipet**

4.14.4 Globally change digital system for several locomotives

If you use multiple digital systems for your model railroad you can easily change the digital system, which controls several of your locomotives. Click in the vehicle database on the button  in the toolbar.

A new window to change digital systems globally is coming up.

In the upper selection box you can choose the current digital system for controlling your locomotives and in the lower selection box you decide the new digital system for controlling your locomotives.

With a click on '**OK**' you can change now the digital-systems for the locomotive of the old digital system.

The records will be changed according to your selection after confirming a security query.

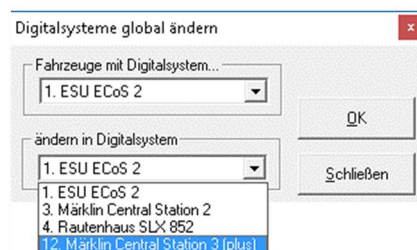


Fig. 4. 51 Changing the digital systems for all vehicles from one system to another



In this dialog the default value is for the selections always the first digital systems which are able to control locomotives.

You need to change the selection in both combo boxes to the desired source and destination digital system.

Please remember, that only vehicle will be changed which are currently assigned to the selected source digital system.

4.14.5 Modifying pictograms for the locomotive data base

Win-Digipet offers many function symbols by default. These are stored in the file **FuncIcons.png**, which is settled in the subfolder \Symbole of your **Win-Digipet** installation.


Additional own function symbols can be created using the "**Win-Digipet** Function Symbol Editor" which can be started within the **Win-Digipet** Startcenter.




These own function symbols will also be stored in the folder \SYMBOLE in a second file called **FuncIconsPers.png**.

4.15 Managing data records in the vehicle database

4.15.1 Save a data record

Your registration within the changed data record will be saved automatically. Additionally you can force an additional saving while making larger changes by pressing the button  in the toolbar.

4.15.2 Delete data records

If you want to delete a data record within the vehicle database just press the button  in the toolbar of the vehicle database.

The vehicle currently visible in the window will be deleted.

You can also select the vehicle you want to delete using the "Vehicle list" (see **Fehler! Verweisquelle konnte nicht gefunden werden.**). A security query is displayed prior to the deletion.

4.15.3 Sort data records

In the upper toolbar of the vehicle database you have the opportunity to change the way the vehicle database should be sorted and our filtered.







Fig. 4.52 Choosing a filter

The selected sort method does not only apply to the vehicle database, but also to the sorting of the locomotive bar and other place in the program. Your existing tractions will not be touched when changing the sort criteria.



Fig. 4.53 The sort criteria within the vehicle database

You can use the following sort criteria

-  **ID-Number**
the data records will be sorted by their ID number (same order as they have been registered over the time)
-  **Description**
the data records will be sorted by content of the description field
-  **Class**
the data records will be sorted by content of the class field
-  **Digital address**
the data records will be sorted by their digital address

The sorting is always done ascending (a-z, 0-9).

4.15.4 Searching records

Using the search function in the toolbar you can easily search for a specific data record



Fig. 4.54 The search function to find a specific data set.

resp. locomotive/vehicle.

You can search within the data field "ID-number", "Description", "Class" and "Digital-address". You can also choose if you want to search for the exact content of the data fields or a sub-part.

Right beside the selection of the search criteria, you can enter the text you want to search for.

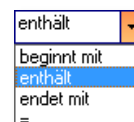



Fig. 4.55 Different search criteria








With a click on  you start/continue the search; pressing the button repeatedly you will jump from one to the next record matching the search criteria/text.

4.15.5 Browsing data records

The "Browse" - function in the toolbar allows you to browse through data files using mouse clicks.




Fig. 4.56 The browse function is settled at the bottom of the vehicle database main window

-  back to the first record
-  one record backwards
-  one record forwards
-  forwards to the last record
-  to the newest record





Beside the sum symbol you can see the number of vehicles showing the number of vehicles in the database. This number changes according to the selected filter criteria. Thus only the setting "Complete" will result in showing really the number of all vehicles in the database.

 60 Number of filtered data records

4.15.6 Vehicle list

A **list** of all recorded **locomotives** is available using the button  in the toolbar. This list shows all vehicles available in the vehicle database.

You can filter with in the vehicle list using the criteria

-  ID number
-  Class
-  Description
-  Digital number



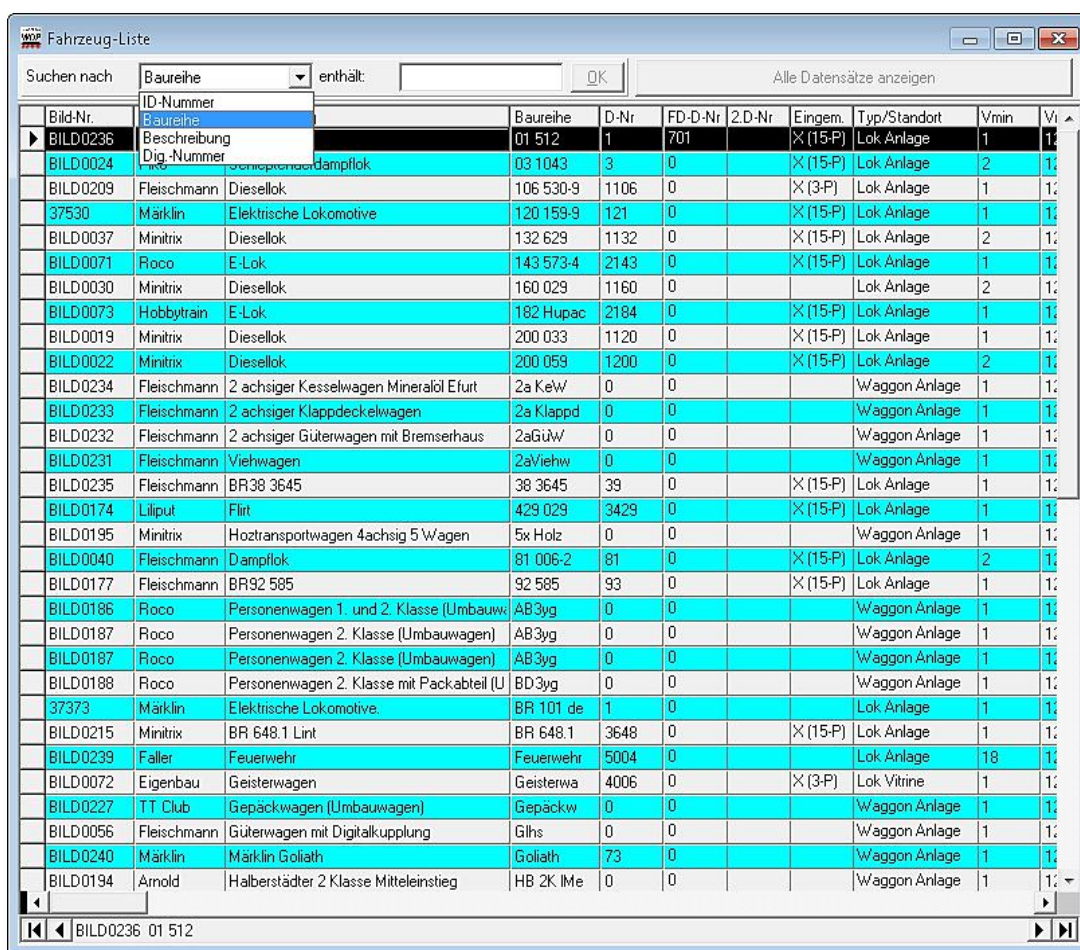
Enter the search-text, click on '**OK**' or push the return-key on your keyboard. You will get a message.

If no locomotive has been found after the search has been performed. To display all data after a search function, click on '**Display all records**'.

4.15.7 Changing records

With a click on a line of this list, this vehicle will be shown immediately in the locomotive-database and its data will be indicated as well. You can then edit/change the selected data record as described in the other sections of this chapter.

In the "List of all locomotives" you can edit the data in the suitable rows of the list. Click on the desired column. In order to edit **WIN-DIGIPET** offers two possibilities which depend on



The screenshot shows a software window titled 'Fahrzeug-Liste' with a search bar at the top and a table of vehicle records below. The search bar includes a dropdown for 'Suchen nach' (set to 'Baureihe'), a text input 'enthält:', and an 'OK' button. A button 'Alle Datensätze anzeigen' is also present. The table has columns: Bild-Nr., Baureihe, Beschreibung, Dig.-Nummer, Baureihe, D-Nr., FD-D-Nr., 2.D-Nr., Eingem., Typ/Standort, Vmin, and Vmax. A context menu is open over the first row, showing options for 'Baureihe' and 'Beschreibung'. The table contains various locomotives (e.g., Fleischmann, Märklin, Roco, Minitrix) and wagons (e.g., Fleischmann, Roco, TT Club, Arnold).

Bild-Nr.	Baureihe	Beschreibung	Dig.-Nummer	Baureihe	D-Nr.	FD-D-Nr.	2.D-Nr.	Eingem.	Typ/Standort	Vmin	Vmax
BILD0236				01 512	1	701		X (15-P)	Lok Anlage	1	12
BILD0024		Dampflok		03 1043	3	0		X (15-P)	Lok Anlage	2	12
BILD0209	Fleischmann	Diesellok		106 530-9	1106	0		X (3-P)	Lok Anlage	1	12
37530	Märklin	Elektrische Lokomotive		120 159-9	121	0		X (15-P)	Lok Anlage	1	12
BILD0037	Minitrix	Diesellok		132 629	1132	0		X (15-P)	Lok Anlage	2	12
BILD0071	Roco	E-Lok		143 573-4	2143	0		X (15-P)	Lok Anlage	1	12
BILD0030	Minitrix	Diesellok		160 029	1160	0			Lok Anlage	2	12
BILD0073	Hobbytrain	E-Lok		182 Hupac	2184	0		X (15-P)	Lok Anlage	1	12
BILD0019	Minitrix	Diesellok		200 033	1120	0		X (15-P)	Lok Anlage	1	12
BILD0022	Minitrix	Diesellok		200 059	1200	0		X (15-P)	Lok Anlage	2	12
BILD0234	Fleischmann	2-achsiger Kesselwagen Mineralöl Efurt		2a KeW	0	0			Waggon Anlage	1	12
BILD0233	Fleischmann	2-achsiger Klappdeckelwagen		2a Klappd	0	0			Waggon Anlage	1	12
BILD0232	Fleischmann	2-achsiger Güterwagen mit Bremserhaus		2a GüW	0	0			Waggon Anlage	1	12
BILD0231	Fleischmann	Viehswagen		2a Viehw	0	0			Waggon Anlage	1	12
BILD0235	Fleischmann	BR 38 3645		38 3645	39	0		X (15-P)	Lok Anlage	1	12
BILD0174	Liliput	Flirt		429 029	3429	0		X (15-P)	Lok Anlage	1	12
BILD0195	Minitrix	Holztransportwagen 4achsiger 5 Wagen		5x Holz	0	0			Waggon Anlage	1	12
BILD0040	Fleischmann	Dampflok		81 006-2	81	0		X (15-P)	Lok Anlage	2	12
BILD0177	Fleischmann	BR 92 585		92 585	93	0		X (15-P)	Lok Anlage	1	12
BILD0186	Roco	Personenwagen 1. und 2. Klasse (Umbauwagen)		AB 3yg	0	0			Waggon Anlage	1	12
BILD0187	Roco	Personenwagen 2. Klasse (Umbauwagen)		AB 3yg	0	0			Waggon Anlage	1	12
BILD0187	Roco	Personenwagen 2. Klasse (Umbauwagen)		AB 3yg	0	0			Waggon Anlage	1	12
BILD0188	Roco	Personenwagen 2. Klasse mit Packabteil (U)		BD 3yg	0	0			Waggon Anlage	1	12
37373	Märklin	Elektrische Lokomotive		BR 101 de	1	0			Lok Anlage	1	12
BILD0215	Minitrix	BR 648.1 Lint		BR 648.1	3648	0		X (15-P)	Lok Anlage	1	12
BILD0239	Faller	Feuerwehr		5004	0	0			Lok Anlage	18	12
BILD0072	Eigenbau	Geisterwagen		Geisterwa	4006	0		X (3-P)	Lok Vitrine	1	12
BILD0227	TT Club	Gepäckwagen (Umbauwagen)		Gepäckw	0	0			Waggon Anlage	1	12
BILD0056	Fleischmann	Güterwagen mit Digitalkupplung		Glhs	0	0			Waggon Anlage	1	12
BILD0240	Märklin	Märklin Goliath		Goliath	73	0			Waggon Anlage	1	12
BILD0194	Arnold	Halberstädter 2 Klasse Mitteleinstieg		HB 2K IMe	0	0			Waggon Anlage	1	12

Fig. 4.57 The vehicle list

the respective column.



First click in the column - column is selected. If you click again, an input cursor appears for overwriting.



First click in the column - a choice arrow appears and after a click on this a small list box in which you can choose the options appears.



Not every column of the list can be edited. To change this data please use the normal editing possibilities in the vehicle database.

To save changes, click on a different line.

A "Browse" function is available at the bottom of the locomotive list, containing the most functions explained above.

To close the list, click on the X-Symbol at the upper right corner of the window.

4.15.8 Exporting vehicle

With this function you can export complete single vehicles from your vehicle database and take this dataset with you.

If is useful e.g. when visiting a friend or a model railroad meeting.

Therefor use the command <File> <Export vehicle> and a "Save as" window will open.

You can now select where you want to store your export on your computer or on an USB stick etc. You should choose a file name which you can easily associate with the exported vehicle.

In the destination directory you will later find an .mdb file containing the data and picture of your exported vehicle.

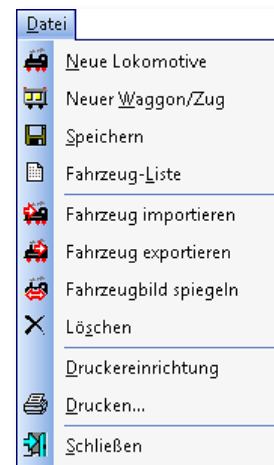


Fig. 4.58 The Im- and Export-Function within the "File" menu

4.15.9 Import vehicle

With this function you can import the previously exported vehicle into the vehicle database of (another) project.



You can also use the Export function with an additional Import afterwards also for duplicating data records if you have a vehicle twice for example. Please remember to change vehicle specific settings like the digital address afterwards.

For importing a vehicle use the command <File> <Import vehicle> (see Fig. 4.58).



An "Open" dialog will appear. After selecting the previously exported dataset (the MDB-Access-File) you have to select **'Open'**.


Now you will be asked if you want to override the current dataset with imported data (e.g. useful when the destination dataset already contains your locomotive and you want just to update the dataset with changed data e.g. new speed measurement) or if you want to create a new dataset.

If you choose **'Yes'** the data of the vehicle currently selected will be overwritten by the imported data. When selecting **'No'** you will be asked afterwards if you want to import the data into a new data record?

After the import process has been completed take a look at the vehicles name/description if you might want to make any changes in this data fields.

4.16 Printing the vehicle data base

Via <File> - <Printer> you'll reach the window to input your printer data. Acknowledge with **'OK'**.

Click on <File> - <Print> or on the switch  in the toolbar to print a record.

The window "Print locomotive data base" will appear showing the first two data records.

The possible functions are self-explanatory. All commands will be entered by mouse.

In the beginning, all locomotives will be shown – depending on how you sorted them – as single pictures on forms in portrait format.

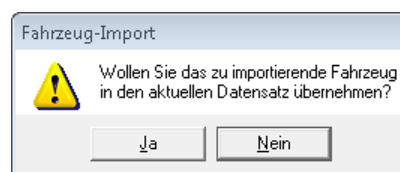


Fig. 4.60 Import into an existing data record

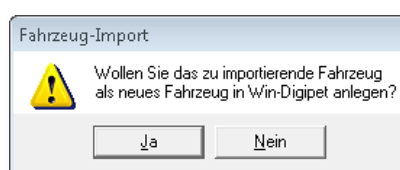


Fig. 4.60 Import into a new data record



Fig. 4.61 The print function in the menu "File"



You may also arrange these single pictures on forms in landscape format. You can choose

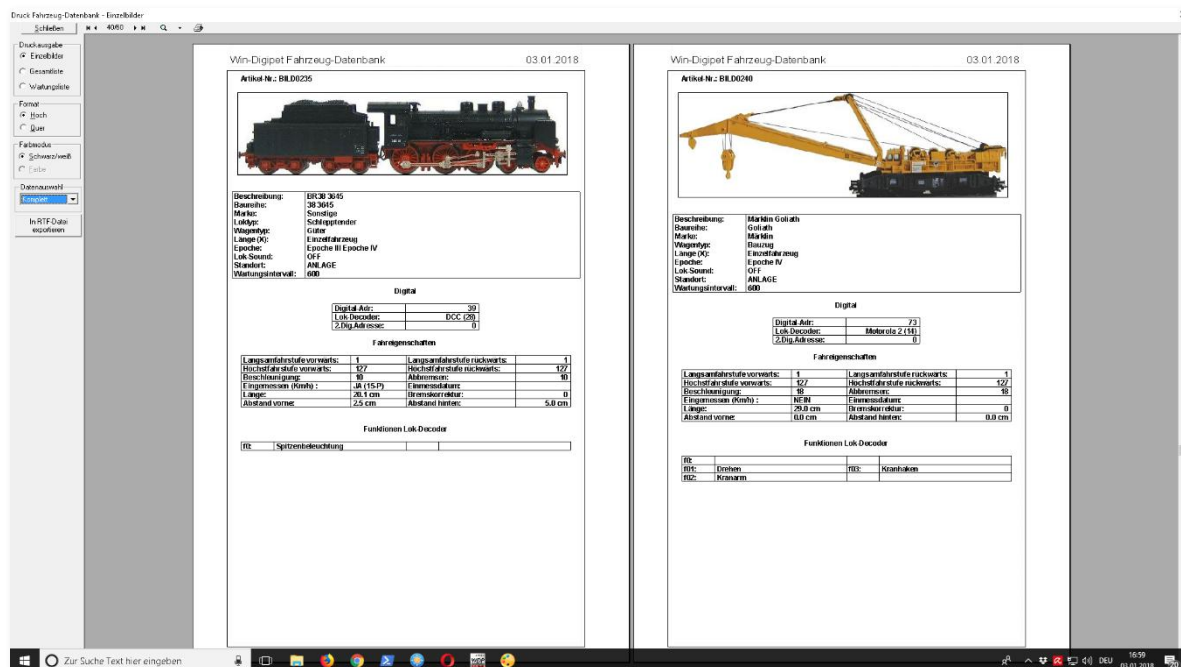


Fig. 4.62 The print window of the vehicle database

this on the panel format at left side of the screen.

You will get an overall list with all locomotives and all illustrations, when you click on **"Overall list"**.

The switch **"Maintenance list"** will print a complete list of all locomotives which are in a queue for maintenance.

The filter function in the list **'Data selection'** offers the same filter options as in the vehicle database. You can select here which types of vehicles shall be printed.

Using the button **'Export to RTF file'** you can save the printout to a RTF²⁵ file and process this file later in other programs which are able to handle RTF files.

At the top edge of the screen, you will find a list arrow next to the magnifying glass for several options to view the printout. If do not make any selection here **Win-Digipet** will use for all commands the **'Two pages'** mode.


With a click on the symbol  at the top of the screen, you will start the printout.

'Close' quits the printout.

²⁵ RTF – Rich Text Format



4.17 Closing vehicle data base

Close the vehicle database by clicking the symbol .

The program updates the "Locomotive bar" in the main program and the train number display in the track diagram.


The displays "Update vehicles" and "Update train number display" keeps you informed about the process.

The locomotive selection bar in the main program will also be updated, if you have put some locomotives into the "showcase" or if you have changed the sorting of the locomotives.





4.18 Editing the vehicle database with the vehicle wizard

In the former sections of this chapter we explained how to create a vehicle in the vehicle database. But you can also create a new vehicle without the need to open the vehicle database at all.

4.18.1 Creating a locomotive or waggon via the route wizard

Using the vehicle wizard, you can register new locomotives and wagons very quickly without the need to interrupt your model railroad operation, which would be necessary if you would the vehicle database. Therefor just press the button  in the toolbar of the main program.

The wizard offers four options:

-  Create a new locomotive
-  Create a new waggon
-  Transfer a vehicle from the database of a digital system to **Win-Digipet**
-  Link a vehicle detected by a train detection system with **Win-Digipet** or create an according data record

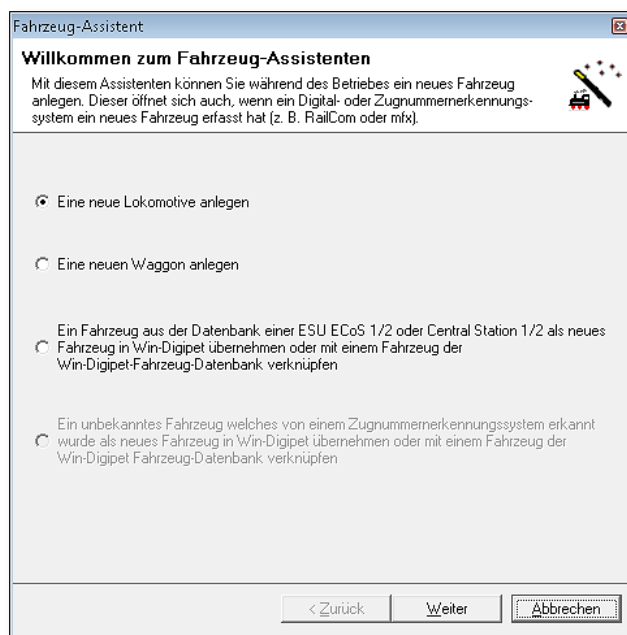


Fig. 4.63 The start dialog of the vehicle wizard6

Using the first two options you can create a new locomotive or wagon for the vehicle database of **Win-Digipet**.

Using the third option you can transfer a vehicle from the database of a digital system to **Win-Digipet** (e.g. from Märklin Central Station 1 or 2, ESU ECoS 1 or 2).

The last option will only be enabled when an unknown vehicle has been detected like a train number detection system before (like RailCom). Then you can link a vehicle detected by a train detection system with **Win-Digipet** or create an according data record.



After selecting "Create a new locomotive" resp. "Create a new wagon" and clicking **'Next'**

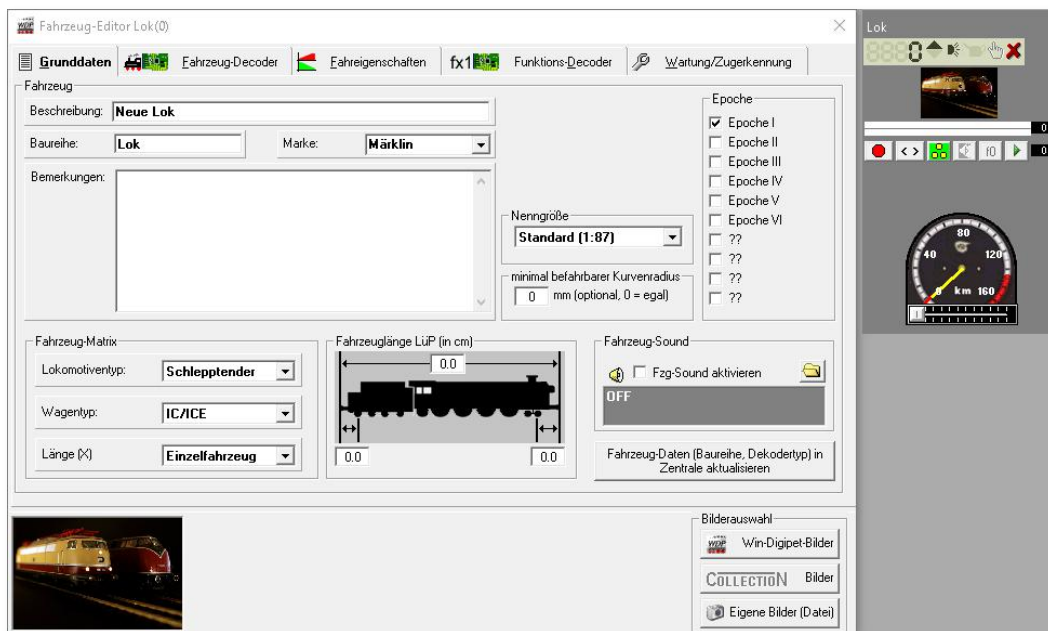


Fig. 4.65 The selection "Create a new locomotive" will open the vehicle editor

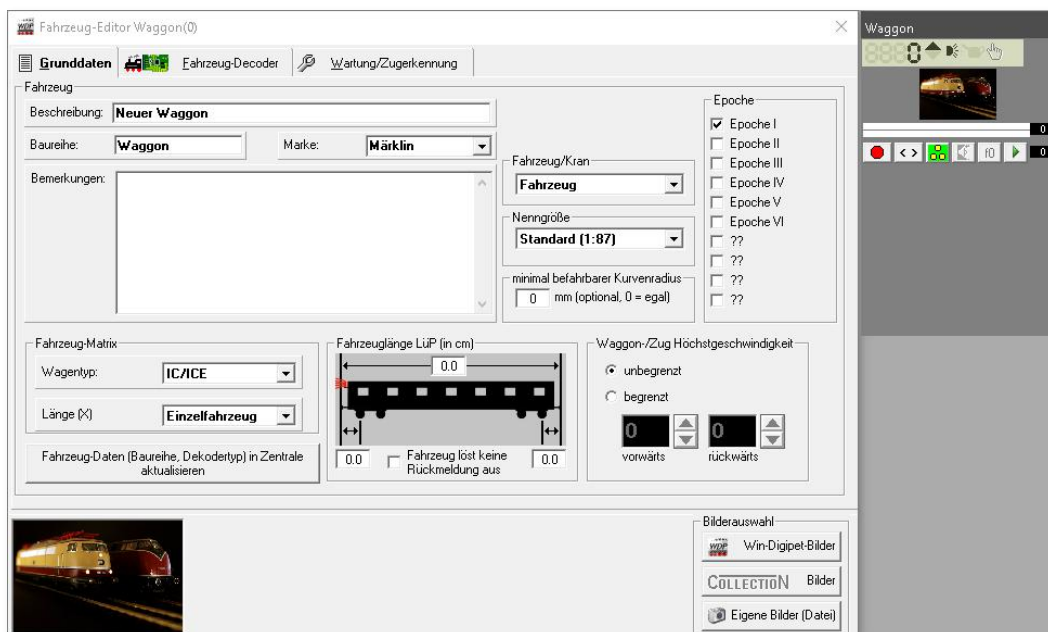


Fig. 4.64 The selection "Create a new wagon" will also open the vehicle editor

the vehicle editor will open. The vehicle editor is identical to the part of the vehicle database where you can edit the single vehicle data record.



The possible options and registrations have been explained in section 4.2 ff. and will not be explained again.

4.18.2 New mfx locomotive detected

Every time you bring a new MFX-locomotive to your model railroad layout this locomotive will be detected automatically by your Märklin Central Station 1 or 2 or ESU ECoS 1 or 2. This will be also indicated by the MFX-symbol on the CS /ECoS.

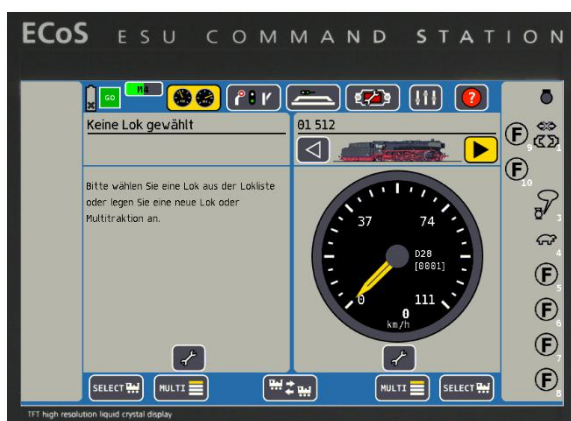


Fig. 4.66 The digital system during mfx detection



Fig. 4.67 The mfx locomotive after detection

After a short while **Win-Digipet** will recognize this also and will start the MFX-vehicle-Assistant.

To control locomotives using **Win-Digipet** these locomotives have to be linked between the vehicle database of the digital system **and** the database of **Win-Digipet**.

Please wait until the mfx detection in your digital system completed.

After complete detection of the locomotive by the digital system press **'Next'**.



Fig. 4.68 The vehicle wizard detected a new mfx vehicle

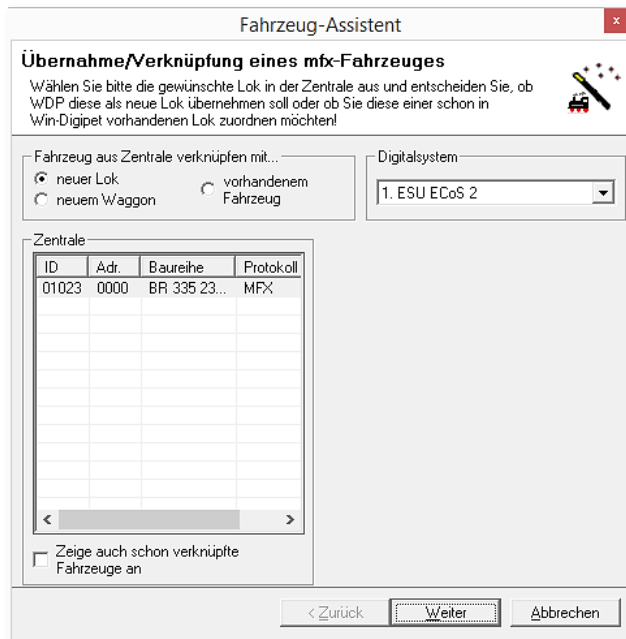


Fig. 4.69 Die erkannte Lok wird zur Übernahme angeboten

Now the wizard opens a dialog offering options for the handling of this new vehicle in **Win-Digipet**.

Now you can decide whether you want to create a new locomotive or wagon in the database of **Win-Digipet** basing on the digital system's data or if you want to link the new locomotive in the digital system with an '**existing vehicle**' or within the database of **Win-Digipet**.

Make your selection using the radio buttons.

In our example we want to create a new locomotive in **Win-Digipet** and proceed with '**Next**'. You will now see the vehicle editor which is well known from the manual registration of vehicle. All data provided by your digital system has been already entered into the input

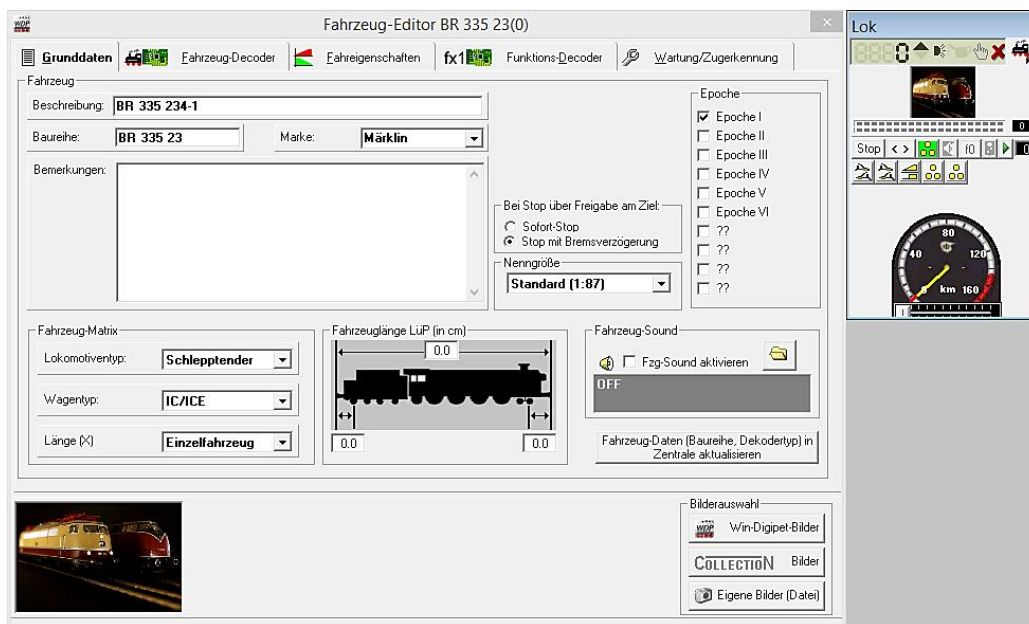


Fig. 4.70 Die erkannte mfx-Lok wird als neuer Datensatz angelegt

fields. Complete the registrations according to sections 4.4 to 4.10. The registrations will automatically be saved to the vehicle database.

Most functions of the decoder will already be available on the index card "Vehicle-Decoder".



But you will have to make fine adjustment e.g. for the function symbols, because **Win-Digipet** has much more different function symbols than the available digital systems.

4.18.3 Automatic detection of a RailCom vehicle

Basically the detection of RailCom vehicle is similar to the process explained for a new mfx locomotive described before.

4.18.4 Editing a vehicle via locomotive control


Beside the vehicle wizard for creating new vehicles you can also edit existing vehicles while using the main program of **Win-Digipet**. Therefore you need a locomotive control of the locomotive. It makes no difference if you use a small or large one. The functions described in this section can also be called within the locomotive monitor.






Fig. 4.71 a loco control







Fig. 4.72 The sub menu for editing a vehicle

By clicking the WDP symbol  a small sub menu will open. This menu offers the functions as follows:

-  **Edit vehicle**
Using this function the vehicle editor for this vehicle opens and you can edit the vehicle like in the vehicle database. All changes will be transferred to the vehicle database.
-  **Program vehicle's decoder**
This function calls the decoder programmer functionality within **Win-Digipet**. The programming of the vehicle's decoder can be done here.
-  **Program vehicle's function decoder**
This function calls the decoder programmer functionality within **Win-Digipet**. The programming of the vehicle's function decoder can be done here.



-  **Measure/calibrate vehicle**
This function calls the window "Measure speed profile" which has been explained in chapter 4.8.
-  **Edit train**
Using this function the train composition window will open. This function is used to combine several locomotives and/or wagons to a train. This function will be explained later in this manual.
-  **Stop locomotive**
A running locomotive is stopped.
-  **Downsize loc control**
The size of the loc control can be changed from "max" to "min" and vice versa.

The sub menu show in Fig. 4.72 can also be called via a waggon control. Of course, we cannot measure the speed profile of a waggon, so that this option is not visible.

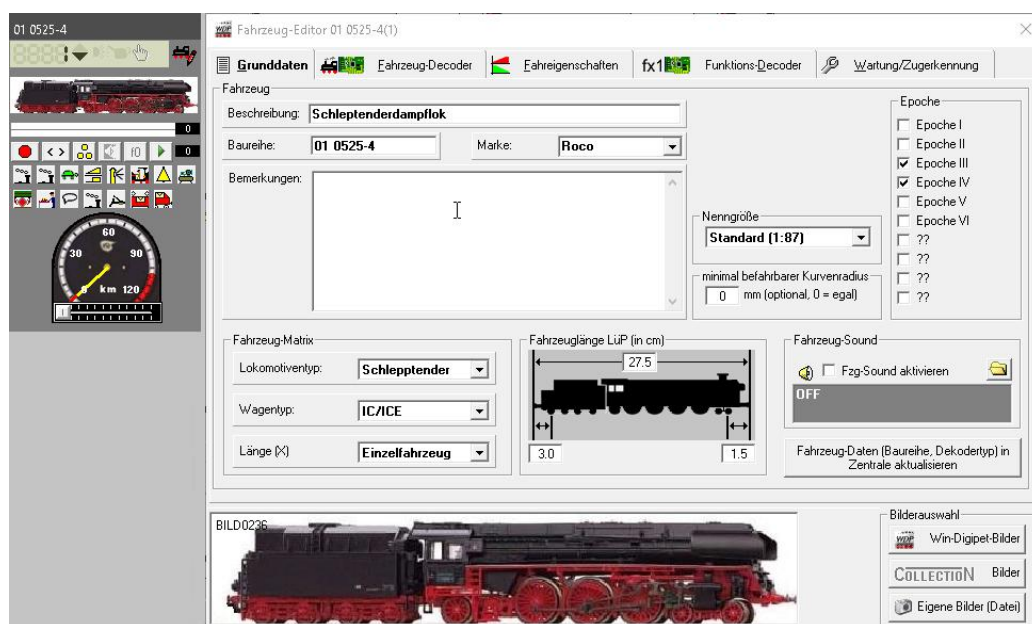


Fig. 4.73 A locomotive in edit mode

You can see (Fig. 4.73) which locomotive is being edited by the small pencil in the locomotive control.



The locomotive which is being edited cannot be used in route, tours or the tour automatic. All other locomotives/vehicles can be used as usual. A driving locomotive will be stopped as soon as its edit mode is called.



4.19 Program vehicle decoder

As described before this function calls the decoder programmer functionality within **Win-Digipet**. The programming of the vehicle decoder can be done here. The next figure shows the blank dialog for a locomotive from our demo project. The blinked decoder symbol in the locomotive's control indicates, that this locomotive is been programmed at the moment.

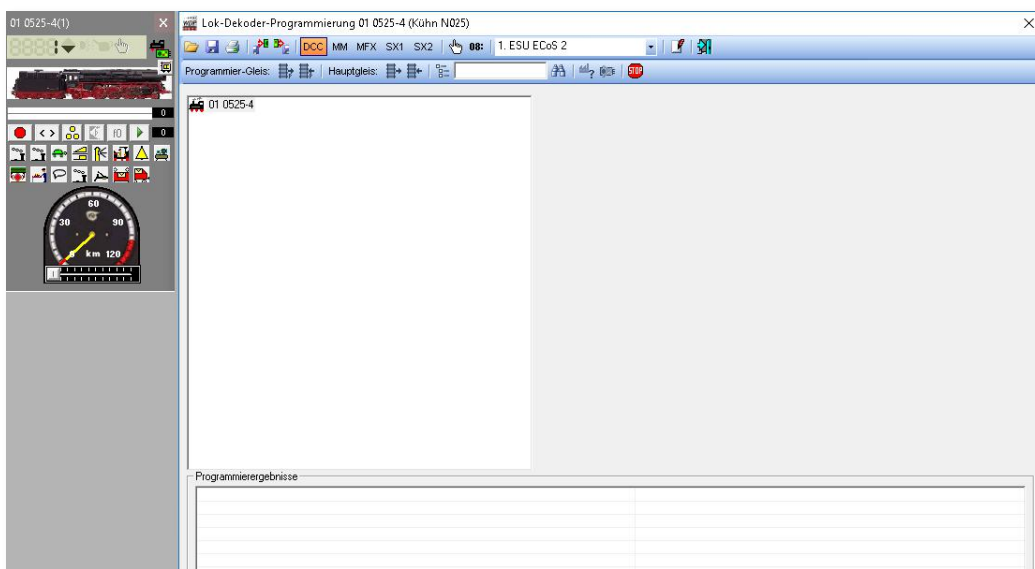
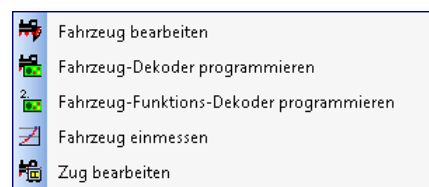


Fig. 4.74 The empty decoder programming dialog



Using the decoder programming in **Win-Digipet** you can program decoders via CV values (par values for SX2). Decoder with a programming via DIP switches or potentiometers cannot be changed using this program part.

The locomotive which is being programmed cannot be used in route, tours or the tour automatic while it is being edited. All other locomotives/vehicles can be used as usual.

A driving locomotive will be stopped as soon as its program mode is being called.

Before you start the decoder programming you need to know which decoder type is installed in your locomotive. In our locomotive 01 0525-4 from the demo project a decoder N025 of Kühn is installed.



In basic setup of **Win-Digipet** 2018 many decoder templates for several manufacturers have been included. This template contain the structure and default data for a specific decoder type.

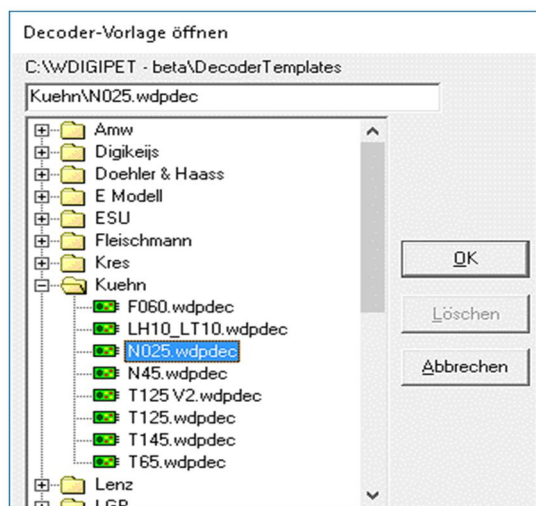


Fig. 4.75 Selecting a decoder template

The decoder templates of **Win-Digipet** are stored in the directory ".\DecoderTemplates" under the **Win-Digipet** main directory.


The templates delivered with **Win-Digipet** are sorted by manufacturer into subfolders.

Win-Digipet 2018 offers templates for many well-known decoder types. Due to permanent development of the decoder market we cannot supply templates for any kind of decoder.

At the installation von **Win-Digipet** the templates are stored in the program folder "\DecoderTemplates". You find the templates in subfolders named according to the decoder manufacturer.

Due to the ongoing development of new decoders **Win-Digipet** cannot supply templates



for all decoders on the market.

You can create decoder templates yourself or you can adapt existing ones for your own special decoder type using the decoder's manual/specifications. There you can open the template editor using the symbol  in the toolbar of the decoder programming dialog.

As you might recognize in Fig. 4.75 **Win-Digipet** supports decoder template with two different file extensions. Decoder templates supplied **Win-Digipet** end with ".wdpdec", templates created by yourself end with ".usrdec".

The decoder templates provided by **Win-Digipet** have a write protection and cannot be changed. This is also important as they might be updated in further versions or using the update functionality in the Startcenter.

Let's get back to the programming of the 01 0525-4 from our demo project (Fig. 4.75). For this decoder we select the template "Kuehn N025.wdpdec". After pressing 'OK' the selected decoder template will appear in the decoder programming dialog.

Place the locomotive you want to program on the programming track and read the value currently configured within the decoder by pressing the button . If you get errors during reading or if you want to stop the reading process due to another issue, you can use the button  in the dialog's toolbar.

The decoder's specification is displayed in the left part of the window as tree. You should already know this kind of representation from other Windows applications such as the Windows Explorer. The tree representation of data is used in different program parts of **Win-Digipet**.



As result of the read process all values are now stored in the nodes of the tree. The different variables/settings are grouped into folders/groups. These groups can be reduced or extended using the buttons +/- . The next figure shows the complete settings for CV 1. In

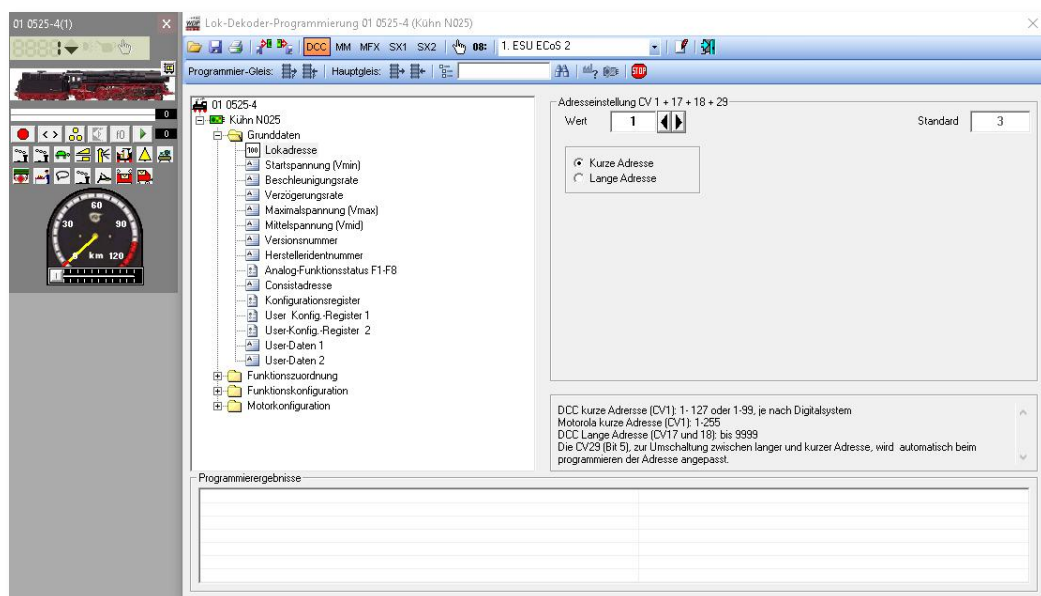



Fig. 4.76 The decoder settings in tree representation

CV 1 the basic address of a locomotive is stored. In our example the locomotive has been programmed to use address 1.

You can now change the values according to your needs. Changed values, which have not be stored until now, will be shown with red text colour in tree. For many variables/CVs additional information/description texts are available. Please do always read the manufacturer's documentation also.

Using the button  you can program CV values completely manually. This is especially interesting for CVs (e.g. CV29) where each bit within the value has its own function. Using the button, you can activate the manual programming and also deactivate it the same way later on.

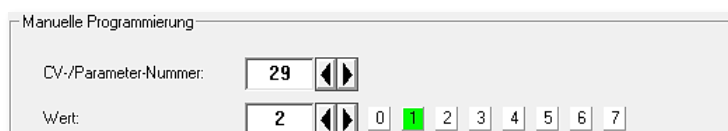




Fig. 4.77 The manual CV programming

Using the button  you can select single CVs/options you want to process within the next read or write process. Without this selection the current selection in the tree and all its sub-settings (in case of the selection of a folder/group) will be processed. After selecting this







options, you need to check every single CV you want to process. You can leave this selection mode by pressing the button again.

After you changed all values and settings of your decoder according to your needs, you program the values into your decoder by pressing the button .

As alternative to the programming on the program track you can also use the main track programming. Please be informed, that not every digital system resp. digital protocol does support main track programming and especially main track reading.

It's very important to select the correct programming protocol in the decoder programmer dialog. **Win-Digipet** can program the following protocols:

-  DCC
-  Motorola
-  MFX
-  Selectrix (SX1, SX2)

It is important, that the used protocol and programming method has to be supported by your decoder and digital system.

The programming of values in the MFX protocol is at the moment only possible for the Märklin Central Station 2 or 3, the CAN Digital-Bahn CC-Schnitte in connection with a Märklin Mobile Station. These hardware constellations have been tested during the development of **Win-Digipet** and are also the only systems with protocols which give access to the MFX parameters.

In the lower part of the window all programming/reading steps and their results are logged into a table. This log does also contain the programming answer of your digital system like "Success"/"Failure" (if provided by the digital system).

All decoder settings can be printed out using the print function of the decoder programming dialog or can be save as RTF file.

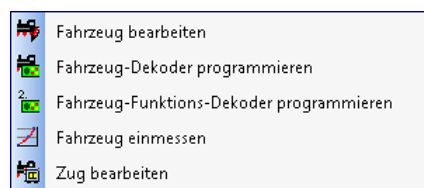
By pressing  you can leave the decoder programming and return to the main program.

All settings regarding the decoder programming are stored in the vehicle database record of the according vehicle.

4.20 Program the vehicle function decoder

The programming of the vehicle's function decoder is identical to the programming of the locomotive decoder described in the previous section.

Please select the used decoder template when starting the programming or create your own template. For all other functions please read the previous section.





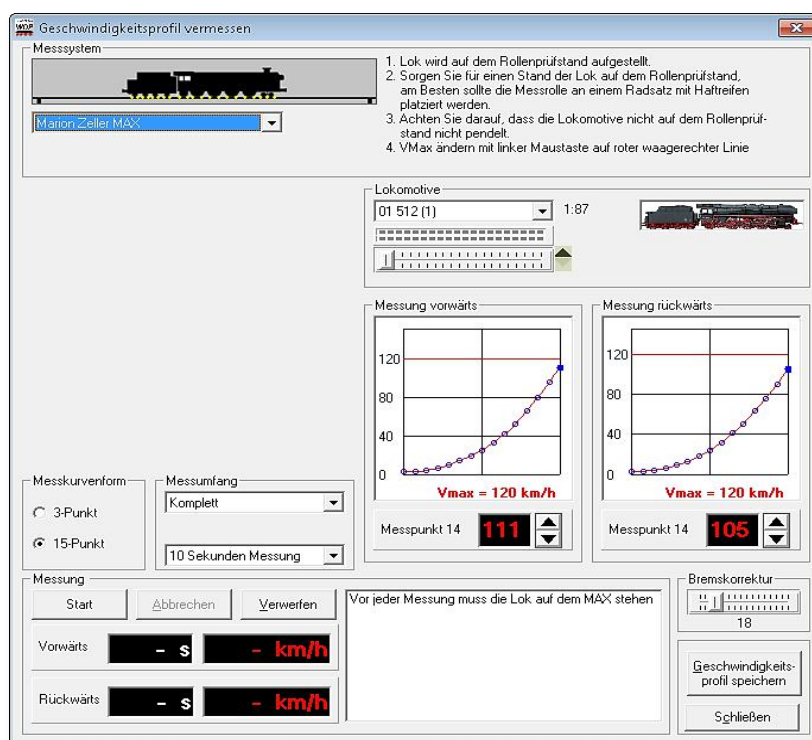
4.21 Using the Win-Digipet Decoder-Programmer in the Win-Digipet 2018 Small version

User of the WDP Small Edition, who do also own the WDP Programmer Edition, can now start the programmer functionality within Win-Digipet if both sticks (Yellow for Small and Blue for Programmer) are connected to the PC.

Both sticks needs to be connected when the program gets started.

4.22 Measure speed profile of locomotive via locomotive control

This function calls the window "Measure speed profile" which has been explained in chapter 4.8.



- Fahrzeug bearbeiten
- Fahrzeug-Dekoder programmieren
- Fahrzeug-Funktions-Dekoder programmieren
- Fahrzeug einmessen
- Zug bearbeiten

Fig. 4.78 Dialogue for measuring the speed profile of a locomotive

Version 2018

Premium Edition

Chapter 5









5. TRACK DIAGRAM EDITOR

5.1 General

In the track diagram's editor, you create an image of your railway tracks and this must not be scale.

You should take care about the following when creating your track diagram in the program...

-  your track diagram should be as **small** as possible and as **large** as necessary
-  you should place signals everywhere where you plan a route to start or stop, even if this signals do not exist in reality because **Win-Digipet** needs them at least for secure functionality
-  each used feedback contact should also be assigned to a minimum of one track symbol
-  you should place train number displays everywhere where you plan a route to start or stop
-  virtual switches and eventually also counters for the control of the flow of your automatic (e.g. for the hidden station); this prevents you from changing the track diagram and routes later on
-  you may divide the track diagram into logical areas. These so-called multiplans can be better distributed on your screen or screens.

For demonstration project available in the project directory we developed a track diagram according to the following figure. You could use this as reference for the creation of the track diagram of your layout. While designing the track diagram we turn our attention to a clearly arranged layout. You will realize while reading the program's documentation, that many realistic operation situations are possible with this relatively small layout.

All descriptions and explanations have been created using this demo project. Because of this you can follow the explanations from the manual using the demo project.

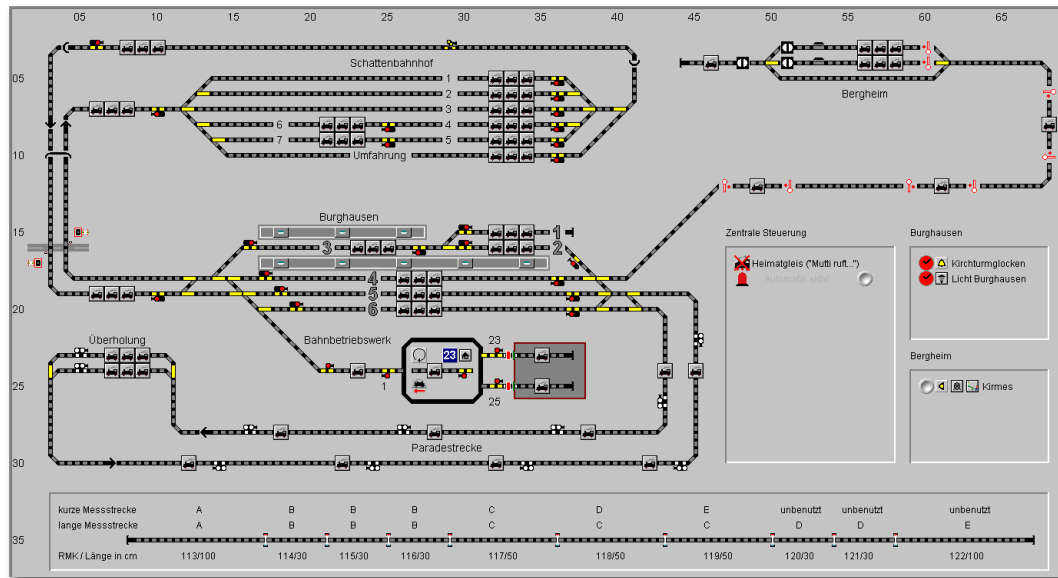


If you want to follow the descriptions from the manual, we suggest loading the demo project **WDP2018** according to the description in section Fehler! Verweisquelle konnte nicht gefunden werden..

In the following figure you can see our small demo project.



Within the track diagram you can see...



- .Fig. 5.1 The track diagram of the Win-Digipet 2018 demo project*
- in the middle the 4-track station Burghausen; the tracks of this station can all be used in both directions
 - the single track branch line connection to Bergheim with three intermediate stops
 - in the upper part a 5-track hidden station,
 - a 2-track pass by track at the bottom
 - a depot with a turntable and a 2 stand locomotive shed

After you have configured the system settings and registered the vehicles within the last chapters, you will now create the track diagram of your layout.

In the system settings you made some settings which affect the track diagram like the configuration of the feedback modules and the digital system. These points are very important because they are substantial for registering and testing feedback contact numbers and solenoid device addresses within the track diagram.

5.2 Starting the track diagram editor

There are three ways to start the track diagram editor.

In the index card "Project start" of the start center there are two buttons for starting this editor which lead to layout version and office version, respectively.

Please note that the office version offers no connection to the digital system. Therefore, there are no functions available (e.g. for connecting solenoid articles) which require a connection to the digital system.

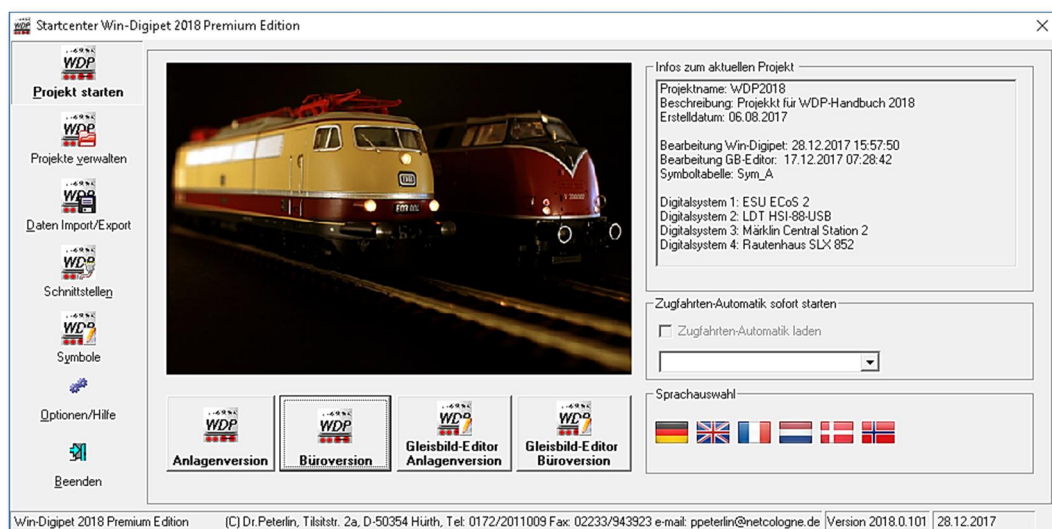



Fig. 5.2 The start center with the two options for starting the track diagram editor

Furthermore, you may start the track diagram editor within the main program von **Win-Digipet**. Please note the difference between using the layout and the office version as described above.


Third, you can start the track diagram editor with a click on the symbol  in the toolbar.

5.3 Track diagram window

5.3.1 Size of the track diagram

At the first start of the track diagram editor an empty track diagram appears.

A track diagram size of **50** symbol panels horizontally and **30** symbols vertically = 1500 symbol panels in total is set as default.

With the menu command <Options><Track diagram dimensions> or with a click on the switch  in the toolbar, you can define how large your track diagram should be.

Under "Track diagram size" you can vary between **20** and **250** symbol panels in horizontal and **20** to **250** in vertical arrangement. Confirm with '**OK**'.

Under "Move track diagram" you can move a complete recorded diagram to all directions in dual steps. Already registered routes will automatically be corrected after movement. Confirm with '**OK**'. After moving the track diagram, a security query will occur before you save.



Fig. 5.3 Size of the track diagram



If you have already registered a track diagram, it will be automatically displayed after starting **WIN-DIGIPET 2018**.



After updating to version 2018 the data structure of the track diagram will automatically adapted. All objects within the track diagram will get an internal index number.

Please be informed, that track diagrams used in **Win-Digipet 2018** cannot be used with older versions any more.

5.3.2 Toolbars, status bar

Below the menu bar the **toolbar** of the track **diagram editor** appears. It is similar to the toolbar of the main program.

The toolbar of the track diagram editor consists of 5 sub-toolbars, which can be made visible or invisible according to your needs. Via the menu 'View' you can (de-)activate the toolbars of the track diagram editor as well as by right click on the toolbar.

Toolbars cannot be customised in this program part in contrast to the main program.

The different sub-toolbars can be moved to any place within the toolbar area.

If you move the mouse over the different toolbar items in the track diagram a tooltip will explain the functionality of each button.

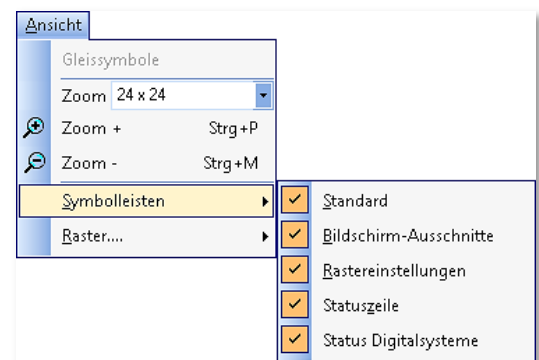


Fig. 5.4 The toolbars in the track diagram editor

In the **status bar** at the bottom of the screen edge you see the mode in which you are at

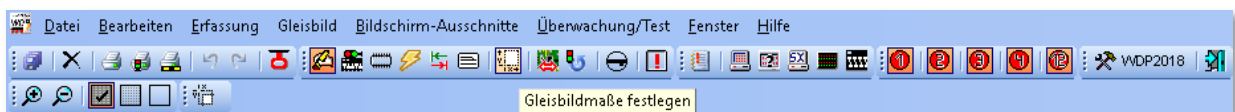


Fig. 5.5 Tooltip explaining a buttons functionality

present, next to it the x- and y-co-ordinates of the mouse pointer in the track diagram.

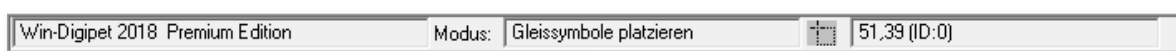


Fig. 5.6 The status bar of the track diagram editor

Basically, the track diagram editor has 3 different edit modes which will be described in the following sections:

- 🚂 Placing track diagram symbol
- 🚂 Assigning solenoid device addresses



- ✚ Assigning feedback contact numbers

5.3.3 Selecting different grids

Three different type of grids are available: <Lines> (a network), <Dots> and <No grid>.

With the option "Lines" it would take some time to display the track diagram as the program has to do a lot of drawing.

You reach the grid setting via <View> - <Grid> or by the right mouse button through the short menu <Grid> or via the toolbar <Grid settings>.



5.3.4 Splitting the track diagram window

Click on <Window> - <Split> in the menu bar. First you see two identical track diagram halves on the screen. You can now place track symbols into various positions and work on sections.

Using the other commands within this menu you can arrange the two windows on the screen.

If you want to return to the normal track diagram mode, click again on <Window> and again on <Split>.

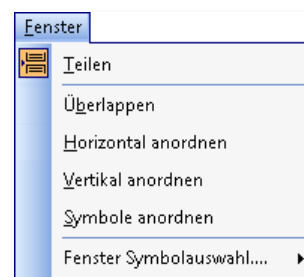


Fig. 5.7 Splitting the track diagram window

5.3.5 Enlarge and Reduce ("Zoom")

You will reach the zoom setting of the track diagram via <View> - <Zoom plus/minus> or by the right mouse button through the short menu <Zoom plus/minus> or the magnifying glass symbols in the toolbar (see Fig. 5.8).

Five zoom steps are available:

- ✚ 12 * 12 Pixel (small)
- ✚ 16 * 16 Pixel
- ✚ 20 * 20 Pixel
- ✚ 24 * 24 Pixel
- ✚ 28 * 28 Pixel (large)

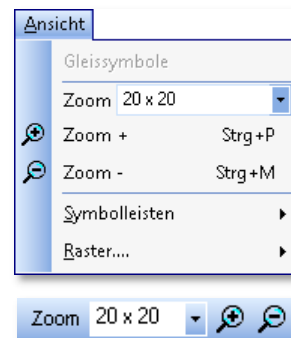


Fig. 5.8 menu for the zoom settings

5.4 Scrolling with the middle mouse button

As addition to the scroll bars you can also scroll within the track diagram by pressing the middle mouse button at a free track diagram section and then scroll by moving the mouse.

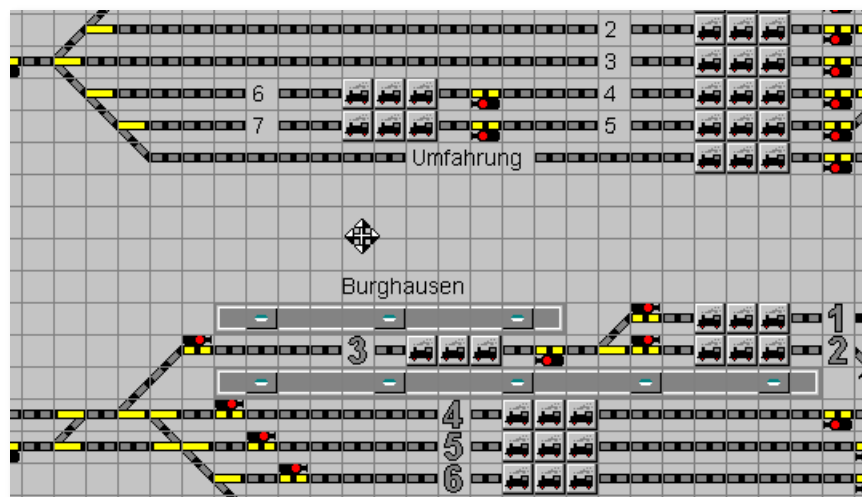


Fig. 5.9 Scrolling with the middle mouse button

5.5 The mode "Edit track diagram" in the track diagram editor

5.5.1 Symbol selection

The track diagram of **Win-Digipet** is created by single symbols. These have to be arranged in the track diagram editor according to your needs.

The symbol selection in **Win-Digipet** has a split design. In the left part of the window the symbol families (e.g. signals, track symbols) can be found and in the right part the symbols belonging to the symbol family selected on the left side.

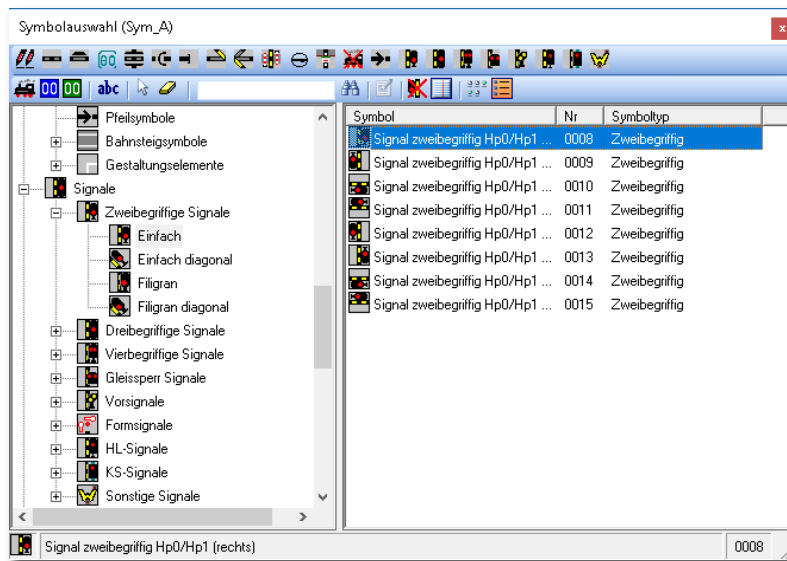


Fig. 5.10 The symbol selection window

The upper row of the toolbar can also be used for direct jumping to several symbol families. In the lower row you can select some special symbols such as train number displays, counter displays, SX-displays, text labels and the rubber for the deleting symbols in the track diagram. You have also the possibility to search for symbol numbers, edit symbols descriptions and placement, hide left hand symbols and change the windows appearance.

Tooltips for each symbol will describe its function.

If you click on a group symbol you can see in the left part of the window the sub groups and in the right part of window the symbol of the current sub group (see Fig. 5.10). When selecting a single symbol, you can see the description of the symbol in the lower part of the window, in our example a vertical signal "0008 Signal zweibegriffig Hp0/Hp1 (rechts)".

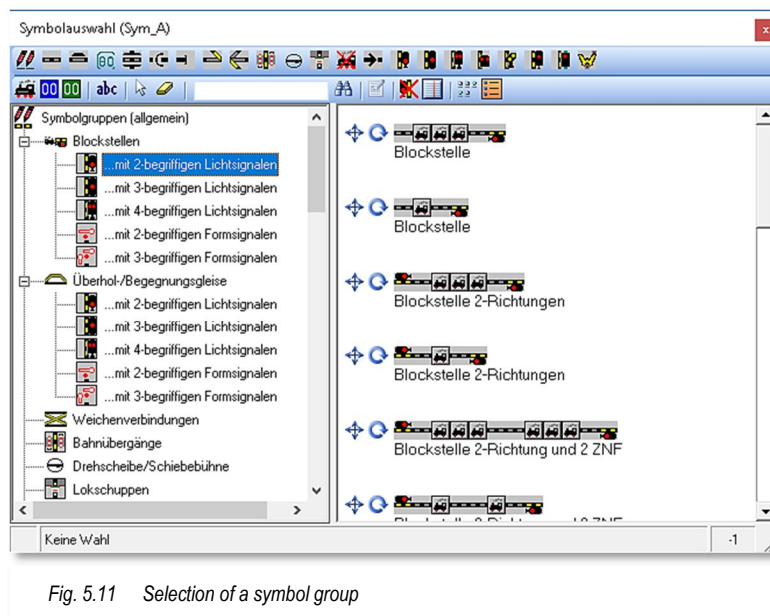




Fig. 5.11 Selection of a symbol group

The symbol groups contain single symbols belonging to specific themes, so that can draw the track diagram much faster.

An example for such a symbol group is as a simple "block system with 2-aspect light signals" as shown in Fig. 5.11.

On the right-hand side you see possible combinations of such symbol groups.




To the left of each symbol group there are two small icons   indicating that the corresponding symbol group is rotatable and scalable, respectively.

group is rotatable and scalable, respectively.



Later in this chapter, it will be explained how symbol groups and single symbols can be arranged in the track diagram.

You can limit the symbol selection via <Window> <Window track symbols>. The following options are available...



-  Hide symbols for left hand traffic
-  Close groups automatically
-  Show small symbols (Zoom-Size 16, normally Zoom-Size 20).

The complete selection contains **1380** different symbols. Available are beside the rail tracks, turnouts, buffer stops, tunnels, bridges, turntable icons, switches and push-buttons also the signals for right- and left-hand traffic as mechanical signals or light signals. Icons for the train number tracking on long distances, icons for level crossings, locomotive shed gates, direction arrows, different icons for the representation of a locomotive sheds etc. are also available.

The selection of symbols groups comprises block systems, pass by and run across tracks, turnout groups, crossings, turntables and transfer tables, locomotive sheds, and groups with frame symbols.

There is a supplementary program, the so-called symbol group editor, to create own symbol groups. This program is not included in **Win-Digipet**, but can be downloaded from the internet. In the **Win-Digipet** forum you find the corresponding link.

You can resize the window in the Windows-typical way.

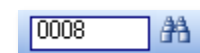
For better viewing, you can **mask** the track symbols window (Symbol  on the right side of the title bar). To **bring it back**, use menu <View> - <Track symbols> or with the right mouse button: short menu <Track symbols> or the button  in the toolbar.

The currently available symbols depend on the current selection in the tree of the left side and the four right buttons in the second row of the windows toolbar.

Using these four buttons you can hide the symbols for left hand traffic, show the symbol type and select a symbol or list view.



The search function within the symbol selection window can help you finding a symbol very fast. Just enter the symbol number in the textbox and click on the small field glasses right of it. The searched symbol will be shown in the list.






Using the 1380 single symbols within the categories/groups described above you have very many different symbols for creating your track diagram. This should fulfil most of your needs.

In total more than 20 different symbol tables are available. Some symbol tables have been designed for special needs (like using motorized cars on your layout).



Only the symbol tables A, B, C, DB, DB2 and 3D are 100% compatible to each other. The other tables contain several special symbols. If you decide to change to other symbol tables later, adaptations to your track diagram might be necessary.

Other symbol tables are not compatible because they do contain special symbols like:



-  International signal symbols (Belgium, Italy, Netherlands, Suisse, Spain etc.)
-  Symbols for combined car and railroad operation
-  Additional alternative symbols in the symbol tables Sym_SP, Sym_Sp2 and Sym_SP3

5.5.2 *Changing/Creating symbol tables (Sym_U)*

You have also the possibility to create your own symbol tables. Using the symbol editor available in the Startcenter you can create or change your own symbol tables.

The symbol tables provided by us cannot be changed. They are write-protected, but they can be used as templates for your own table with the help of the track symbol editor. Hints how to use it can be found at “tips & tricks” in the **Win-Digipet** forum.

5.5.3 *Changing the symbol selection*

In **Win-Digipet** you can also change the ordering and grouping of the symbols in the symbol selection window. By clicking on  you can activate the edit mode. In the edit mode symbol groups or single symbols can be moved, deleted and renamed using your mouse. Several commands are available in a context menu by pressing the right mouse button on a symbol or a symbol group; the menu options are quite self-explanatory. After editing press  again and your changes will be saved. The symbol placements and descriptions are saved for each symbol table separately. This is quite important to give an optimal symbol selection for each different symbol table (e.g. the Suisse symbol tables needs other ordering than the one for combined train and car operation).

5.5.4 *Creating your track diagram*

The **Track diagram editor** is particularly easy and comfortable to handle. However, it is recommended that you draw up plan of your track diagram beforehand; a simple sketch is sufficient, an engineer-like drawing is never necessary.

In contrast to a scale track diagram your track diagram must not reproduce the exact spatial situation of all rails on your model railroad layout. You should pay attention on a suitable representation of the block systems to be controlled (e.g. Railway station or turntable).



Create your track diagram not bigger than necessary; this prevents you from much work.



You have to draw your track diagram **two-dimensionally**, i.e. multi-level areas (shadow railway stations, rail spiral etc.) are displayed in the **WIN-DIGIPET** track diagram **side by side**.

Click on the toolbar of the track symbols window at the group to which the individual symbol belongs. Select the symbol, which you want to place into your track diagram.

Click on this individual symbol and the mouse pointer changes to an arrow with the selected symbol.

Example:

You want to place a three-way turnout with its tongue to the left.

In the toolbar press the button for '**Three-way-turnout**' and the according symbol group will be shown.

A symbol group selected before will be closed if you did not change the default settings. A closed symbol sub group will have a small plus sign (+) and an open one a small minus sign (-) on its left side like in the Windows-Explorer.

In the selected symbol sub group, you can now select the desired symbol (in this case 0024).

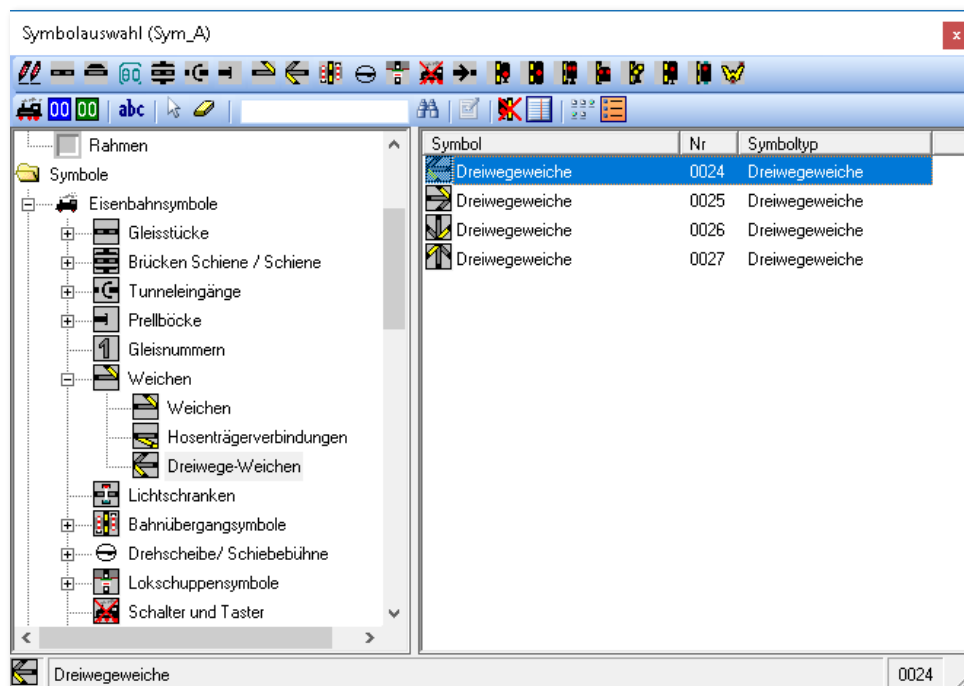


Fig. 5.12 Selecting a three-way turnout

The status line at the bottom shows the selected symbol together with symbol description and number



Now move the mouse to the desired position in the track diagram. When leaving the symbol selection window with your mouse a small 4-arrow symbol is attached to your mouse cursor (see Fig. 5.13). Clicking the right mouse key you may switch to the next display in the list and you may rotate the symbol with 90° steps. After moving the mouse cursor to the desired position in the track diagram place the symbol there by pressing the left mouse button.

The positioning of the symbol can be interrupted with ESC-key.

Press the right mouse button: The actual symbol is deactivated, the mouse pointer changes to an arrow, and you can select and place the next symbol. Thus, you proceed quickly through the grid panels gaining experience. You will quickly be able to place a

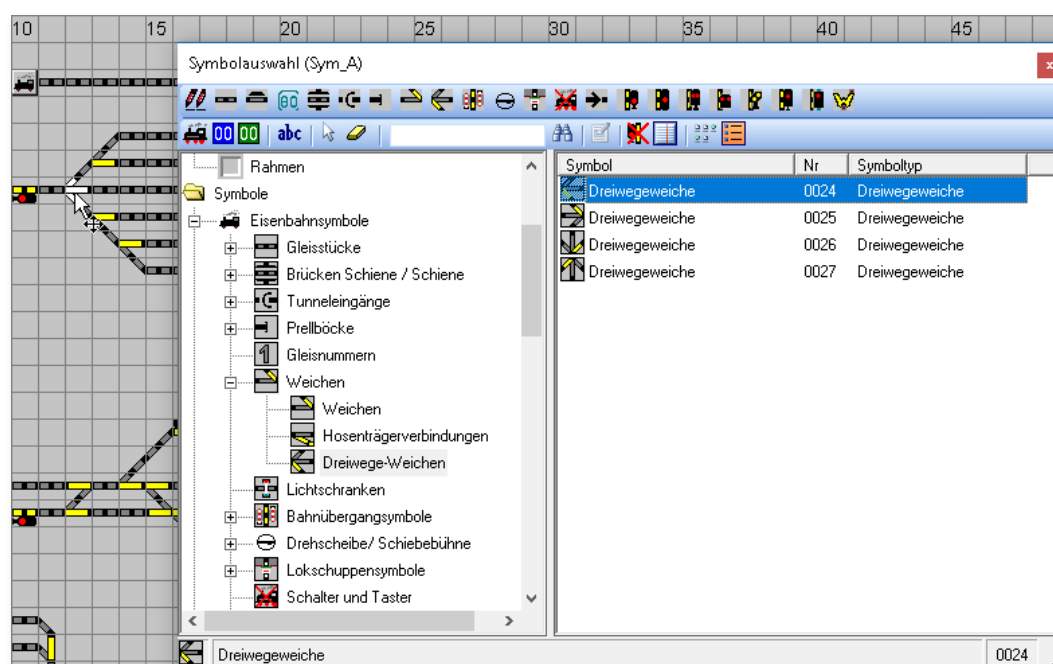


Fig. 5.13 The threeway turnout symbol is being placed

symbol within seconds into the track diagram.



If you **hold the shift key pushed** and click with the mouse repeatedly, you can place the symbols also in different directions. This function is only available for some symbols.

But be careful!

If you select another symbol after using this rotation function it might be possible that this symbol will not be placed in the desired orientation. In this case just reselect the new symbol in the symbol selection and try again.



Wherever a symbol is needed several times, e.g. "a straight horizontal track" (six straight track pieces), to represent a long track section, press the left mouse button once in six consecutive grid panels, or drag the mouse pointer with the left mouse button pressed over six grid panels.

If you double click on an already placed symbol, it will immediately be attached at the mouse pointer, and you can place it- without having to return to the track symbols window.

5.5.5 *Placing a symbol group in the track diagram*

In principle, a symbol group and a single symbol are placed in the track diagram in the same way. As an example, a "block system with a 2-aspect signal a small train number display" will be placed.

Select the corresponding symbol group of the desired category. The symbol group is attached to the mouse cursor, when you move across the track diagram. Here again, the cursor shape is changed.

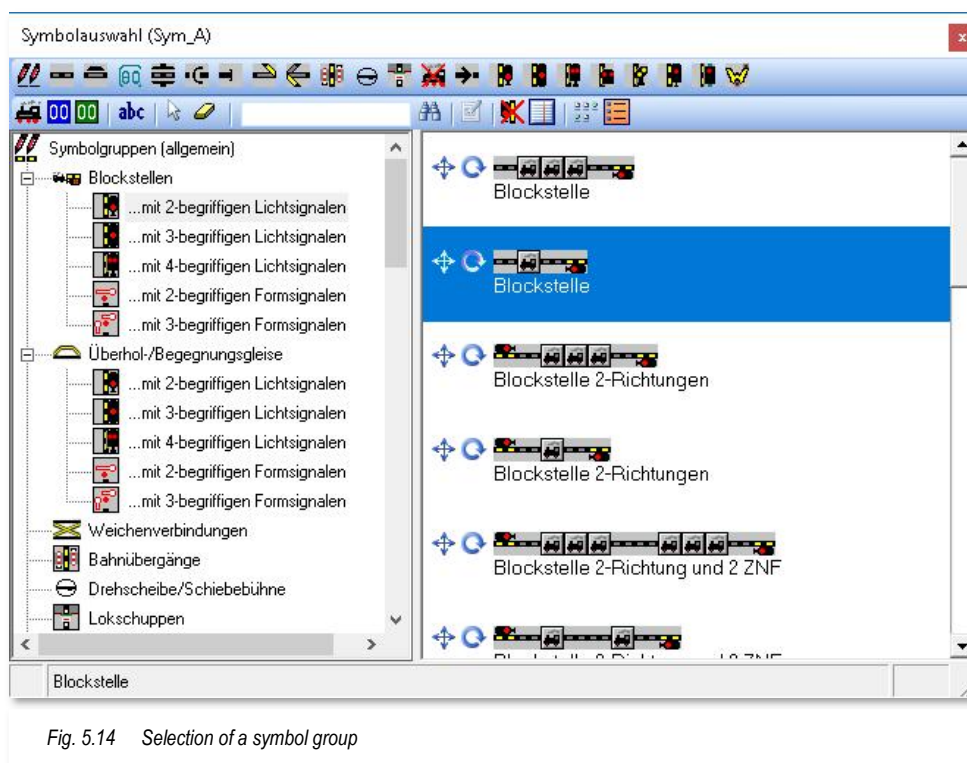


Fig. 5.14 Selection of a symbol group

By clicking on the right mouse button the symbol group is rotated by 90°. To get to the demanded position please repeat this step.

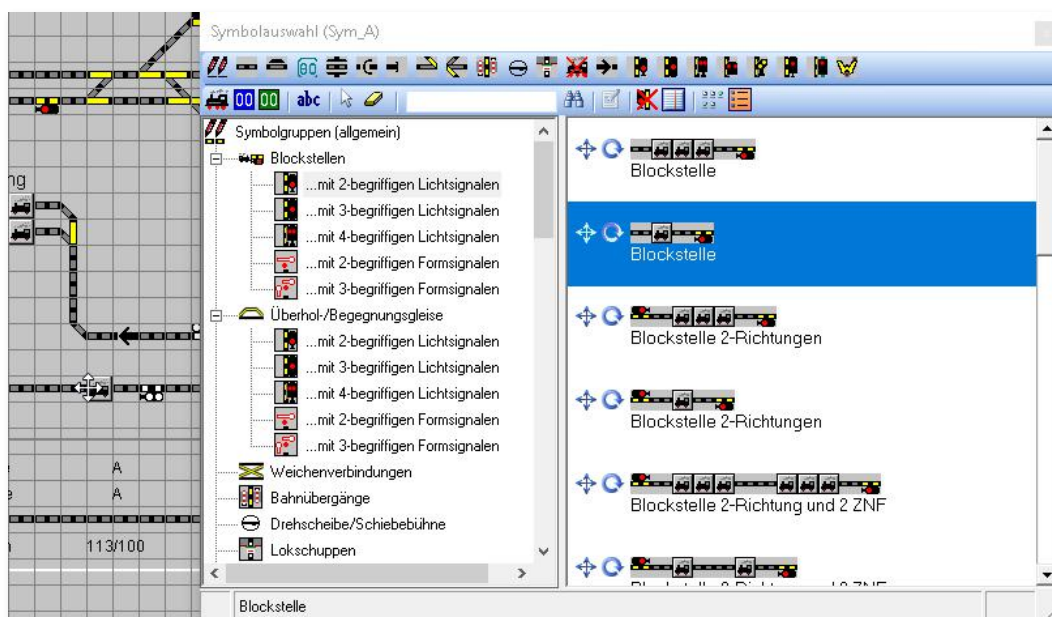



Fig. 5.15 Placing a symbol group in the track diagram

Press the left mouse button at the position, where you want to place the symbol group. As soon as the mouse is move up or down (right or left for a vertical placement) the symbol group is placed at the new position as well. Moving the mouse in horizontal direction prolongs the block system by normal track symbols. In this way, several station tracks can be drawn rather simply. Another left mouse click puts the symbol group(s) at the final position.

The positioning of the symbol group can be interrupted with ESC-key.

5.5.6 Undo Changes or restore


You may undo changes of a track diagram or restore last steps by using the corresponding symbols  or the appropriate functions in the menu "edit" of the track diagram editor. You can undo 1000 steps. However, the storage provided by **Win-Digipet** for this purpose is limited to 100 Mbyte.




The undo procedure is available only within the track diagram editor, but no longer after quitting this editor.

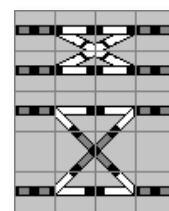
Deleting an entire track diagram **cannot** be undone.


5.5.7 Tips for track diagram creation

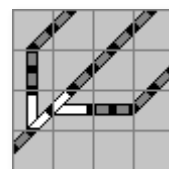
- 
Double- slip turnouts and **crossings** are composed of two symbols of normal turnouts displayed side by side as pairs in the track symbols window.





- 
 For the representation of an **"X-crossing"** you have the choice between the narrow one and the normal X-crossing. The narrow variant can be used in order to save space, because here only **4!** different symbols are necessary. For the normal variant at least 6 symbols would be necessary.



- 
Three-way turnouts (slanted) are composed of one vertical and one horizontal normal turnout.



- 
 In the type field "Switched and buttons" () you find many single symbols. You should use them if you need so-called virtual switches in your track diagram, e.g. for using as an execution condition for a route or tour in an automatic operation. This for example interesting for controlling your hidden station.
 You can also choose many different switches e.g. switches for house lighting, car lighting, smoking pipes, cars with emergency light, moving figures, status symbol, sounds etc. Thus you can switch e.g. the lights very comfortably and you know always which switch in the track diagram is used for this purpose.

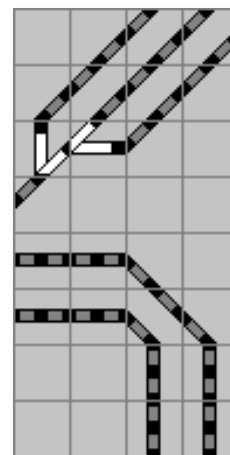


If you place uncoupling tracks within the track diagram, you can activate them directly in add-on switchings of routes and profiles.

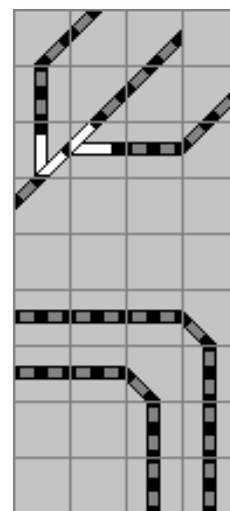
An additional push button like symbol number 0245 in older versions is not necessary any more.



Diagonal tracks should be drawn in the way shown in the second picture. These will make manual route recordings much more easy. If you use the first especially manual route creation is very dangerous because you may accidentally select the undesired side of the tracks. Also the feedback number contact assignment is much more difficult for these symbols



Bad solution!



Good solution!



The switches with symbol numbers 0356 to 0359 can be used for controlling a single rail operation as well as a two rail operation (false side operation, even with multiple blocks). The logic for the use of these symbols has to be created in your routes, automatic or dispatcher (several solutions possible).



If you use **the light signal decoders** (e.g. LS-DEC-DB) from LDT, you can also use a pushbutton for the activation of the blanking of the distant signal at the mast of the main signal.

An example is shown in the figure. The





addresses 22 (green / red) and 23 (green) are assigned to the distant signal, now the pushbutton is assigned to address 23 (red) for switching of the distant signal's blanking (by clicks on the pushbutton the blanking is (de)activated).



If you want to integrate counting-functions to your routes or automatic, you can select the **blue counter symbol** and place it in your track diagram.

The counter symbol does not need any feedback contact number or digital address. But it might be important to assign a name to the counter symbol. The counters can be used in routes, profiles, and the tour automatic as well as in the dispatcher.



If you use a **Selectrix** digital system, you can select the green **SX-Display**-Symbol to show the current state of SX-addresses.

You place these symbols like any other symbol within your track diagram.



For the numbering (0-9) of tracks some numbers with feedback function are available in horizontal and vertical representation. They will be coloured red if the assigned feedback contact is occupied.

The symbols 0399 to 0418 are used for this purpose.

As alternative you can also place normal text within the track diagram which can also be used with a feedback function (see section **Fehler! Verweisquelle konnte nicht gefunden werden.**).



You can **delete symbols** from the track diagram with the small rubber symbol within the symbol selections toolbar. A cross with a rubber symbol will be attached to the mouse pointer when selecting this function.

Move the cross to the symbols of the track diagram which you want to remove and click on it. By dragging of the cross - with pushed left mouse button - about several track






diagram-symbols you can delete a whole track diagram area.

You can continue your normal drawing after pressing the right mouse button.

5.5.8 Placing train number displays

For the **train number display** click on the type field "Train number display ". Now a little locomotive is attached to the mouse pointer.

Place this train number display, in each case beside a signal's symbol, at the start and destination of the routes, but leave a normal track symbol between the train number symbol and the signal as shown in Fig. 5.16.

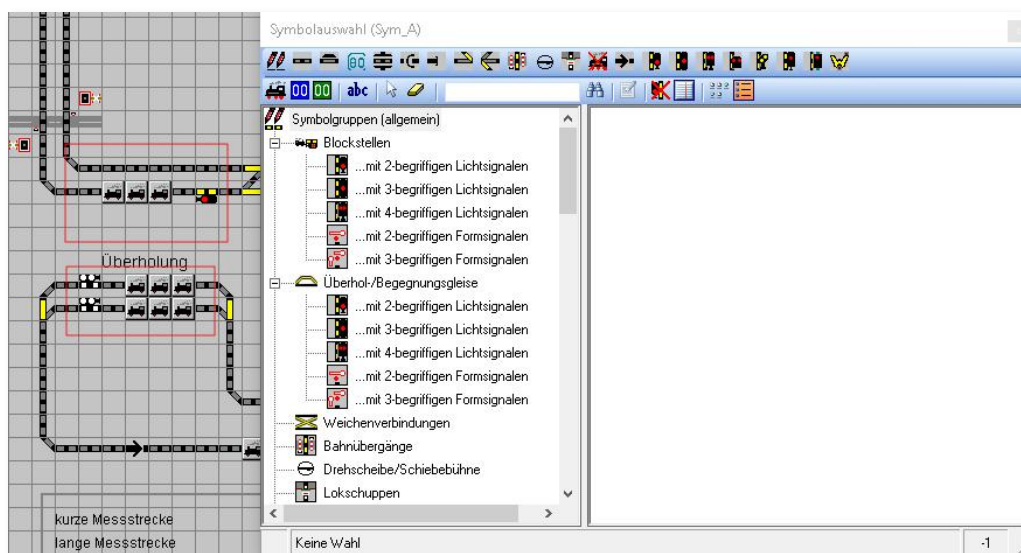



Fig. 5.16 Placing track number displays within the track diagram

Thus, you can register right and left of the train number symbol the necessary feedback contacts. The symbol groups mentioned in section 5.5.5 are according to this rule.

You can use **train number tracking symbols** on long rail distances of your track diagram. By this you have the possibility to watch the run of the train on the track diagram even better. This is very useful on long distances without a train number display. When running the trains with **Win-Digipet** the digital address or the train name is shown in these train number tracking symbols.

Select in the symbol's choice these symbols by pressing the toolbar button  and the symbols will be shown starting with symbol number 0422. They look like quite normal rail pieces. After placing them into the track diagram you see a small "V" in addition.





5.5.9 Large train number displays for displaying the locomotive's class or the trains name

In addition to the train number display described in the last section you can also draw larger train number displays to your track diagram to display the class of your locomotive or the train's name instead of its address.

Therefore, just place three normal train number displays side by side (horizontal or vertical) and assign the same feedback contact number to all of them. In the main program the three single display fields will be combined to one large one. The three train number symbols may only be placed horizontal or vertical but not diagonal.

Each large train number displays does need three times the place of a small one. Please remember this when creating your track diagram.

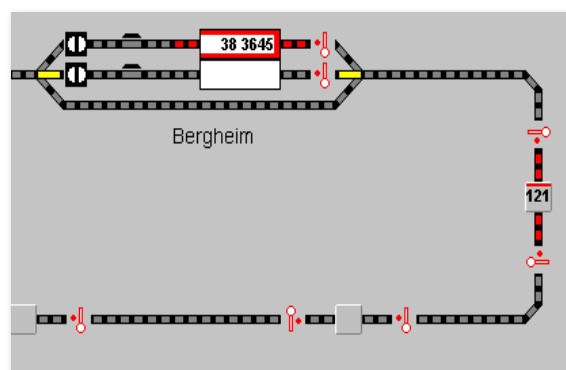


Fig. 5.17 Small and large train number displays

If all locomotive has been assigned to such a large train number display it's class or the train name (for locomotive belonging to trains) will be shown.


5.5.10 Important information concerning train number displays

Please remember the following important information when placing train number displays within your track diagram.

For the (semi-)automatic route creation the program uses internal routing information of the symbol in the track diagram (e.g. Sym_A_V11_KOOR.dat). The train number displays have no routing information because theoretically they support eight (8!) different ways.

When reaching a train number display during automatic route creation the program will search clockwise (W-N-S-E²⁶), for an exit (except direction of arrival) where the route could

The recording will be continued in the following examples:

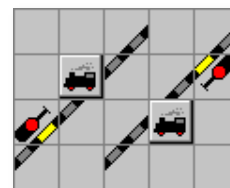
 coming from West going to the East resp. the opposite way



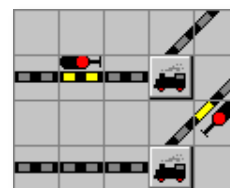
²⁶ W-N-O-S – Abbreviations for the cardinal directions



- coming from Northeast to Southwest resp. the opposite way



- coming from West going to the Northeast resp. the opposite way

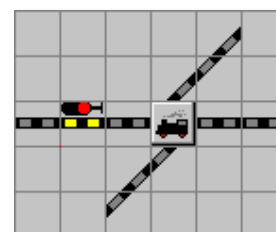


In the following examples **Win-Digipet cannot find the correct way!** No unique direction of travel can be found...

- should it be North <->South



- or East <->West



As a consequence of this you should place the train number displays always in unmistakable manner.

For bridges two possible ways are stored within the navigation tables.

Both coloured ways are necessary to allow route recordings via route wizard for the West<->East itinerary as well as for the North-South itinerary as shown in Fig. 5.18.

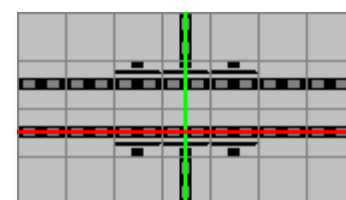


Fig. 5.18 Bridge symbol support two ways



Because of these two navigation ways the example presented in Fig. 5.19 would cause problems for automatic or semiautomatic route creation.

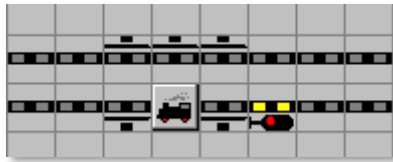


Fig. 5.19 A train number display placed on a bridge

In this example the ways West to East as well as East to West seem to be unique at first sight for this two-rail track system.

But if you try to use this in the (semi-) automatic route recording, no solution will be found or the recording will be aborted.

What's the reason?

The route for the lower track should be created from West to East. When reaching the train number display **Win-Digipet** cannot detect the desired way to the East, because of the bridge symbol north to it, because as described above **Win-Digipet** searches in the order West-North-East-South.

Because of this and the bridge symbol with its two ways the way to the North is the first possible for the search algorithm and will be chosen but it is not desired one...

The same would happen for the extended train number displays.

You can solve such situations using jump labels (see section **Fehler! Verweisquelle konnte nicht gefunden werden.**).

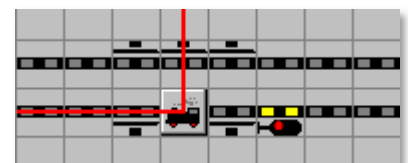


Fig. 5.20 This is no way to the destination

5.5.11 Texts in the track diagram

Use the group panel 'abc' **abc** in the symbols bar of the track symbols window for this option. Click on it and drag the mouse pointer away from the track symbols window: A cross with "abc" is attached to the mouse pointer.

Move the cross to the position where you want the text to begin: it will be framed by a rectangle, and the window "Text input" appears.

Enter your text in the upper panel, e.g. track numbers, station names etc., with up to 29 characters. For longer texts, attach the subsequent text parts in groups of not more than 29 characters each.

You can enter text for horizontal, diagonal and vertical appearance. You can change the orientation by selecting



Fig. 5.21 Text within the track diagram



the "Angle". Additionally, you can set attributes like Bold, Italic, Underline and Striked out in any combination.

If you want to pre-check your text input, click on **'Preview'**. Your text will be placed into your track diagram. Should you be satisfied, click **'OK'**, otherwise **'Cancel'**.

First of all, you can set a text colour your text by left-clicking on the text box in the colour frame. A window will open where you can select the desired colour. After selecting the colour click **'OK'**. If you want to pre-check your colour selection, click on **'Preview'** (see Fig. 5.21).

If you press the middle mouse button the colour will be set to transparent and with the right mouse button, you can return to the standard colour.

You can now enter more text or deactivate "Text input" through the right mouse button.

Additionally, you can also register a feedback contact which will force (when occupied) the text label to change its colour. The colour selection method is the same as the described above. Use therefor the text box below the contact number selection.

The use of e.g. the transparent colour for a text label in combination with another colour while feedback-occupation can be used to show/hide messages in the track diagram.

Text can be modified overwriting it in the window "Text input", and deleted in that window with "eraser".

5.5.12 Cut, copy and paste parts of the track diagram

Click with the right mouse button in the track diagram and select <Mark> within the context menu. The mouse cursor will change to a cross. Keep the left mouse button pressed and move the cross along the edges of the track diagram part you want to work on: It will be enclosed by a red frame.

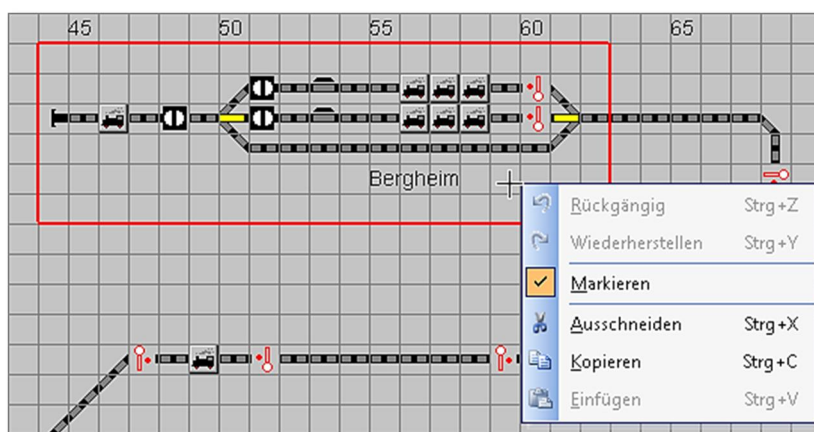


Fig. 5.22 The short menu with different options

Press the right mouse button and select in the short menu <Cut> or <Copy>.



<Cut> removes the marked track diagram part and will save it in the clipboard.

Press again the right mouse button and select **<Insert>**; the mouse pointer changes to an arrow with a rectangle and the cut track diagram part can be moved easily to its new position.

Press the left mouse button at the desired new position.

The cut part will be inserted at this position. You can undo the insertion only once.

You can also delete the cut out part by returning to the menu after **<Cut>** instead of pressing the right mouse button.



<Copy> will only copy your selection to the clipboard without changing the original position. The data within in the clipboard can now be pasted to any position within the track diagram (but only once).

Press the right mouse button and select **<Insert>**; the mouse pointer changes to an arrow with a rectangle. Determine the area into which you want to copy the marked area and press the left mouse button for copying.

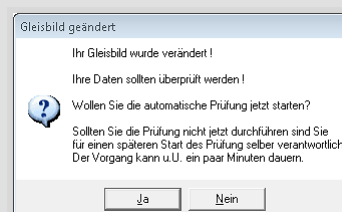
When copying parts of the track diagram **Win-Digipet** might ask you how to handle solenoid devices etc. within the section. This has to be done because solenoid device might have been used in routes etc. and **Win-Digipet** needs to know if the original or the new position of the copied solenoid device should be used in the existing routes in the future.

!!! Important information !!!

After you used the edit functions within the track diagram **Win-Digipet** will force you to make automatic check of the track diagram when returning from the track diagram editor.

This automatic check is very important, because this function will correct the coordinates/links to solenoid devices etc. in routes/dispatchers/profiles etc. to their new position.

If you regret to start this function after such changes you are yourself completely responsible for correcting the routes etc.



To leave the 'Mark' mode, uncheck the function in the context menu.

5.5.13 Jump label editor

The automatic recordings of routes as well as the route navigator do need to be able to find unique way when going from track symbol to track symbol. We covered this topic already in section **Fehler! Verweisquelle konnte nicht gefunden werden.** when talking about train number displays.

In the symbol tables there are many symbols where we were not able to assign unique coordinates for a unique continuing in all directions. Also texts within the track diagram do not have any coordinates for continuation of ways covering these texts.

All this symbols resp. Texts can be used like normal track symbols within the track diagram and they can be skipped by jump labels.

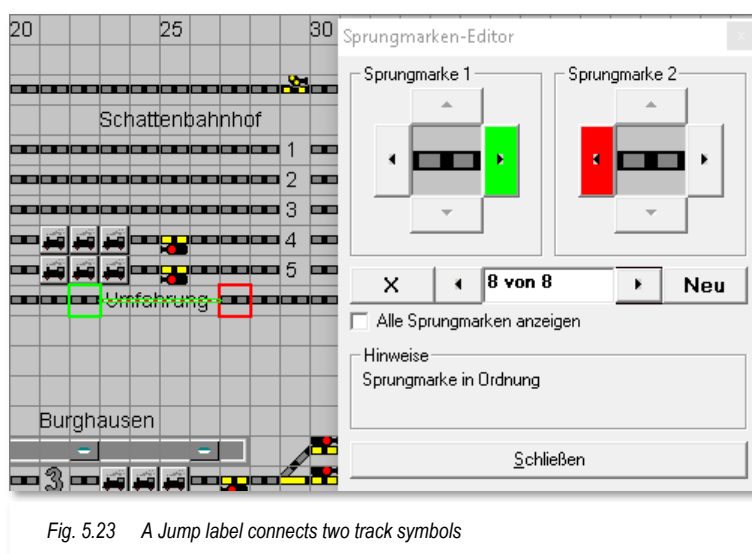



Fig. 5.23 A Jump label connects two track symbols

The definition of this functionality has to be done using the jump label editor. In Fig. 5.23 we show an example junction with jump labels. In our example the four tunnel symbols are connected via a dashed line (elastic strap).

You open the jump-label editor with a click on the symbol  in the toolbar of the track diagram's editor. The window "Jump-label editor" opens. In order to register a new jump-label in your track diagram click on the button 'New'.

Now you drag with pushed left mouse button the last track symbol before the jump place (here framed in green) in the box "Jump label 1" and select with a click on an activated direction arrow the direction to the jump. After the click the button gets green.

You have to add the second jump label in the same manner. Select also for the second symbol the jump direction. A dashed elastic strap will virtually connect the two symbols.

If you need further jump labels register them in the same way after pressing 'New'.



It is important to select always the arrow in direction of the jump (death end). The jump label have a bidirectional function: a jump can be performed from label 1 to 2 or from label 2 to 1.



After registering all desired jump labels, press '**Save and Close**'. The jump labels will be saved in the file **JUMP.DAT**.

You can navigate between different jump labels with the two arrows in the lower part of the window. The currently selected jump label will be shown with the green and red frame in the track diagram and their dashed elastic strap connection.

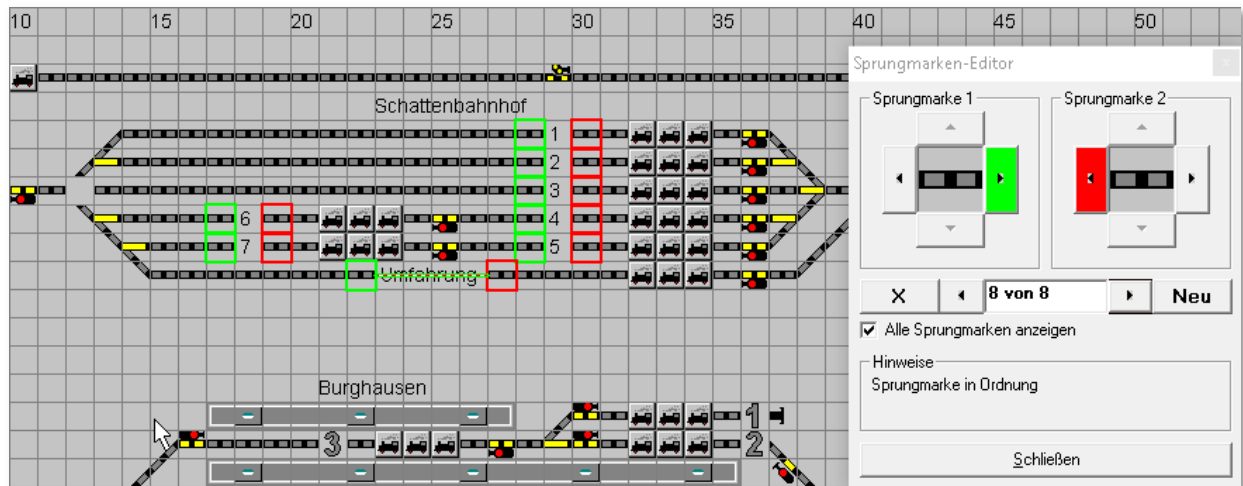


Fig. 5.24 Showing all defined jump labels

By checking "*Show all jump labels*" all jump labels are displayed immediately in the track diagram. The dashed elastic track will only connect the currently selected jump label while using this functionality to reduce the number of misleading lines.



Nearly all track symbols can be used as jump labels, excepted are buffer stops, turntable and moving table symbols, push-buttons, switches and locomotive shed symbols. These symbols can't be registered for a jump label.

With the button  you can delete the current jump label.

5.5.14 Assigning jump labels

When installing jump labels remember the following....

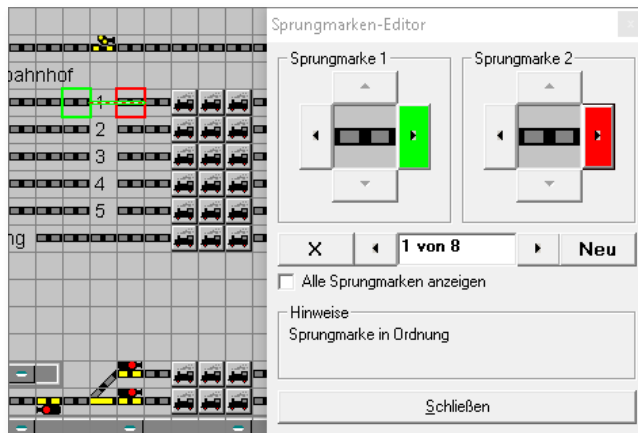


Fig. 5.25 Jump label 2 points to the wrong direction.

The example in Fig. 5.25 shows you a correct registration of symbols 1 and 2 for a jump label. The green resp. Red arrow points to the death end of the symbol. In this example you can see clearly that the program will jump over the text A1 within the track diagram when routing from left to right or the other way round.

When registering a new jump label the symbols in the track diagram will not appear in green and red, but in yellow and magenta. The colour will change to green and red after you did also set the jump direction arrows within the jump label editor.



Fig. 5.26 Jump label 1 without assigned direction

Fig. 5.26 shows a false jump labels. The red arrow of the second symbol has been set to the wrong side of the symbol (not the death end side by the side where the next correct symbol touches the current symbol). This registration would not lead to a correct functionality while a route recording.

5.5.15 Indication of jump labels with errors

When changing your track diagram, you might have to change your jump labels also resp. you should execute the automatic checking of the track diagram to find problems with your jump labels. As described in section 5.5.13 also moved jump labels will be corrected. If you skip the automatic check you are responsible for the changes yourself.

Jump labels with errors will appear in yellow resp. Magenta when calling them in the jump label editor (see Fig. 5.26).

Using the function "Show all jump labels" you can see immediately see all jump labels and find the ones with errors by their colour.



While the option to show all jump labels is activated you directly get access to the according data record by pressing with the right mouse button on one of the colour framed symbol in the track diagram.



This functionality is available for the correct jump labels (red/green) as well as for the ones with errors (yellow/magenta).




5.5.16 Track diagram sections


WIN-DIGIPET makes it possible to define up to nine sections of the track diagram, in various zoom sizes. The sections can also be called from the main program. Sections can be loaded to the screen through a mouse click, e.g. central station, branch line, main line, hidden yard1, hidden yard2, etc.

The sections have to be defined in the track diagram editor before they can be used.



Please remember the following basics:

-  each **Win-Digipet** project does only support one track diagram
-  the track diagram cannot be split into multiple windows
-  using the track diagram sections function you will jump to predefined sections/positions within your track diagram

Click on the menu bar "Screen partitions", then on "Determine" or on "Screen partitions" in the symbols bar on the switch . Set the zoom factor first and then the selector for the first partition.

In the "Description" panel you name the section e.g. "Hid. St. A 28x28" (up to 20 chars.).

Next define the track diagram section: This is the part of the track diagram section that you see on the screen.

Browse through the whole track diagram, using the scroll bars on the right and bottom until the part you see on the screen corresponds to your idea.

As a reference point you can now select the upper or lower left or right position of the screen. The coordinate will be saved separated by "X" and "Y" (see Fig. 5.27).

If you are satisfied with your selection, click on '**Define**'.

In the symbols bar you see the first of nine section symbols marked in black and its name on a yellow bar next to it.

In the same manner you can define further track diagram sections. The sections can also be saved with different zoom steps, this for example interesting to switch between detail and overall view of your track diagram. Through a click on the relevant symbol in the toolbar you load a section to the screen.



Fig. 5.27 Defining track diagram sections




To delete a track diagram section, click on <Screen partitions> <Determine>, select the section concerned in the window "Screen partitions" window and click on **'Delete'**.



If you use multiple screens you should change window size of the track diagram editor to the same size as the main window, because otherwise your settings in the track diagram might not fit your needs in the main program.

5.5.17 Configure multiplans in the track diagram

Win-Digipet has only one track diagram internally, the so-called masterplan. In addition to the masterplan there are possible sub track diagrams called multiplans. Multiplans are rectangular sections of the masterplan which can be shown in separate, freely placeable windows. Users with two or more screens may apply these additional windows. Up to 20 multiplans can be defined. Using multiplans the clear view onto the track diagram is considerably improved. It may be even possible not to show the masterplan itself.

To configure a multiplan click on the symbol  in the toolbar.

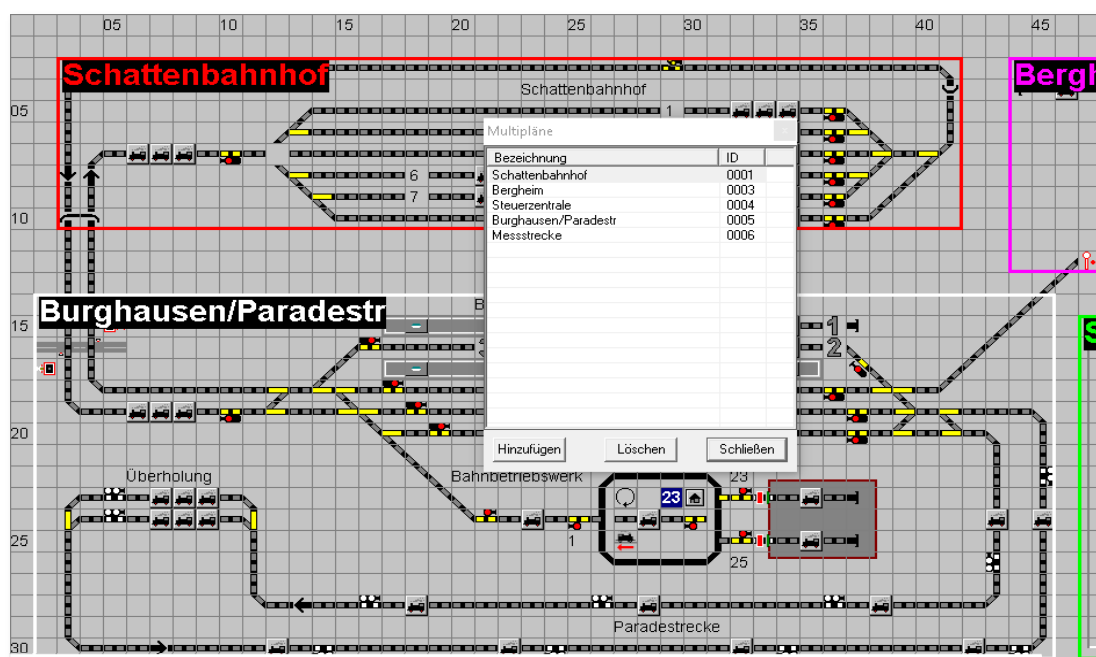


Fig. 5.28 The window for the configuration of multiplans

Using the button "Add" you can define a rectangular area of the track diagram as shown by the example in Fig. 5.28 taken from the demoproject WDP2018. The area called "hidden yard" is framed in red. All track symbols in this area belong to the multiplan with the same name.




Another example in this figure presents the area “Bahnhof Burghausen und der Paradestrecke”. Here the area is frame in white. Multiplans must not overlap. In case of an overlap an error message will appear. Each symbol in a track diagram with multiplans is shown only twice: in the masterplan and a multiplan.

The multiplans can be assessed from the menu of the main program or the toolbar. All symbols - also concerning commands and executions of routes - are synchronously displayed in both the masterplan and multiplan.

Multiplans no longer needed can be deleted from your project by using the button “Delete”.

5.5.18 Checking the track diagram

The track diagram editor contains a check routine which is able to inform you about possible problems in your track diagram. This check routine is also available in the main program of **Win-Digipet** but with extended functionality. In the main program the check routine covers all program parts, while the version the track diagram does only cover the problems which can be changed within the track diagram editor.

The check routine can be called by pressing the button  in the toolbar of the track diagram editor.

In our example one error has been found. When selecting the error message in the list the according in the track diagram will be shown.

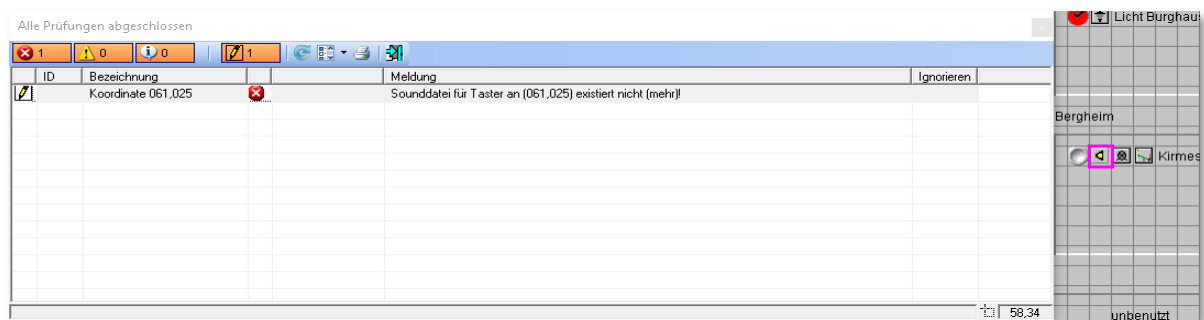



Fig. 5.29 Result of checking the track diagram

In our example a sound push button was assigned to a sound file, although Win-Digipet could not find this file.

If a certain configuration, which causes an error message, is nevertheless intended, you can check a checkbox to ignore the selected messages. Afterwards press '**Refresh**' . All ignored errors do not appear in the list any more. Using the options menu these ignored messages can be made visible again.



Other errors in the track diagram, like jump labels with errors, cannot be ignored. These errors **have to be corrected**. When selecting the according message in the list the program will jump to the place with the error.

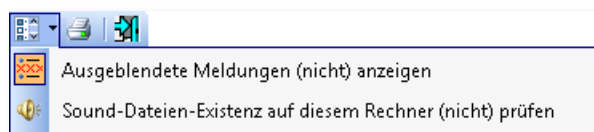


Fig. 5.30 Options for checking the track diagram



After changing your track diagram, you should always use the check function to find hidden errors.

At least when leaving the track diagram editor, you should confirm the message for the automatic check in the main program.

5.6 The mode "Register solenoid device addresses" in the track diagram editor

5.6.1 General

All registrations regarding your solenoid devices can be configured, edited and tested in the track diagram editor.






It is advisable that you have an exact list of the solenoid devices on your layout with relevant decoder addresses prepared before you start to enter the data.

If you use more than one digital system for your railroad you should also note in your list which components are controlled by the several digital systems and which protocols are supported.

Because of this you might reach the limit of available addresses of your digital system.

This depends of course on the type of your used digital systems. Newer digital systems are nowadays powerful enough to control ever larger setups. For these systems the usage of more than one digital system is not really necessary.

If your system is not so powerful or if you want to split different types of control by system, you could use the following configuration for example:

-  The 1st digital system for controlling the vehicles
-  The 2nd digital system for controlling turnouts and signals
-  The 3rd digital system for controlling uncoupling tracks and switch decoders for house and street illumination
-  The 4th digital system for evaluating the **first** 496 S88 contacts
-  The 5th digital system for evaluating the rest of the S88 contacts

Using this splitting you still have the limitations of the data formats, but by the usage of several digital systems you can use the addresses multiple times.

For example, a turnout with digital address could be controlled by an Intellibox as well as a second one with the same addresses by the Tams Master Control.



5.6.2 Recording solenoid device data and test, address display

With the recording of solenoid devices, we mean the assignment of one or more digital address(es). The placement of the symbols has been explained in the former sections.

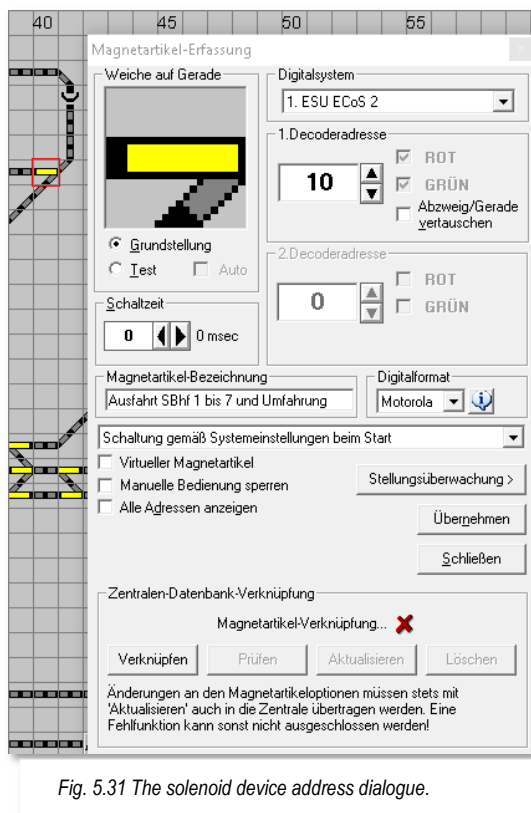



Fig. 5.31 The solenoid device address dialogue.

For starting the mode for recording solenoid devices click on the symbol  in the track diagram editor's toolbar. As alternative you could press the right mouse button within the track diagram and the select <Solenoid device addresses> within the context menu. The track symbol window disappears and the mouse pointer changes to an arrow with micro switches. You are now in the mode *"Register solenoid devices addresses"* of the track diagram editor. The status bar at the bottom of the window does also show you the activated mode.

Point to the solenoid device you want to record: It will be framed by a red square. Click on it: A window "Recording solenoid devices" will be opened. At the upper left the solenoid device is displayed as a large symbol, and its type is indicated, e.g. "Turnout...".

The exact appearance of the dialog show in Fig. 5.31 depends on the used digital system. The lower part for the digital system linking will for example not be visible for a Tams Master Control (because it is not needed for this system). When using other digital systems additional system specific input boxes might appear.

If you use **more than one** digital system for controlling solenoid devices, please select the digital system the solenoid device is connected to. Of course, the cabling of your digital systems has to be according to your settings within this dialog.



If you want to overcome the addressing limit of one digital system, you need to enter the used second digital systems here **and also** connect the solenoid devices to this second system.

5.6.3 Solenoid device address and description

Enter the address and if needed the second address of the solenoid device (see Fig. 5.31). In our example we assigned address 10. The checkboxes "RED" and "GREEN" will be set automatically depending on the type of solenoid device.



For a simple turnout you need to register just a first address. More complex solenoid devices like crossing with two motors need for example two addresses for full control.

In the box "*Solenoid device label*" you can enter an optional device label to describe the solenoid device's function. This is especially useful for virtual solenoid devices. This information will be e.g. displayed when moving the mouse over a solenoid device symbol in your track diagram (with activated tooltip option in the menu).

All solenoid devices are highlighted in red in the track diagram, if you have checked 'Display all addresses'. It can be reversed by un-checking "*Display all addresses*".

5.6.4 Registering a name for a counter symbol

A counter symbol does not need a solenoid device addresses. A counter is like a "switch" with 1000 different positions. These counters can be used for different task while operating your model railroad.

For better differentiation of several counter symbols we suggest to assign different names to your counters. The name for counters can be entered when clicking on counter symbol while in "*Register solenoid devices addresses*" mode.



Fig. 5.32 Name for a counter symbol

5.6.5 Coloured display of counters symbol

The colour counter symbol can be chosen as you like.

Clicking on the button "individual" opens a dialogue. A left mouse click on the coloured counter symbol shown in Fig. 5.33 leads to the selection of the background colour, whereas a right mouse clicks leads to the selection of the number colour.

The colour of the so-called SX-display cannot be changed. It is shown with white numbers and dark green background. Please avoid any mixing when the SX-display is used in the track diagram.

The other options contained in this window will be explained later.

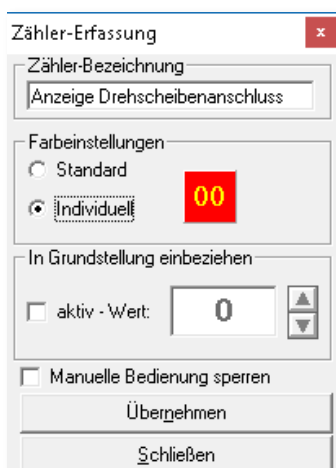


Fig. 5.33 Selection of colour for the counter

5.6.6 Testing solenoid devices

After the registration of the solenoid device address(es) we suggest to test the correct functionality of the registered solenoid device. Select the radio button "Test" and click on the large solenoid device symbol within the registration window. Every time you click on the symbol the solenoid device will be switched to its next position.

If the switch position of the solenoid device does not correspond between **Win-Digipet** and the situation on your layout, you need to swap the connections to your decoder or you might check "Swap branch off/straight" and test again afterwards.

After checking the swap function, you need to activate the "Test" radio button again.

If you check "Auto" the solenoid device will switch from position to position automatically. The delay between two positions can be set from 500 msec. to 10000 msec.

Using this functionality, you can monitor the real switch on your layout without the need to look on the screen and the layout at the same time.



Fig. 5.34 Solenoid device function test

5.6.7 Swapping/inverting connections

For all two aspect solenoid devices (turnouts and signals), as well as three-way turnouts and crossings you have the possibility to swap/invert the connections within the software.

For this solenoid device an according option/checkbox will appear.

Using this function, you do not need to swap the cabling between the solenoid device and your decoder e.g. if the turnouts positions is correct on the screen but wrong on your layout. This function reduces a lot of work.

Depending on the type of solenoid device the text "Connection invert" or "Swap branch off/straight" will be shown, of course "Swap branch off/straight" would not make sense for signals.

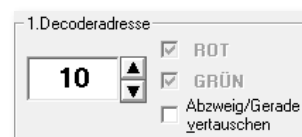


Fig. 5.35 Swaping connections



5.6.8 Linking and testing linked solenoid device

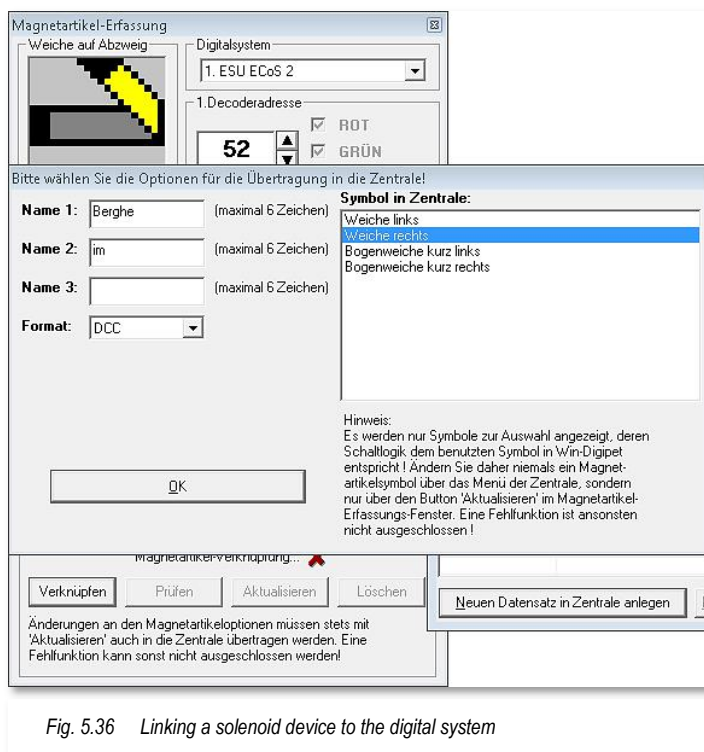


Fig. 5.36 Linking a solenoid device to the digital system

When using one of the following digital systems it is necessary to link your solenoid devices within the program to the digital systems solenoid device database.

For this purpose, additional buttons will appear in the solenoid device registration window.

- The unlinked state of the symbol ESU ECoS
- ESU ECoS 2
- Central Station Reloaded
- Märklin Central Station

and its address is indicated by the small . Thus a link has to be created before the solenoid device can be operated.

Therefore click on the button '**Link**', and a new window „Link solenoid devices to control unit“ will open.

If the solenoid device has not been created in the digital systems, you have to select '**Create new data record within central unit**'. If a data record has already been created within the digital systems, you just need to select the according data record in the list and then press the button '**Link with selected data**'.

In Fig. 5.36 Win-Digipet already made the most necessary registrations for the new data record within the digital system. In most cases the settings are sufficient. You need to check the used data protocol in any case (DCC or MM²⁷).

A correct link is indicated in the solenoid device address dialog with a green .

5.6.9 Switching time of solenoid devices

The switching time (0 up to 3000 msec.) can be set for each solenoid device. This might be necessary for motoric turnout or bad switching turnouts.



If possible we suggest a switching time of 0 msec. within the program and a setting of minimum and maximum switching time within your digital system.

²⁷ MM – Motorola Protokoll

You should use only longer switching times if really necessary. This will enhance the time for switching a route.

5.6.10 Digital format of the solenoid device

At the entry "Format" the digital format of the solenoid device, which corresponds to your hardware, can be selected. This dialogue field is only opened, if the digital system supports a protocol selection for solenoid devices.

5.6.11 Virtual solenoid devices

Solenoid devices which are not present in real on your model railroad layout can be used with a virtual address by checking "*Virtual solenoid device*". Using this option, the data flow between **Win-Digipet** is reduced to really necessary switchings/actions.

You only need to enter addresses for virtual solenoid devices if you plan to switch these solenoid devices manually (by click with the mouse). You should assign an address which is above your systems maximum real address space.



If you enter a solenoid device (not for multi aspect signals) which is large than the system maximum address e.g. 256 for a Märklin 6050/6051, the check box "*Virtual solenoid device*" will be checked automatically and disabled so it cannot be changed manually.

Win-Digipet monitors that you do need enter address above the valid address space.

5.6.12 Basic setting of solenoid device

Many solenoid device especially turnouts and signals might need a basic setting to achieve e.g. defined starting conditions for an automatic operation.

Thus you need to define the basic setting for each solenoid device.

For most signals the basic settings will be Stop (red) and you will not need to make any changes for these, because this is the default basic setting for these symbols. Click one time or several times on the large symbol in the solenoid device registration dialog will change the symbol basic setting. Make sure the according radio button "*Basic setting*" is set, before selecting the basic setting. Using '**Transfer**' the basic setting will be saved.



Fig. 5.37 Selecting the basic setting

5.6.13 Basic setting of counters

Also for counters a basic setting is possible which is activated at the program start or later.



5.6.14 Block manual operation of solenoid devices

Activating the mark at “Block manual operation” the solenoid device is protected against a manual operation, so that it can be operated only by the program. Counters can be blocked in the same way.

5.6.15 Switching of solenoid devices at the program start

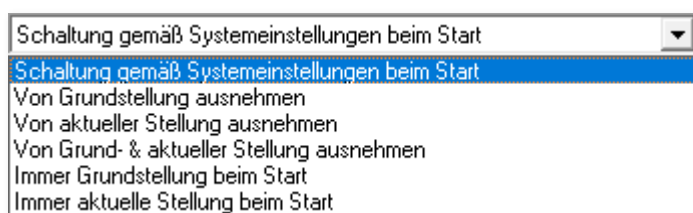








Fig. 5.38 Different options for individual operations at the program start

In the Section “system settings” of **Win-Digipet** you have learnt that solenoid devices are switched according to their basic setting at the program start or that they not switched.

These two options can be assigned to each solenoid device individually.

The list of Fig. 5.38 presents different options how solenoid devices are operated at “global” switching operations.

-  **Switch according system settings at start**
The solenoid device is handled according to the system settings
-  **Exclude from basic positions**
The solenoid device is excluded from the basic setting of all solenoid devices. The basic setting can be activated at the program start or manually by a function in the main program.
-  **Exclude from current position.**
The solenoid device is not switched at the command „Switch to current position”. This command can be taken during the program start or manually by a function in the main program.
-  **Exclude from basic & current positions**
The two previous options are valid.
-  **Always basic position at start**
At the program start the solenoid device is always switched to its basic position.
-  **Always current position at start**
At the program start the solenoid device is always switched to last current position known to the program.

Regarding 2-apect switches, which switch feedback contacts, for example, a basic setting is not desired normally, because the position such a switch is not be changed at the basic setting of the solenoid devices (manually or automatically at the program start).

In this case the option “Exclude from basic positions” is chosen, so that the solenoid devices are not affected by a basic setting.

5.6.16 Digital address used multiple times

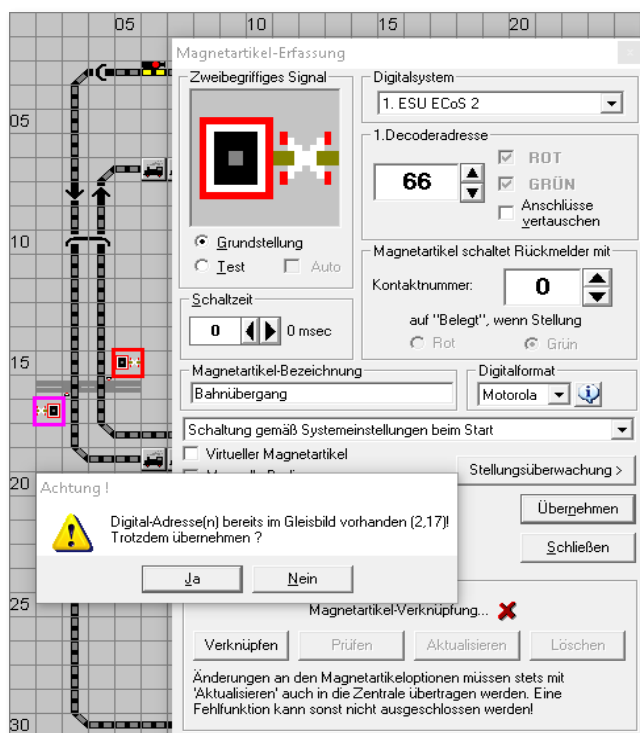


Fig. 5.39 An already used digital address is shown

Sometimes it is necessary to use a digital address multiple times within your track diagram. A good example for this is a multi-track level crossing.

For controlling a **multi-track** level crossing **Win-Digipet** offers you several symbols. For the two-track level crossing in Fig. 5.39 you assign the same solenoid device address for both flashing lights (here address 10) as well as for both booms (here address 9).

When doing this you will see the message shown in Fig. 5.39. You need to confirm this message with 'Yes'.

In addition, the **first** symbol with the **same** address within the track diagram will be framed by a magenta border while the currently edited symbol is framed by a red border while the message is visible. This helps you identifying the multiple uses of addresses within your track diagram.

If you use the same address for multiple solenoid devices like in the example above or in the case of distant signal on a single track before a main signal, manually switching of these solenoid devices within the track diagram will result in a **synchronized** switching of all solenoid devices with the same address (and kind; so not signal<->turnout). This synchronization is not available for crossings and three-way turnouts.

5.6.17 Slanted turnouts

With **normal turnouts in slanted position**, activate the checkbox "Swap branch off/straight". This produces the correct symbol display in the program.

For example, a right-hand-turnout is installed on the layout, but in the track diagram has been used a left-hand-turnout due to better design/display.

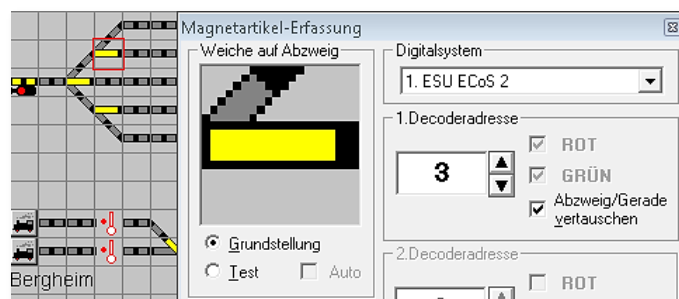


Fig. 5.40 Option for swapping turnouts



For correct display of the text "Turnout straight" it is necessary to check "Swap branch off/straight". Of course the turnout has to be connected correct to the decoder.

5.6.18 Crossings and double slip turnouts

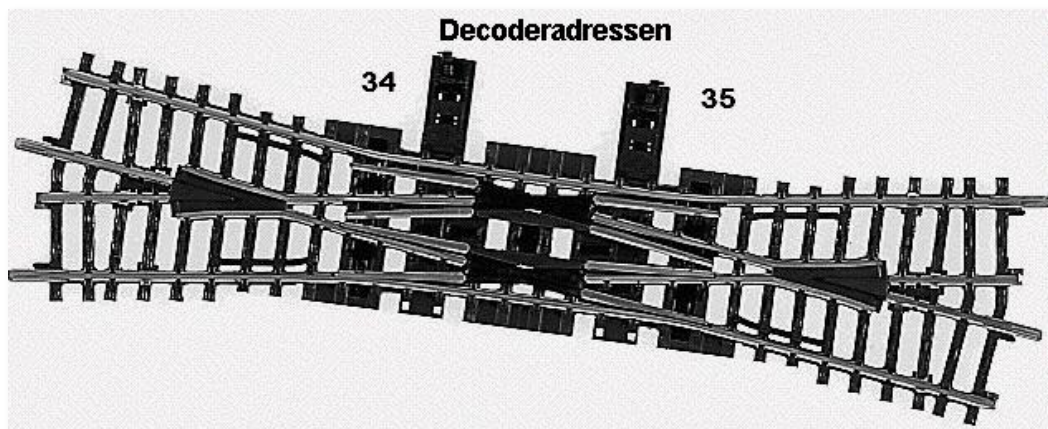





Fig. 5.41 Solenoid device addresses for a double slip turnout

When talking about double slip turnouts we have to differentiate between the ones with 1 solenoid drive and these with 2 solenoid drives.

-  **Double slip turnouts with 1 solenoid drive:**
Enter the decoder address as first one and set the second on to 0.
Address 0 deactivates the symbol, basic setting and testing of the solenoid device.
-  **Double slip turnouts with 2 solenoids:**
First and second decoder address have to be entered.
-  **Double slip turnouts with no solenoid:**
Enter virtual first decoder address and set the second on to **0**.

For these simple crossings without solenoid you need of course no decoder, because there is nothing to switch. But due to programming reasons it is important to enter a virtual address for securing the locking functionality in the program. This is necessary because solenoid devices are used for locking in routes.



From time to time users report problems when assigning solenoid device addresses to double slip turnouts with 2 drives. Due to this issue we created the following figures and explanations.

Fig. 5.41 shows a double slip turnout with 2 drives. The left part of the turnout is controlled by drive connected to decoder outputs with address 34 and right part's drive is connected to decoder address 35.

The addressing in **Win-Digipet** is as follows (see **Fehler! Verweisquelle konnte nicht gefunden werden.**):

The **left** part of the turnout in the track diagram is the **right** part in your layout and will be assigned to decoder address 35 as first address.

The **right** part of the turnout in the track diagram is the **left** part in your layout and will be assigned to decoder address 34 as second address. So you can see that for this type of configuration you need to swap the addresses in your head.



Fig. 5.42 Addressing of a double slip turnout

5.6.19 Three-way turnout


A three-way turnout does always have two drives and thus it is controlled by two solenoid device addresses. The first address controls the branch to the right and the second address the branch to the left.

The correct connection of your three-way turnout can be tested according to the explanations in section 5.6.6.



For all turnouts with two drives (three-way as well as double slip turnouts) you might reach your aim faster if you check the switch of the single drives/addresses using the Keyboard test (solenoid device address test) in the Track diagram editor.



After opening the Test keyboard using the symbol  within the toolbar of the Track diagram editor a Keyboard will be shown.

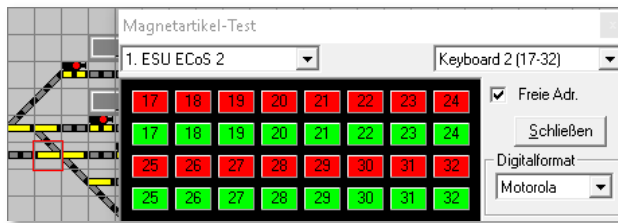


Fig. 5.43 Graphical keyboard for solenoid device test

Select the keyboard number and digital system which contains your used digital address (in our example keyboard 3) and click on the red button of the first used digital address of your solenoid device. If the position of the right branch is as shown, then everything is OK, otherwise you need to check "Swap branch off/straight" for the first address while

registering this solenoid device's address. You can proceed with the second address for the left branch of the turnout in the same way.

5.6.20 Three- and four aspect signals

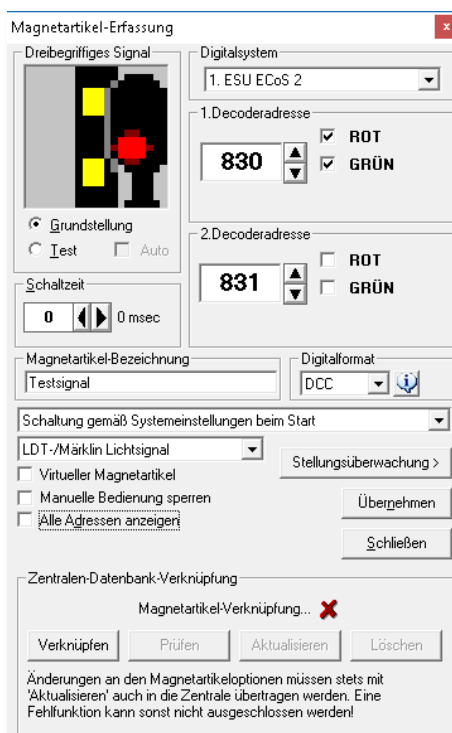


Fig. 5.44 Configuration of a 3-aspect signal



Fig. 5.45 Configuration of a 4-aspect signal


Please remember the following when configuring 3- and 4-aspect signals:




For a three-aspect signal it is necessary to enter a second decoder address and to select if the 3rd state is connected to the "RED" or "GREEN" output of the second address.



If you use mechanical Märklin signal, you need to select the signal type "Märklin three aspect signal" in the combo box. For light signal of Märklin, LDT²⁸ or other producers with integrated decoder, you need to select "*LDT-/Märklin light signal*". There are also some other types of decoders available in the selection. If you are not sure you need to try the different possibilities. After selecting the decoder type you should immediately test the function of the signal.

-  If you use the light signal decoder from LDT in connection with three aspect light signals you should select "*LDT-/Märklin light signal*" in the "Recording solenoid devices" window. This improves the blanking function when using distant and main signal on the same post.

But you have to be still careful in your routes not send any solenoid device commands to this decoder during blanking time.

-  If you use four aspects signals (e.g. from Roco) via a switching decoder (e.g. k84) in **Win-Digipet** you need to select " *Switch decoder/K84 mode*" to control your signal.

²⁸ LDT – Littfinski Daten Technik






5.6.21 Multi-aspect signals

The model railroad industry offers nowadays also some kinds of multi-aspect signals, which have more than 4 aspects.

These can be found for example in the HL- and KS-signal group.

The control of this signal is very complex, therefore we included some decoder type templates in the program.

Included are

-  LDT LS-DEC-DR
-  Viessmann 5229 KS-Entry
-  Viessmann 5229 KS-Exit
-  Rotating light
-  Manual configuration

...with predefined switching sequences with can be changed via the button '**Edit**', but this is a complex task. You should not change the sequence until you are really sure how the decoder works.

As signal symbols you can use in your track diagram...



-  symbols starting at No 1316 for the Viessmann KS-Entrance signals 4043 or 4046
-  symbols starting at No 1324 for the Viessmann KS-Departure signals 4042 or 4045



Fig. 5.46 Configuration of a multi-aspect signal

For these kinds of signals, no link to the ESU ECoS or Märklin Central Station is necessary.

5.6.22 Configuration table for multi aspect signals





In this table the switching sequences for the particular aspects can be defined. Up to 18 aspects are supported. Within the list you can configure the switching sequences per available signal position. Available commands are commands to the decoder addresses as well as delays.

In the right column you see all possible commands, that can be transferred using "drag&drop" to the switching sequence lists and could also be removed the same way.

In the list the available commands are e.g....

-  1. red → send digital address red to the decoder



-  2. red → send digital address +1 red to the decoder
-  3. red → send digital address +2 red to the decoder
-  4. green → send digital address +3 green to the decoder
-  5. green → send the fifth digital address green to the decoder

...the blue pause symbols (blue double line) are used to include switching breaks into the

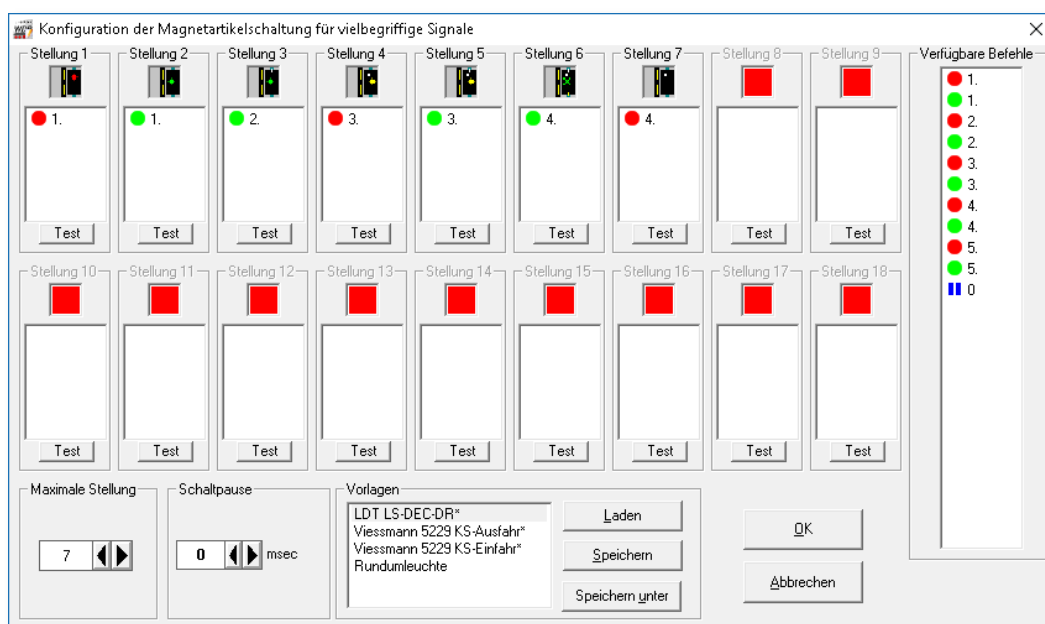


Fig. 5.47 Configuration of switching sequences for multi-aspect signals

particular switching sequences. The switching pause value can be defined in the lower part of the window.

Via '**Load**', '**Save**' and '**Save as**' you can save new decoder template. The already existing one can be modified and saved using a new name, but not overwritten. The predefined templates are stored in a file called DecTemplate.WDP and cannot be deleted.

Our self-defined templates are stored in the file **DecTemplate.DAT**. These templates can be edited or deleted any time. If you want to change a templates name, select the name in the list and click twice to enter the edit mode for the name. These self-defined templates can be deleted using the "Del"-key on your computer's keyboard.




5.6.23 Sound via push-button

For every push-button in your track diagram (e.g. symbol 0628 Sound 1) you can assign a sound to play when pressing this button. Supported file types are WAV and MP3.



Fig. 5.48 Configuring a push-button for sound playback

Using the button  you can search for a sound on your hard disk and assign it to the edited button. You can assign sounds from any directory.

The other three buttons are used for sound playback, stop and deleting the registered sound. You can register a solenoid device description like for any other solenoid device. This function can be used for real-existing and virtual push-buttons (Fig. 5.48). You can also choose the volume of the sound and the speaker (in case of multi-speaker system), that shall be used for playback. For this functionality with multiple speakers it is necessary, that your computer is connected to a **2.1**, **5.1** or **7.1** Surround-Sound system.



When using the backup function in the Startcenter **Win-Digipet** does only backup the sound files in the sub-directory **SOUND**. All other directories have to be backedup by you!



Only Mono Wave files are supported for the output on single speakers. Other kinds of sound files have to be converted.

In this cases you might be asked, if WDP may convert the sound file.





5.6.24 Solenoid device switches feedback contact

If you use two aspect signals you can also assign an unassigned feedback contact number (not assigned to any digital system), that shall be switched on or off corresponding to the current signal state.

A requirement for this function is that the used feedback contact number is **not assigned to any digital system**.

Some possible applications are...

-  Blocking of routes within tours due to some requirements
-  Alternating exits and entries from/to a station for continuous tours to achieve a more differentiated operation.

You may find further applications...

Finally, virtual contacts may be switched bei 2- aspect solenoid devices using the “virtual pulse generator”, which will be explained later in this document.

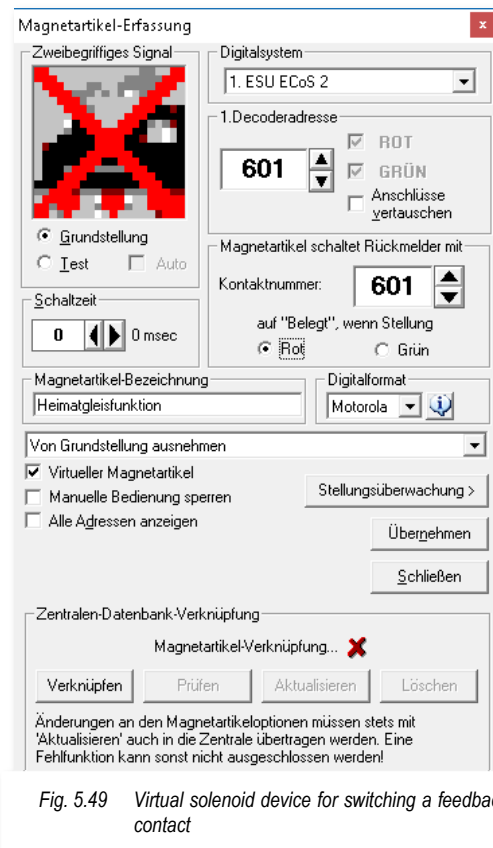


Fig. 5.49 Virtual solenoid device for switching a feedback contact

5.6.25 Recording solenoid device data with the help of the test keyboard

The virtual test keyboard in the track diagram editor cannot only be used for switching/testing solenoid devices (see 5.6.19), but it can also be used to register solenoid devices.

For this purpose, open the test keyboard and click on the menu 'Record' and 'Solenoid

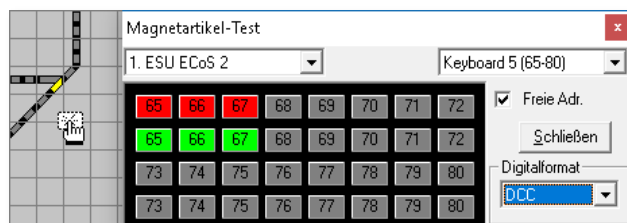



Fig. 5.50 Selecting solenoid device address via test keyboard

device address' or on the switch  in the toolbar. Afterwards you need to switch the keyboard to the used digital system and address area.

For recording a solenoid device address in the track diagram, point to the desired solenoid device address in the keyboard and drag it with pressed middle mouse button (or left mouse button + Shift) to intended solenoid



device within your track diagram (see **Fehler! Verweisquelle konnte nicht gefunden werden.**).

The solenoid device will be framed by a red square and the window "Recording solenoid devices" will be opened after releasing the mouse button. In this window the selected digital system and solenoid device address from the test keyboard will appear automatically (if the solenoid device uses more than one address the second address will be set to first address +1). Afterwards you can make all settings in this window as usual and save your changes using '**Transfer**'.

5.6.26 Recording solenoid device data with the help of the test keyboard (Selectrix)

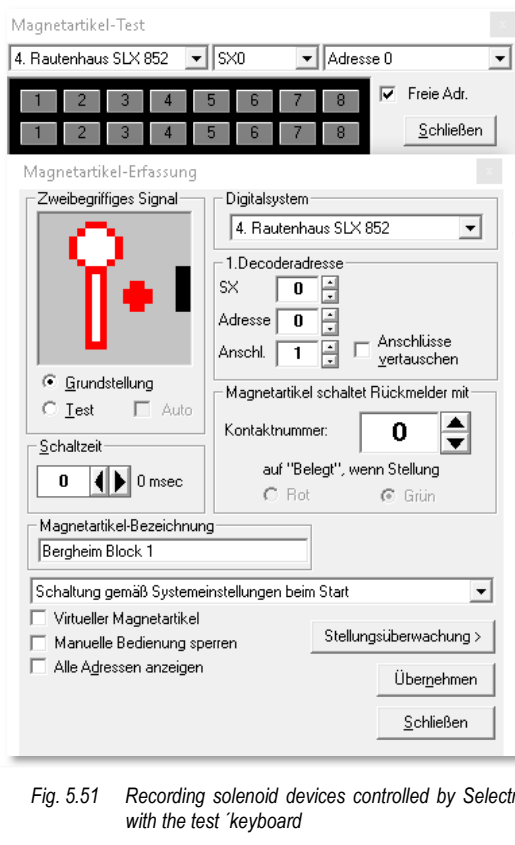



Fig. 5.51 Recording solenoid devices controlled by Selectrix with the test 'keyboard'

If you control solenoid devices on your model railroad via Selectrix the solenoid device registration window on your model railroad will change its appearance. For these digital systems solenoid devices are not controlled via solenoid device address, you need to select a SX-Bus, SX-Modul/Address and Connection in contrast.

As explained in section 5.6.25 for a solenoid device controlled by an ESU ECoS 2, you can also register the solenoid device address data for solenoid devices controlled by Selectrix systems.

For this purpose, open the test keyboard and click on the menu 'Record' and 'Solenoid device address' or on the switch  in the toolbar. Afterwards you need to switch the keyboard to the used digital system and address area.

For recording a solenoid device address in the track diagram, point to the desired solenoid device address in the keyboard and drag it with pressed middle mouse button (or left mouse button + Shift) to intended solenoid device

within your track diagram (see Fig. 5.50).

The solenoid device will be framed by a red square and the window "Recording solenoid devices" will be opened after releasing the mouse button. In this window the selected digital system and solenoid device address from the test keyboard will appear automatically. Afterwards you can make all settings in this window as usual and save your changes using '**Transfer**'.



As described in section 5.6.25 the program will recognize the type of solenoid device when configuring the device this way.

If you use a solenoid device with 2 aspects, it will use one address. For devices with 3 or aspect the second address will be set to the first address +1.

Also the right keyboard buttons (red or green) will be set automatically.

5.6.27 Solenoid device without position monitoring

Due to problems with sometimes bad switching turnouts **Win-Digipet** does support some types of position monitoring for the current turnout position.

You can use the position monitoring also for other kinds of solenoid devices.

If you click on '**Position monitoring**' the window for the address assignment will enlarge and some different position monitoring options will be displayed.

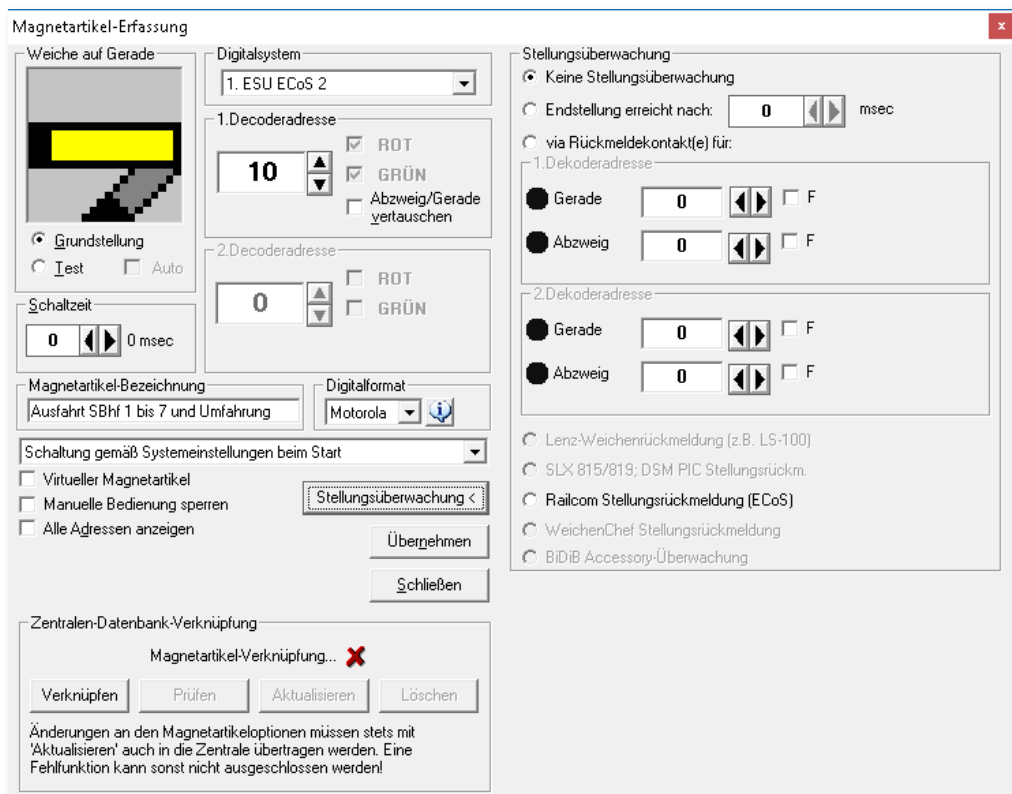


Fig. 5.52 For this turnout no position monitoring has been configured

What is the effect of this position monitoring in Win-Digipet?

By default, it will not be used. Thus, you can decide later, if you want to use position monitoring or not.



5.6.28 Position monitoring via time constant

The first possibility to ensure a turnout has reached its end position before being occupied by a train is a simple time constant. This e.g. useful for turnouts with motor drives without any real position monitoring possibility.

But this is no real position feedback. A failure of a solenoid device power would never be recognised for example.

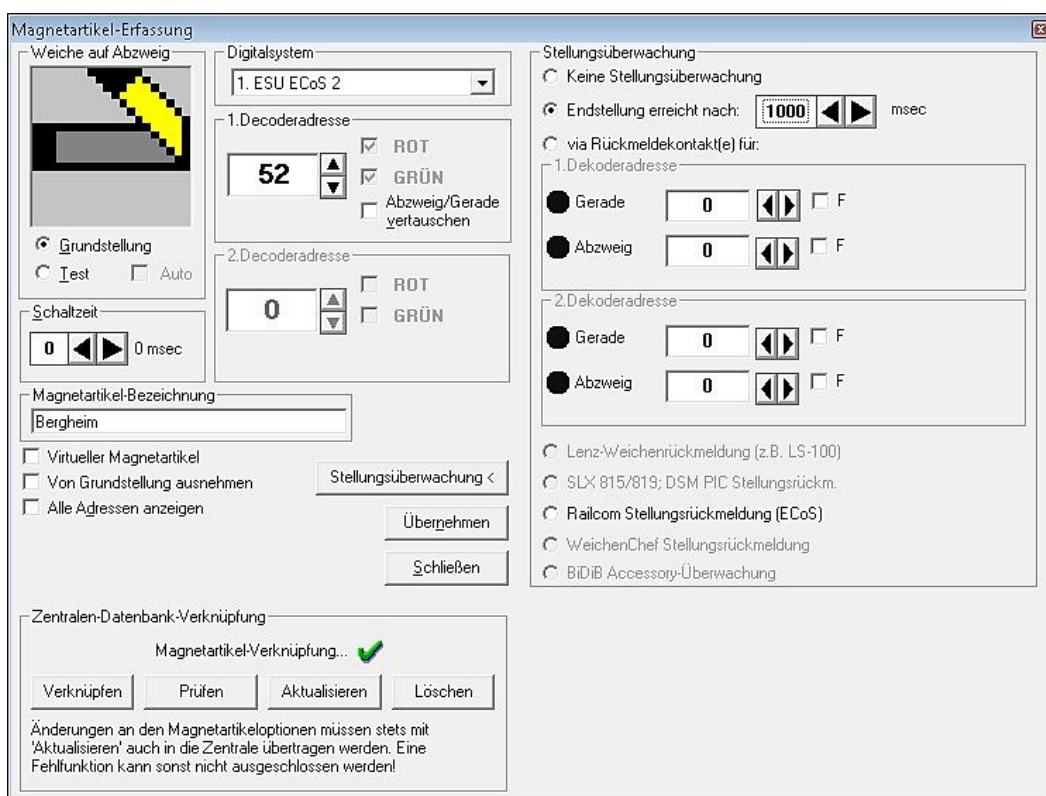


Fig. 5.53 Turnout with position monitoring via time constant

You can select a time constant between 0 and 10000msec in 100 msec. steps.

What is the effect of this position monitoring in Win-Digipet?

Using this option, the train won't start its ride until the selected time(s) has/have expired after switching the routes itinerary (the route will be highlighted immediately but no drive command will be issued before the end of the selected waiting time).



After reaching the time limit, the first drive command will be sent and the route will be executed for the further steps as usual. Of course this time delay relies on the assumption, that the turnouts have really reached their final position after the selected time.



If you have e.g. turnouts within your route, then the times of the four turnouts will **not** be summarized, it will be used the time delay of the turnout with the highest value.

You should use these setting with care, for longer routes it is often necessary to register a position time reached delay for only one turnout.

5.6.29 Real position monitoring/feedback

For real position monitoring the program offers different options.

Depending of the usage of a SX or non-SX system you can enter SX-monitor channels (see decoder manuals) or feedback contacts for determining the position of the turnout. When using some kinds of Lenz decoders or the ESU ECoS with RailCom (at moment only

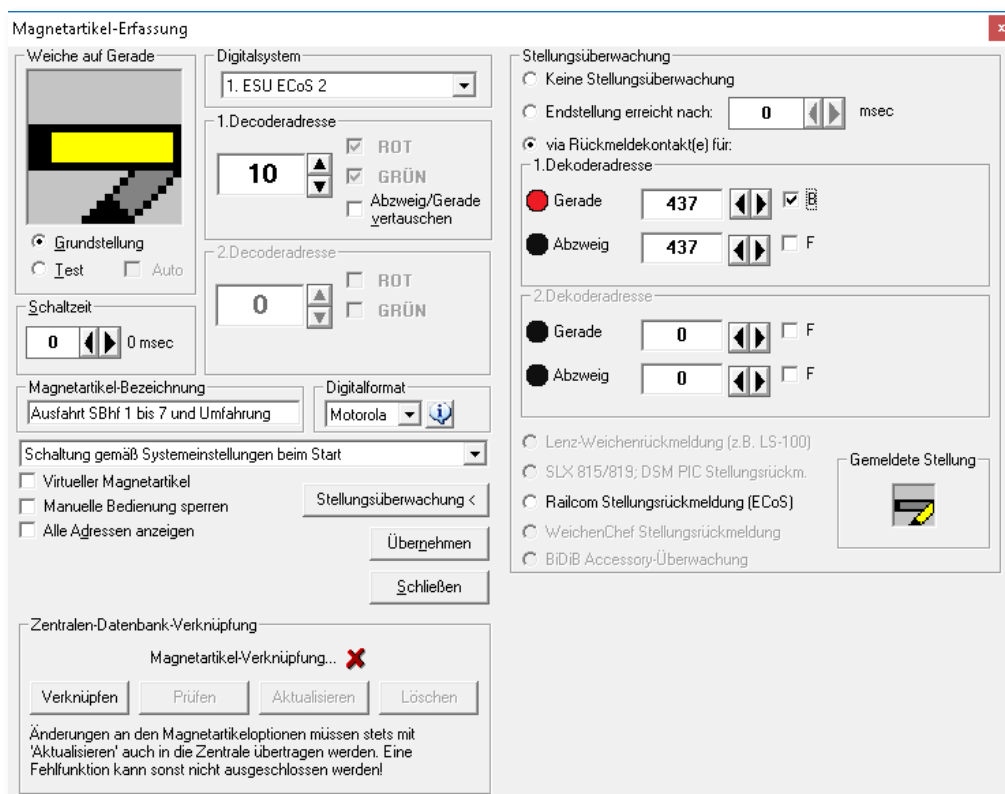


Fig. 5.54 Position monitoring of a turnout via feedback contacts

with ESU Switchpilot) or the turnout decoders of Rautenhaus also their feedback possibilities are supported when selecting the according option.

Some decoders for servos offer also the possibility to connect a feedback module to them for real position feedback.

If you click on '**Position monitoring**' the window for the address assignment will enlarge and some different position monitoring options will be displayed. When using the feedback contacts or SX-monitor channels you have to enter the according feedback contact



numbers/addresses into the input boxes and you have also select if contact x means "straight" when the contact/address is occupied or not and so on.

For decoders support immediate real feedback the currently monitored position will appear in the box *"Reported position"*.



A red question mark would indicate no or no correct position feedback.

*What is the effect of this position monitoring in **Win-Digipet**?*

Using this option, the train won't start its ride until the reported position is equal to the executed one after switching the routes itinerary (the route will be highlighted immediately but not drive command will be issued before the end of the selected waiting time).

5.6.30 Transfer settings

As last step you should consider testing the solenoid device (again) using the test function within the configuration window.

Finally, after making all solenoid device settings for a symbol you can save the recorded solenoid device data by **'Transfer'** to the track diagram; you will see the basic setting there.

5.6.31 Changing digital-systems of solenoid devices globally

If you use multiple digital-systems for model railroad you can change the digital system, which controls your solenoid devices from one system to another.

Click on the button  in the toolbar within the track diagram editor.

Now you will see a window for changing digital systems globally. In the upper selection box you can choose the current digital-system for controlling your solenoid device and in the lower selection box you can choose the new digital-system for controlling your solenoid devices. With a click on **'OK'** you can change now the digital-systems for the solenoid device after confirming a security query.

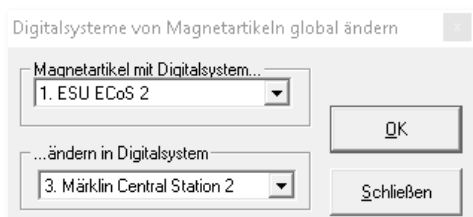


Fig. 5.56 Transfer solenoid devices from one system to another

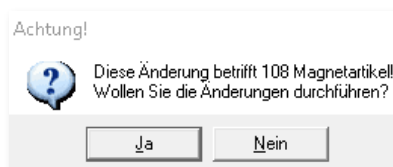




Fig.. 5.55 Number of affected solenoid devices

After confirming this dialog, the changes will be made and you will be informed after this has been done.

If you have already assigned digital addresses to multiple digital systems, this will be taken into account.



If you used for example for two turnouts within your track diagram address 1 while...

-  the first turnout is controlled by an ESU ECoS 2
-  and the second one by a Märklin Central Station 2.

..., everything will be fine.




After transferring all solenoid devices from the ESU ECoS 2 to the Märklin Central Station 2 or vice versa, **both** turnouts will switch at the same time.

5.6.32 The solenoid device link manager

When using the Märklin ESU ECoS (2) or Märklin Central Station or Central Station Reloaded the solenoid device link manager is a very comfortable way to transfer your complete set of solenoid device to the CS/ECoS. It can also be used for checking the status of your linked solenoid devices or to delete links or solenoid devices in/to your CS/ECoS.

When resetting these systems to factory defaults you should always make a backup of your systems data before. The backup and reset can be triggered via the browser interface of your digital system. Please take a look at the manufacturer's documentation.

After resetting your digital system to factory default it is necessary to (re)create the links between **Win-Digipet** and the digital system.

The solenoid device link manager can be used to solve this problem for you quite fast, it can be accessed via the button  in the toolbar of the track diagram editor

The solenoid device link manager can only be accessed if one the digital systems mentioned above is connected to your **Win-Digipet** installation. Otherwise you will see an error message.

The basic principle of the solenoid device link manger is similar to the link manager for vehicles which has been explained in the Vehicle database chapter.

After opening the link manager, you will see two lists. The list in the upper part of window lists all solenoid devices within **Win-Digipet**, which have been assigned to the selected digital system.

In the lower part of window all solenoid devices within your digital system will be listed

Between the both lists you can find several command buttons for transferring the data record between **Win-Digipet** and the database of your digital system resp. you can link existing datasets. You can also remove existing links. Please take care which data protocol is used for the linked solenoid devices. The settings in **Win-Digipet** and your digital system have to correspond with each other.

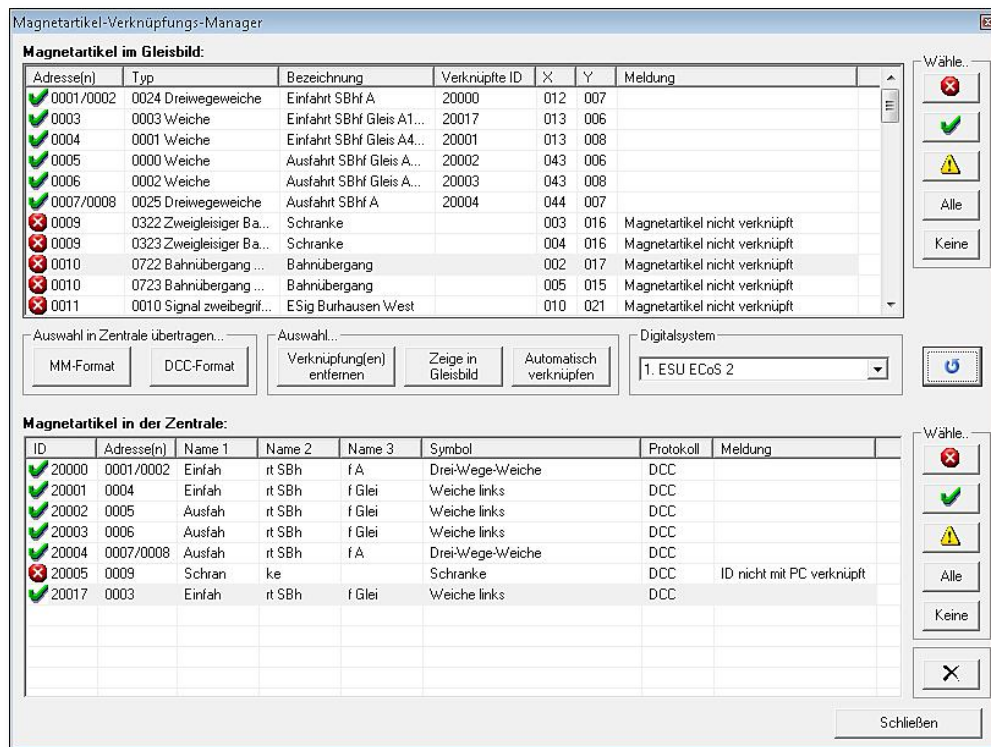


Fig. 5.57 The solenoid device link manager

The icons used in the list are:



This solenoid device is linked correctly to a solenoid device within your digital system/track diagram



This solenoid device is **not** linked to a solenoid device within your digital system/track diagram

This solenoid device is not linked correctly to a solenoid device within your digital system/track diagram



This means e.g. the linked device is missing in the digital system, the addresses are not the same, the data formats are not the same or red push-buttons in the track diagram are linked to a green push-button within the digital system or a signal is linked to a turnout etc.

The detailed explanation for the exclamation mark will be printed in the message column of the list.





With the five selection buttons right of the particular list you can select the 'red/green/yellow' items in the list. Selected items in the track diagram list...





can be transferred either in MM or in DCC protocol to the database of your digital system. Using this function, you transfer your entire solenoid devices within seconds to the digital system's database. Only the detailed selection of the symbol within the CS/ECoS will not be made. So every



turnout will be transferred as left turnout, because the transfer routine cannot extract from the track diagram of **Win-Digipet** whether a turnout is a left or right one, the same applies to signals and so on (see Fig. 5.57),

-  can be unlinked from their partners within the other list (only for green and yellow items).
-  can be highlighted within the track diagram using a magenta frame.
-  the program can try to link solenoid device automatically if you have created a solenoid device within in the program and your digital system parallel. E.g. the program will search while auto-linking a three-way turnout in the track diagram of **Win-Digipet** for a three-way turnout using the same addresses in the digital system.
-  using the 'X'-button a solenoid device can be deleted within the digital system.


The digital system solenoid device list has the following extra function:

-  A double click will open the solenoid device address selection window for the selected item.
This only available if the "Register Solenoid Device Addresses" mode is activated in the toolbar of the track diagram. This mode will be activated when opening the device link manager. But it is not available if you change the mode afterwards manually.
-  Red list items can be directly linked via drag & drop to a link partner within the other list.

The track diagram solenoid device list has the following extra function:

-  Red list items can be directly linked via drag & drop to a link partner within the other list.

5.6.33 Virtual Keyboard to test all Solenoid Devices

Within the track diagram editor you can open a virtual/simulated Märklin keyboard by pressing the button  in the toolbar. Of course only the style is Märklin-like. You can use this keyboard for any other system too. We did already use this keyboard in section 5.6.25 for registering solenoid devices.

You have to select in the combo-boxes the used digital-system and the used keyboard (resp. SX-address for Selectrix).

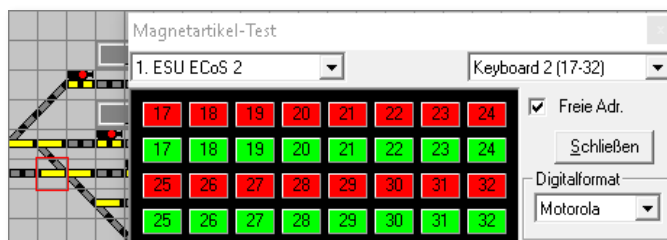






Fig. 5.58 A virtual keyboard for solenoid device tests

This window offers three functions:

-  All inactive solenoid devices are not shown in the track diagram, if you checked the switch next to 'Free Addresses'. This will bring up to you the non-allocated addresses (or solenoid device which are not working because of an electrical or mechanical malfunction).
-  Also, with a click on the address of the solenoid device, you can check the correct functioning: top key "Red", bottom key "Green". The solenoid device is displayed on the screen, framed in red, and its actual position is indicated.
-  Solenoid device address assignment according to sections 5.6.25 and 5.6.26.

5.6.34 Dip switch settings of Decoder k83/k84

This section is just valid for Märklin decoders k83/k84.

You can open this functionality by a click on the symbol  in the toolbar of the track diagram editor, the window "Dip switch for decoder k83/k84" will open.

Using the arrow buttons or the keyboard you can select a digital address and the according dip switch setting for k83/k84 decoders will be shown. You do not need to search in any other documentation or manuals of other products any more.

This does function is **not** usable for newer turnout decoder, which are installed in the Märklin C track for example. These decoders have one to two additional dip switches.

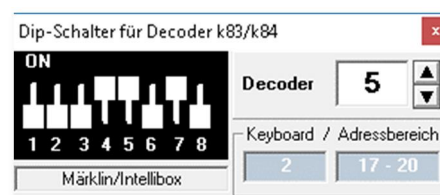


Fig. 5.59 Dip switch settings of Decoder k83/k84



5.6.35 Selecting the address for a SX-Display

If you use the normal function for recording solenoid devices addresses in connection with a SX-Display you will get a window, where you can choose the desired address data for your SX-Display.


The green counter symbol is only available if a Selectrix digital system (e.g. Rautenhaus SLX 852) is configured within your project.

After selecting the address and entering a description you can save your settings using '**Transfer**' before closing the window.

Afterwards this SX-Display will show in the main program the value of recorded SX-address.

Fig. 5.60 Addressing of SX-Display

5.6.36 Print solenoid devices

Using the button  in the toolbar of the track diagram editor you can open the print routine for solenoid devices.

Adresse	Digitalsystem	Anschluss	Virtuell	Zeit	X	Y
Dreiwegeweiche - Einfahrt SBhf						
MM 0001	1. Adr.	ESU ECoS 2		0	012	007
Dreiwegeweiche - Einfahrt SBhf						
MM 0002	2. Adr.	ESU ECoS 2		0	012	007
Weiche - Einfahrt SBhf Gleis 1 und 2						
MM 0003		ESU ECoS 2		0	013	006
Weiche - Einfahrt SBhf Gleis 4 bis 7 und Umfahrung						
MM 0004		ESU ECoS 2		0	013	008
Weiche - Ausfahrt SBhf Gleis 1 und 2						
MM 0005		ESU ECoS 2		0	037	006
Weiche - Ausfahrt SBhf Gleis 4 und 5						
MM 0006		ESU ECoS 2		0	037	008
Dreiwegeweiche - Ausfahrt SBhf						
MM 0007	1. Adr.	ESU ECoS 2		0	038	007
Dreiwegeweiche - Ausfahrt SBhf						
MM 0008	2. Adr.	ESU ECoS 2		0	038	007
Weiche - Einfahrt SBhf 5/7 und Umfahrung						
MM 0009		ESU ECoS 2		0	014	009
Weiche - Ausfahrt SBhf 1 bis 7 und Umfahrung						
MM 0010		ESU ECoS 2		0	040	007
Signal zweibegriffig Hp0/Hp1 (rechts) - ESig Burhausen West						
MM 0011		ESU ECoS 2		0	010	019

Fig. 5.61 The dialogue "Print solenoid device"s



This function offers the possibility to print a list of all solenoid devices.

In this list you can see all solenoid devices or only the devices of one digital system depending on your choice.

In the left part of the window you can set various options and right part shows a preview of the list to print.

5.7 *The mode "Recording feedback contacts" in the track diagram editor*


5.7.1 *General*

The third mode in the track diagram is used to assign feedback contacts numbers to symbols within your track diagram.

Before you start to record feedback contacts you should create a list or sketch where you can see the locations of the feedback contacts on your model railroad.

If you use multiple digital systems to control your model railroad layout, you should also make list which part of your railroad is controlled by which system.

5.7.2 *Recording feedback contacts, display numbers*

By clicking on the symbol  in the toolbar of the track diagram editor the window "Feedback contacts" will open. As alternative you can open the context menu of the track diagram by a click with the right mouse button in the track diagram and select afterwards <Feedback contacts>. The mouse pointer will change its appearance with a small s88 symbol.



In the status bar at the bottom of the current mode "Recording feedback contacts" will be indicated.

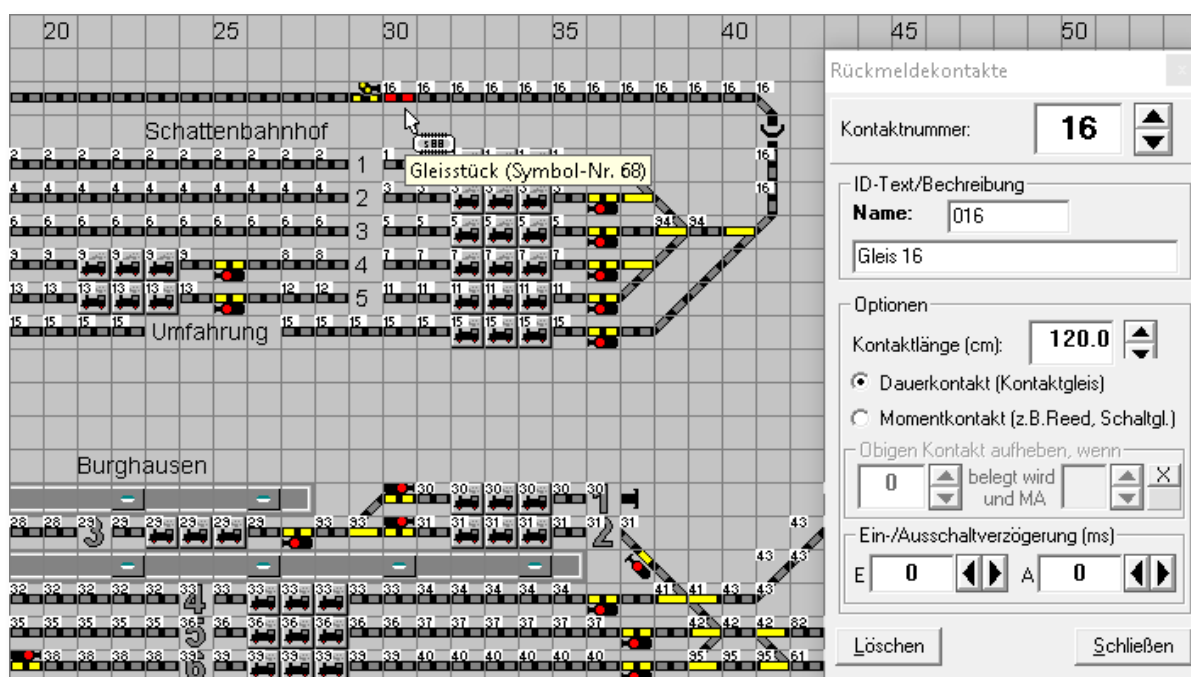


Fig. 5.62 Assigning a feedback contact number to a track symbol

All feedback contacts recorded so far will be shown. In our example only the feedback contact assignment for some track symbols are missing. For this example, we want to use feedback contact number 16.

In the "Contact number" panel enter the item number of the contact, either through mouse clicks on the arrows or via the keyboard, in our example number 16.

Move the mouse pointer to the track symbol to which you want to assign the item number of this contact and press the left mouse button. The contact number you entered appears immediately. You can place it in the track diagram as often as you like by pressing the left mouse button repeatedly or by dragging the mouse pointer with the left mouse button depressed.

If you want to reuse a feedback contact number which has already been assigned to some symbols to additional symbols, you do not need to enter the feedback contact number manually, you catch the existing feedback number with a click of the right mouse button on one of the track symbols, which have been already assigned to the desired number.

If you want to delete a contact number click on '**Delete**' and proceed as described above. If you click on '**Erase**', the contact number will be set to "0".

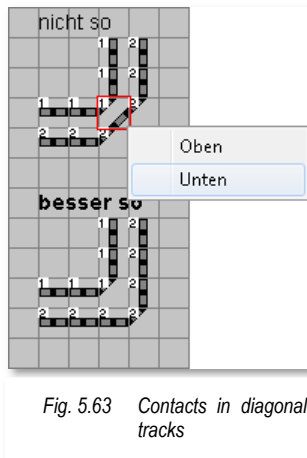


Fig. 5.63 Contacts in diagonal tracks

There are two track symbol panels with two itineraries each: Two diagonal track sections in one symbol panel. If you want to insert a feedback contact into each panel, a short menu <Top> - <Bottom> is opened.

Determine by clicking on <Top> or <Bottom> to which track section you want to assign the contact number. But it in most cases it is better not use this double diagonal symbols, the second part of the picture left shows you a better solution. This solution will make manual route recordings easier.

5.7.3 Description of feedback contacts

A unique description can be assigned to each feedback contact so that the later search for the number of a feedback contact is easier. The description of a contact number without train number display is optional. A contact number with train number display should be described.

5.7.4 Permanent contacts

When using permanent contact, you might have the problem, that short contact message won't be recognised correctly. Therefore, you can select an "Off delay" for the contacts. For problems with flickering contacts also an "On delay" is available.

First you have to select the feedback contact number you want to change using the mouse or the keyboard.

In Fig. 5.64 we used for a – short – contact an off delay of 1000 msec. Using this function, a short contact interruption of a short waggon will not result in a flicker of the feedback occupation in the program.

For all feedback contacts separate values for Off- and On-delay between 0 and 50000 msec. (equals 50 sec) are possible (in steps of 50 msecs.).



Fig. 5.64 Off delay for a contact



But be careful using Off- and On-Delays because they will also have influence on the stop position of trains when using these contacts or on the point of time a partial releases will be executed.

5.7.5 Moment contacts

When using reed contacts or switch tracks for feedback generation the occupation message is usually very short and contact not be used for a secure feedback. When using reed contacts or momentary contacts normally their short occupation should result in a



permanent occupation of the according track until the track is free again. In most cases the "free"-messages will come from the next moment contact.

Because of this you can select „*Moment contact (e.g. Reed)*“ in the feedback recording window of the track diagram editor.

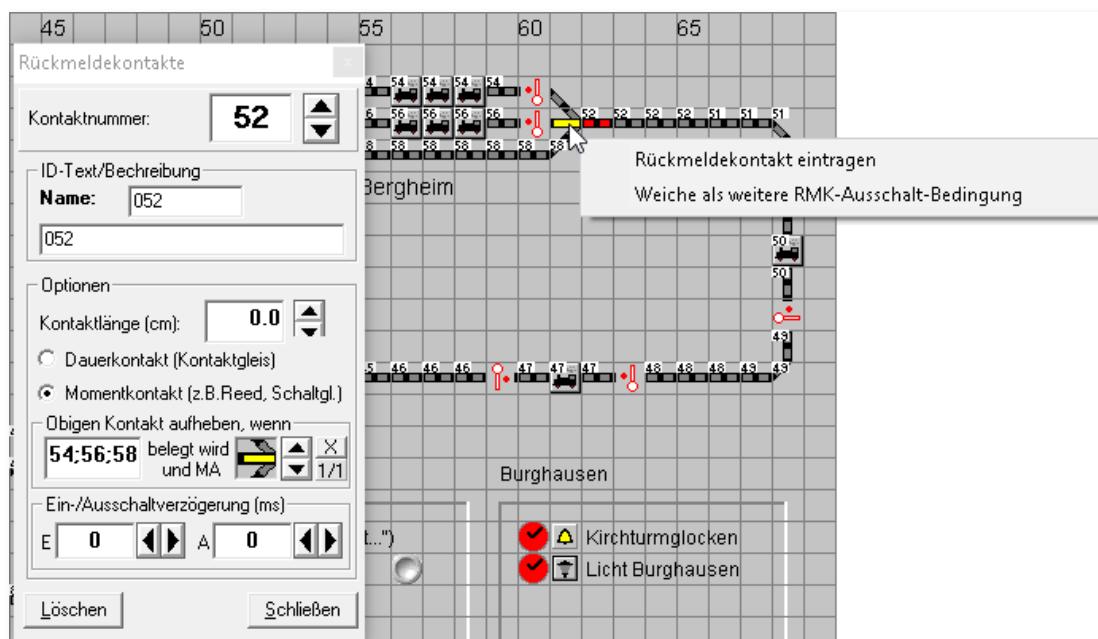


Fig. 5.65 Configuring a feedback contact as moment contact

In the field "*Contact number*" you need to enter the contact you want to use as feedback contact and in the field "*Release contact, if*" the number of the contact you want to use for turning of the contact occupation later on.

In our example we want to configure contact "52" as moment contact. The contact is part of a two direction track; thus the release has to be done by any of the contacts left or right. For this we can register more than one release contact. In our example contact 51 on the right-hand side and contacts 54,56, and 58 on the left-hand side separated by semicolons.

In some cases, you might also want to use a solenoid device position as "must have" second condition for a valid "free" message. A good example is the case when linking two station tracks to one track behind the station. Then seems to be wise just to set the occupation of the track back to free by a contact behind the station only for the track the train is coming from. And this "coming from" is always indicated by the turnout where both station tracks come together.

In moment contact mode clicking on a turnout (as for normal feedback contact number assignment) would result in the question if you want to assign the current feedback contact number to this turnout or if you want to using this turnout as free/off-condition.



For the solenoid device position condition for moment contact release you can **only** use normal turnouts, three-way turnouts and double slip turnouts.

For the solenoid device position condition, you can use up to 9 solenoid devices which are logically AND-connected (all solenoid devices need to have the correct position at the same time for release). This is useful at the end of larger stations where you need to pass several turnouts until reaching the main track to the next station.

Registered condition turnouts can be deleted via "X".

Also power-on/delays for moment contacts are available.

5.7.6 Turnouts with feedback contacts

If you have equipped turnouts with feedback contacts for track occupation, you can also register these contacts the same as for normal track symbols.

For crossings you can assign up to 2 feedback contact numbers per turnout as shown in the picture if this is supported by your crossings. For all other turnouts only one contact number is possible.

In general, you will also use only one feedback contact for crossings which indicates **the occupation of the crossing**. In this case you register the same contact number to both parts of the crossing.



The feedback is meant to be used **for track occupation feedback "free" or "occupied"** and not as switching position feedback (see section 5.6.29).

5.7.7 Length of feedback contacts

In the chapter covering the vehicle database we already informed you about train- and vehicle lengths and according to section 4.4.2 you registered already the vehicle Lengths LoB²⁹ (in cm) for your vehicles.

The counterparts to the lengths of the vehicles are of course the lengths of feedback contacts on your layout.

Now you will ask: *"Do I need to measure the lengths all feedback contact tracks on my layout?"*

The answer is: *"No, only some special ones!"*

Basically you need only the length of the braking and stopping sections before the signal and the track section at the station's platforms to perform mid of platform stop for your trains. And this is possible with just one intelligent train number display.

²⁹ LoB – Length over buffer



But: If you build a new layout then it is advisable to measure all track/feedback contacts length from the beginning on. So you will be prepared if you need them later on.

In the chapter covering the route editor we will talk about the intelligent train number display again. At the moment we want just to discuss the length of each feedback contact.

The registration of the feedback contacts can be done in the track diagram will registering the feedback contacts as well as in the main program when configuring the intelligent train number display.

In the feedback contact window, you can enter the feedback contact length in cm. Depending on your layout situation and your equipment there are several ways to determine the feedback contact length. First of all, you could measure the length with as simple measuring tape or folding yardstick, a second possibility is to use a measurement car and a very good solution is also to calculate the feedback contact lengths using a track planner program (especially if you planned your layout before with such a program).

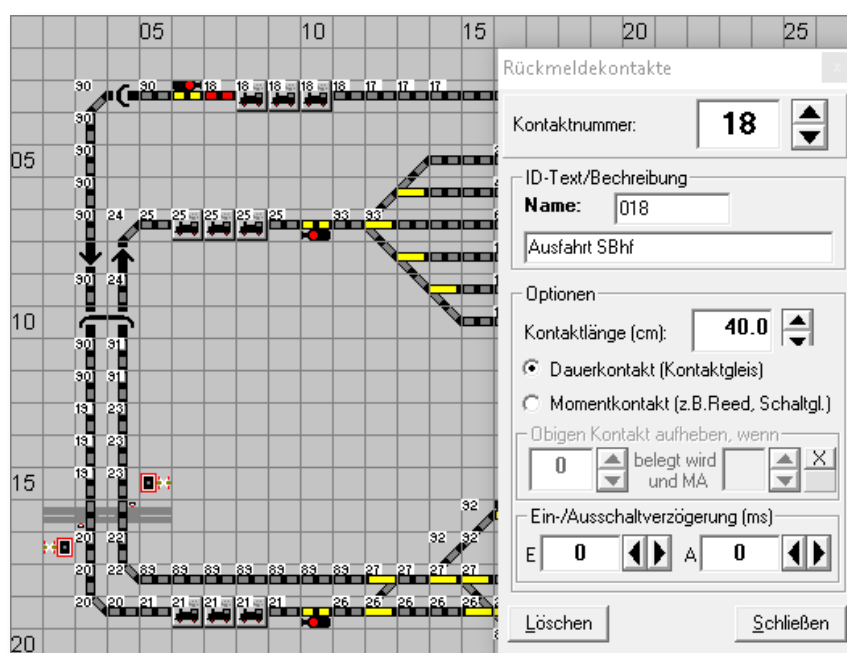


Fig. 5.66 The length of a feedback contact

In the example left we registered 40 cm for contact 18 right of the signal within track 1 of the hidden station.

Next we will register a length of 132 cm for contact as brake section.

Because of this configuration (assuming we do not have any unmonitored section) the length of the station track is 182 cm in total.



In the "intelligent train number display" you will use these feedback contacts later and train will stop on an overall length of 182 cm before the signal very smoothly.

5.7.8 Train number display

The track number display plays an important role in **Win-Digipet**. Later you will place your locomotives or trains on them so that they can run on routes between the train number displays.

A train number display represents a certain feedback contact. Therefore, the same dialogue as explained in the previous sections is used.


You should describe the train number display and assign a unique description. In the example shown in Fig. 5.66 the train number display received the name "018", which corresponds to the number of the feedback contact, and got the description "Exit SBhf".

This name and the description, respectively, will be used later in many program parts. Especially for an error search they are very useful. For example, it is better to say that the route goes from "SBhf_G1" to "ASig_SBhf" instead to stay from contact 001 to contact 020.

The name and description, respectively, will be taken over later for the automatic definition of routes. It is recommended that you do not change the field "Name" and inscribe the individual description of the train number field (max. 24 characters) in the second line. Forbidden characters are rejected accompanied by a corresponding hint.

5.7.9 Train number detection indicator

If you are using train number tracking symbols in your track diagram (see **Fehler! Verweisquelle konnte nicht gefunden werden.**), you have to assign to these symbols indicated by a small "V" also a feedback contact number .

After a click on the symbol  in the toolbar of the track diagram's editor the small "V" disappears in the track diagram, the symbol now looks the same way as a normal piece of rail. Only when moving the mouse over the symbol, a tool tip will tell you, that this symbol is a train number tracking.

Assign a feedback contact number to the train number tracking symbol with a mouse click on it.

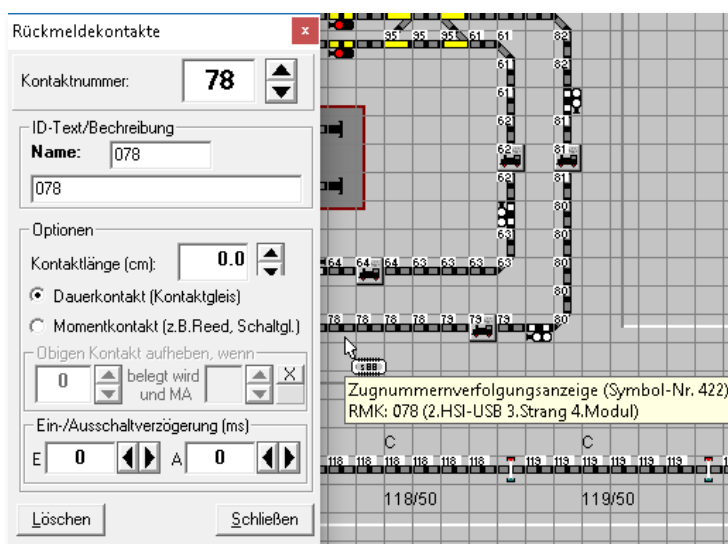


Fig. 5.67 A feedback contact with a train number detection indicator



5.7.10 Recording feedback contacts via feedback monitor

You can also easily select the feedback contact number for the recording of feedback contacts directly from the feedback monitor. For example, this is very useful if you don't remember your exact wiring of feedback contacts and search the corresponding feedback contact number for a track part via the feedback monitor.

First you need to open the test monitor for feedback contacts. Now you can move a feedback-enabled wagon over your layout and have a look at the contact monitor to identify which contact number has to be assigned to the track part where you placed the wagon.

After a click with the middle mouse button (or with the left mouse-button + Shift) on a feedback contact number in the window "Test monitor for feedback decoders" the mouse cursor will change to a hand. Now drag with pressed mouse button the mouse cursor to the white input box in the window "Feedback contacts" (see Fig. 5.68).

Now the feedback contact number is available for normal feedback contact assignment within your track diagram.

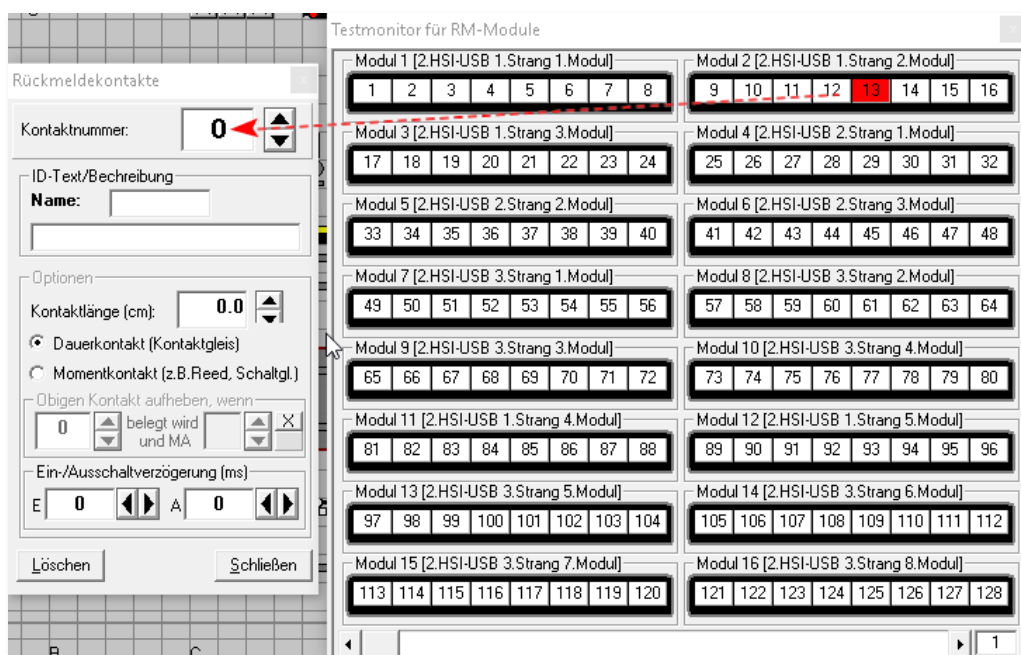



Fig. 5.68 Choosing a feedback contact number using the feedback contact monitor

5.7.11 Print feedback contacts

Using the button  in the toolbar of the track diagram editor you can open the print routine for feedback contacts.

This function offers the possibility to print a list of all feedback contacts or only of feedback contacts of train number displays.



Furthermore, you can choose between all contacts and only those of a digital system, which you may select from a corresponding list.

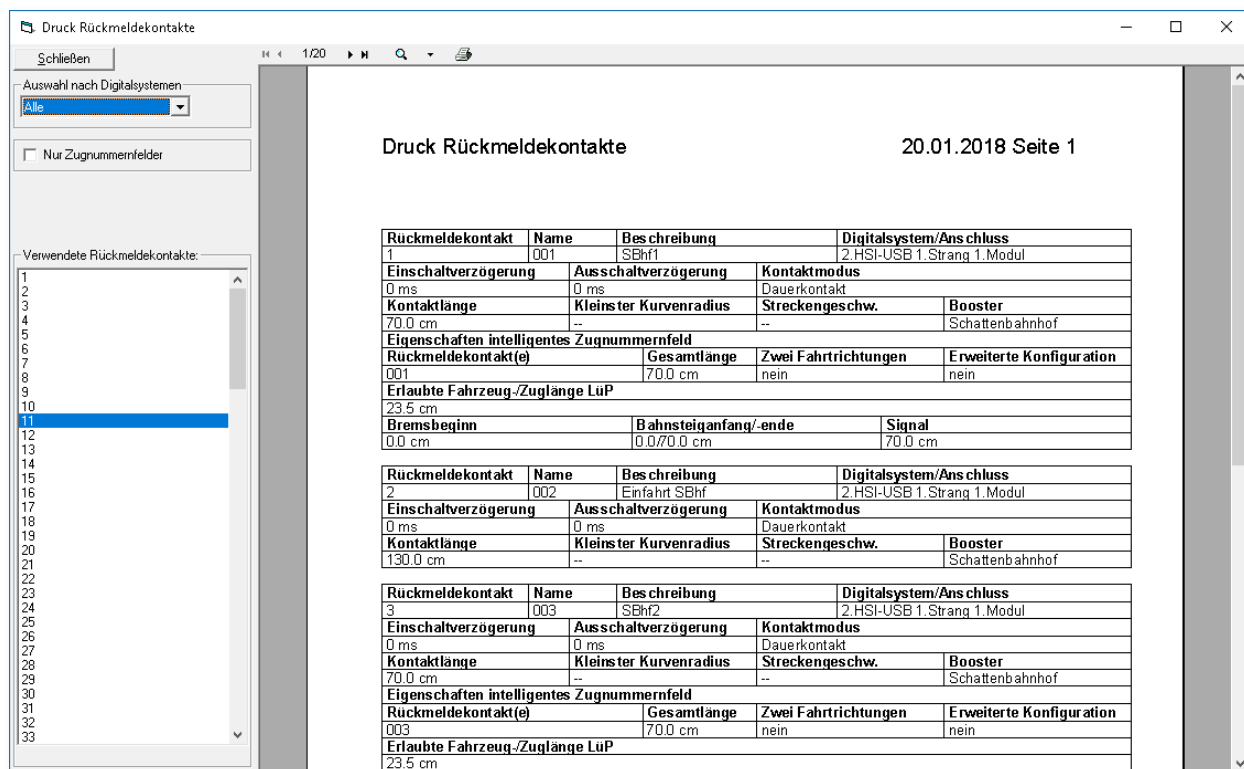


Fig. 5.69 The dialogue „Print feedback contacts”

The left window presents a list of all contacts. The right window contains all relevant information including description of the contacts, as it will appear on the printout.

5.8 The booster management within the track diagram editor

5.8.1 Concept of the booster management

The booster management is one the parts of **Win-Digipet**. Using this part of the program you can reduce the interruption of your model railroad operation by limiting power-off-situations due to short cuts only to smaller affected sections/parts.

Newer booster and digital systems offer the possibility to turn off single booster sections in case of an overload or shortcut and to operate unaffected sections furthermore.

For security reasons only boosters, which turn off automatically in case of a shortcut (without control-signal of the digital system main station), should be used.




In every situation it must be guaranteed, that the booster will reliable turn off without the aid of digital system's main station or the PC in case of a shortcut or an overload situation!

The setup for the booster management in **Win-Digipet 2012.2** is part of the main program as well as of the track diagram editor. In this section we will describe the necessary steps within the track diagram editor.

5.8.2 Assigning solenoid device and feedback contacts

Within the track diagram all solenoid devices and feedback contacts can be assigned to booster areas which have been created in the main program.





This is of course only reasonable for real existing solenoid devices and feedback contacts, because only these are electrically dependent on a booster's power output.

The booster assignment window can be opened using the button "*Booster assignment*"  or the according menu entry the menu <Edit>.

In the dialog all boosters registered in the main program will listed with their according names.

The delete function in this window is similar to the delete function in feedback contact registration window and means "Un-Assignment of solenoid device or feedback contacts from a booster".

In our example we have three booster areas plus the standard entry "*No booster assignment*", which represents all feedback contacts and solenoid devices, which haven't been assigned to a booster:

-  Booster section Hidden Yard (Schattenbahnhof)
-  Booster section Burghausen
-  Booster section Bergheim
-  Booster section Presentation Track (Paradestrecke)

In the following figures we assigned parts of our track diagram to the several boosters.

Booster section Hidden station

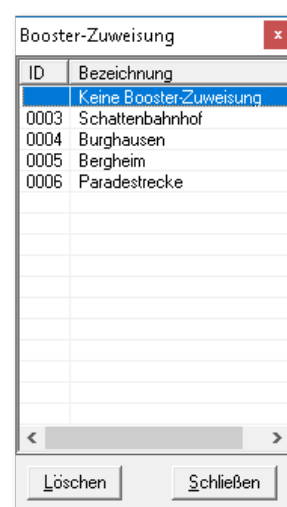


Fig. 5.70 Booster assignment dialogue

in

be



Here all feedback contacts and in reality existing solenoid devices (no virtual ones) are assigned to the "Booster section Hidden yard".

You can assign by clicking on the solenoid devices or track diagram using feedback

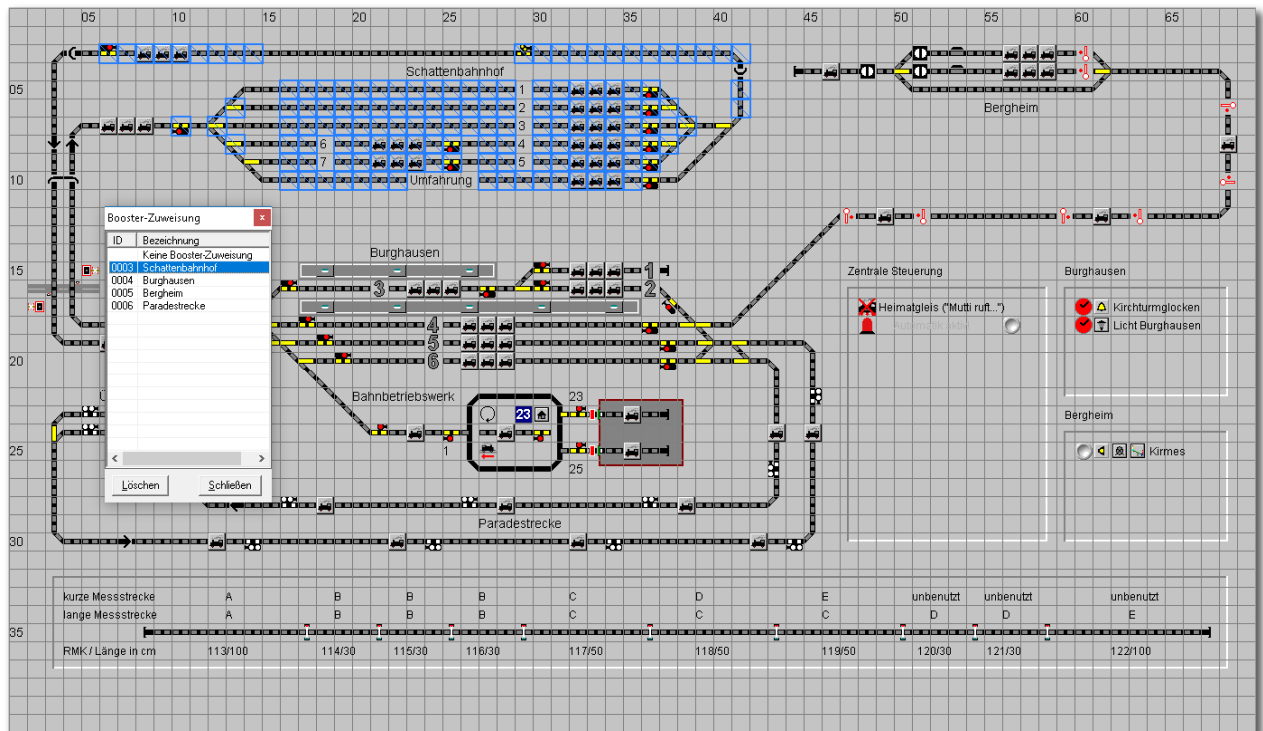


Fig. 5.71 Assignment to booster sections: Hidden yard

contacts in the track diagram one by one or by highlighting a complete area in the track diagram (press left mouse button in the upper left corner of the area, drag a frame over the whole area and then release the mouse button).

All symbols assigned to the current booster are shown with a blue border and blue diagonal line. If you make a single selection of a feedback enabled track symbol each symbol using the same feedback contact number will be automatically assigned to the same booster. Such assignment is done via the contact number. Each symbol can only be assigned to exact one booster.



Booster section Burghausen

Now we assign Booster section "Burghausen". Only the solenoid devices within this station have been assigned to this section.

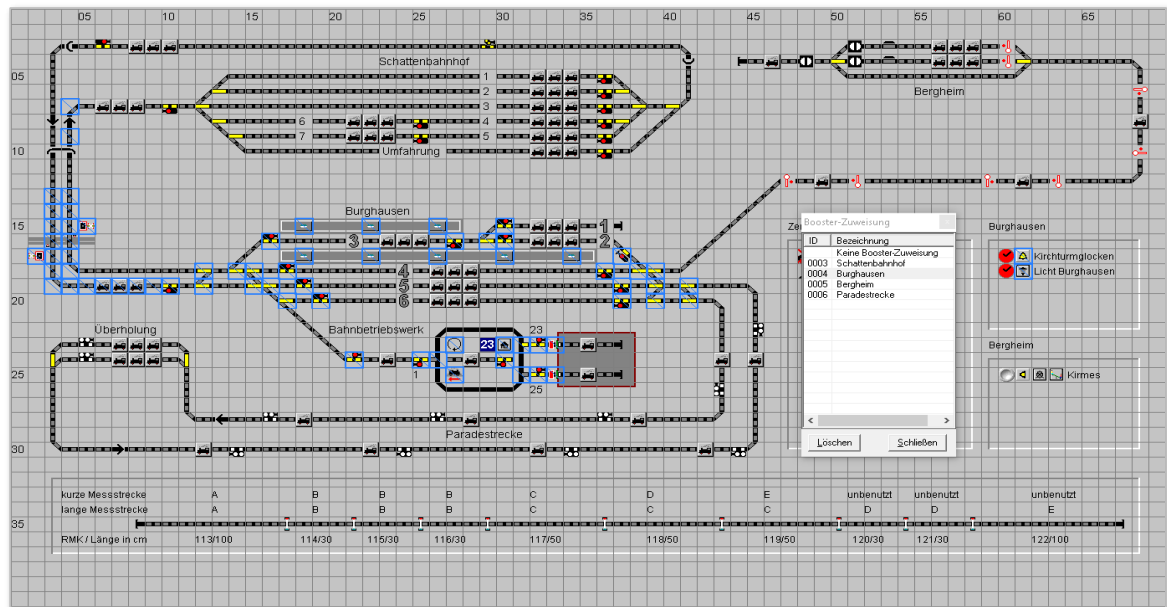


Fig. 5.72 Assignment to booster sections:- Burghausen

Booster section Bergheim

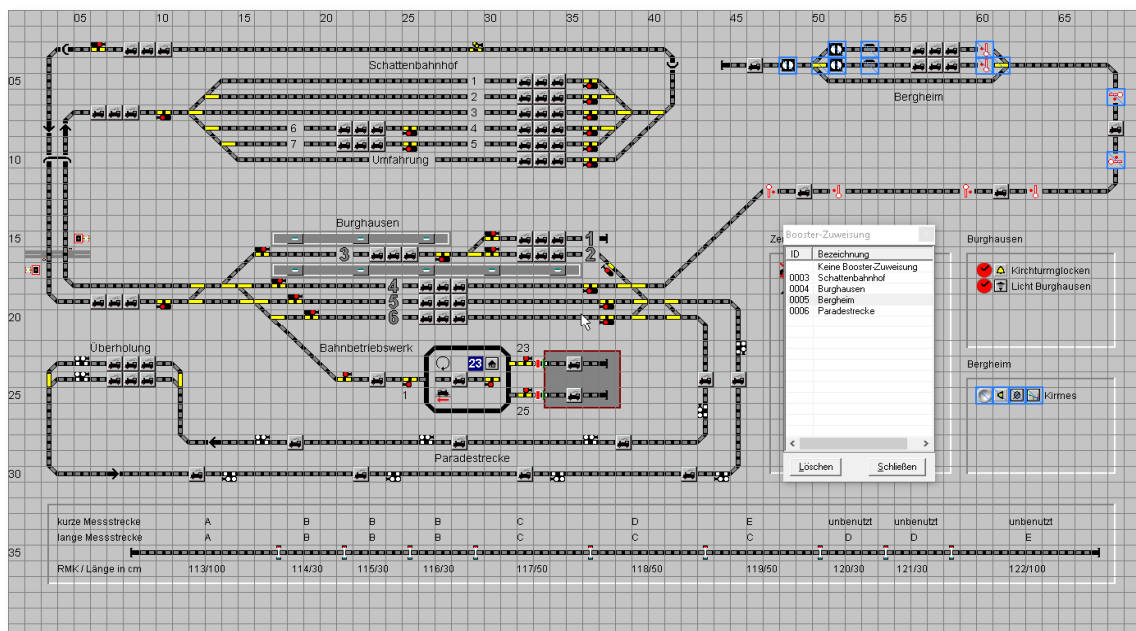


Fig. 5.73 Assignment to booster sections Bergheim



In this example all real existing solenoid devices have been assigned to a separate booster. In such booster areas used only for solenoid devices shortcut situation are very rare. By these kind of splitting it's possible to switch solenoid devices at any time.

A pre-condition for such a configuration is a correct cabling of your solenoid devices and feedback contact modules. It is important to prevent any cross connection of booster outputs. Please take a look at the booster manufacturer's manuals regarding this topic.

No Booster assignment

Our last example now shows all symbols which haven't been assigned to a booster. This is quite normal for all virtual solenoid devices. But you can also identify forgotten track diagram parts. All unassigned parts can be seen by selecting "No booster assignment" in the list.

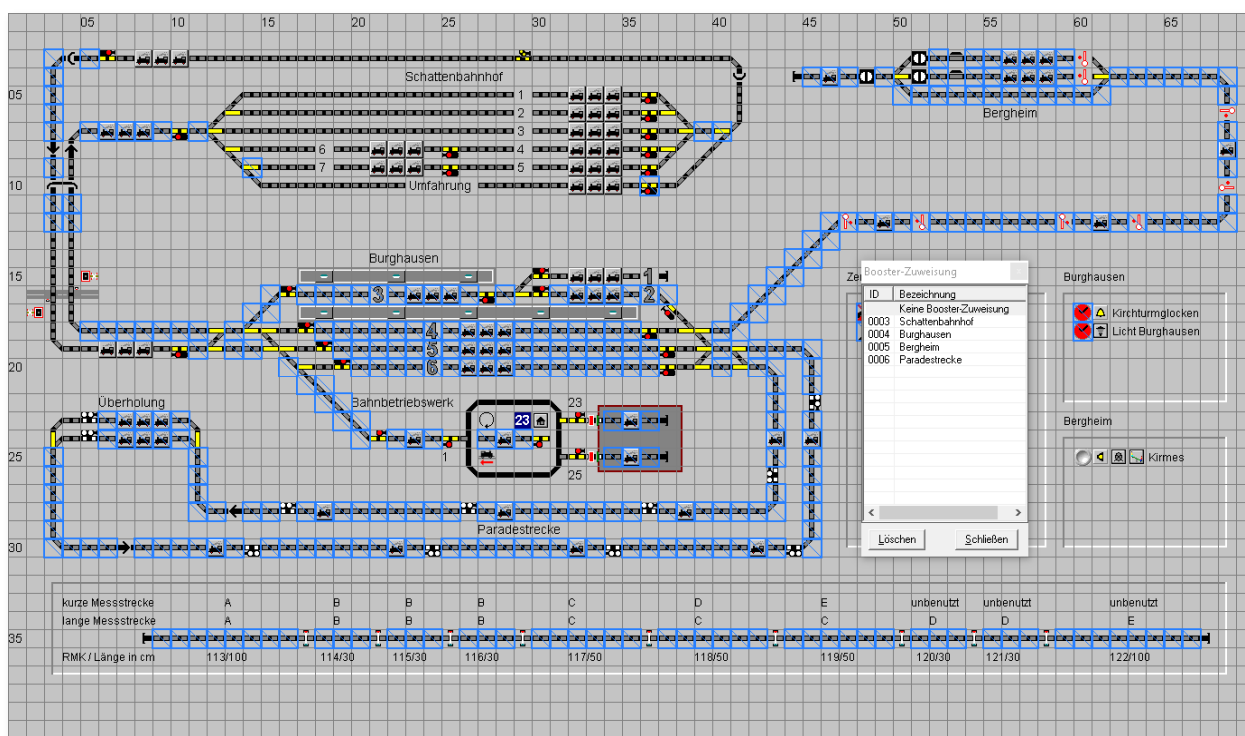


Fig. 5.74 The framed symbols have not been assigned to any booster section



5.9 Logbook of track diagram editor

Win-Digipet records all events and messages occurring during the operations in the logbook, so that the logbook works as an operation protocol. A logbook is available in the main program and in the track diagram editor.

Recording of the logbook must be activated just once in the "System settings - general". Thereafter, the logbook is automatically activated and runs in the background at each start of Win-Digipet, even if you don't see its window on the screen.




The logbook window becomes visible by clicking on the symbol  in the toolbar "Extras".


The logbook window shows all events and messages with a corresponding (real time) timestamp.


All messages are characterised by a graphical symbol so that they can easily be differentiated. Fig. 5.75 shows an example of a logbook. The first lines give some general information such as date, program version and project name.


Thereafter, you see information about the hardware initialisation. This example shows also that the track diagram editor was started within the office version of Win-Digipet so that there is no connection to a digital system. All further messages deal with the activities at the track diagram and possibly related error messages. One should track the messages and remove error sources.

Below the message window there are some symbols. The first symbols

   are self-explaining: printing of the logbook, copying to the clipboard, and deleting of messages.

Using the symbol  enables you to insert some own text into the notebook. A timestamp is automatically added to this text.

The symbol  let the logbook disappear for some seconds and the logbook becomes visible in a transparent way. As soon as you touch the window with the mouse the logbook becomes clearly visible again.

The last symbol  allows you logging all events related to the feedback contacts. It is recommended to use this option only when looking for an error. Otherwise, leave it switched off.

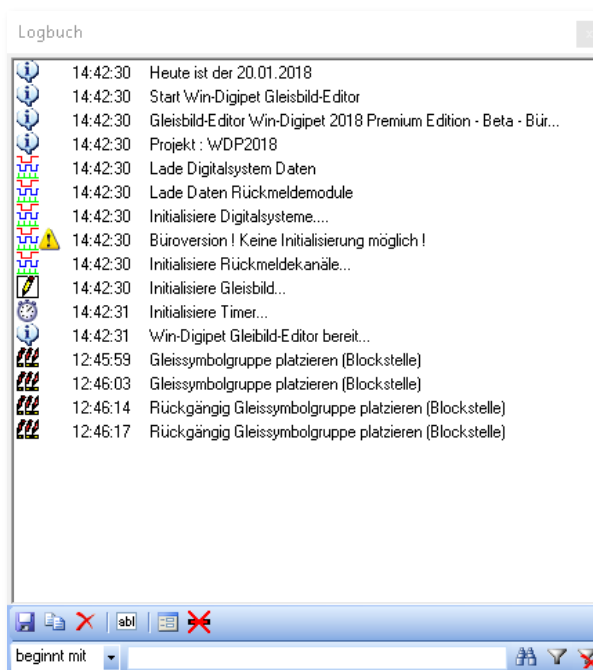


Fig. 5.75 The Logbook of the track diagram editor




At the bottom of the logbook window there is a line for filtering messages, so that you can search for messages containing certain terms. All other messages are no longer shown, until the filter is deleted.



Most of the messages in the logbook are self-explaining. It is important to pay attention to an error message and look for its reason.

5.10 Print, save and delete track diagram

5.10.1 Print track diagram

Select this function via the button  in the toolbar of the track diagram editor. The possible functions are self. On older computer loading the window might last a while.

The window has the same structure as "Print vehicle data base" (see chapter 4).

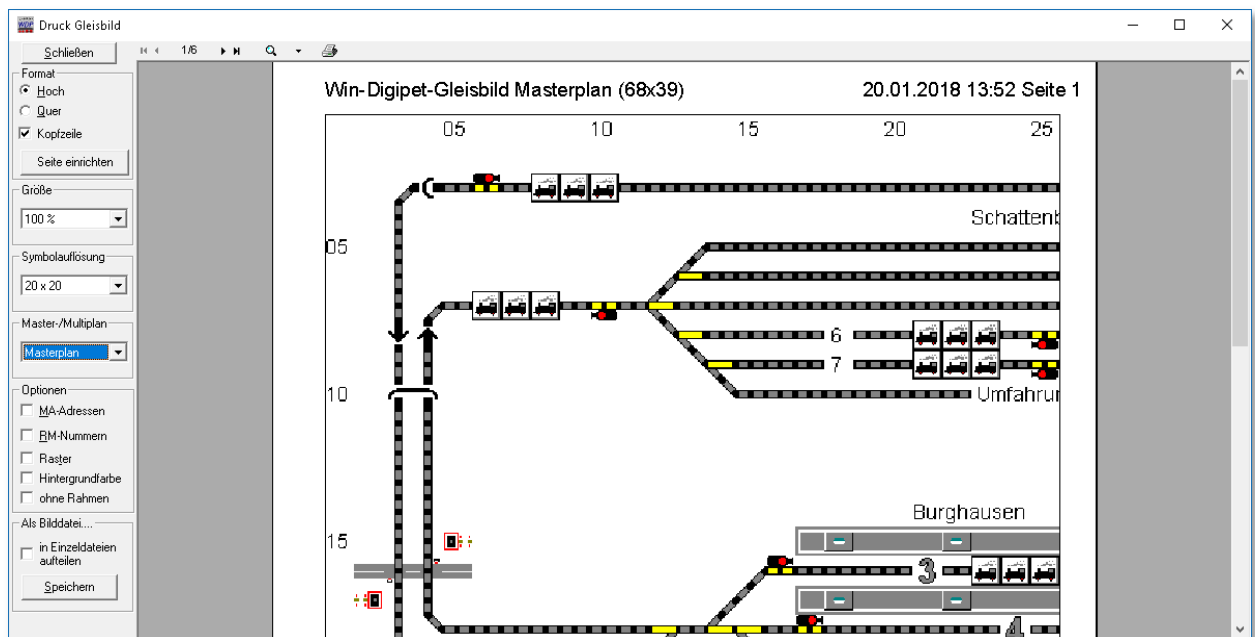


Fig. 5.76 The dialogue for printing the track diagram

The track diagram will be shown with **white background** and also be printed using white background. A print size of 50% is usually sufficient. Possible print sizes are 25%, 33%, 50%, 100%, and 200%.






The choice of a coloured or gray printout must be made using the driver dialogue of your printer, since most drivers ignore the settings made by **Win-Digipet**.



The print function of Win-Digipet processes track symbols sized 28 x 28 to ensure detailed printouts. You may select symbol sizes of 12, 16, 20, or 24, if symbols with such a size are available. If you design your own symbols, take care that their size is according to the size you prefer for the printout.

When clicking on the button "Page setup" you may specify the format of printout (e.g. A3) and further options.

Furthermore, the dialogue offers different options:

-  When choosing the optionen „*Sol. addresses*“ or „*FB-numbers*“ the printout contain the addresses of the solenoid devices and feedback contact numbers.
-  A frame, a grid or a head line can be selected or switched off
-  The background colour can be selected.

You have the choice to save the track diagram on the Hard Disk **as files**, using the space saving PNG- or JPG-format or the non-space saving BMP format

Click within "As files" on a format radio button (*.PNG, *.JPG or *.BMP) followed by '**Save**'.

The track diagram can be saved as a single file or splitted in multiple smaller files according to the print preview.

Using an image processing program of your choice you may manipulate the saved image(s) and print with any scale.



Sometimes the preview of the printout looks suboptimal on the screen, whereas the final printout is ok.

5.10.2 Save Track Diagram

For saving your track diagram click on the button  within the toolbar of the track diagram editor.



It is recommended to perform this function several times during the generation/ modification of a track diagram. This prevents you from losing changes in your track layout.



5.10.3 Deleting track diagram

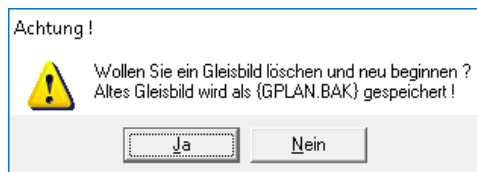



Fig. 5.77 Security question before deleting the track diagram

The complete track diagram can be deleted if you click on the button  in the toolbar.

A secure warning query is issued before the delete process.

After the delete, an empty track diagram will be shown. The old track diagram is saved as **GPLAN.BAK** and could be re-activated by renaming it as **GPLAN.DAT**.



Until **Win-Digipet Pro X.3** the track diagram file was named GBILD.DAT.

5.11 Leaving the track diagram editor

5.11.1 Changing between the track diagram editor and the main program

If you do so, e.g. with Alt-Tab or via the taskbar the following window will be visible...

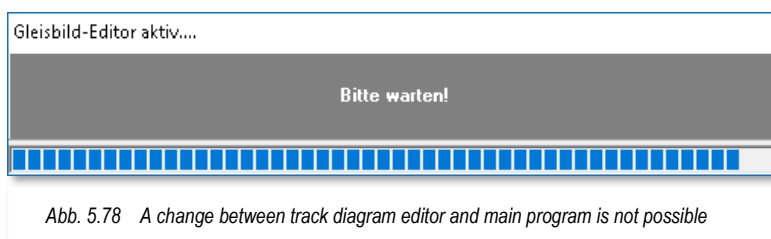




Abb. 5.78 A change between track diagram editor and main program is not possible

...and not be deactivated before you leave the track diagram editor; this is necessary to prevent the loss of data.

This window is not shown, if the track diagram editor was started directly in the start center.

5.11.2 Save data and leaving the track diagram editor

For saving your changes within the track diagram editor click on the symbol  in the toolbar of the editor.

Click on the button  in the toolbar: You are returned to the main program **WIN-DIGIPET** after a security query if you have changed your track layout without saving.

Version 2018
Premium Edition

Chapter 6




6. THE ROUTES

6.1 General

Routes as well as vehicles and the track diagram belong to the three fundamentals of **Win-Digipet** (see Fig. 1.1). Within this chapter we will describe the creation and handling of routes. The descriptions and the example figures are based on the demo project **WDP2018** in most cases.

After selecting the demonstration project within in the Startcenter, start the office version of **Win-Digipet**. A connection to your model railroad layout is not necessary for creating routes.

To reproducing our examples, we suggest to use the simulation mode. Using the simulation mode, you can simulate most features of the program without connection to your model railroad layout. The switching of the solenoid devices as well as the train movements will be shown beside all other program steps.

The simulation mode can be activated using the symbol  in the toolbar of **Win-Digipet**.

A small window labelled "Simulation ON" will be opened. Within this window you can select the speed of the simulated train movements. We suggest using values around 2000 to 3000 msec. 2000 msec. means that every two seconds the simulated train will move from one to the next contact. Also the feedback contact belonging to train number displayed will be shown red (occupied) when a locomotive has been registered to them.

The routes are the basic control element for the operation of your model railroad using **Win-Digipet**, for the manual as well as for automatic operation. You can define an unlimited number of routes. But before creating routes you should decide which routes you need, it is not advisable to connect every point to any other point with a single route.



All following description supposes the usage of the km/h mode. If you updated from a previous version, please convert your routes and data according to section 6.13.

6.2 Train number displays

Train number displays are used to define and show where a locomotive resp. a train is placed on the model railroad layout. We explained already in the track diagram editor chapter, that train number displays can be constructed using a single symbol (small TND) resp. using three symbols (large TND). If you use the same feedback contact for three train number displays placed side by side, these three single symbols will be combined to a large TND in the main program.

In contrast to small TND, which can show only the digital address, large TND will show the locomotives class resp. the train's name. The following example shows you the representation of TNDs in various situations.



Free small train number display



Small occupied TND with digital address and driving direction information of the registered locomotive (train).

The red bars show the direction of the next train movement relative to the track diagram.



Free large train number display



Large occupied TND with locomotive's class and driving direction information of the registered locomotive (train).

The horizontal reds bars indicate the occupied state (derived from the assigned feedback contact) of the TND, the vertical red bar shows the direction of the next train movement relative to the track diagram.



Large occupied TND with train's name and driving direction information of the registered locomotive (train)



Large train number display within a route showing the direction information

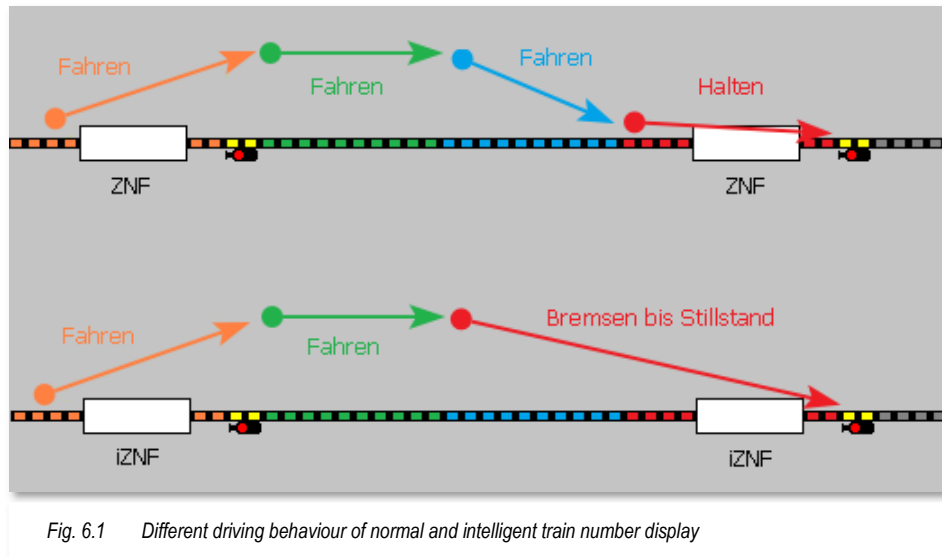


Large train number display within a route showing the direction information

Within the track diagram editor, you already installed train number displays within your track diagram. The train number displays (TND) are essential parts of routes, because they are used to select a route and they are the start and end point of any route. Train numbers will be transported from the Start TND to the Destination TND using routes. **Win-Digipet** distinguishes between so-called normal train number displays and intelligent train number displays.



The difference is explained in the next picture.



normal train number display (TND)

The upper part of the figure shows the driving behaviour of routes between two normal train number displays.

The route shown contains a start-, an itinerary-, a brake- and a destination contact. The itinerary contact is not necessary in any case; we use it just for better understanding.

At the start contact the train accelerates to the defined start speed and keeps this speed in our example on the itinerary contact until reaching the brake contact.

At the brake contact the train will reduce its speed down to the defined brake contact speed.

When reaching the destination contact the train will be stopped.



intelligent train number display (iTND)

The upper part of the figure shows the same route, but in this case an intelligent train number display is used at the destination.

Within an intelligent train number display, the destination contact can be combined with additional contacts which can be used to slow the train with a constant brake deceleration rate down to its stop position at a defined position within the iTND.

The blue contact within the figure is in our example part of the iTND and the brake process starts when reaching the blue contact.



6.2.1 The window Properties Train number display

Within the track diagram of **Win-Digipet** you do not need a new symbol for defining an intelligent train number display. A normal train number display can easily be defined as intelligent train number display.

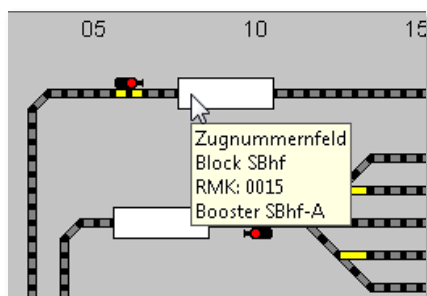


Fig. 6.2 A normal train number display within the track diagram

tooltips.

By a click with the right mouse display a context menu will be select <Properties train mouse button.

In our example you can see a simple train number display using feedback contact 015.

Within the tooltip you can see some basic information regarding the train number display. You can activate these tooltips using the menu <Options> within the main

program. Beside the TND's name you can also see the assigned booster section. While your future usage of the program you will also discover additional information within these

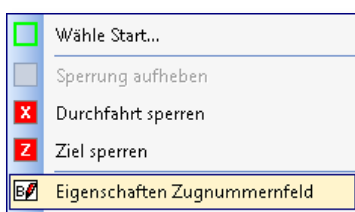


Fig. 6.3 Context menu of a train number display

button on the train number display opened. Within the menu number display> with the left

Now the configuration dialog for the configuration of the (intelligent) train number display will appear on the screen and the assigned feedback contact will be shown.

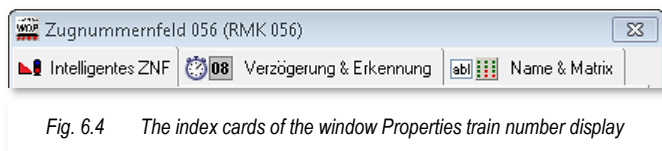


Fig. 6.4 The index cards of the window Properties train number display

system assignment to this train number display as well as for the editing of the TND's name and defined matrix.

Beside the index card for the intelligent train number display, you will also see index card for the configuration of delays and train number detection

6.2.2 The intelligent train number display

If you have already assigned the contact lengths to the feedback contacts within the track diagram editor according to section 5.7.2 this value will be shown in the window for the main contact of the intelligent train number display. This contact can also not be removed from the list, because it is a mandatory part of the iTND. At the beginning even its length cannot be edited.

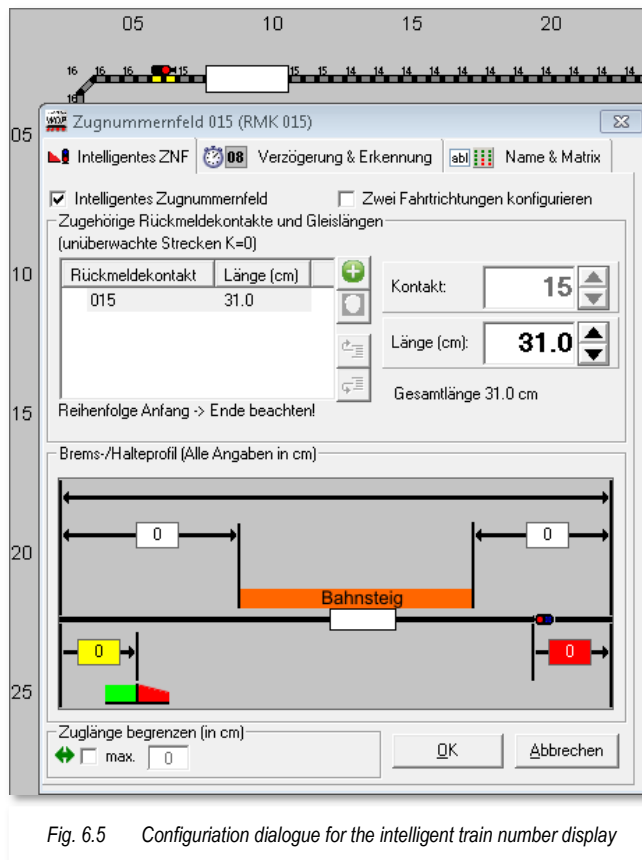


Fig. 6.5 Configuration dialogue for the intelligent train number display

Only after checking "*Intelligent train number display*", as shown in Fig. 6.5 the value can be changed as well as all other settings.

If you did not define a track length for the contact 015 in the track diagram editor, the default length of 0.0 will be shown and can be changed here. In our example the length of 31.0 cm has already been assigned.

The length in cm can also be entered with one digit behind the comma; you can enter as decimal separator a comma as well as a dot. For the displayed values this will automatically be changed to a dot. Using the spin buttons beside the input box you can change the value in steps of 1 cm up and down.

On the index card "*intelligent train number display*" can enter all values and settings which will be used to calculate the stop position when stopping using the intelligent train number display.

We distinguish basically between **stop at a destination signal** e.g. on a presentation track or in the hidden station and the **stop at a platform** in a station. Here the train can stop at the beginning (with the train's end), in the mid or at the end (with the train's head) of the platform (all direction according to the current direction of travel). Later in this chapter you be told how to stop the train at individually defined points.

The figure in the lower part of the window and its input boxes will be explained in the following sub-chapters.

6.2.3 The intelligent train number display with stop at signal

T

The "*intelligent train number display*" is activated by ticking the corresponding checkbox shown as in Fig. 6.5. This example demonstrates the stop at signal of your show route.

You should think about a wise length of the tracks your high speed train will use for braking. In H0 a length of 200 cm is a good value. If you use very high or very low speeds, you may reduce or increase this length. You should make same tests to determine a good length for your situation.

Until now the intelligent train number display does only contain contact 018 with a length of 40.0 cm. In our example we want to add contact 017 to this intelligent train number

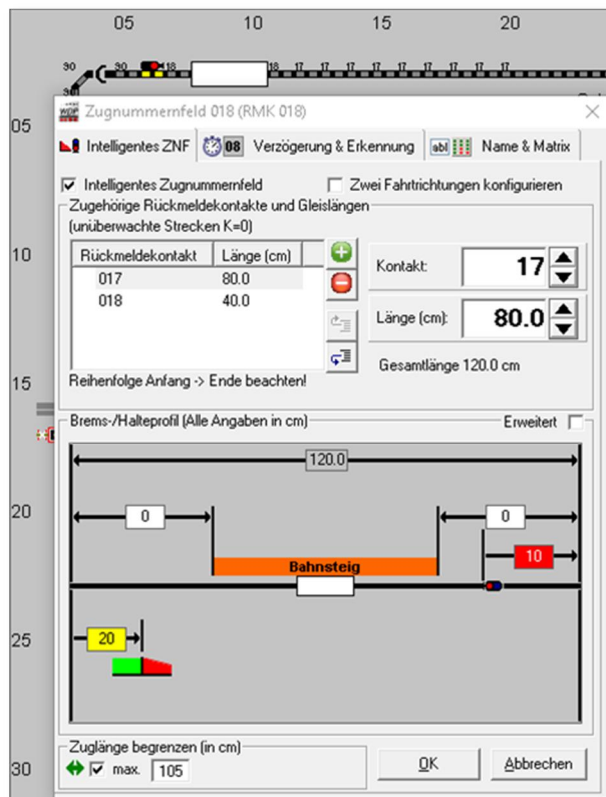



Fig. 6.6 An intelligent train number display containing two contacts

display. This contact has a length of 80.0 cm. Therefore, click with the mouse on the button  and enter the feedback contact number 017 using the keyboard or the spin buttons. If the contact's length has already been defined in the track diagram editor it will be automatically appear.

The total length of the iTND is 120 cm created by contacts 018 and 017 and will automatically be shown in the window.



When registering the feedback contacts for the intelligent train number display please remember to enter them in correct order, i.e the order the train will travel along the contacts.

You can correct the contact order using the buttons right of the contact list.

Without any further input the train would now stop at the very end of the iTND (end of contact 018). In our example we want the train to stop 10cm before the end of the iTND. We assume, that this is the position of the signal. We can achieve this configuration by entering a value of 10 to the red input box in the lower right corner of figure.

Using this functionality, you can define the exact stop position within the iTND and you do not need to place the signals exactly at the border of feedback contacts.

Using this setting the length of the brake distance will be reduced by 10cm to 110 cm. If you would travel with a train longer than 110cm to this iTND its end would last into the previous track sections. You can eliminate this risk by checking "Limit length of train..".

This length limit will be taken into account within routes and the automatic.

If you discover, that the deceleration phase on the iTND starts too early (for example, if you reach the iTND with low speeds), you can delay the beginning of the brake process.



By entering a value of 20 in the yellow box in the lower left corner of the figure you will achieve, that the train will not start its brake process immediately when reaching contact 017, but 20cm later on this contact. Now the deceleration will start later and the deceleration rate will automatically be higher.

We suggest making experiments with some trains. Of course, you need to measure the trains/locomotive speeds before according to the vehicle database chapter.

After pressing **OK** the selected values will be stored in the file **ZNFELDER.DAT** within the project.

6.2.4 The intelligent train number display with stop at the platform

In our previous example we explained the iTND configuration for a block signal which is used for example between two stations.

In the next example we want to use the intelligent train number display within a station. The train number display should be used in both directions. This means we do need only one train number display even for two-direction operation. We want to use it for stopping

the train RE 1 TW at the midst of the platform 3 in the station Burghausen. In most cases the platform is shorter than the complete station track.



Fig. 6.7 The train stops at the midst of the platform

The following values have been measured...

- 🚂 The overall length of FB contact 28 and FB contact 29 between the two signal is 140 cm
- 🚂 The platform starts 35 cm after beginning of FB contact 28 and ends 10 cm before the end of feedback of FB contact 29 (seen left to right)
- 🚂 The signal on the left (West) side (ASig Burghausen 3 West) is placed 10 cm before the platform
- 🚂 The signal of the right (East) side (ASig Burghausen 3 Ost) is placed at the begin of the platform

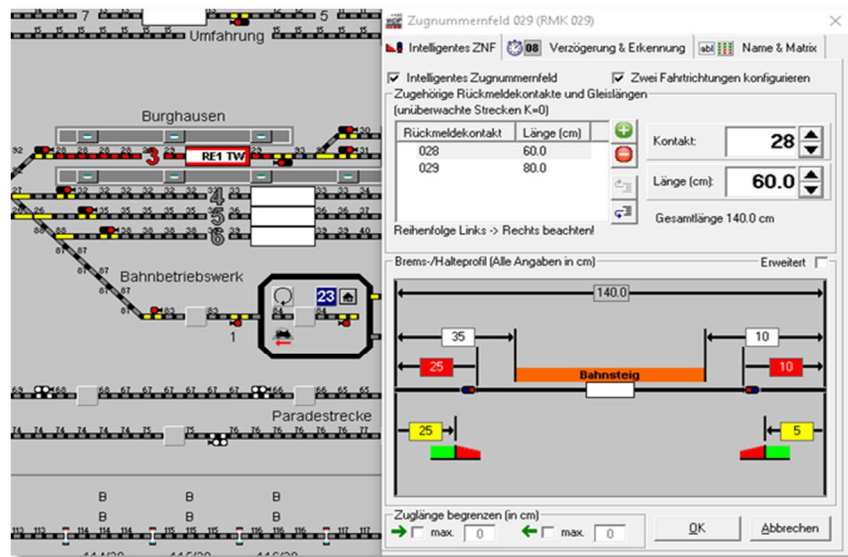


Fig. 6.8 The configuration for the two direction intelligent train number display with contact 056

The correct configuration of this iTND (here 029) is shown in Fig. 6.8.

You can see that the total length of the intelligent train number display 029 containing feedback contacts 028 & 029 has an overall length of 140 cm. For the two direction operation it is important to set the distance to the signals for both directions. And for the platform dependent stop position you need to enter the distances of the platform to the tracks ends.



For this two direction intelligent train number displays is important to register the contacts for horizontal iTNDs in the order left to right and top to bottom for vertical iTNDs.

This order is **mandatory** and will also be shown in the dialogue as hint.

You can even register tracks sections to the iTND which are not monitored by feedback contacts (e.g. turnouts). These sections have to be registered at the correct position with the fictive contact number 000 and their length.



An unmonitored part of the intelligent train number display (contact 000) must never be used at the **beginning** of the list, because this contact will never cause an occupation message. This type of contacts makes only sense in the mid of the list, then it can be used for time-distance calculations.



The choice, whether the train shall stop at the signal, in the mid, at the beginning or at the end of the platform will be made in the route editor later on or in the automatic operation configurations.

6.2.5 Limiting the train length LoB for an intelligent train number display

In our next example we want to limit the access to our intelligent train number display to trains with are such short, that their end will not overlap to the previous contacts when stopping in the iTND. For this example, we changed the configuration from section 6.2.4 slightly by moving the left (West) signal also to the end of the platform.

To limit the train lengths, you need to activate the according options in the lower left corner of the window. You can select the limit for one or also for both directions. The length values

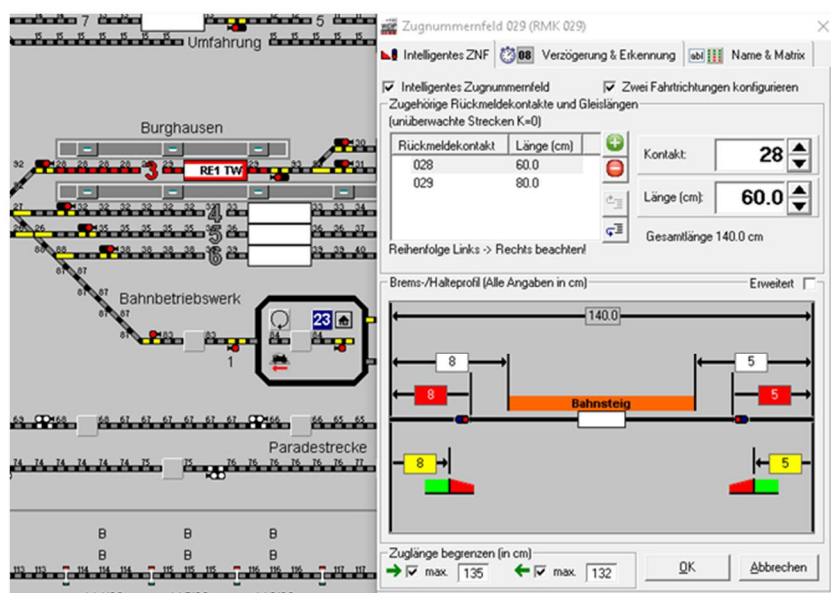


Fig. 6.9 The maximum train length per driving direction

will be calculated automatically by **Win-Digipet** to the maximum possible values. But you can also change these values.

Using an overall iTND length of 140 cm we can allow different train lengths for both directions. In the direction right to left the latest possible stop position is the left signal which placed 8 cm before the end of the track (seen right to left). Because of this we need to subtract this signal position from the total length and achieve a maximum possible LoB for the direction right to left of 132 cm. In the opposite direction left to right the distance between the signal and the track end is only 5 cm, so that we can use trains with a length of up to 135 cm.



A potential matrix regulation regarding train lengths (category Length(X)) will be overruled by these settings here. These settings will be used every time a train wants to use this train number display as destination.

6.2.6 Extended settings of the intelligent train number display

The dialogue configuring the intelligent train number display includes further options.

To access these options tick the checkbox “Extendend”. The changes of the display shown in Fig. 6.10 is dependent, whether you have defined an intelligent train number display for one or two directions. Here is maximum changes or presented.

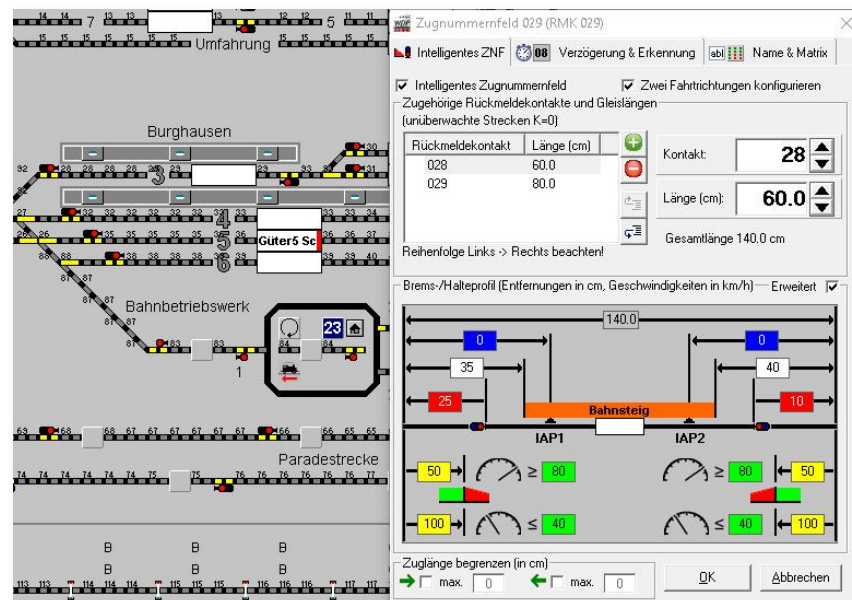


Fig. 6.10 Extended settings of the intelligent train number display

6.2.6.1 Individual stop points (IAP)

For each intelligent train number display up to two individual stop points (IAP) can be defined. For example, at the IAPs you can define the position of uncouplers. Using the settings for routes, which will be discussed later in this chapter, you can determine train stops at freely definable points. If you want to disconnect the train, e.g. at the third waggon, who can construct the route in such a way that the coupling of the third waggon is placed just over the uncoupler.

For this purpose, enter the distances of the IAPs - measured from the track beginning and the track end, respectively, - into the dark blue windows of the dialogue (see Fig. 6.10).



6.2.6.2 Individual braking distance

In the extended part of the dialogue you can define the start of braking for fast and slow trains individually. Maybe you want to stop a railbus at the long platform at which IC-trains stop usually. In this case it is more realistic, that the slow train breaks earlier than the IC with its 8 waggons.

In this case the brake speed must be different at the brake point. Enter the distances for the breakpoints into the yellow windows (see Fig. 6.10). The green windows show the thresholds for the brake speeds.

Example:

Brake point (fast) = 50 cm with threshold brake speed (fast) 80 km/h

Brake point (slow) = 100 cm with threshold brake speed (slow) 40 km/h

Using these values all trains reaching the intelligent train number display with a speed of 80 km/h or more brake after 50 cm, whereas all trains with a speed of 40 km/h or less break after 100 cm. For all other trains the appropriate interim value is determined.

Thus, a train with 60 km/h brakes after 75 cm, a train with 70 km/h brakes after 62.5 cm, and the train was 50 km/h brakes after 87.5 cm. These are just examples. All interim values are calculated automatically by **Win-Digipet**.

6.2.7 Adding/deleting/moving contacts within the intelligent train number display

You can edit the intelligent train number display's contacts at any time. By this you can add or remove contacts from the contact list of the intelligent train number display.

The program offers the following buttons for editing:



Add a contact



Remove a contact



Move a contact in the list up



Move a contact in the list down

Please remember always to register the contacts in the correct order for the intelligent train number display. The correct order logic is shown as hint text below the contact list.

Using the two buttons for moving contacts up and down you can easily sort the contacts within the list.




6.2.8 *Intelligent train number display and occupancy detection without interrupt*

In the range of the whole intelligent train number display we suggest to install uninterrupted occupancy detection, this will give you best results. Especially users with 2-rail power system should equip their tracks and vehicles accordingly.

This applies also to feedback monitoring using light barriers or other method for track occupation detection.

6.2.9 *Deactivating an intelligent train number display*

For the complete deactivation of an intelligent train number display you have to reopen the train number display dialog. Afterwards you have to remove all contacts from the intelligent train number display except the train display contact number itself (compare Fig. 6.9: feedback contact 029) using the button .

After removing all contacts, you can uncheck the checkbox "Intelligent train number display".

6.2.10 *Index card Delay & Detection Switch on/off delay and train number detection*

On this index card you can easily change the on- and off-delay for a feedback contact without the need to open the track diagram editor.

If you registered such delays already in the track diagram editor, you can edit these values here.

We suggest making the basic settings in the track diagram editor and performing slighter changes here.

At a intelligent train number display switch-on delays are not allowed. The check routine will produce an error message.

A train number detection system which can be used to transfer automatically the name/number of new detected vehicles e.g. via RailCom/Lissy/Helmo to a train number display. The address etc. of a detector belonging to a train number display can be configured here.

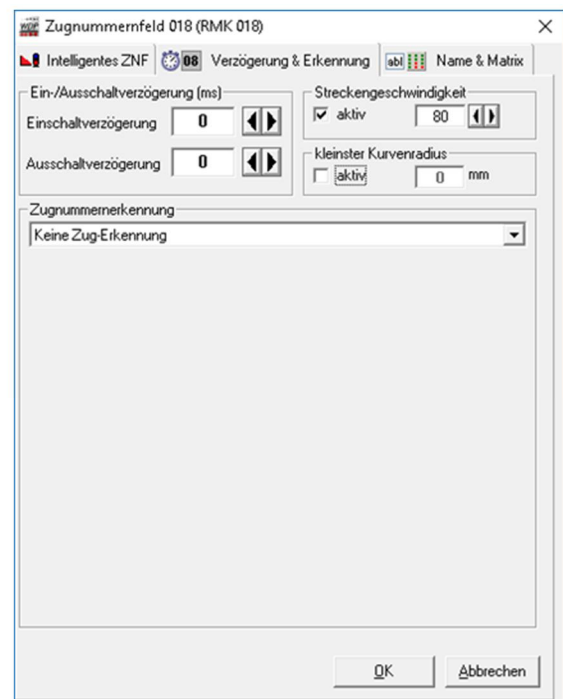


Fig. 6.11 Configuration of on-/off-delays as well as detection systems



6.2.11 Index card Delay & Detection-Speed and curve radius

Using this index card, you can assign a speed to a feedback contact. Later this speed will be applied for the definition of routes.

With this index card you can also define a curve radius for a feedback contact (track section). In the chapter describing the vehicle database you have already been told how to enter the smallest allowable curve radius for the vehicle. During the train operation this value will be checked so that vehicles which are not compatible with this value are not allowed on this track section.

6.2.12 Index card Name & Matrix

On this index card you can easily change the name and description of a train number display without the need to open the track diagram editor. You can also set a matrix which will be used when defining new routes to this TND.

If you registered such names/descriptions already in the track diagram editor, you can edit these values here.

A matrix defines which types of locomotives/trains/waggon may travel to a train number display or not.

Lokomotiv-Typ	Wagen-Typ	Länge (X)	Epoche
Schleppender	IC/ICE	Einzelfahrzeug	Epoche I
Tender-Dampf	IC Wendezug	Extrem kurz	Epoche II
E-Lok	Interregio	Sehr kurz	Epoche III
Diesellok	IR Wendezug	Kurz	Epoche IV
Dampf-Triebw.	Regionalbahn	Mittel	Epoche V
Diesel-Triebw.	RB Wendezug	Halblang	Epoche VI
Elektro-Triebw.	S-Bahn	Lang	??
Dampf-Rangier	Güter	Sehr lang	??
Diesel-Rangier	Zubringer	Extrem lang	??
Auto	Bauzug	Mega lang	??

Fig. 6.12 Configuration of the name and matrix of a TND



The matrix values configured at this place will be used as default value for new routes created to this edited train number display. If you change the settings here later on you need to adapt the routes which already use this train number display as destination manually.

If you click on the bottom radio-button, the settings defined here are considered as fixed destination matrix for the train number display, i.e. this matrix is valid for all routes ending at this train number display.



The matrix settings for locomotives can be changed in the vehicle editor/database and the matrix settings for trains in the train composition window.

The different possibility to use the matrix settings will reappear in different parts of this manual and we don't want to describe them here in detail.

Before you make matrix settings you should inform yourself about the consequences and develop an operation concept for railroad layout.






6.2.13 The window Properties feedback contact

Within the last sub-chapters, we described the configuration dialogue for train number displays.

A similar dialogue is available for normal feedback contacts. If you click with the right mouse button on a feedback-capable track symbol which has been assigned to a feedback contact and is not part of a train number display you can select in the context menu "*Properties feedback contact*". Within the dialogue you can set the on- and off-delay and the train detection functionality according to the one for train number displays (see section 6.2.10). For the train number detection, you can decide, if you want to transfer the derived information to a train number display next to this feedback contact.

6.3 Recording routes

For route creation without any problem using the route wizard or the route navigator you should remember the following points.




-  all feedback contacts have to be registered in your track diagram
-  the train number displays should also be assigned to feedback contact numbers and you have registered a meaningful name for each of you train number displays
-  all solenoid devices (turnouts/signals) should have a virtual or physical solenoid device address
-  all jump labels for track interruptions caused by texts etc. should be set
-  in the system settings, default values for start- and braking speed should have been set.

You should not start with the route creation for a specific section of your layout before you have made the according settings in the system settings and the track diagram editor.



The routes in **Win-Digipet** are stored in the so called route database. This database with your routes of your project is settled in the project directory and is named WDRUTES.MDB.

By principle the routes are created and maintained within the routes editor. You can create routes in the routes editor using the following options:

-  Using the route wizard
-  Using the semi-automatic recording of routes
-  Using the manual recording of routes

An additional very easy way to create routes can be used immediately after creating your track diagram:

-  The route navigator

We'll start our descriptions with the route navigator.

6.4 The route navigator

The route navigator is intended for the creation of temporary routes or in other words to drive your locomotives or trains from one place on your layout without the need to use previously defined routes or tours.

In our following example we want to travel with the goods train (Güter5 Sc) from track 5 in Burghausen to the upper track of the pass by section. The train number has already been registered to train number display 036 and we have started the simulation (see section 6.1).

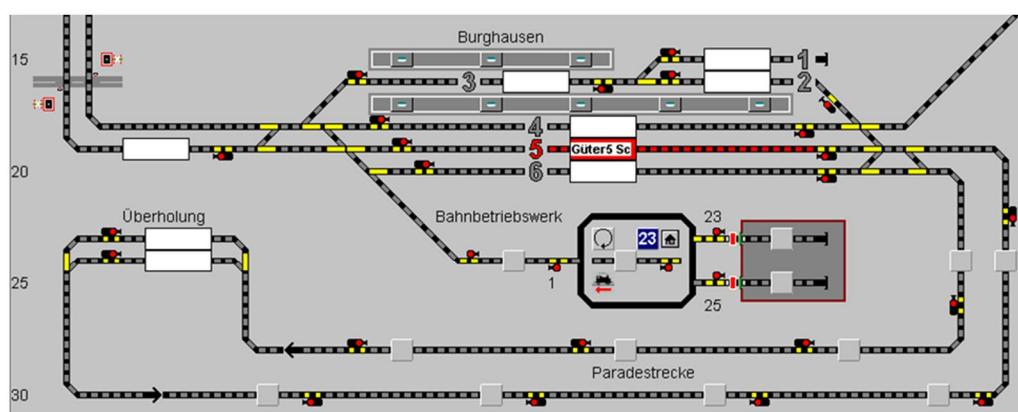


Fig. 6.13 The goods train should be driven from Burghausen to hidden yard B



If the train number has not been registered in the train number display until now, drag the locomotive BR 132 from the locomotive bar with drag&drop with the right mouse button into the empty train number display in track 5 of Burghausen.

After you have dragged the locomotive into the train number display, the program will ask you to determine the physical direction of the train on the layout. In our example we select, that the train will drive to the right direction (see Fig. 6.14).

The according feedback contact can be activated by clicking on a track symbol which belongs to this feedback contact with the left mouse button.

The track symbols before and behind the train number display with the same feedback contact number will be coloured red and the train number display will get a red bar at the top and the bottom. This indicates, that the assigned feedback contact is occupied at the moment. Also the driving direction of the train will be indicated by a red bar (closed at the right side) of the train number display (see Fig. 6.13).

The easiest way to execute a route can be done via the middle mouse button. A second possibility is the usage of the right mouse button together with the context menu as we already explained in the quick start chapter of **Win-Digipet**.

We assume you owe a mouse with middle mouse button. Now click with the middle mouse button on the start train number display containing the train number Güter5 Sc and afterwards within 10 seconds with the middle mouse button on the destination train number display at the upper track of the pass by section.

Now the start-destination window will open with the message, that no routes or tours have been found for the desired way. This is of course correct because we haven't defined any routes for this way.



Fig. 6.14 Selection of the train's direction

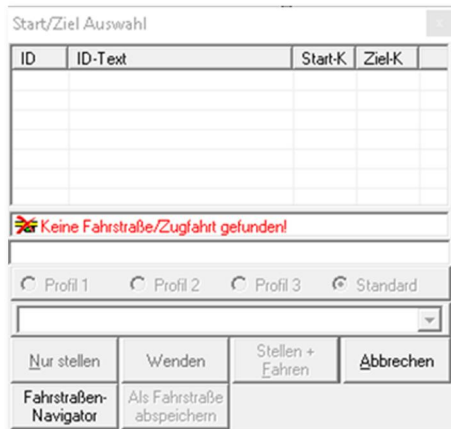


Fig. 6.15 The start-destination selection hasn't found a route

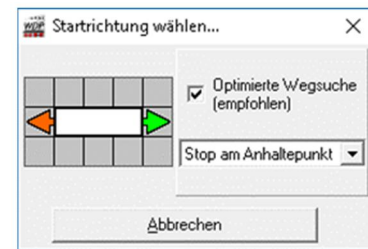


Fig. 6.16 The selection of the start direction

Now click on the button **'Route navigator'**. A new window will open asking you for the start direction for your train (see Fig. 6.16). We want to travel to the right, so move the mouse over the right arrow (the arrow will be coloured green).

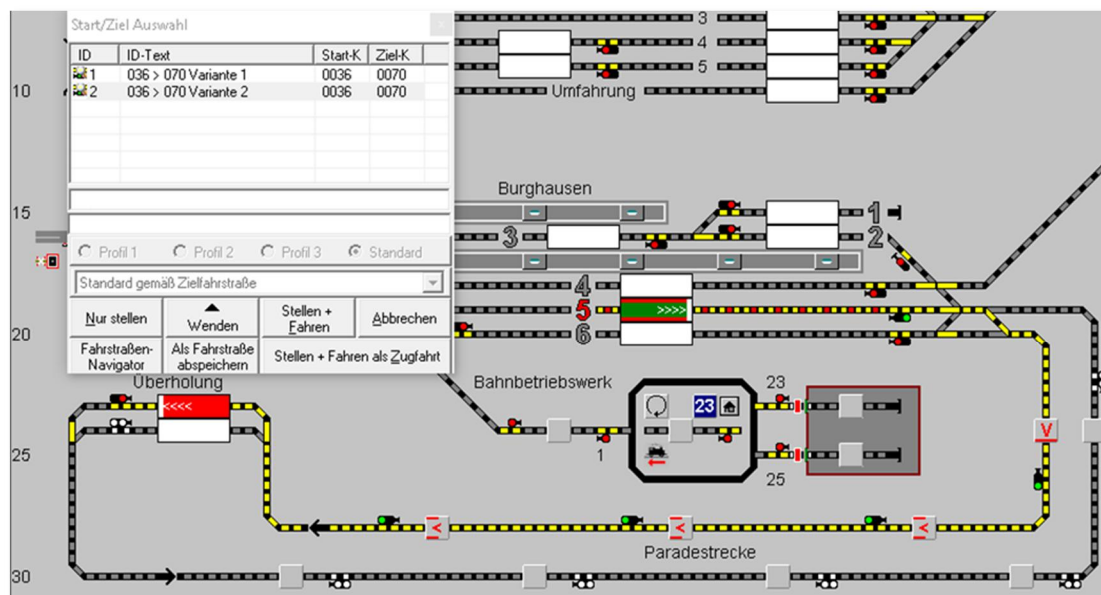


Fig. 6.17 The Route navigator offers two different possibilities

Now click with the left mouse button onto the green arrow, the start train number display will now be coloured green, the destination train number display red, one way between the start and destination will be shown in yellow in the track diagram and will be listed in the "Start/Destination window" as Variant 1. Both train number displays will show direction information using small arrows.

The Variant 1 is the way we want to use to reach our destination in the pass by section.



Select this route and click the button '**Switch + Drive**'.

The start-destination window will now disappear, the route will be switched and you can now follow the train on its virtual way from its start to its destination

The journey to the following train number display of track B1 can be performed the same way.

In our small example, the situation was quite easy until now, because no track on the selected way was occupied until now. If the destination train number display is occupied, the button '**Switch + Drive**' would be disabled and the messages "*Locked*" and "*Loco on destination*" would inform you. You can only take a decision between '**Abort**' and '**Switch + Drive as tour**'. This situation is shown this in Fig. 6.18 by dragging another locomotive to the destination train number display.

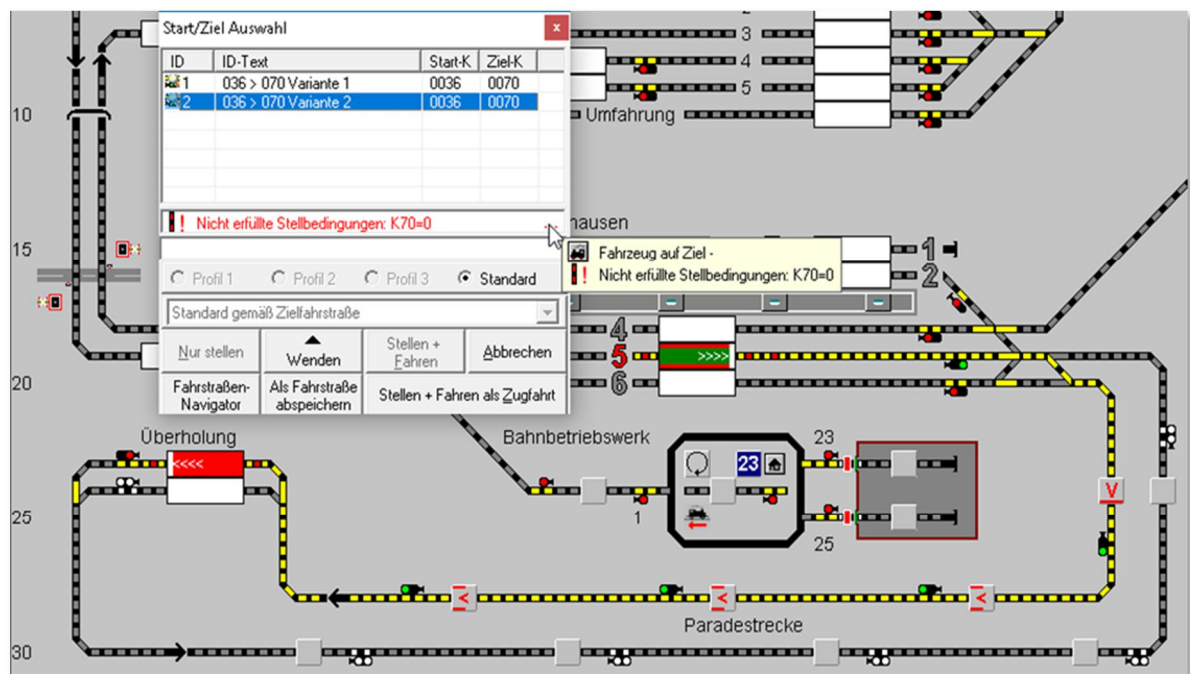


Fig. 6.18 The destination train number display is occupied at the moment.

In this case, the start/destination dialogue presents one or more error messages. Fig. 6.18 indicates a vehicle on the destination train number display. The second message at the tool-tip means that the contact 070 is not free. This is just one condition for creating a route. As soon as the mouse touches the three red dots the tool-tip is opened.

Please select '**Switch + Drive as tour**'. Immediately the tour event inspector will open showing one route entry for Güter5 Sc. Furthermore, the train number in the start train number display will get a green background. However, the train cannot start, since the destination contact is blocked as indicated by the tour event inspector



To make the next journey of Güter5 Sc possible you must remove train IC5 TW from the upper track of the pass by section.

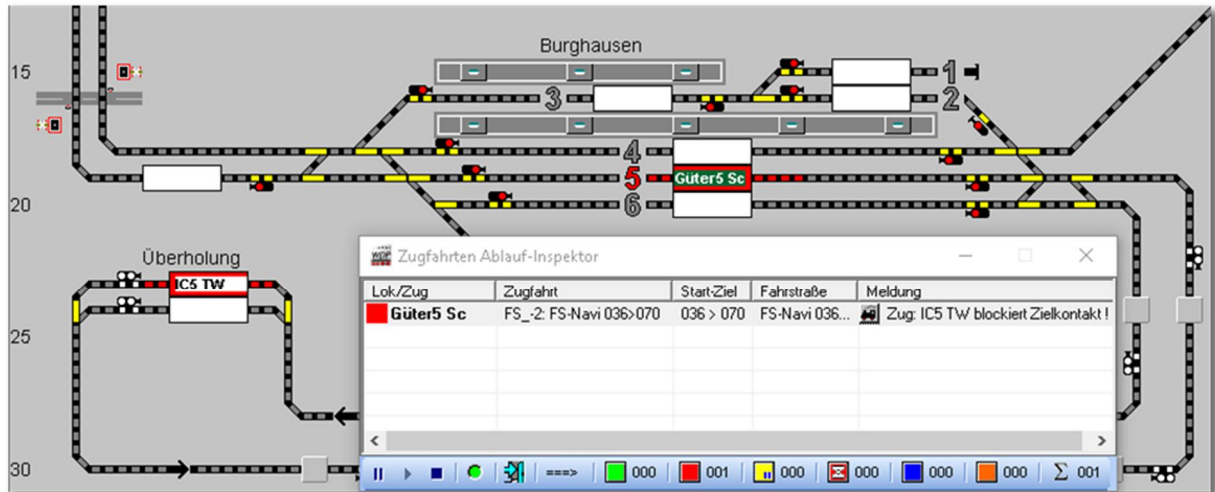


Fig. 6.19 The tour event inspector lists the blocked destination train number display

For this purpose, click with the middle mouse button onto the start train number display showing train IC5 TW and a second time on the train number display at the next block signal.

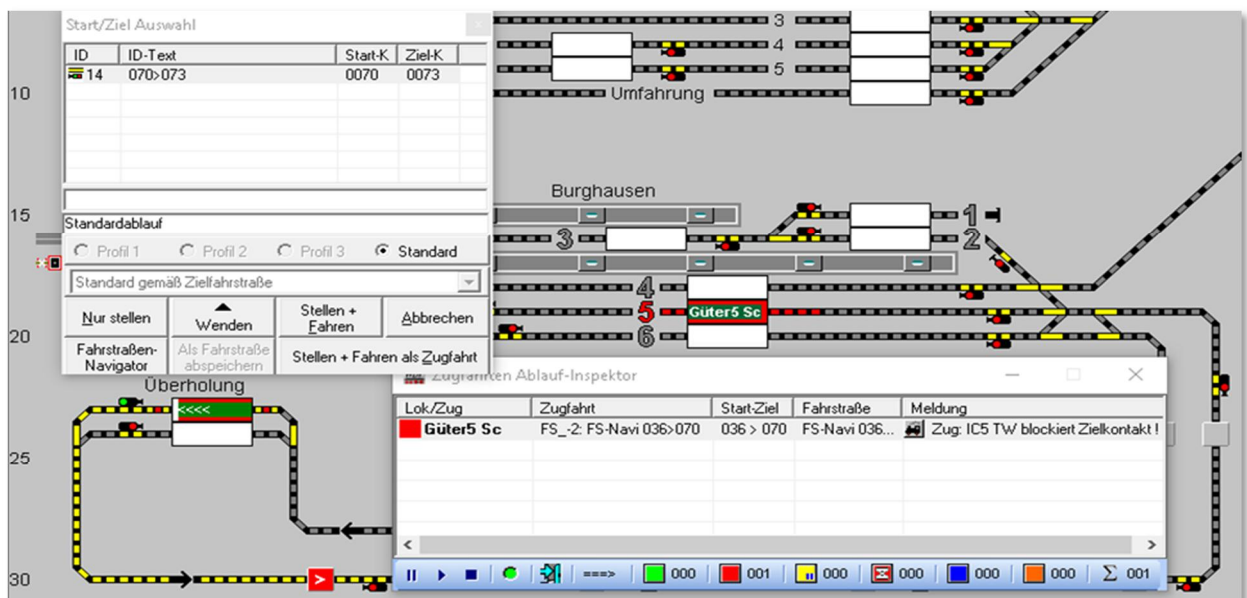


Fig. 6.20 Train IC5 TW shall be driven into the next block signal

The program will over an already existing route (070>073). You can recognize this in the list of Start/destination dialogue.



Please select '**Switch + Drive as tour**'. The locomotive IC5 TW will now start its journey to the block signal. In the tour event inspector this route will appear too marked by a green square.

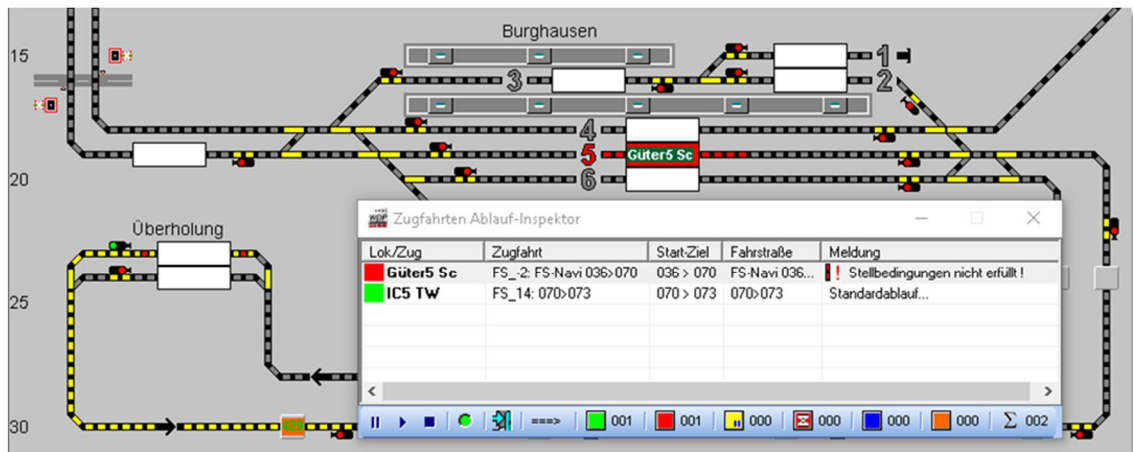


Fig. 6.21 A route is executed as tour.

The tour event inspector will still show the line with a red square and the message "Switch conditions not true" for the goods train (Güter5 Sc)

This situation (see Fig. 6.21) is caused by two facts. First, the destination contact for the goods train is still occupied. IC5 TW has started its journey, but has not yet left the start contact. Second, the route 036>070 contains the exit signal for the upper pass by section, which is also the entrance signal for route 070<073 created for the goods train.



One basic rule within **Win-Digipet** is:

A route cannot be executed as long as a solenoid device which is used in this route is still active (not released) within another route.

The route of the goods train cannot be executed until IC5 TW has reached its destination and the route 070>073 has been released.

The route release will also release the entrance signal of for the upper pass by section. After that this signal can be used within another route again.

This situation is shown in Fig. 6.22. As soon as IC5 TW has released the exit signal, route 036>070 will be executed and the goods train can start its track.

The train name and direction are already visible within the destination train number display. The occupation message is not active until now, because the train hasn't reached the destination contact yet.

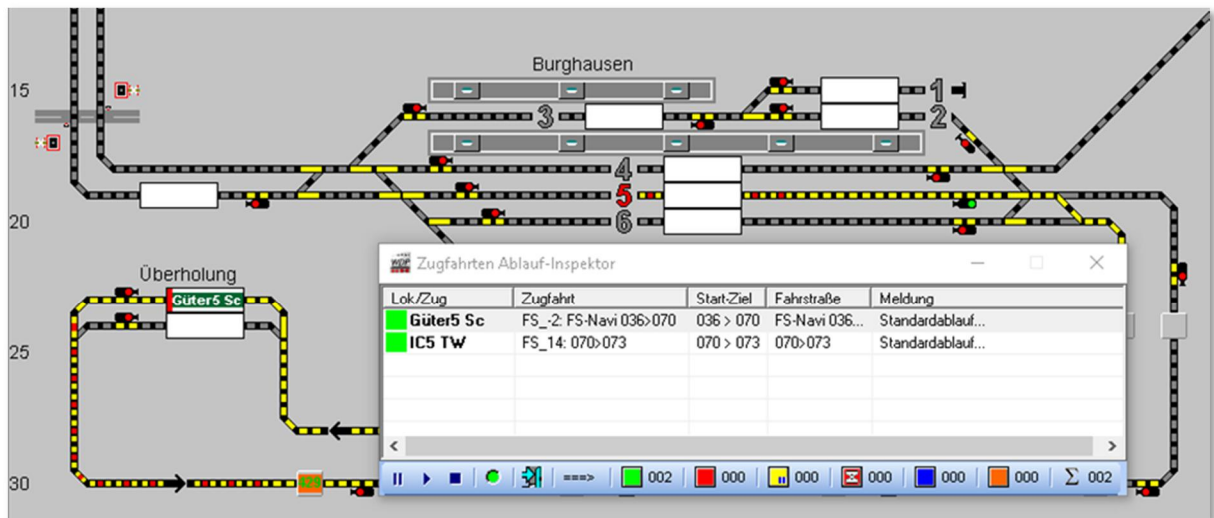


Fig. 6.22 The route of the goods train will be executed as soon as IC5 TW has reached its destination.

6.4.1 Saving temporarily routes from the route navigator to the routes database

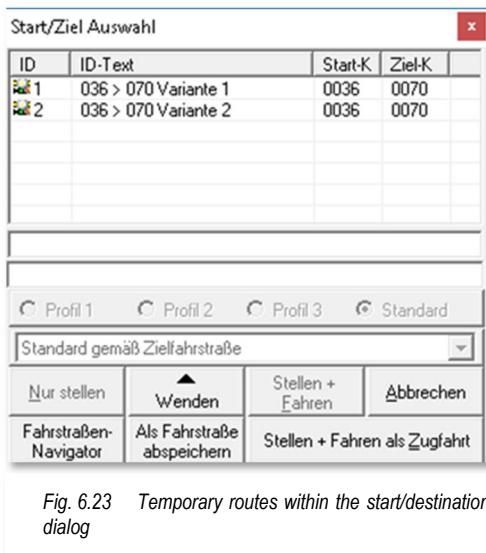


Fig. 6.23 Temporary routes within the start/destination dialog

If you want to save routes, that you have created with the route navigator (see Fig. 6.17), you need just to click the button **'Save as route'**. Using this function this temporary routes will be available and editable as real reads even after restarting **Win-Digipet**.

Fig. 6.23 shows the same start/destination dialog situation as in Fig. 6.17. The route navigator offers three different variants for the itinerary from start to destination.

Using the button **'Save as route'** for Variant 2 this route will be saved to routes database and can be edited in the route editor later.


The route editor can be opened using the button  in the main toolbar of **Win-Digipet** or via the menu <File> in the main menu bar.

Fig. 6.24 shows the route within the route editor. All necessary data on the several index cards will be filled automatically filled with the required data and can be edited or changed



according to your needs. For this example, we will not make any changes. The index cards will be described later within this chapter.

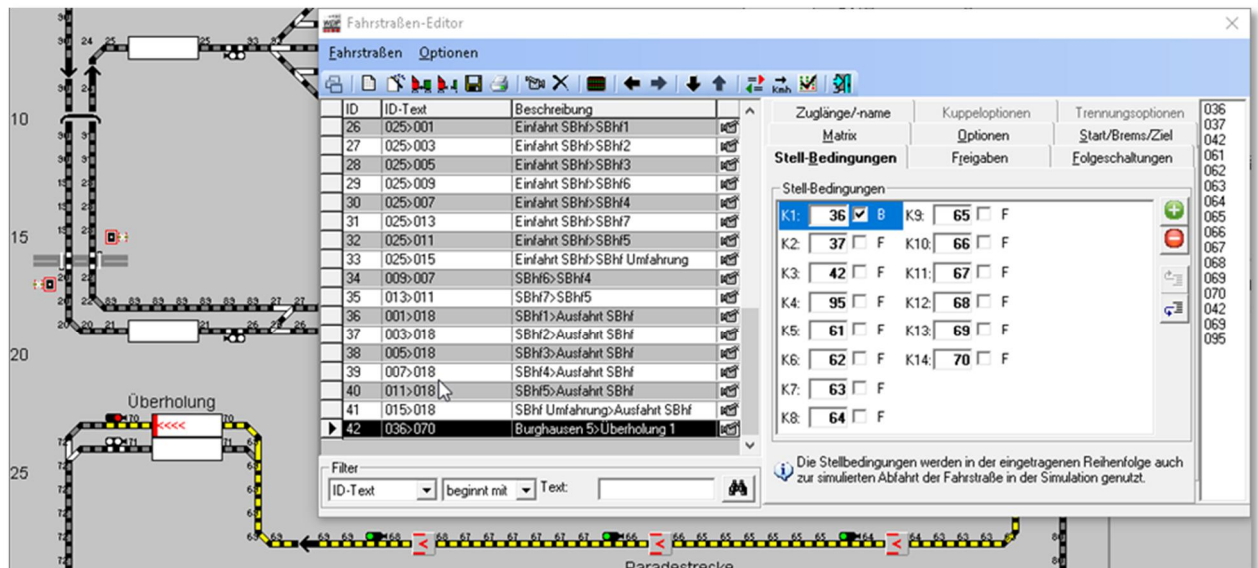



Fig. 6.24 The previously temporary route can no be edited within the route editor.

6.5 The routes wizard

A further method for comfortable creation resp. recording of routes in **Win-Digipet** is the so-called routes wizard. The routes wizard is part of the routes database.

Open the routes editor using the button  in the toolbar of the main program.

The window "Routes editor" will be opened with the menu items <Routes> and <Options> as well as seven index cards.



If you open routes editor for the first time, you will see one example record as first record with in the routes list.

The database must contain at least one route; the last available data record cannot be removed.

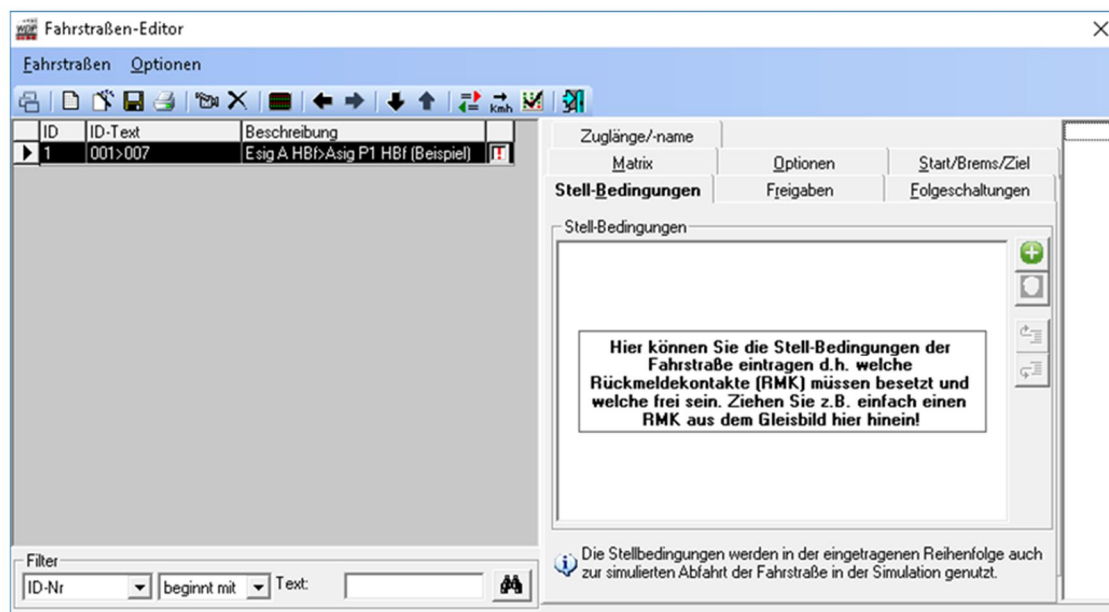


Fig. 6.25 The empty routes editor with first data record






Now click on the symbol  in the toolbar of the routes editor to open the routes wizard. The routes wizard can also be accessed via <route> <wizard> in the menu.

Fig. 6.26 shows you the four options for creating routes with the routes wizard.

-  Create a route from start to destination
-  Create a set of routes for an entry to a station
-  Create a set of routes to one exit from several tracks
-  Create a route semi-automatically or manually

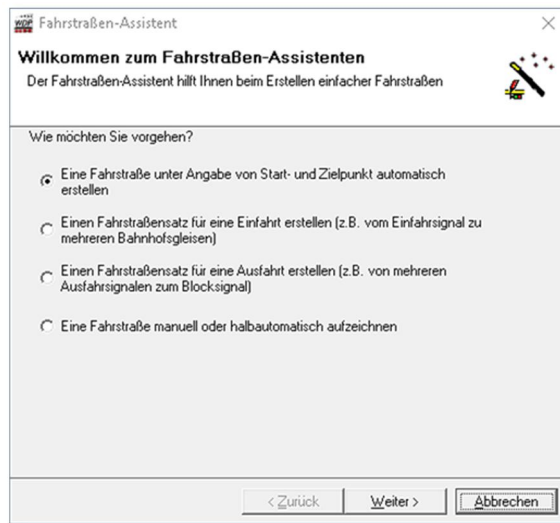


Fig. 6.26 The start dialog of the routes wizard

The selection of the possibility depends on the question, if you just want to create a simple route or a complete set of routes.

Within the next sections of this subchapter we will explain the several options for creating routes in detail.

The routes wizard will prevent you from a lot of work and creates error-free routes, but a little bit tuning has to be done by yourself.

This is for example necessary if you want to change the speed of the train while the route is being executed or if you want to add additional add-on switchings etc.

6.5.1 Create a route automatically via start- and destination contact

Please select in the start dialog of the routes wizard (see Fig. 6.26) via radio button the option "Create a route automatically via start- and destination contact".

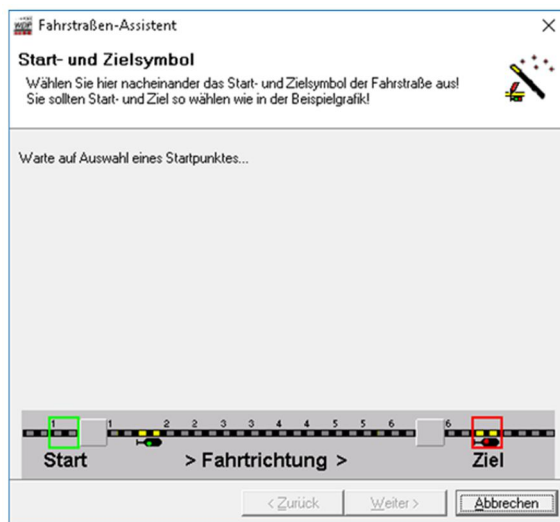


Fig. 6.27 Selection of the start contact

After pressing '**Continue**' you can select the start symbol for your route.

Within the graphic of route wizard, you can see an **example** route. This example is not related to your own track diagram. Thus you don't need to make any clicks within this graphic.

Normally a route should start one symbol before a train number display and should end at a signal behind a train number display.

Thus you need to click with the left mouse button onto the track symbol left of the start train number display.



The start symbol will be framed green and a green check mark will appear behind the start symbol message within the wizard. Please proceed in the same way with the destination signal. This symbol will be framed red and a green check mark will appear behind the destination symbol message.

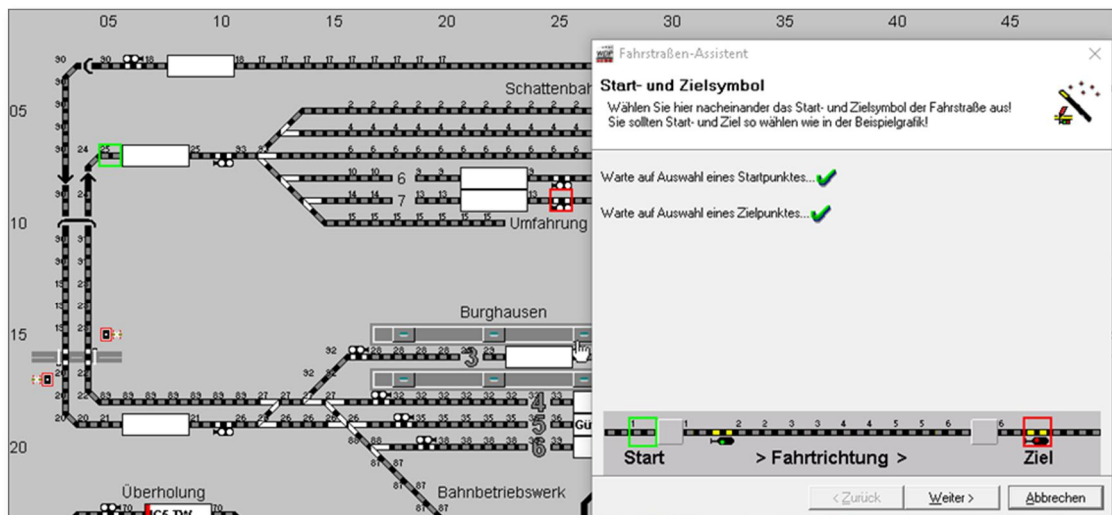


Fig. 6.28 One start and one destination symbol have been selected.

After pressing '**Continue**' the routes-wizard wants to know in which direction to start with the search beginning at the start symbol.

Select the desired direction by pressing the according button. In our example you should select the right arrow-button (only left and right is possible for this start symbol). All other

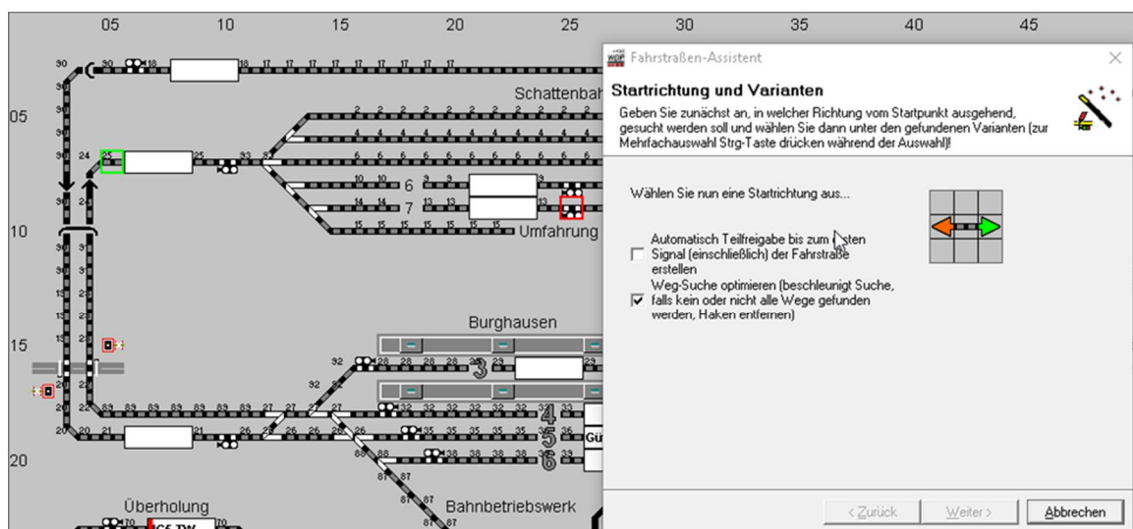


Fig. 6.29 At the start point the start direction has to be selected.

settings you be left unchanged for this first run.



Move your mouse over the right arrow, the arrow will be coloured green. Now click with the left mouse button onto this green arrow.

After selecting the start direction **Win-Digipet** will search all possible routes and display them in a list.

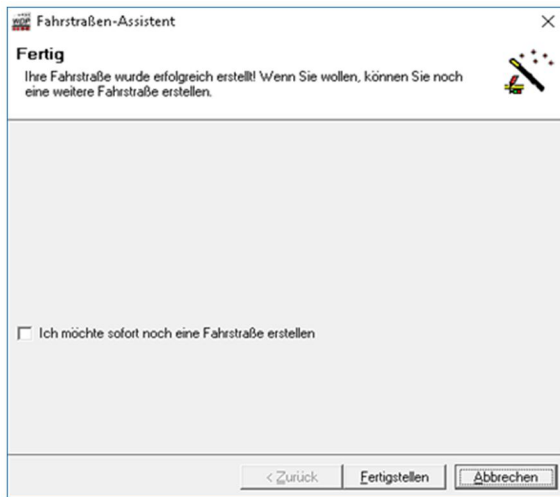


Fig. 6.31 The route has been created successfully.

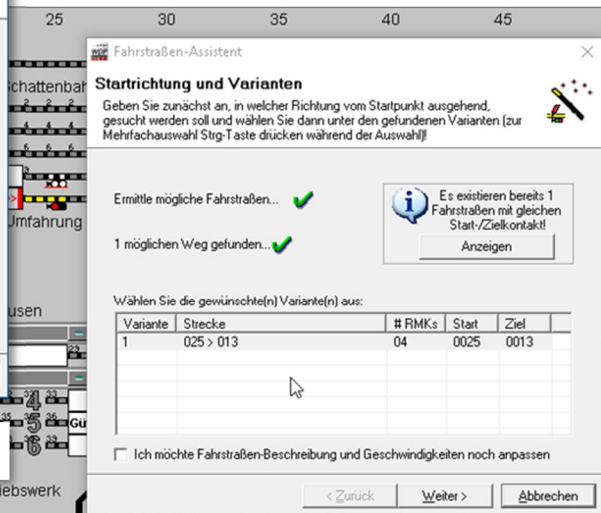


Fig. 6.30 The routes wizard has found one possible way

In our example the program will only find one possibility. In our example the wizard informs you also, that one route already exists with identical start- and destination contact. This is correct, because with included such a route already in the Demo project.

In the later program usage, you should of care about this message. A multiple creation of the same route could lead to mistake when creating automatics etc. Of course it might be useful to create multiple routes with the same start- and destination contact, but then you should think about a solution for distinguishing the several route variants (e.g. special route name).

For our first run please do **not** check the option adjust the route description and speeds.

By pressing '**Continue**' you confirm your selection.

Now the new route will be saved to the route database of **Win-Digipet**.

If you want to create an additional route just check "*I'd like to create an additional...*" and press '**Continue**'.

If you don't want to create additional routes just press '**Finish**' and the route wizard will be closed.



6.5.2 Create a set of routes to one entry

Within this subchapter we want to create a set of routes for the entrance to hidden yard B. Therefore we need to select in the start dialog of the routes wizard "Create a set of routes to one entry".

After clicking '**Next**' the wizard will ask you for one start and several destination contacts.

The difference to our procedure in section 6.5.1 is, that we create several routes with the same start point but different destinations.

The graphic within the dialog is again an example for a situation solvable with this wizard option. This example is also not related to your own track diagram.

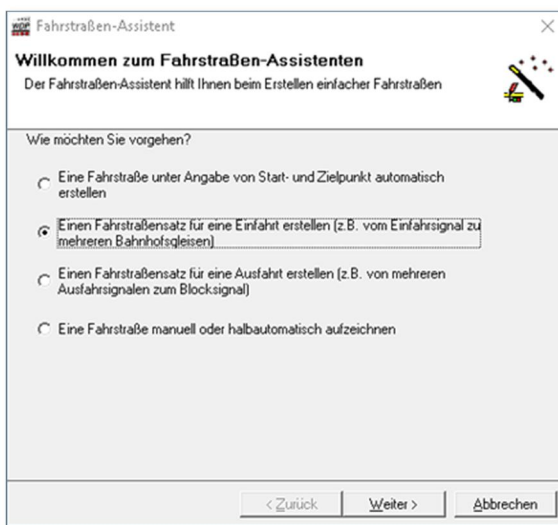


Fig. 6.32 Selection of one start and several destination points

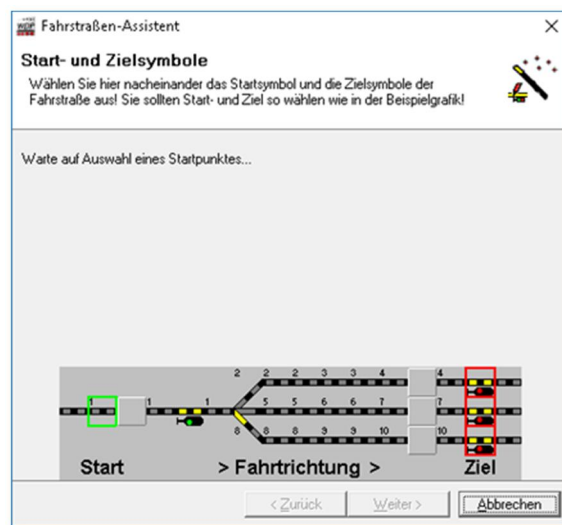


Fig. 6.33 Create a set of routes to one entry

Now click on the track symbol right to the start train number display within your track diagram. The start symbol will be framed green and a green check mark will appear behind the start symbol message within the wizard.

Please proceed in the same way with the destination signals. These symbols will be framed red and a green check mark will appear behind the destination symbol message.



In our demo project we choose as example the train number display before the entrance signal of hidden yard B as start and as destinations the exit signals of tracks B1 and B2. The figure (Fig. 6.35) illustrates this situation.

After pressing '**Continue**' the routes-wizard wants to know in which direction to start with

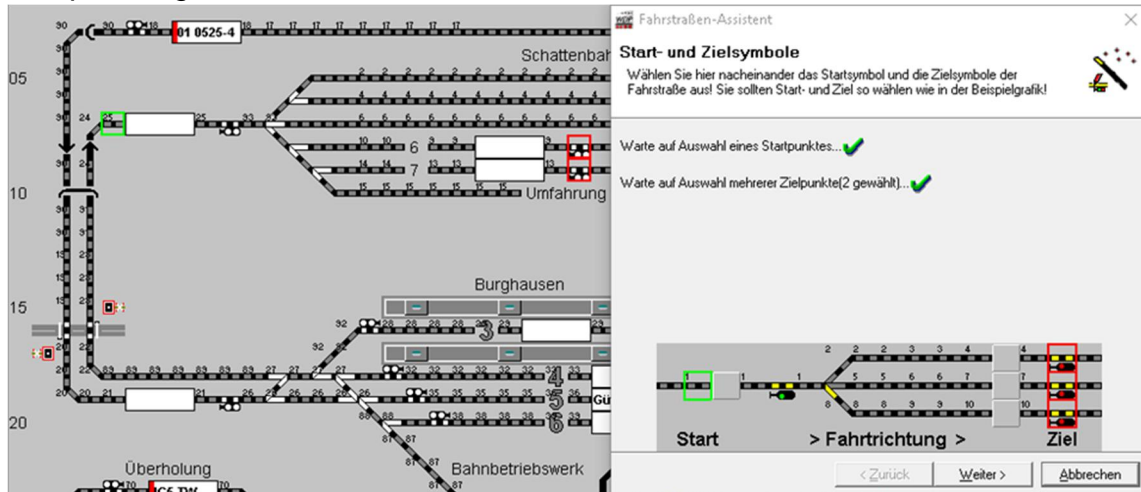


Fig. 6.34 The start point and two destinations have been selected

the search beginning at the start symbol.

For this run please check also *"Create partial route release to the first signal..."*. This option

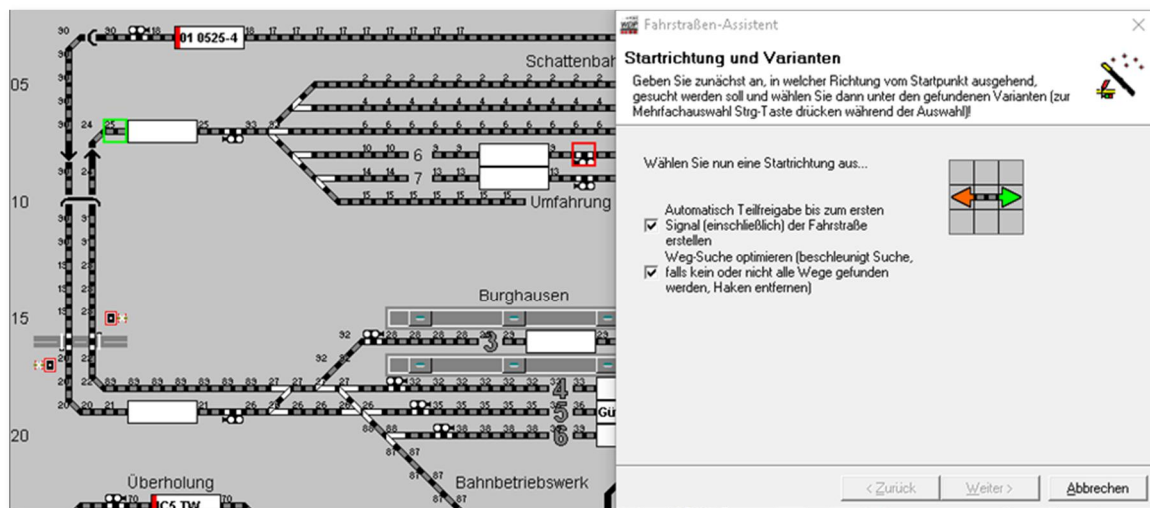


Fig. 6.35 The selection of the start direction

will have the result that the release of the start signal will not last until the train has reached its destination. It will be already released after the whole train has passed the start signal.

For this functionality **Win-Digipet** will create a partial release for the first symbol until the first signal.



During later operation the partial release will release the start signal after the train has passed the start signal. Thus, a following train can already drive to the entrance signal of the hidden yard B without being blocked by the preceding train.

Move the mouse in the small graphic over the arrow to the left. The arrow will be coloured green. Afterwards press onto this arrow with left mouse button.

After selecting the start direction **Win-Digipet** will search all possible routes and display them in a list.

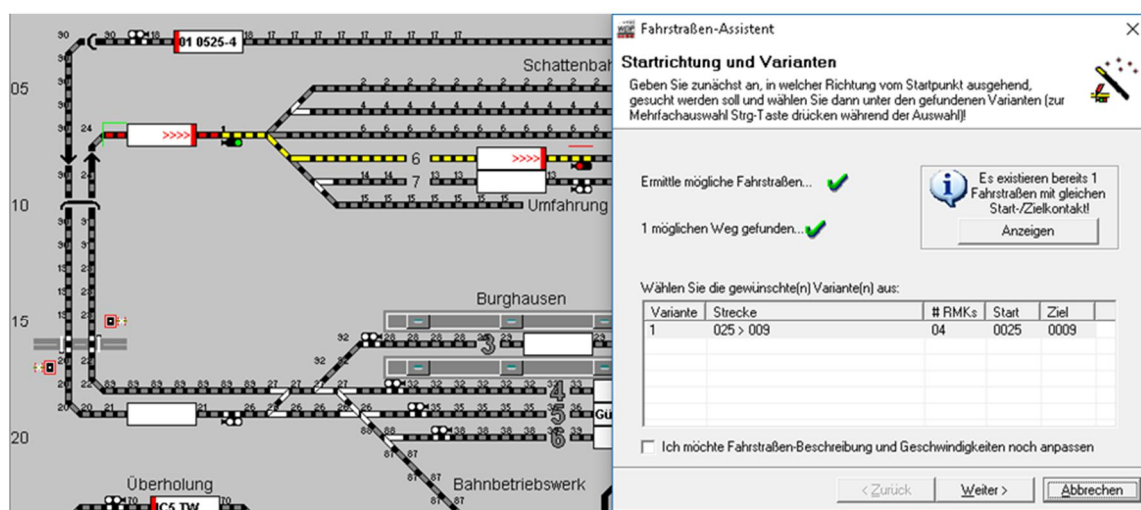


Fig. 6.36 A way has been found to the first destination

In our example the program will only find one possibility. The partial release until the first signal will be coloured red. A small "1" beside the signal indicates, that signal is part of the partial release 1.

This entrance signal, which will now be released much earlier due to the partial release, is also the destination signal of routes from the station Burghausen to the hidden yard B. These routes could immediately be executed after the partial release during automatic operation.

For this run please do **not** check the option for adjusting the route description and speeds.

After clicking '**Continue**' the route wizard will ask again for a start direction, but now for the route to the second destination.

We want to create also a partial release within the second route, so please check also "Create partial route release to the first signal...".

By checking this button, a main as well as partial release will also be created for this second route.

The further steps are similar to the previous procedure. After selecting the direction **Win-Digipet** will search for possible ways and present them in a list. After confirmation the route



wizard will save all new routes to the routes database and will inform you about the successful creation.



If you press **'Cancel'** instead of **'Continue'** before the second start direction route way has been selected, the route wizard will be closed and only the route to the first signal can be found in the routes database.

6.5.3 Create a set of routes to one exit

In this sub chapter we want to create a set of two routes for the exit of hidden yard B. Therefore we need to select the third option *"Create a set of routes to one exit"*, in the route wizard.

After clicking **'Next'** the wizard will ask you for several start positions and one destination position.

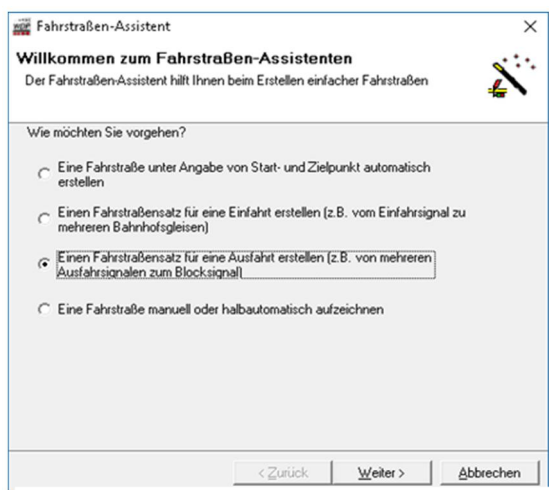


Fig. 6.38 Creating a set of routes to one exit

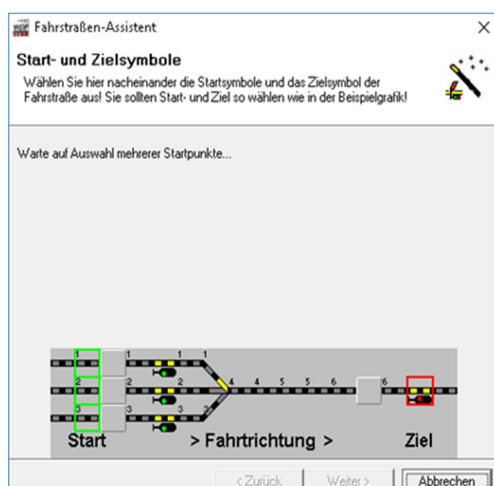


Fig. 6.37 Selection of several start positions and one destination

The

difference to the procedure in 6.5.1 is that we will now create a set of routes from several start positions to just one common destination.

The graphic within the dialog is again an example for a situation solvable with this wizard option. This example is also not related to your own track diagram.

Now click on the track symbol left to the start train number displays within your track diagram. The start symbols will be framed green and a green check mark will appear behind the start symbol message within the wizard. Afterwards press **'Next'**.

Now proceed in the same way with the destination signal. This symbol will be framed red and a green check mark will appear behind the destination symbol message



In our demo project we start at the two track symbols right of the train number displays of the passing by (german in the track diagram: Überholung) section. The first block signal on the track to the station Burghausen is selected as destination (see. Fig. 6.39).

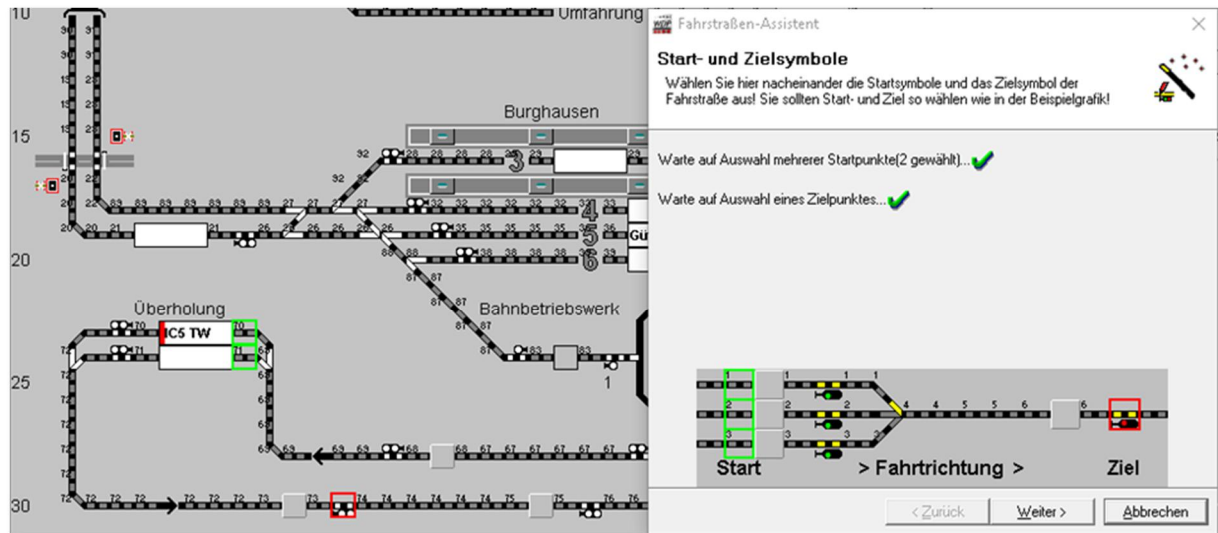


Fig. 6.39 two start and one destination have been selected within the track diagram

After pressing '**Continue**' the routes-wizard wants to know in which direction to start with the search beginning at the start symbol.

For this run please check also "*Create partial route release to the first signal...*". This option will have the result that the release of the start signal will not last until the train has reached its destination. It will be already released after the whole train has passed the start signal.

For this functionality **Win-Digipet** will create a partial release for the first symbol until the first signal.

During later operation the partial release will release the start signal after the train has passed the start signal. Thus, a following train can already drive to the entrance signal of the hidden yard B without being blocked by the preceding train.

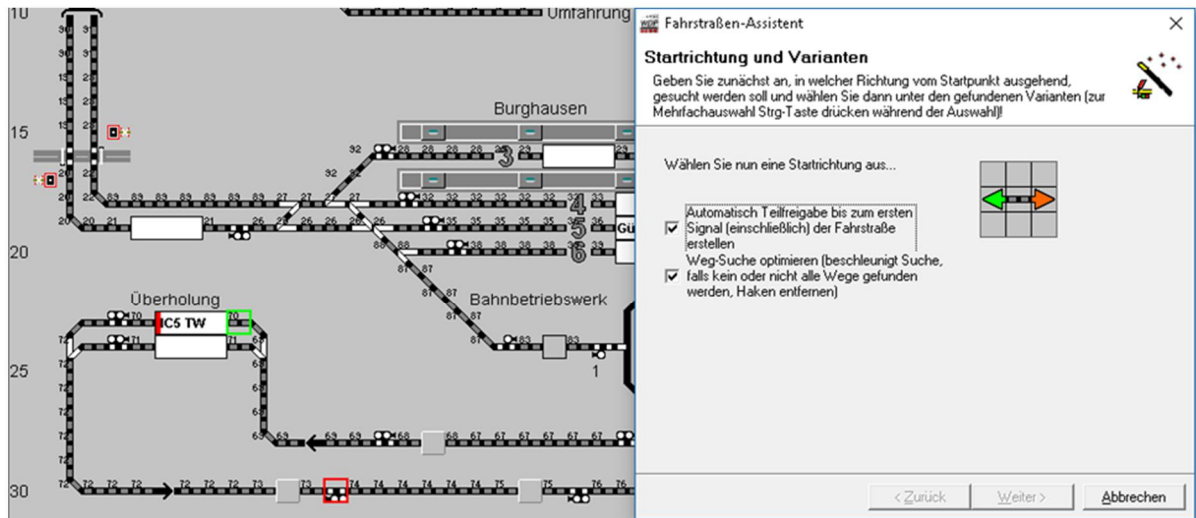


Fig. 6.40 the selection of the start direction

Move the mouse in the small graphic over the arrow to the right. The arrow will be coloured green. Afterwards press onto this arrow with left mouse button.

After selecting the start direction **Win-Digipet** will search all possible routes and display them in a list.

In our example the program will only find one possibility. The partial release until the first signal will be coloured red. A small "1" beside the signal indicates, that signal is part of the partial release 1.

For this run please check the option for adjusting the route description and speeds.

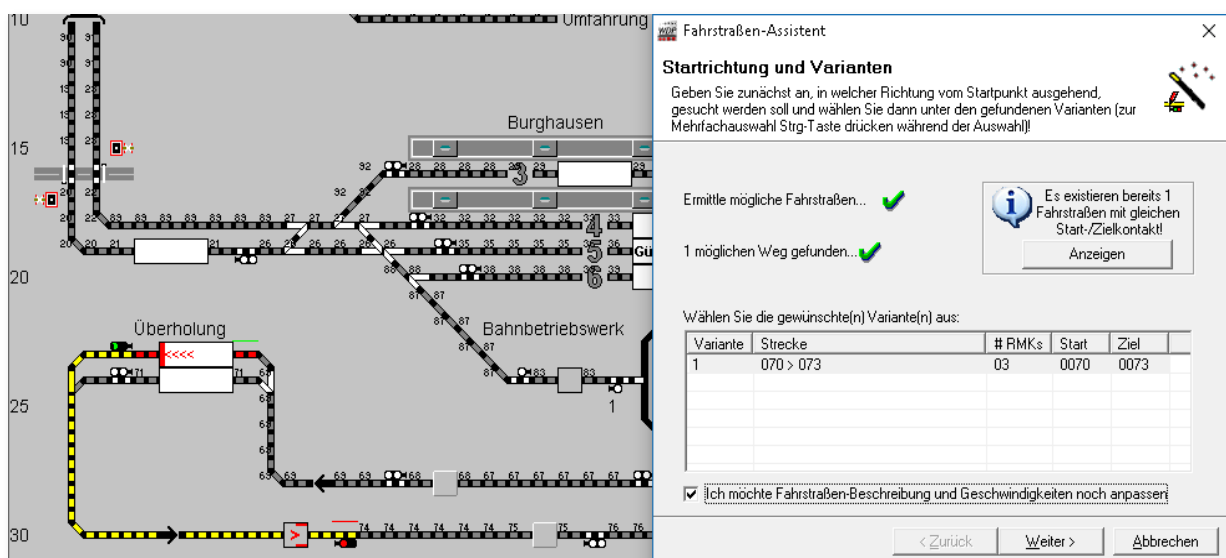


Fig. 6.41 A track from the first start point to the destination was found

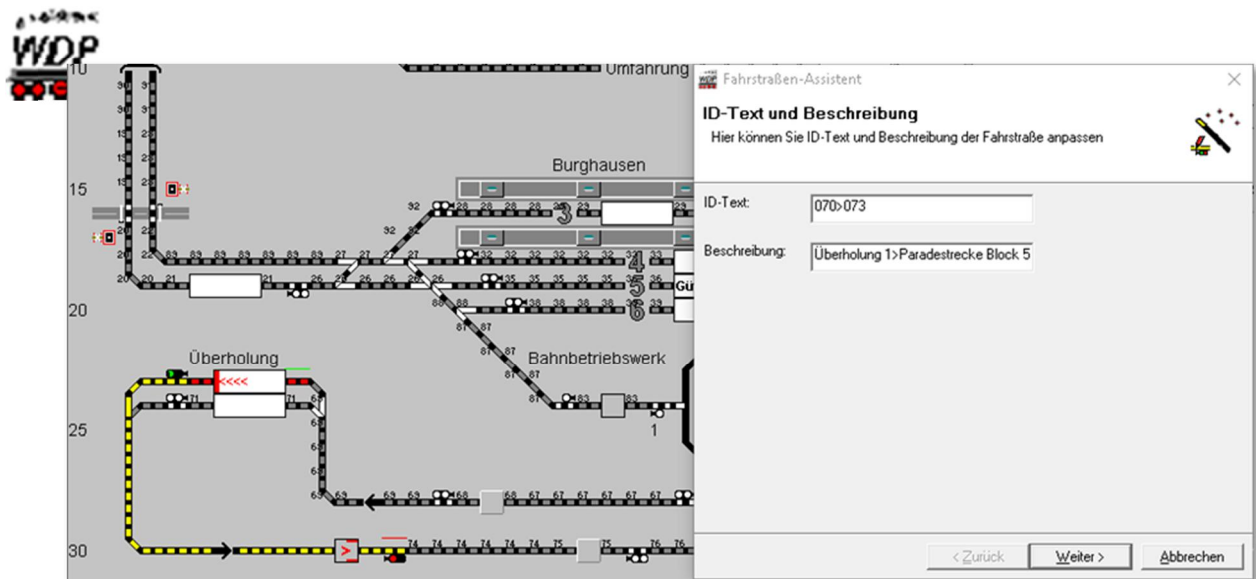


Fig. 6.42 The ID text and description can be changed here

After pressing '**Continue**' you will be asked for the routes ID text and description.

Fig. 6.42 shows the default settings for this route. The ID text and the names will be created by using the names and descriptions of the start and destination train number displays, that you have assigned with the track diagram editor resp. the train number display configuration dialog. The name of start and destination train number display are separated by a ">".



If you change the name of your train number displays in the track diagram editor this will result in an automatic renaming of your routes.



After pressing '**Continue**' you will be asked for the speed values and the contacts for speed change.

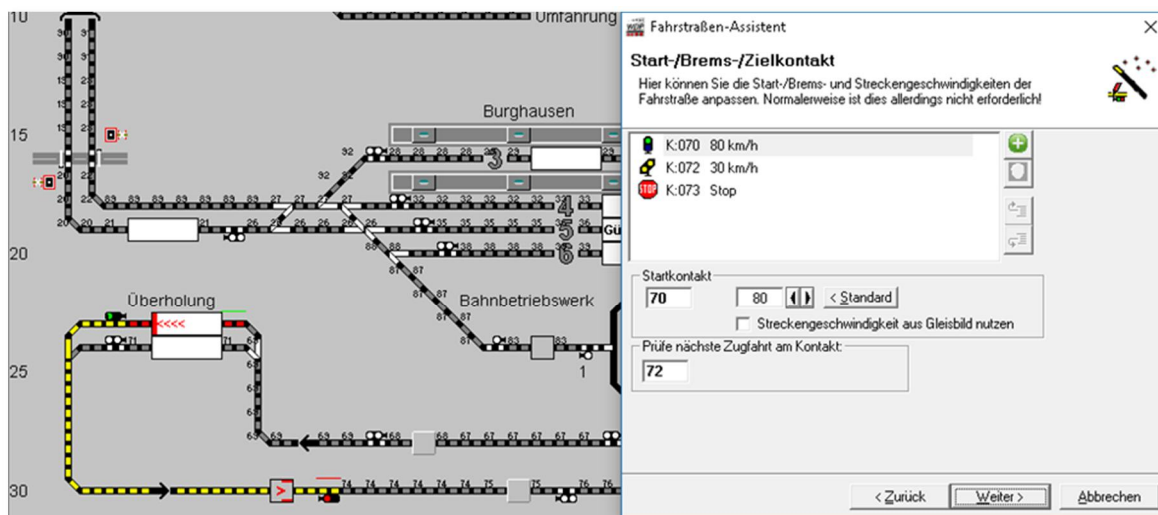



Fig. 6.43 You can change the route speed settings here

Basically, this page of the wizard offers the possibility to change the speed changes at the different contacts of the route. A basic route has a start, a brake and a destination contact (here FB contacts 70, 72 and 73).

The speed settings for these three contacts are listed under "**Start**", "**Brake**" and "**Destination**". You can change the speeds for these contacts (except for the destination where the speed is of course 0) using the input boxes and spin buttons. The default speed values for these contacts are taken from the system settings of **Win-Digipet**.

If you want to consider additional contacts in your route, they can be added with button . Then you can assign a speed to each contact. Please remember Fig. 6.1.

The dialogue in Fig. 6.43 shows the option "Use section speed from track diagram". By activating corresponding checkbox that speed will be applied which has been assigned to a contact at the dialogue "Feedback contact properties".

The window „Check next route within tour a contact“ refers to the so-called *check contact* in **Win-Digipet**, which most important for the automatic operation. Its function will be explained in the chapter dealing with the automatic functions. As a standard convention the check contact assigned to the brake contact of a route.

After clicking '**Continue**' the route wizard will ask again for a start direction, but now for the route from the second start point to the destination.

By checking this button, a main as well as partial release will also be created for this second route.



The further steps are similar to the previous procedure. After selecting the direction **Win-Digipet** will search for possible ways and present them in a list. After confirmation the route wizard will save all new routes to the routes database and will inform you about the successful creation (see Fig. 6.31).



If you press '**Cancel**' instead of '**Continue**' before the second start direction route way has been selected, the route wizard will be closed and only the route to the first signal can be found in the routes database.

6.5.4 *Route wizards reports existing route*

If routes with the selected start- and destination contact already exist, the route wizard will keep you informed you about this fact (see Fig. 6.41).

When you press the button '**Show**' the program will show you list with the existing routes. If you recognize, that the new route, that you wanted to create, does already exists just close this window and abort the route wizard afterwards using the button '**Cancel**'.

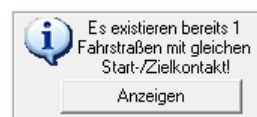





Fig. 6.44 Attention! A route exists using the same start and destination contact

Instead of cancelling the route wizard (e.g. if you create a complete set of routes and you want to skip only of the routes) you can also just deselect the route in the variant-selection list by clicking on the route in the list while holding down the Ctrl-button of your keyboard. Pressing '**Continue**' will result in the program's question, if you don't want to create any route and afterwards you can proceed in using the route wizard.

6.5.5 *Create a route with 2 partial releases automatically*

Within the previous sub chapters, we created routes using the routes wizard with partial releases until the start signal. But a route within **Win-Digipet** can contain up to two partial releases beside the main release. The definition of the second partial release can also be achieved using the route wizard.

In the following we want to create a route with...

-  a partial release until the start signal,
-  a second partial release including the two turnouts before the station,
-  and the main part of route (red framed)

Please select in the start dialog of the routes wizard via radio button the option "*Create a route automatically via start- and destination contact*".



For selecting the start and destination you can also use the right mouse button instead of the left mouse button.

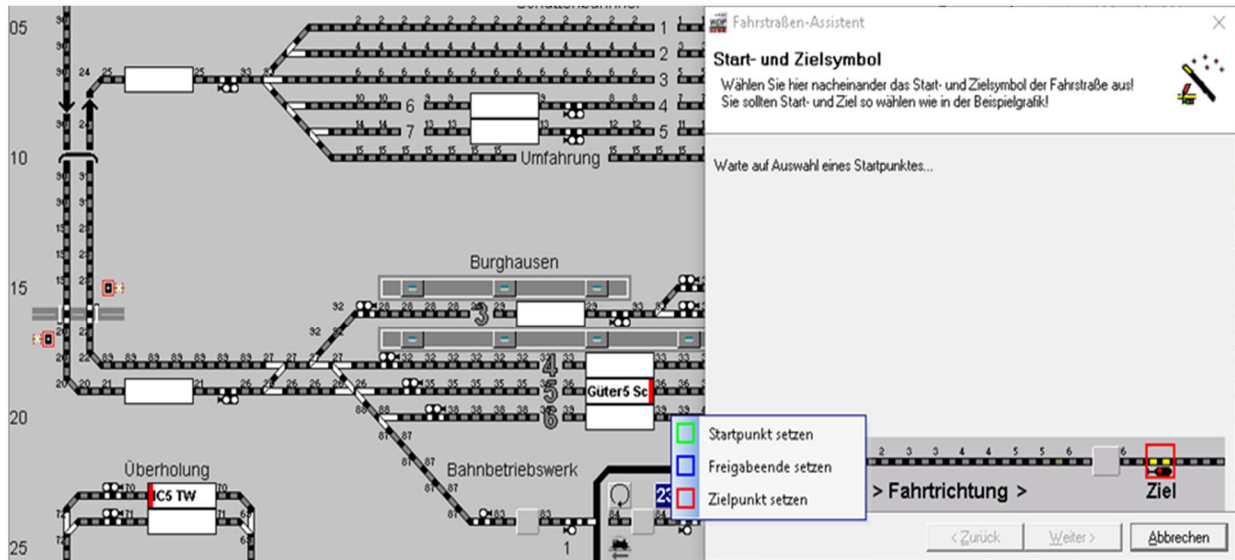


Fig. 6.45 Context menu for selecting start, destination and end of releases

By using the right mouse button, you can open a context menu. Within this context menu you select whether the selected track symbol shall be used as start-/partial release or destination position. For selecting the start point select within the menu <Set start> and the start symbol will get a green frame and within the route wizard you will see, that the wizard recognized the selection of a start point.



Now use the right mouse button for clicking on the first signal within the planned route. The start point has already been selected. Thus, this option is now disabled.

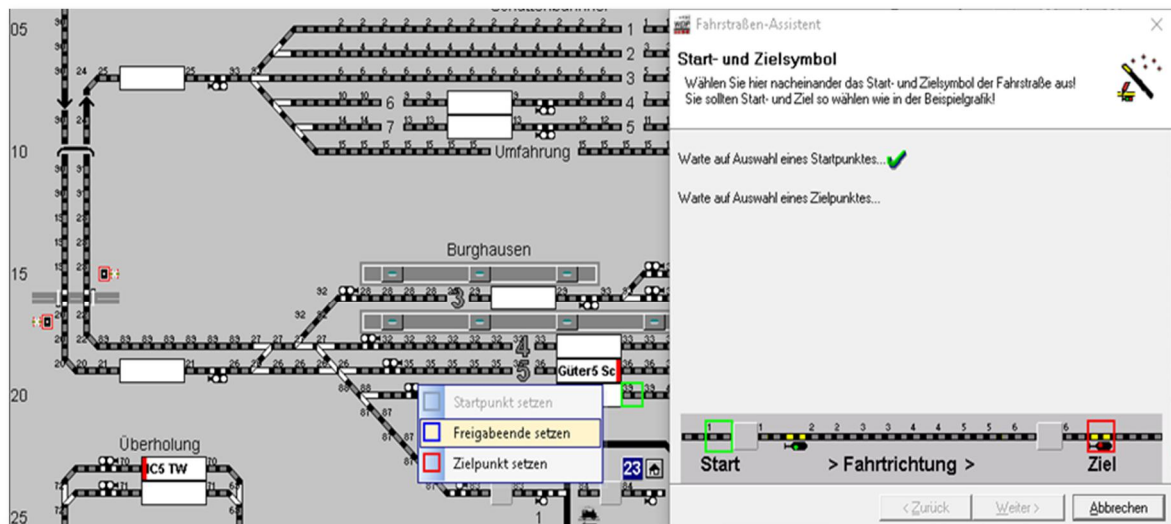


Fig. 6.46 The first partial release ends at the start signal

For selecting the end of the first partial release, select <Set end of release> with the menu. The start signal will now be framed by a blue box. Now you make the same procedure with the track symbol left of the last turnout behind the station (see Fig. 6.47). This is the end of the 2nd partial release.

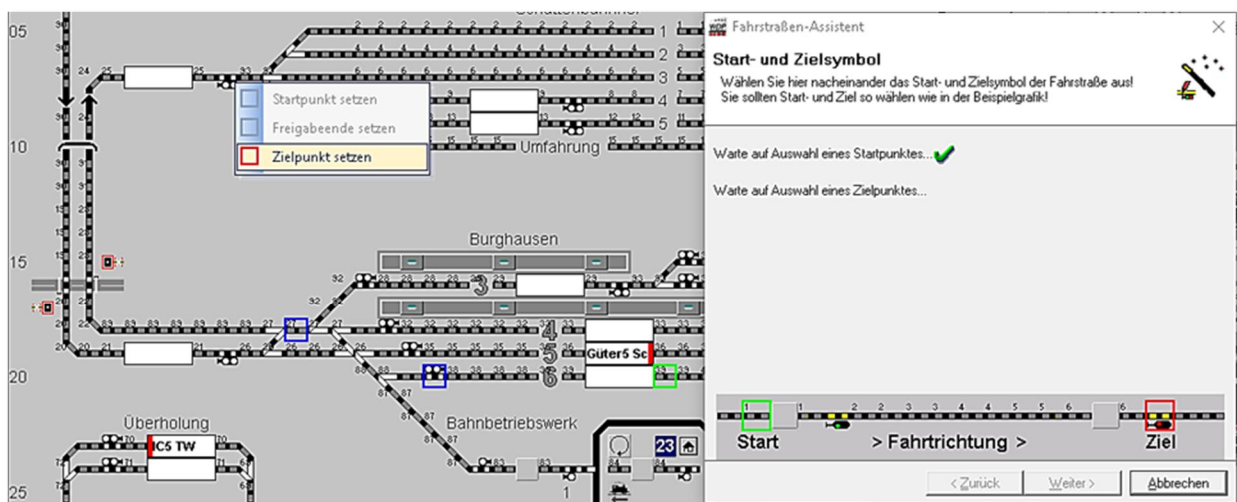


Fig. 6.47 The ends of both partial releases are framed by a blue box

Now you can click on the destination/end symbol for the route with the right mouse button, in our case the entrance signal to Bergheim. Within the context menu you can now only select the menu point <Set destination>.



After this selection the destination signal will be framed red and the route wizard will recognize that now as the destination point has been selected.

If you want to remove one of your selections click with the right mouse button on the symbol/position you want to change. You can remove/change the selection with the according menu items.



The blue frames for the partial releases can also be placed using Shift plus left mouse button. But an existing selection can only be changed removed using the context menu as described before.

After you have made all selections you can precede with '**Next**' and the route wizard will ask for the start direction of the route as explained in the previous chapters.

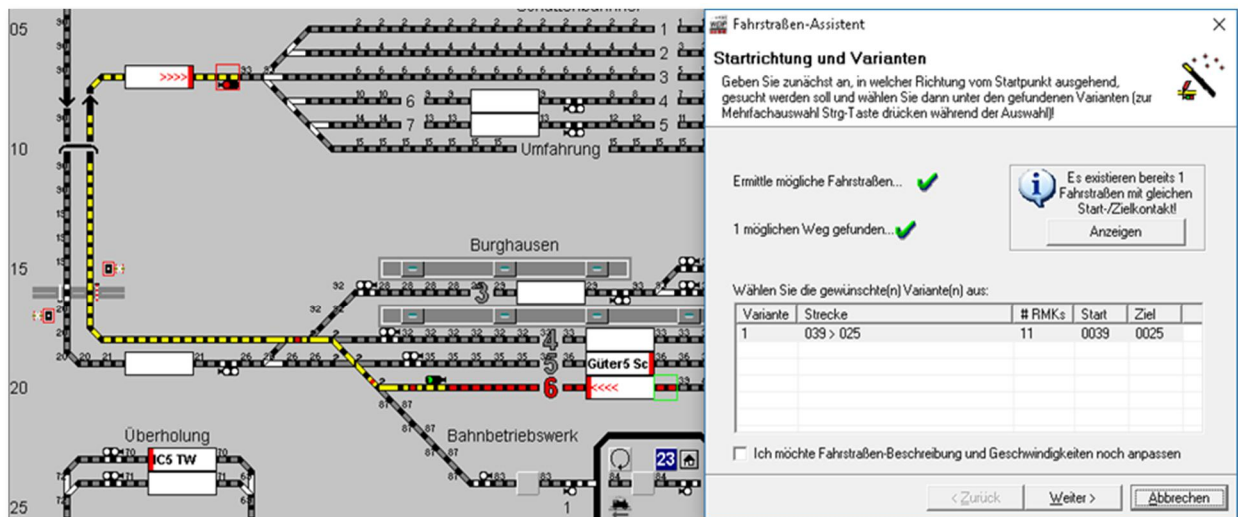


Fig. 6.48 A proposed route with 2 partial releases

The proposed route and their different main and partial releases will be shown in the track diagram using different colours. Solenoid devices belonging to a partial release will have a small "1" or "2" beside the symbol.

What can you do with a 2nd partial release?

We explained the first partial release already in section 6.5.2. We used the first partial release to start a subsequent train much earlier because its destination signal would be released much earlier due to the partial release. The same effect is caused by the second partial release in our example. The second partial release start one symbol left of the start signal and ends left of the last turnout behind the station (see Fig. 6.48). It does contain also all routes within the part of the routes (turnouts get a small "2" beside of them).

Using this second partial release all solenoid devices would be released within the section as soon as the train has left this section resp. when he reached the next contact. Using



this a train waiting in opposite direction at the entrance signal of the opposite direction could enter e.g. track 5 as soon as the first train left the section of the 2nd partial release.

If you don't want to create any further routes, select '**Finish**' and the route wizard will close. The program will return to the route database and show the last created route.

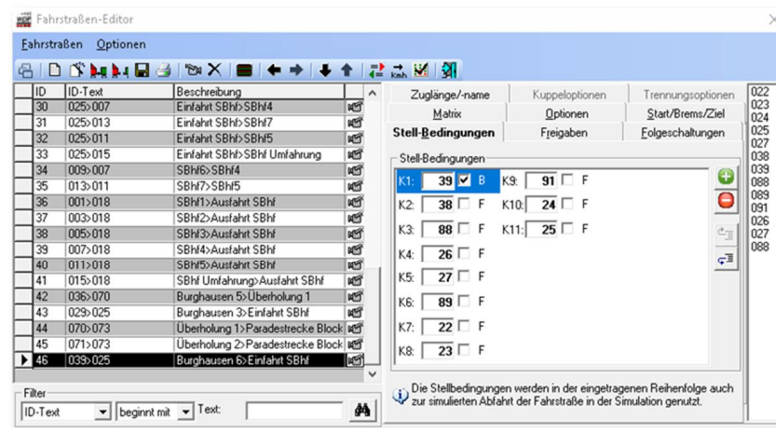


Fig. 6.49 The last route within the route editor

6.5.6 Recording longer routes using the routes wizard (and selecting alternatives)

Until now we only described the creation of shorter routes with the routes wizard from one signal to the next.

For your future usage of **Win-Digipet** you should mainly use such shorter routes, because they are one important part for a fluent automatic operation. But some situations might exist where longer routes could be useful. For example, good trains which should pass a station in any case.

The route wizard can also be used for the creation of such longer routes. We want to demonstrate this for a longer route passing several train number displays and signals.

First of all, you need to select the first option in the route wizard for creation of a single route from one start to one destination point. Select the start point (green) and afterwards the destination point (red) of your new route.

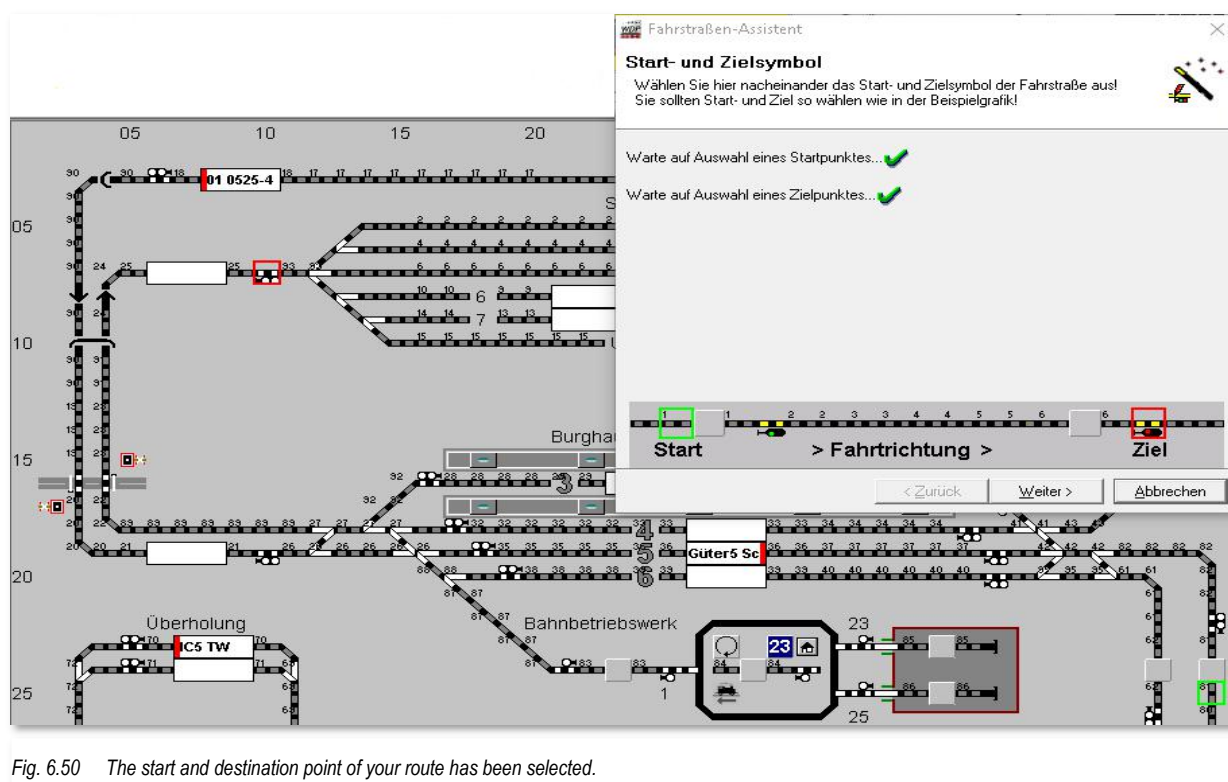


Fig. 6.50 The start and destination point of your route has been selected.

For the partial release until the first signal please check the already well known option on the second page of the wizard. After selecting the start direction for the route **Win-Digipet** will offer you four possible ways between start and destination. The first way will be initially selected in the list and shown in the track diagram.

When using the automatic partial release creation until the first signal, the route will just contain **one** partial release. But it is advisable for longer to use **two** partial releases. Within a further chapter of this documentation we will explain how to alter existing routes and you can add the second partial releases later.

The items within the list of found ways can be sorted by the different columns when clicking on the column headers. A repeated click on a single column header toggles the direction of sort.

If you click for example on the column heading "**#RMK's**", the routes will be sorted ascending resp. descending according to the number of different feedback contacts covered by this route. A repeated click on the columns headers toggles between "list items starting with smaller number of feedback contacts first" and "list items with larger number of feedback contacts first".

In our example we do not want to create just the first found variant within the list. Take a look at all possible variants presented by the wizard.

We want now to create routes for three out of the four found ways through Burghausen. We just want to exclude the way through track 3.

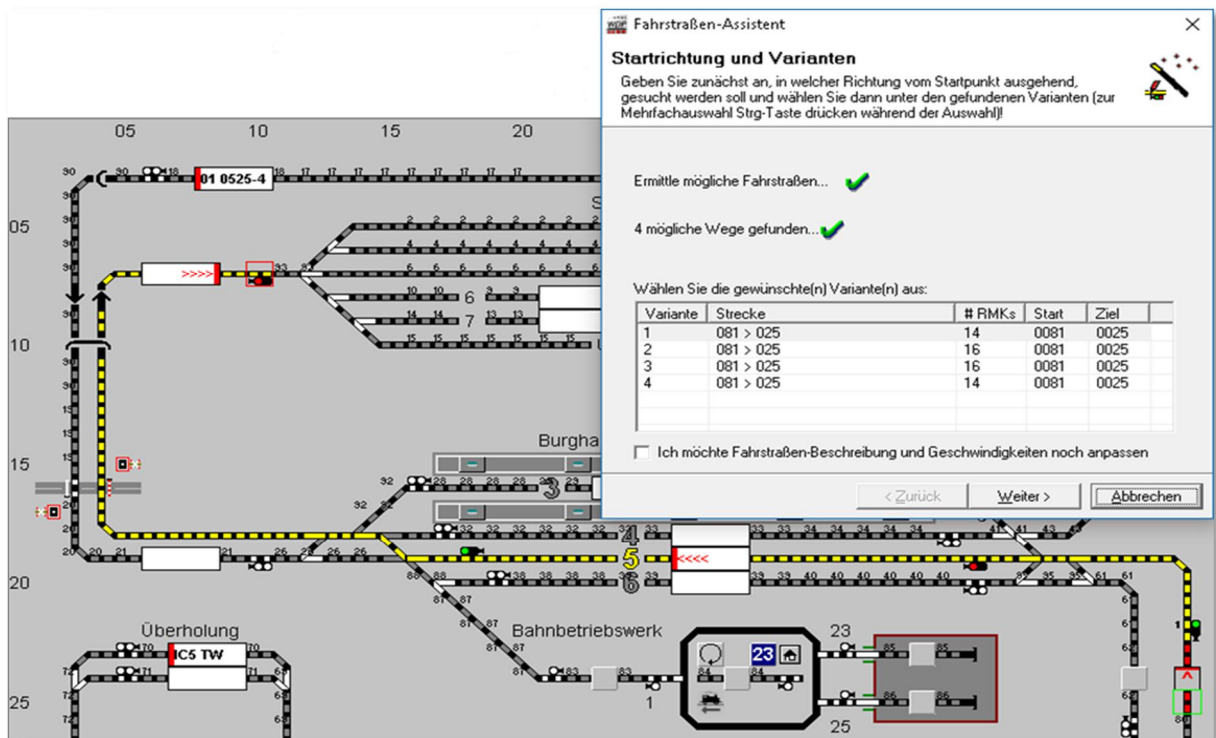


Fig. 6.52 Four possible ways have been found for this combination of start and destination point

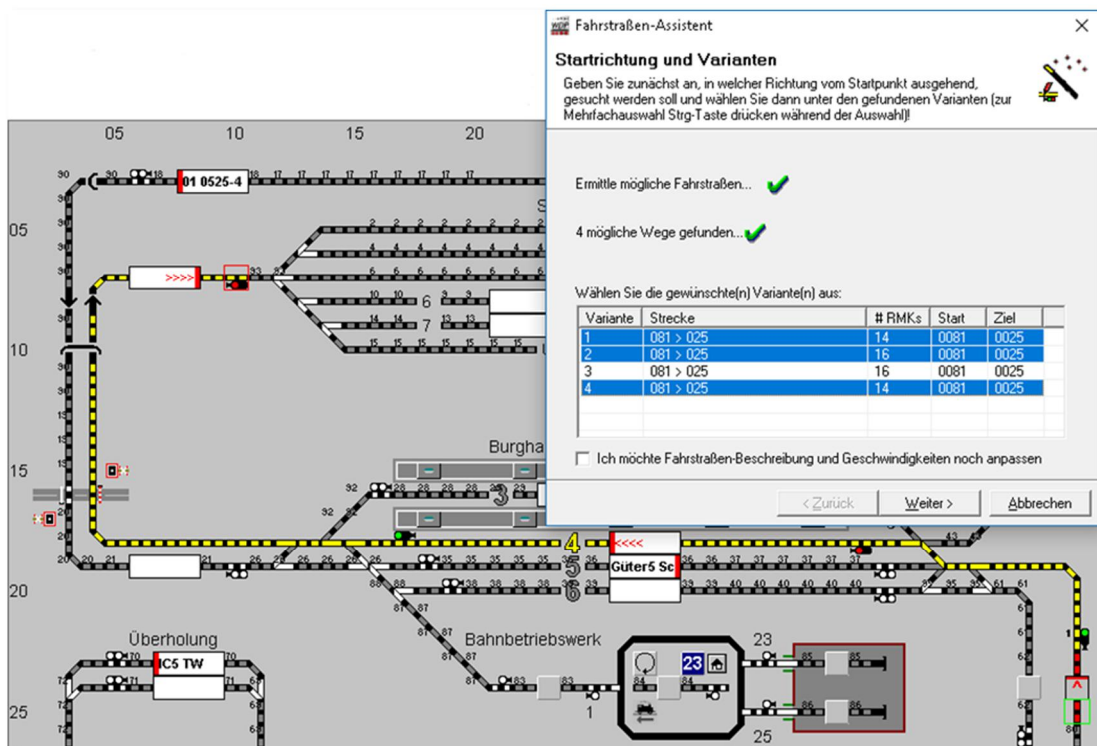



Fig. 6.51 Several routes should be created for this start/destination combination.

Using the Ctrl-button on your keyboard and the left mouse button you can now select or



deselect, respectively, the according variants/ways within the list.

All routes for the selected ways will be created after pressing the button '**Next**'.



The check box for optimized route search within the wizard should only be deactivated if the wizard does not found your desired way from start to destination.

If the desired way cannot be found by the wizard even with unchecked option, you need to create the route semi-automatically or manually. Usually this is caused by missing jump labels at track breaks for track numbers and similar situations.

6.5.7 Recording routes without partial releases semi-automatically /manually

Even the manual and semi-automatic route creation can be started using the route wizard. Therefor select the last option in the initial route wizard window and select '**Next**'.

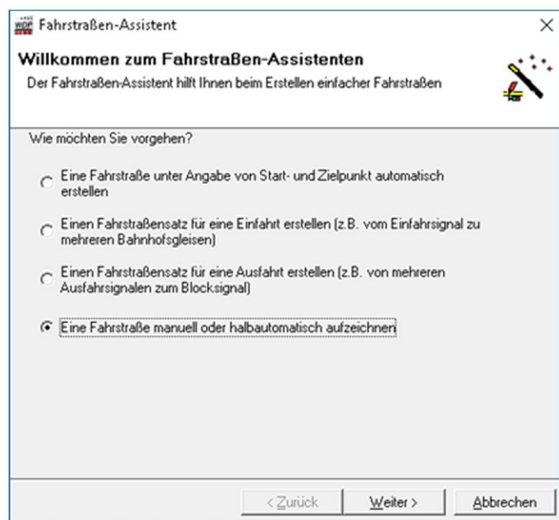


Fig. 6.53 Recording routes semi-automatically/manually.

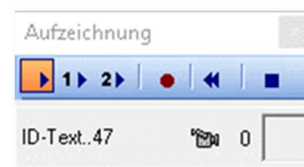


Fig. 6.54 The recording window for a route.




A small window "Recording" appears with 6 symbols, the functionality of the buttons is shown in the tooltips when moving the mouse over the buttons. The ID text of the route to be recorded is displayed in the bottom line (e.g. ID-Text...58).



We want to recall the basic rule, that a route within **Win-Digipet** does always have a main release. Additionally, the route can have up to two additional partial releases.




Between the camera symbol and the small window with the symbol box (empty at the moment) you can see a small number...



-  a "0" will be shown for the main release,
-  a "1" will be shown for the first partial release and
-  a "2" will be shown for the second partial release.



The small number shows the number of the partial release for the last recorded turnout symbol, signal symbol or other solenoid device symbol (not normal track symbol).

Three switches are available for this    . Click only on the first button (main release), if you create routes **without** partial routes and ignore the other two buttons.

For starting the semi-automatic route recording you click with pushed Shift key with the left mouse button on the start symbol **right** of the starting train number symbol (in our example track 1 of Burghausen). The symbol will be framed by a green box. Afterwards click with pushed Shift key on the destination-symbol **left** of the destination train number symbol in track 3 of Burghausen (see hand symbol in figure below).

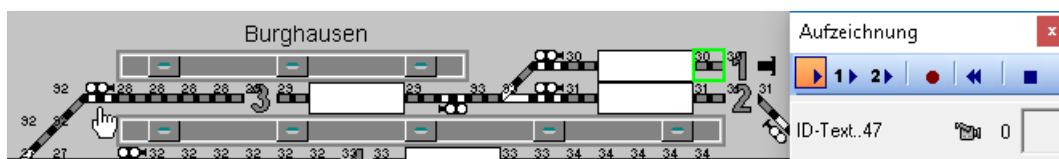


Fig. 6.55 Semi-automatic creation of a route without partial releases.

After the mouse click appears a window "Start with direction" with several options, these are explained by tool tips as usual which are displayed when the mouse stays over the different controls.

Semi-automatic creation of a route without partial releases

You can adjust the recording speed to from 10 to 200 msec.

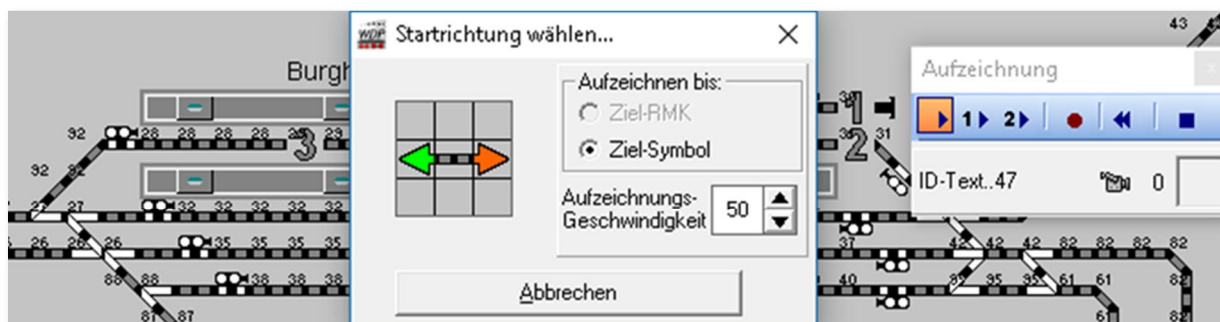


Fig. 6.56 selection of the start direction for a semi-automatic route creation



The radio button "Recording to:" is fixed to "Destination symbol", because you had clicked with the left mouse button on the destination signal.

Move the mouse over the arrow directing to the left. The arrow will be coloured green. Now click on this green arrow. The small window "Start with direction" will disappear. If you have set the recording speed to 200 msec., you can trace the recording on your screen very well (the default value is 50 msec.).

In the following figure **Win-Digipet** coloured the first recorded track symbols yellow. You can also the direction within the start train number display.

If the semi-automatic record arrives to a signal or a turnout the program will ask you to choose desired state/aspect of the solenoid device and you have the possibility whether to add and add-on switching to set the signal back to red after passing.

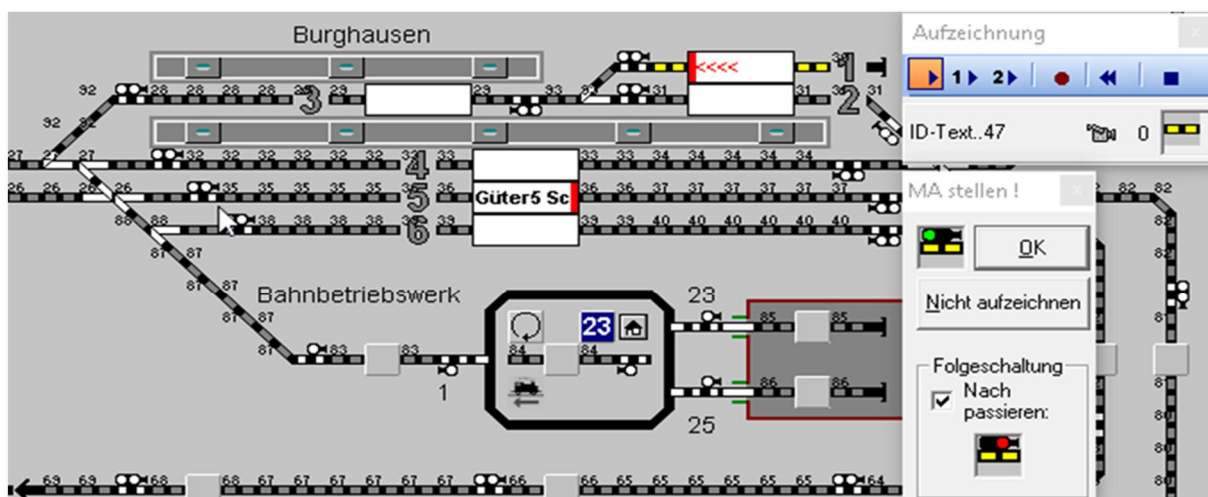


Fig. 6.57 The program asks for the desired aspect of the signal

For our example the proposed aspect of the signal is correct (HP1 resp. green). After leaving the start contact the signal should be switched back to red (HP0).

After pressing 'OK', the automatic recording will be continued.

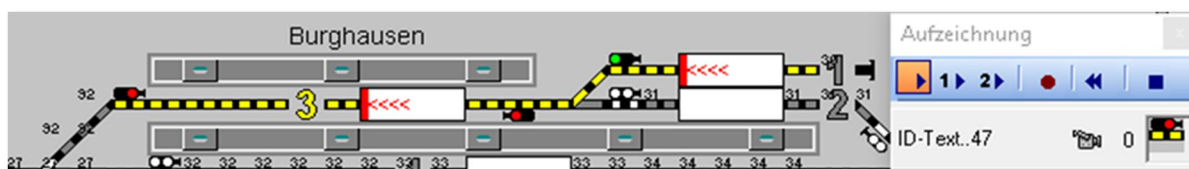



Fig. 6.58 The route has been recorded until the destination symbol



For the following turnout and signal in opposite direction, the program will not ask for the state/aspect because these can be calculated by the recording itself. Also the need aspect of the destination signal is clear for the program.

Now the automatic route recording should look like this and with a click on  the route recording will be saved.

You should answer the confirmation request concerning the switch conditions with '**Yes**'.

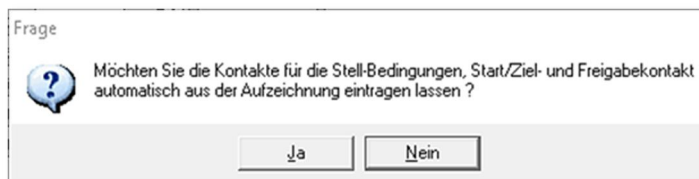


Fig. 6.59 The switch conditions should be created automatically

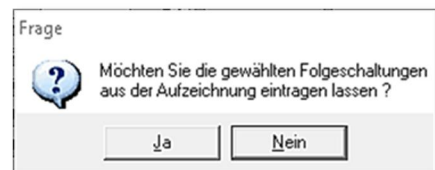


Fig. 6.60 The add-on switchings should be set also automatically

Using this function, the feedback contacts will assigned to the switch conditions of the route in the correct order.

Also the start-, brake- and destination-contact as well as the release of the route will be set automatically for the route.

The next question of the program is covering the add-on switchings which had assigned during the route creation. In our example we chose to switch the start signal back to red after passing (see Fig. 6.57).

You should allow the transfer of the add-on switchings to the route database by pressing '**Yes**'.

The route wizard now confirms the route creation and you can adjust/correct the suggested route naming and the speeds within the routes. Afterwards click '**Next**'.

6.5.8 Recording routes with partial releases semi-automatically/manually



As long as a train travels through a route, all solenoid devices in that route are blocked. A crossover of other trains is not possible.

The solenoid devices can only be made available for further train movements, when the train has reached its **Destination** within its route. This is achieved, once the **Destination** contact is activated e.g. "Released".

Probably the system may slow down, if there are very long routes containing many solenoid devices. To prevent this and also to make the train operations on the layout more interesting, two partial routes within the route can be defined and released, before the train has reached its destination contact in its route. These partial releases will be released as soon as the train has reached/left the defined contact for the end of the according partial release.



We will explain this using a zig-zag shunting route and add one partial release to this route. The route should start in track 2 of Burghausen, it should cover track 3 and end at track 1. Start the manual/semi-automatic route creation within the route wizard according to section 6.5.7.

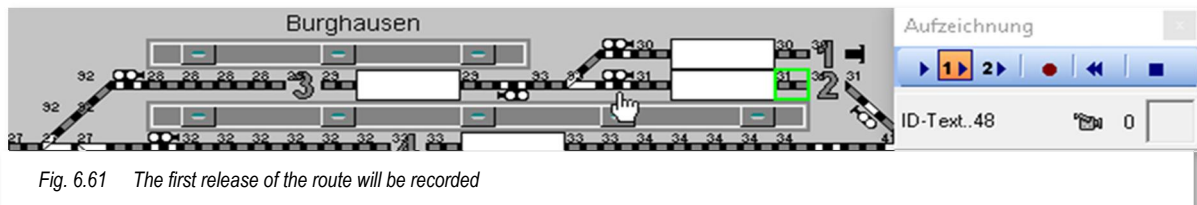


Fig. 6.61 The first release of the route will be recorded

For the recording of the first partial release press the button **1** in the recording window. Afterwards click with the left mouse button on the start contact 54 right of the start train number display while holding down the shift-key (it will be framed green). After this hold down the shift-key again and click with the left mouse button on the next signal (see hand symbol in figure).

After the two clicks the well-known window asking for the start direction will appear. Select within this window the start direction to the left. The window will disappear and the two track symbols left and right of the train number display will be coloured red as indicator for the first partial release. The signal within this first partial release will get a small "1" beside of it.

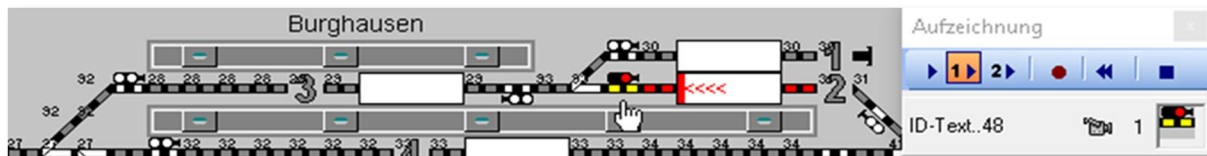


Fig. 6.62 the recording of the first partial release will be coloured red

At the start signal the semi-automatic recording has been stopped because it has been selected as end of the recording. Due to this selection the program did not ask for the desired state/aspect of the signal. If you want to change the signal aspect, you need to change it manually.

In our example we plan a shunting operation and due to this we don't change the aspect to any other than HP0 (red).

At the turnout (mid of Burghausen) we want to start the main release of this zig-zag shunting route. For this we press the button **2** in the record window for starting the recording of the main release.

For the following part of the route we don't want to use the semi-automatic route recording. We will perform the remaining part of the recording using the manual recording. For the manual recording we need to select one symbol of the route after the other by clicking on



the symbols using the left mouse button. Solenoid devices can be set to the desired position by repeated clicking onto them.

We will also include the signal in the east of Burghausen track 3 into our recording, because:

- 🚂 the shunting route should only be switchable if no train is occupying track 3 or is on its way to track 3
- 🚂 no train shall be able to drive to track 3 while the shunting route is active.

Please take a look at the small numbers between the camera symbol and the turnout/signal

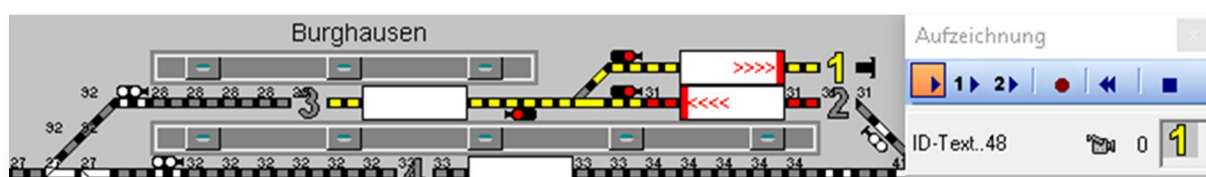


Fig. 6.63 The main release will be shown in yellow

symbol in the recording window as well as in the track diagram during the route recording.




The semi-automatic route recording can be interrupted at any time. By clicking on start- and destination-symbols you can split your recording in several steps as described before.

Please be informed that a recording you can only start/stop at normal track symbols and signals (not at turnouts, threeway-turnouts and double slip-crossings).

After reaching contact 56 the locomotive shall be turned and then travel backwards to track 1 of Burghausen.

Therefore we need to switch the state of the turnout to branched after the train has passed this turnout. This will be done using an add-on switching later on. For the recording itself we set this turnout to straight as shown in the figure. The symbols of track 1 Burghausen need to be selected click by click.

The complete route record should be identical to the one shown in Fig. 6.63 and can be saved afterwards by pressing the button . After the well-known question the switching conditions, add-on switchings and release conditions will be assigned to the route.

The route wizard now confirms the route creation and you can adjust/correct the suggested route naming and the speeds within the routes. Afterwards click '**Next**'. After pressing '**Finish**' the route wizard will be closed and the route database will reappear.

The add-on switching has to be registered for our example manually, because we did record the main release also manually. The following figure shows the registration of the add-on switching within the route database.



In our example the turnout should be switched branched as soon as contact 56 gets occupied. Therefore we need to enter the contact number to the input boxes of the first add-on switching and afterwards drag the turnout to the symbol box beside of it.

The registration of add-on switching will be explained later in detail.

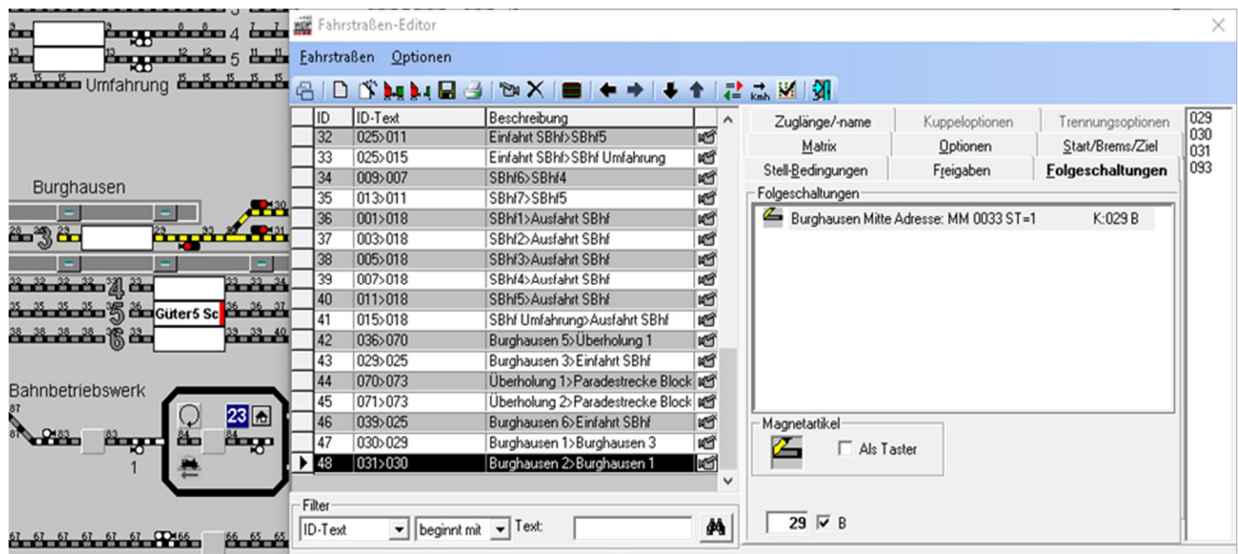


Fig. 6.64 The recording of the add-on switching within the route database







The route creation using the route wizard is very fast and error-free.

Please remember, that routes which have been created using the wizard will be created using the default settings for releases, add-on switchings and speed, because **Win-Digipet** does not know all possible situations on the layout in detail.


Because of this you might need to alter routes after the creation with the route wizard.

Some examples for such changes are:

-  Altering or adding of partial releases
-  Changing the brake speed or adding intermediate contacts C1 to C3 and the according speeds
-  Selecting the stop position within the intelligent train number display if the default options does not fulfil your needs
-  Moving of the check contact or adding of a security contact



6.5.9 Creating routes manually without the route wizard

To record a new route manually, click on the menu <Routes> <New> or on the symbol  in the toolbar.

In the routes editor a new row with an ID text assigned by the program and a suitable description is inserted.

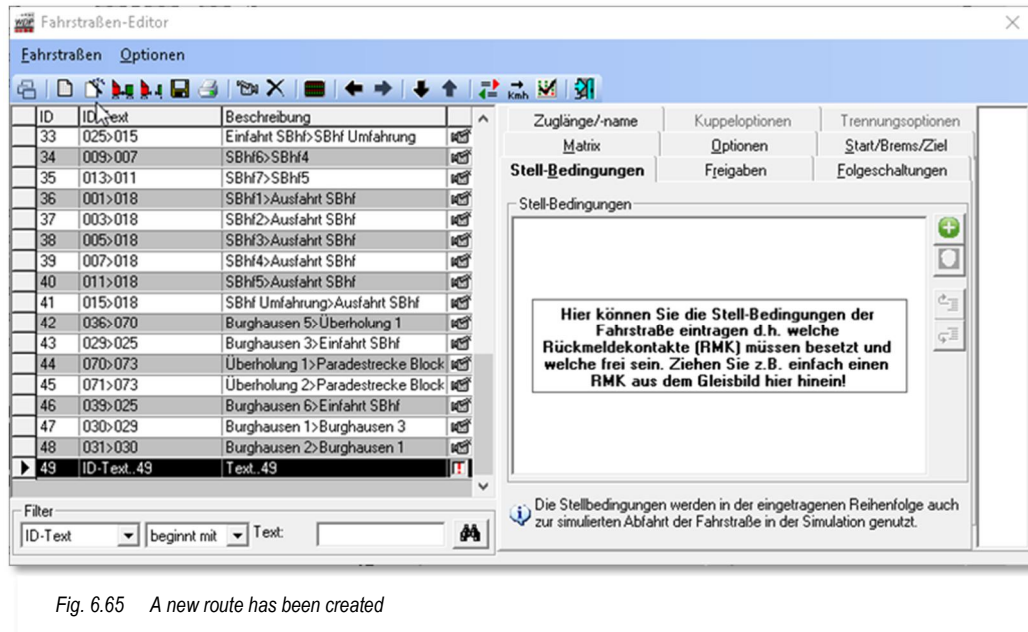



Fig. 6.65 A new route has been created

In the list's last column you see a red exclamation point, as a distinguishing mark, that the route has not been recorded until now.


The new record will be shown at the end of the route list resp. at the bottom. By clicking on the column header "ID" you can also resort the list to show the new route at the top of the list.

For starting the route recording, click on the symbol  in the toolbar of the route database editor. All further recordings steps are the same as described for the manual recording using the route wizard described before (see section 6.5.8) and will not be described again.

Please take sure to record the route properly in the correct order of the contacts and answer the well-known question after the end of the recording with 'Yes'.



Then the registration of the switching conditions, the main release, as well as the start-brake- and destination contacts will be automatically registered on the according index cards within the route database editor.

The correct of order of the contacts on the index card for the switching conditions is important for the correct operation of the simulation.



Routes with partial releases do need **always** also a **main release**, because otherwise this could lead to false effects during operation of **Win-Digipet**.

For partial releases...

-  do always choose a proper start and end
-  and when they shall be released,

...to achieve a proper, safe and fast operation.

It is very important, that your feedback contacts are working properly, when using the option "*FREE*" for the partial release. If you cannot guarantee the proper functionality it is better using a contact later within the route with the option "*OCCUPIED*". Please remember in this case to use a contact which is so far away from the partial release section, that even the **longest train** has left this region when reaching the release contact.

6.6 *Changing routes created automatically by the routes wizard*

If you have created routes with the route wizard, you might want to change/alter these routes. Possible reasons for changing routes are e.g. partial releases, stop positions or speeds at several contacts.

Within the next subchapters we'll explain the changes that might apply to **all** already **created** routes.

6.6.1 *Changing routes without change of the itinerary*

A change of a route might even be necessary even if the itinerary has been recorded correct, but e.g. a change of a signal aspect, the speed at the brake contact or other speed changes are necessary.



For selecting an already existing route within the route editor you can select the route in the route list or the easier way is to click with the middle mouse button on the **start** train

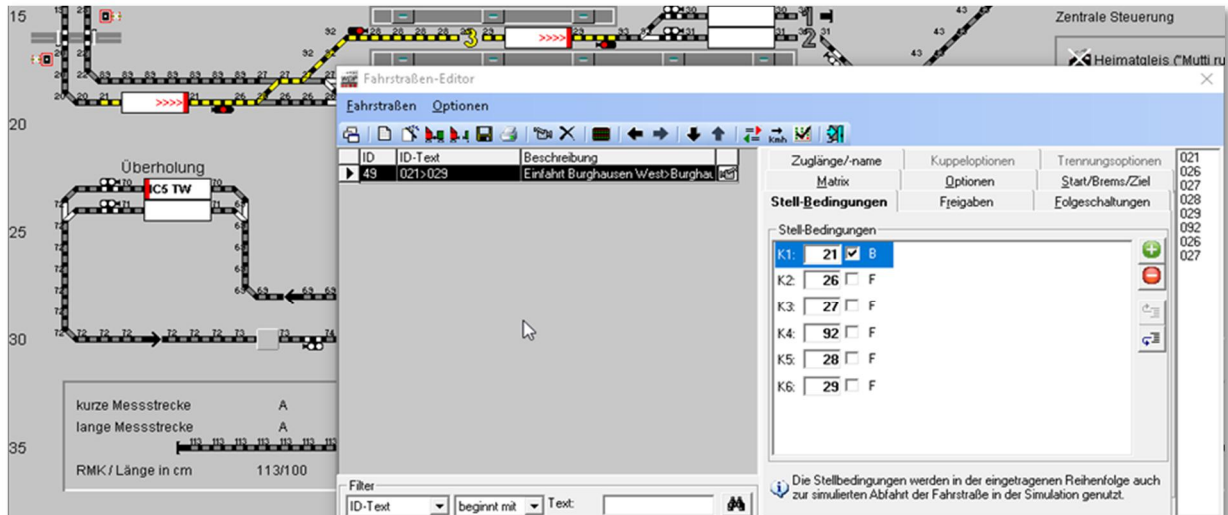


Fig. 6.66 Selection of a route in the route's editor

number display and afterwards again with the middle mouse button on the **destination** train number display.

The route will be selected in the list and highlighted within the track diagram. All others routes will disappear for this moment from the routes list and will reappear when pressing on the most left button in the editor's toolbar.

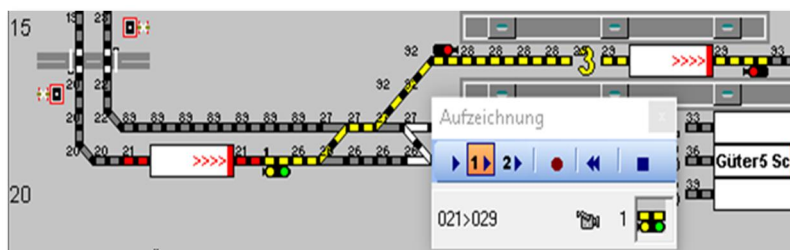





Fig. 6.67 The aspect of a signal within a route has been changed

As you can see in Fig. 6.66, the route 020>029 was recorded with the aspect Hp0 (red) of the entry signal. This shall be changed, so that the aspect Hp2 (yellow-green, slow speed aspect) is shown, when the train passes the following turnout.

For the change of the route recording click on the camera symbol  in the toolbar of the route's editor.


The route has been recorded with a partial release 1 and a main release. Therefore, you must take care about the assignment of the signal to a partial release.

You can now repeatedly click onto the signal until shows the desired aspect (here HP2).

You can save your changes in the route's recording by pressing the button  within the recording window. Thereafter you need to save the complete route pressing the button  in the toolbar of the routes editor.

6.6.2 Changing a route with partial releases

For longer routes it is advisable to assign partial releases to them. As example want to change the route with ID No. 56 and ID-Text 025>021. In this example a longer routes leads through a station until the next block signal. For accelerate the operation within the station, the route shall be enhanced with a second partial release including the exit turnouts of the station.

After selecting the route click on the symbol  in the toolbar of the route's editor to start the recording mode for this route.

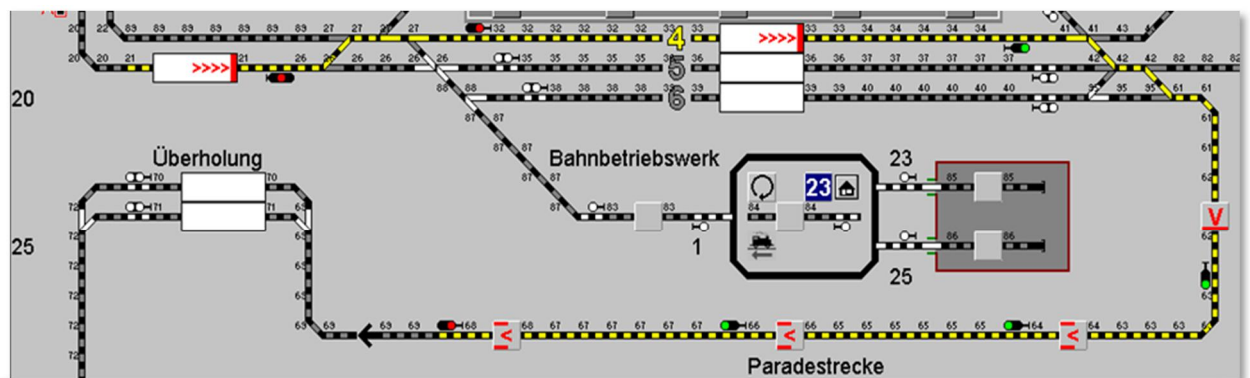


Fig. 6.68 A route with one partial release will be changed.



The route has been recorded with one partial release until the first signal. The remaining part of the route belongs to the main release.

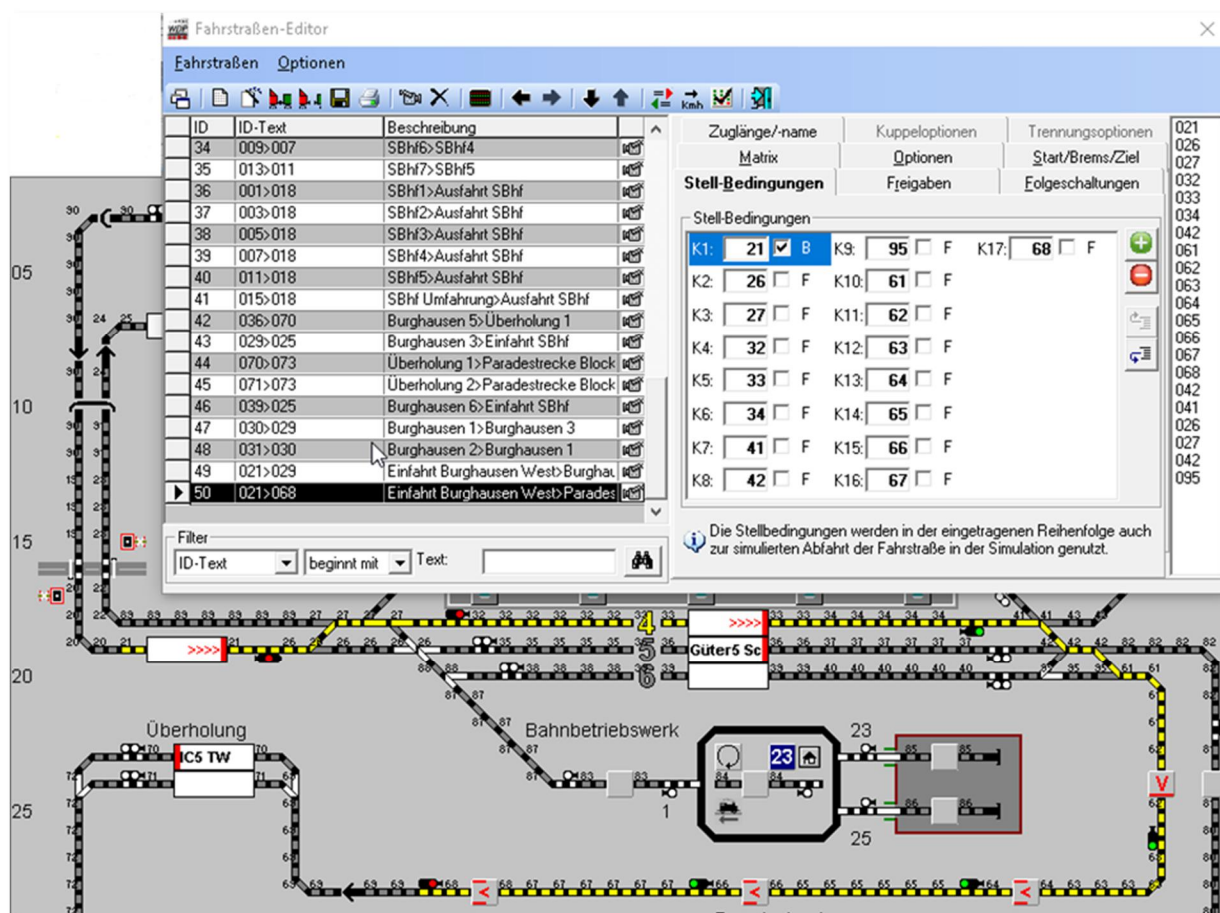



Fig. 6.69 The route leads through the station without second partial release to the destination.

The route shall now be changed by assigning a second partial route starting at contact 27, through station track 4 until the following exit track.

Now select in the recording window the button showing a "2" to start the assignment of the second partial release. Select now the symbols within the track diagram which shall belong to the second partial release. You can do this by clicking on the desired symbols one after the other. But you can also use the semi-automatic route recording as described in sections 6.5.7 and 6.5.8.

The result is shown in Fig. 6.70. You can see, that all parts of the route which belong to the second partial release are coloured in red/yellow. All solenoid devices belonging to this second partial release are showing a small "2" beside them.

You can now save the changes within the recording by pressing the button  in the recording window.

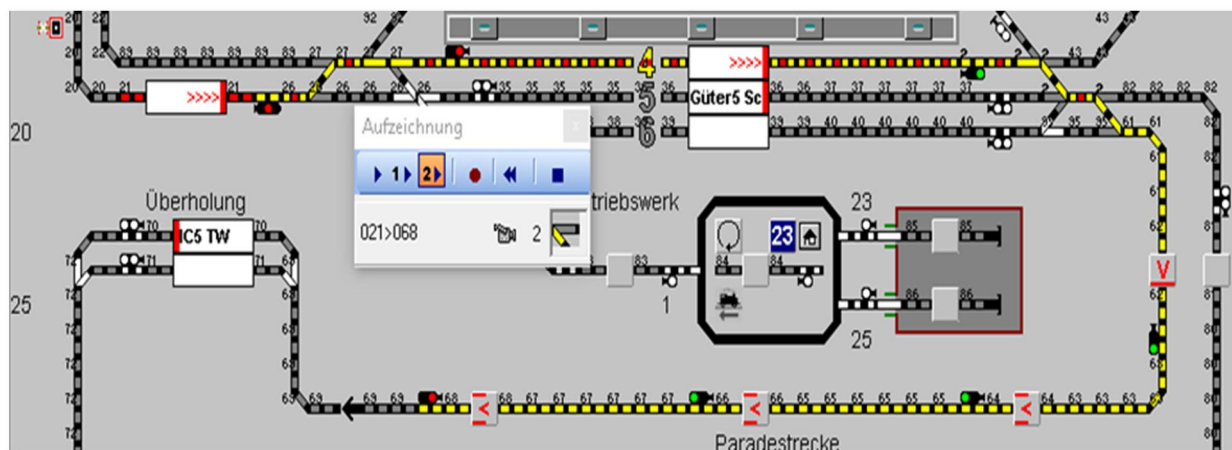


Fig. 6.70 The release condition for the second partial has to be assigned.



It might be possible, that the small numbers beside the solenoid devices can't be seen very well. In that case try to switch to another zoom level in the track diagram or change the symbol table temporarily.


The upcoming question regarding the transfer of contacts to the switch conditions etc. has to be answered with **'No'**, because no feedback contacts have been changed or added.

Because of the assignment of a second partial release, that did not exist before you need to make additional registrations on the *"Release"* index card of the route's editor.

The input box K1 of the partial release 2 in Fig. 6.71 has a red background on this index. Using this red coloured background **Win-Digipet** shows you, that there is an error situation. In this case, it is the missing release definition for the second partial release.

You can now enter the feedback contact number 61 into the red input box. The box will change its colour from red to white.

Immediately after entering this number the check box for *"OCCUPIED"* will be checked. But we do not want the release, when the contact gets occupied, but when it gets ***"FREE"*** again. Therefore, click on the checkbox and the label will change from *OCCUPIED* to *FREE*. It is important to know that free means *"FREE again"*.

The changes shall now be visible as shown in Fig. 6.72. Now you can save the route by clicking on the symbol  within the route editor's toolbar.

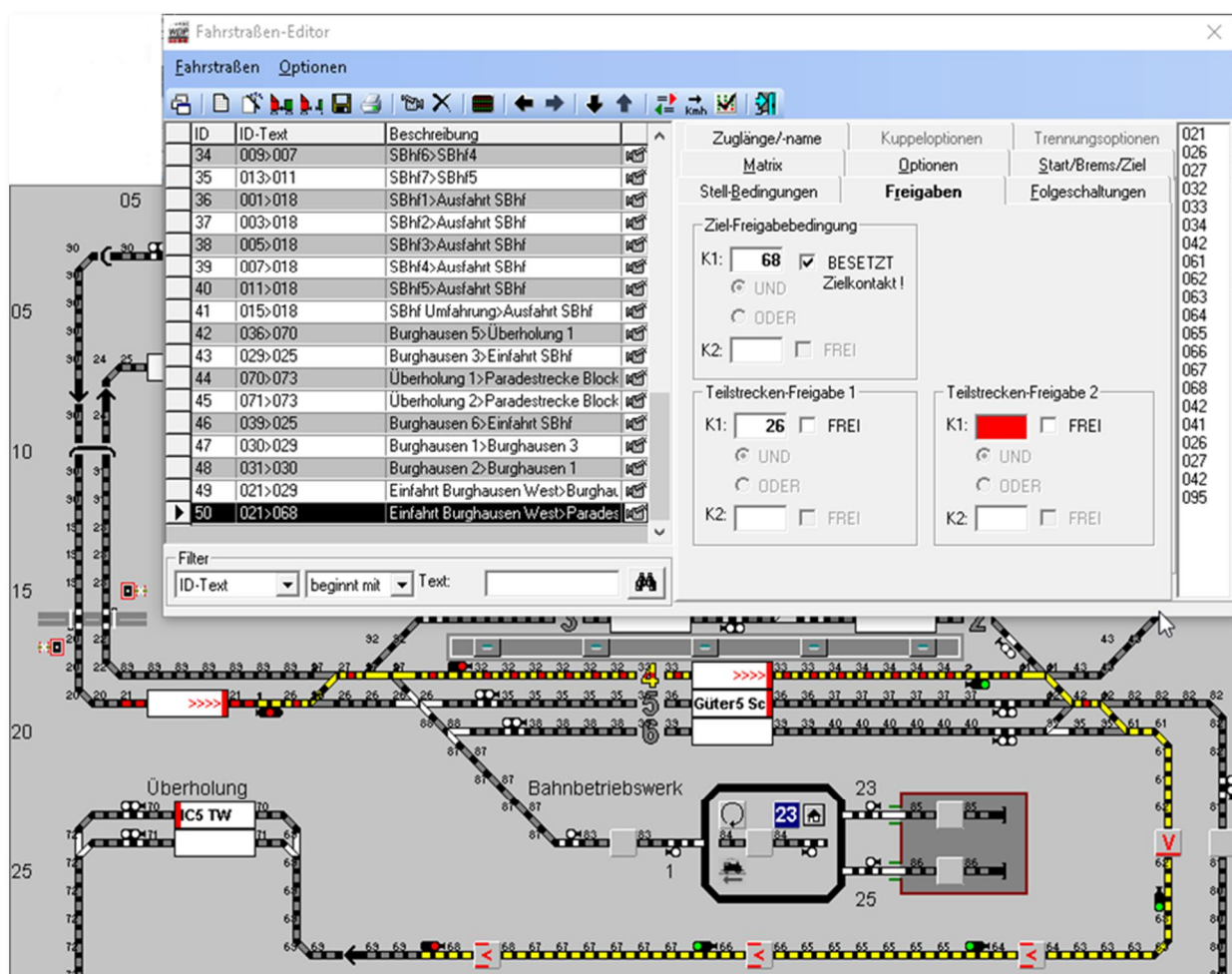


Fig. 6.72 The release condition for the second partial has to be assigned.

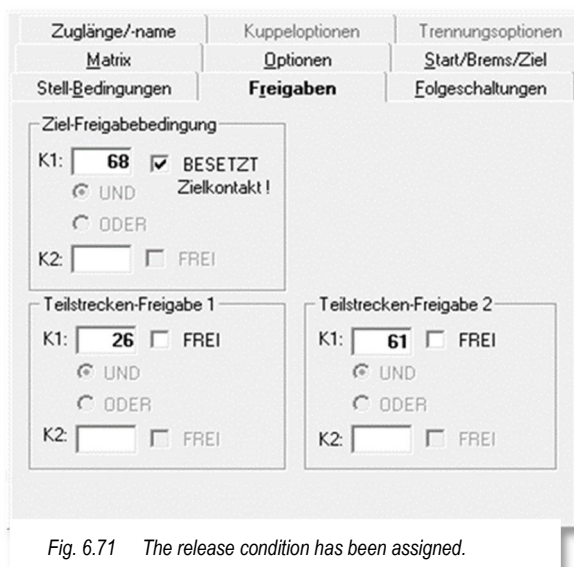



Fig. 6.71 The release condition has been assigned.




6.6.3 *Changing routes which are not needed any more*

If you don't need a route, which you created in the past, any more, then you can delete this route or you can change this route to a new one.

For changing the route's recording you need to click on the symbol  in the toolbar of the route's editor. The window for the route recording will appear.

For deleting the complete route recording click on the button  in the recording window. The old recording will then be cleared completely.

The already existing route data record is now "empty" and you can now start with the recording of the new route.

After completing the recording, you need to click on the symbol  for saving the route recording.

The questions regarding the transfer of switching-conditions and add-on switchings should be confirmed with '**Yes**' and then the changed route will be visible in the route editor.

As last step you need to change the route's name. You can do this semi-automatically by clicking with the right mouse button on the route in the route list of the editor. Select from the menu the item to rename the route automatically.



Reusing routes in that way is dangerous, because if you have used the old route for example in the tour automatic, in tours or profiles these program parts will now use the new route.

But in most cases the new route will have a different itinerary and task and this will lead to problems in most cases.

6.7 Routes list

After you have closed the route wizard the route editor will reappear showing the existing routes in a list. The route created last is selected in the route list and will be highlighted yellow in the track diagram.

The route list showing all routes within your project is shown in the left part of the routes editor window.

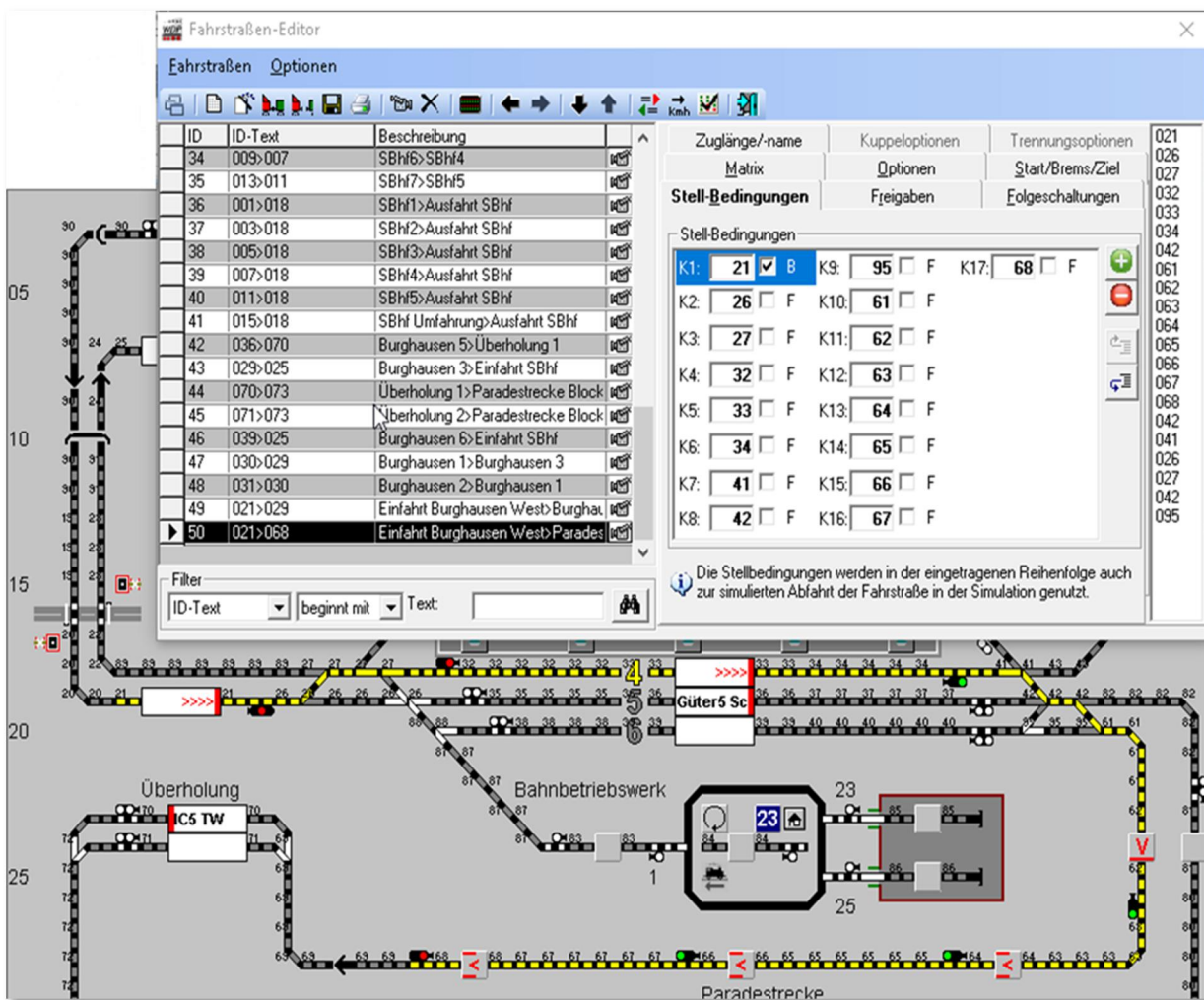















Fig. 6.73 The route list showing the last selected route.

On the right side of window, you will recognize seven or eight index cards (depending on the type of route) showing the options of the currently selected route. The most important settings have already been made by the route wizard when the route has been created.

The route can have the following parameters:



-  (switching-)conditions,
-  releases,
-  add-on-switchings,
-  loco type,
-  options,
-  start-/braking/-destination,
-  train length/ -name
-  Coupling options (visible only for expert mode)
-  Division options (visible only for expert mode)

You can fade out the index cards or you can move them to the bottom of the window. To do this, please use the four black direction arrows     on the right side of the menu bar in the routes editor.

Which change of the windows appearance will be done can easily be noticed via the "tool tip-text" at each arrow.


The feature "Fade out of tab-set" will reduce the general view. You can use this to get a better overview about your track layout diagram, if you are looking for a specific route in the routes list.



If you have an extensive route list, repeated clicks with the middle mouse button to the start train number symbol and then to the destination train number symbol (start/destination-function) will load the desired route directly.

The route will be yellow highlighted in the track diagram and in the route list only the routes with according start and destination contacts are listed...

The following figure shows a route after selecting via start/destination function.

You are able to edit this route list in a comfortable way. Select the concerning route by a click on its list row - it will be highlighted in black. After a second click you can edit the text. In addition, you see a small writing pen left of the ID-No.. To save your changes simply click to another row of the list (a confirmation request appears) or click on the symbol  in the toolbar

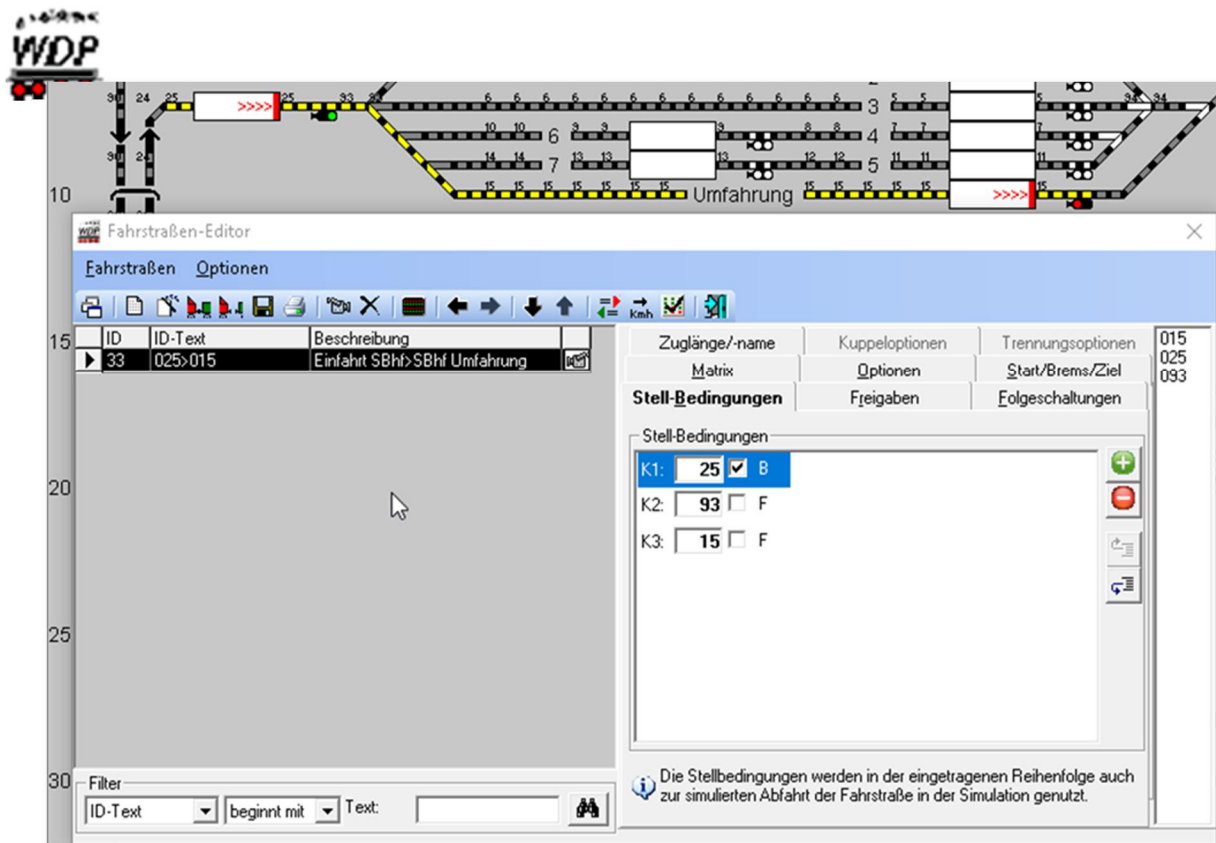


Fig. 6.74 A route has been filtered using the start/destination function.

6.7.1 Naming routes

Of course, the program has to identify each individual route. For this purpose, it uses the "ID-Text" (**I**dentification **T**ext), an entry of not more than 15 chars. of your choice. Enter it here.

In the field "ID text" you enter e.g. 033 - 095 (the feedback contact numbers of start and destination). This would be also done in a similar way by the route wizard (033>095).

We suggest using the naming similar or in the same way as the route wizard resp. the automatic renaming functioning using the name of the start and destination. Only special routes should get other names.

The big advantage to put suggestive ID's here will be later on, if you will be able to search very straight and fast for routes using different sorting functions.

In the "Description" panel enter a text with a maximum amount up to 50 characters e.g. "Entrance Burghausen Tr 1" or in the same way as the route wizard which combines the longer train number displays descriptions.

For further identification each route receives an internal ID number which, however, is not displayed in the main program. This ID number is shown in the first column of the route list; you will see them again when assigning routes in the Profile editor or in the tour automatic editor of **Win-Digipet**.



Basically it is completely **irrelevant**, if the routes are ordered by ID or if IDs are missing in the list due the deleting routes. An ID number assigned by the program once to a route cannot be reused after they have been deleted.

As soon as the ID text and description have been entered, you can save your changes using the button .

If a route was already recorded, a camera symbol appears next to the description. If you see a red exclamation mark "!", as a distinguishing mark, that the route has not been recorded until now.

If you want the program to rename the route automatically according to the name of the start and destination train number display press the right mouse button above the list and select the command <Name Route automatically>.

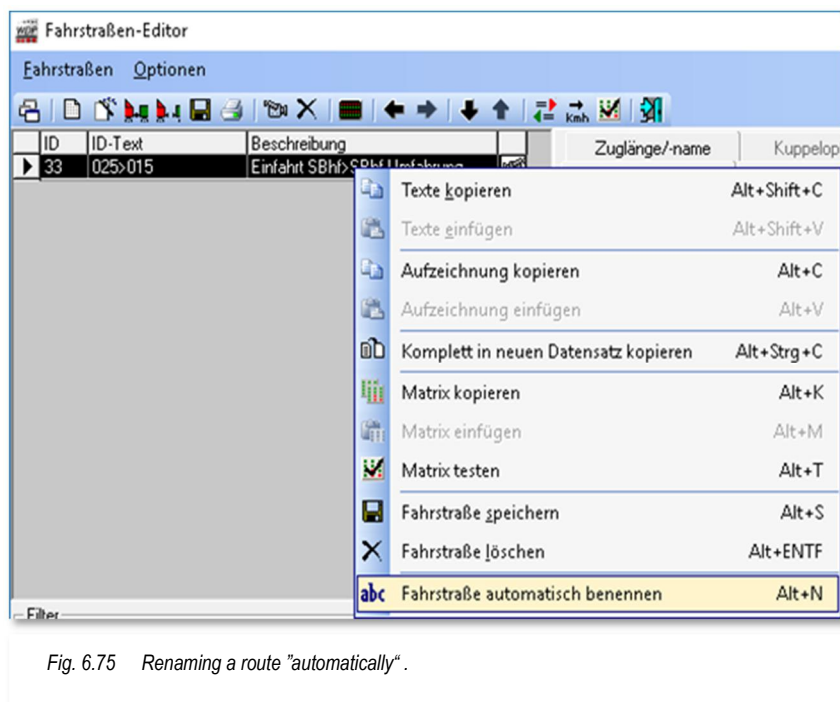


Fig. 6.75 Renaming a route "automatically".



6.7.2 Modifying,

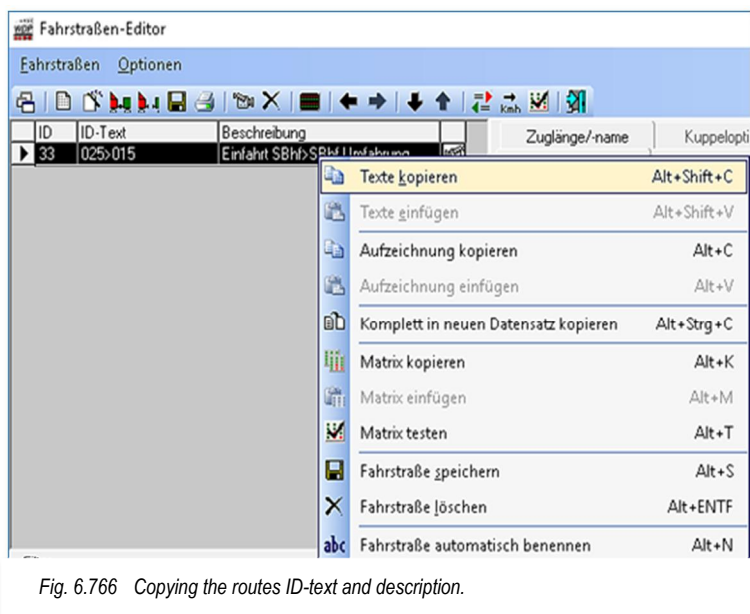


Fig. 6.766 Copying the routes ID-text and description.

copying, inserting routes

If you click on a list row with the right mouse button, a context menu with different commands opens as shown.

Through <Copy text> you can save the text of this line in the list into the memory. Further, you can activate another line in the list and select it through the right mouse button - <Insert text> and copy the text into the other line in the list by clicking on it.

Through <Copy recording> you can save the complete route recording (not the text) of this line in the list into the memory. Further, you can activate another line in the list and select it through the right mouse button - <Insert recording> and copy the complete route recording into the other line in the list by clicking on it.

There is also an option for copying the complete route record into a new one. This is useful if you want to duplicate an existing route to a new one e.g. to define the home track function for a single locomotive.




If you copy routes as described above and change parts of it, you should take care to make the necessary change on all index cards of the route editor.

This is very important an error-free operation of **Win-Digipet**.

Please remember to start a route always one track symbol **in front of** the start train number symbol and to end it **at** the destination signal or at the track symbol **after** the destination train number display.



6.7.3 *Deleting routes*

If you want to delete a route complete just select the route in the routes list and then press the button  in the toolbar of the route editor .



Each database in **Win-Digipet** (vehicle-, routes-, profile- and tour automatic) has to contain at least one data record.
The ID no. of this "last" record is completely irrelevant.

6.7.4 *Always display feedback contacts*

Click on the menu <Options> in the routes editor and check 'Display always feedback numbers' to display all the feedback contact numbers in the track diagram **every time** you start the routes editor.

After activating this function all feedback-capable symbols (track symbols, turnouts etc.) will show a small number beside of them showing the feedback number of the symbol. This has the advantage, that you can easily see which track symbols have been already recorded, because when a symbol has been recorded within a route, the small numbers beside the symbols will disappear. Deactivate this option, if you don't want to use this function

When using this functionality and the symbol tables DB resp. SP3 the small numbers cannot be seen very good by design. Therefore, we do not recommend using these symbol tables during route recording. Try yourself...



6.7.5 Sorting functions in the routes editor

If you want to sort your routes by criteria, select the menu command <Options> and the desired criteria. You can choose between three different criteria.

You can also change the sorting of the route list by clicking on the column headers of the list (ID, ID-Text or description). You might know this functionality from other programs like the Windows Explorer.

Every click on the column headers changes the direction of the sort sequence (up/down).

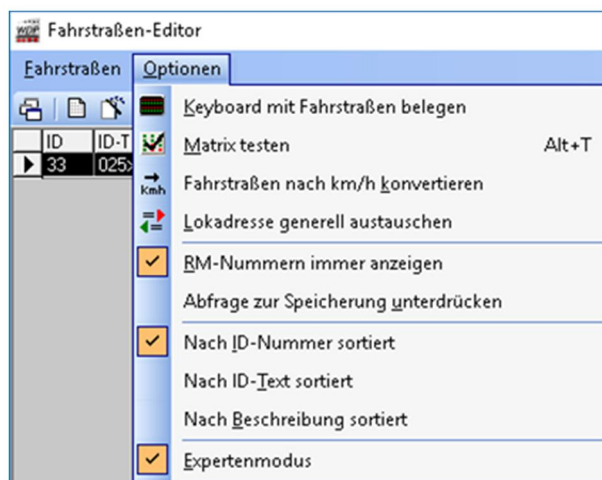


Fig. 6.77 The sorting options in the routes editor

6.7.6 Filter function in the route editor

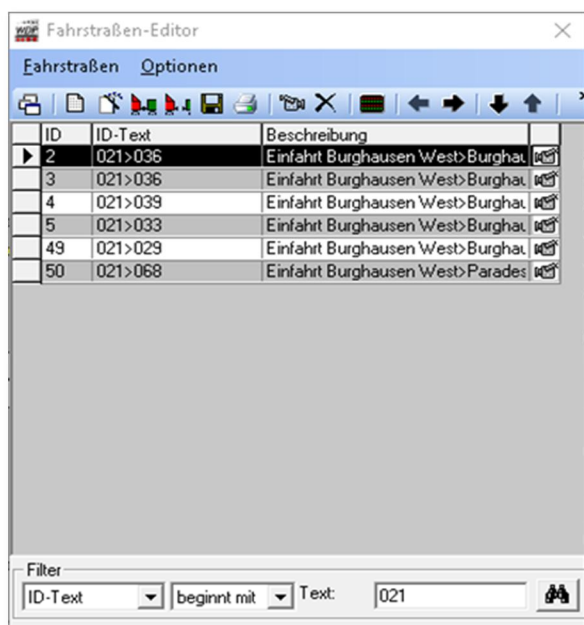


Fig. 6.78 A filtered route list

Specific routes can be easily found within the routes list by the filter functions at the bottom of the routes editor window.

In our example in Fig. 6.78 we used the filter function to show all routes with IDs beginning with "021".






You can refine the "filter" in the left choice window by the criteria in the middle choice window. In the right input field "Text:" you may enter the string of characters to search for.

You can filter your routes by: ID-No.


- ID-Text
- Description
- Route
- Locomotive address



The available criteria are:

-  Start with
-  Contains
-  Ends with
-  Is equal (=)
-  All

If you selected "Route" resp. "Locomotive address" the input box will change its label from "Text" to "Contact" resp. "Loco".

After your selection and input you activate the filter function with a click on the symbol  . All routes which fulfil one of the searching criteria appear in the list window. The first route of search result is also highlighted yellow in the track diagram.

Another very fast search function is provided by clicking on the start- and afterwards on the destination train number display with the middle button in the track diagram. The route editor will show automatically **all** routes meeting the selected start-destination condition.

For resetting the filter press  in the toolbar, afterwards all routes will be shown again.

6.8 **Recording switching conditions, starting/destination and release contacts**

If you used the route wizard for the automatic creation of routes, the switch conditions, the main release condition as well as start-, brake and destination-contact have been registered automatically.

If you already used the route wizard for the creation of **partial releases** you should take a look at the setting for the release of the partial releases, because the automatic assignment registers these releases with condition "FREE" and you might to want to change the condition to "OCCUPIED".

When using the manual or semi-automatic route recording without the route wizard you need register the settings for the release of partial releases completely manually.



It is mandatory to enter the switching-conditions, start- and destination contact and the release-conditions for every route, otherwise a smooth operating could not be guaranteed. It is optional to enter any add-on-switching, loco type or options.

Using the settings on the index card "Loco type" you can decide if a route can only be used by special types of locomotives or waggons as well by trains of specific lengths. Using you



can define, that a part on your model railroad without a catenary cannot be accessed by electric locomotives.

6.8.1 Switching conditions

If you have answered the question about the route recording with 'Yes' or used the route wizard all switching conditions were registered automatically by **WIN-DIGIPET** to the index card "Conditions". On this index card you can see the conditions have to be fulfilled before the route can be switched.

What is a switching condition in detail?

The switching conditions define which feedback contacts have to be free or occupied (according to the setting in the route editor) before a route can be switched/executed.

Mostly the conditions for a route will be:

- 🚂 Start contact "occupied" (occupied by the starting train/locomotive)
- 🚂 All other contacts of the itinerary "free"
- 🚂 The destination contact also "free".

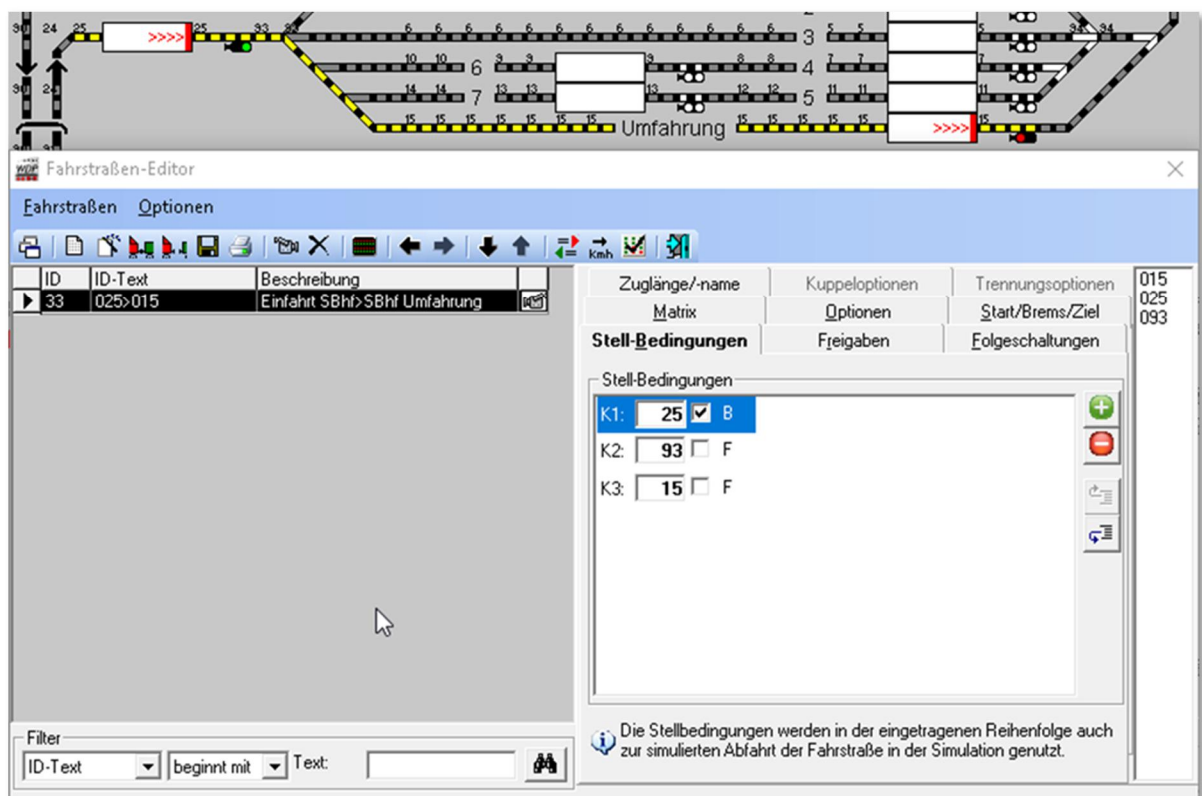




Fig. 6.79 The switch conditions define the necessary state of the feedback contacts covered by the route

Figure Fig. 6.79 shows an example for the switching of a route. The start contact (FB



contact 25) must be copied, all other feedback contacts need to be free. You can see, that the contact 25 is checked and that a label "O" ("B" in German) is shown beside this contact. The "O" resp. "B" means occupied while an "F" means free.

If you have answered the question, if you want to fill in the data automatically, with '**No**' you have to register all contacts by yourself. Click on the contact number you want to enter on the left and/or in the middle of the index card. It will be highlighted with a blue bar. Keep the left mouse button pressed, drag the number to the entries panel and release the left mouse button ("drag and drop"). Alternatively, you may enter the feedback contact number using the symbol  and the keyboard. With the symbol  you may delete entries from the list.

When registering the contacts manually you should remember to register the contacts according to their order in the route.

6.8.2 *Editing the switching conditions for a track ending at a bumper*


For some routes it is advisable to edit the route record after the route creation. We will show you this using a track ending at a bumper.


The route has been created automatically in this example. The route start at the train number display in track 1 of station Bergheim and ends at the train number display before the bumper track. The train number display contact is. Right before the bumper there is another contact with number 53.



In this case it is advisable to check, if the contact 53 is free before the route can be switched. Thus, we need to add this contact to the switching conditions.

As described above you may add a contact and assign 53 to it. It will be coloured yellow immediately, because this contact is until now not a part of the route.

After adding this switch condition, you must add this contact also to the route record. This can be done as usually using the button  in the toolbar of the routes editor.

After the window "Recording" has appeared select now the button for the manual release and click afterwards on the track symbol which has been assigned to feedback contact 53. This will be coloured in yellow in the track diagram. After a click on the symbol  in the toolbar of the window the correction will be saved to the route recording.

The upcoming message regarding the transfer of switching conditions and so on to the route should be answered with **'No'**. Otherwise, only feedback contact 53 would be assigned to the switching conditions and all other contacts would be removed.

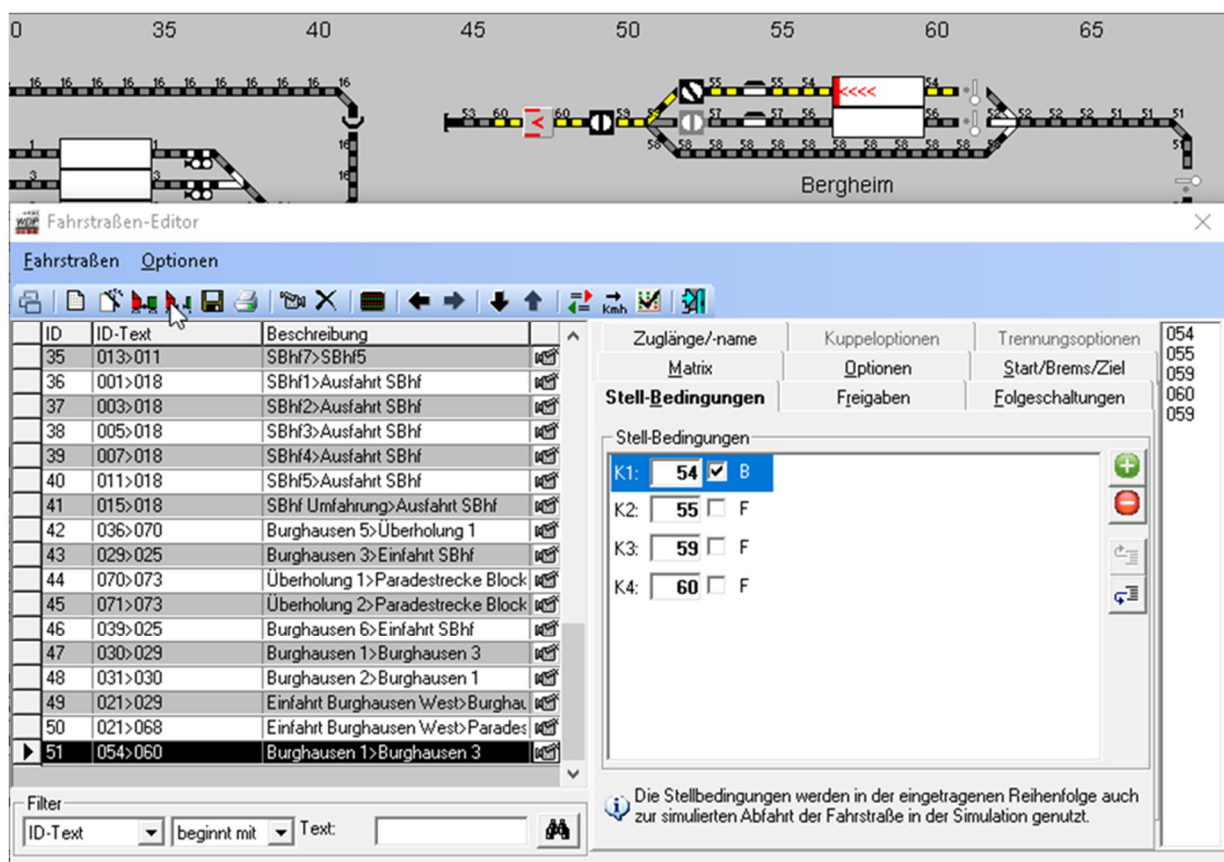


Fig. 6.80 The feedback contact (53) has not yet been registered by the automatic route creation.



In addition, the settings on the other index card would have been destroyed or changed to false values so that they must be corrected.

Now you have made the correct selection **'No'** and the switching conditions have to be completed with contact 53.

In the list on the right side of the window you can see all contact numbers included in the route's recording. The added contact 753 is also listed here (see Fig. 6.81).

Now click on the contact number 73 in the list and drag this contact with pressed left mouse button to the input box C5 ("drag & drop"). The contact 53 is now assigned to the input box C5.

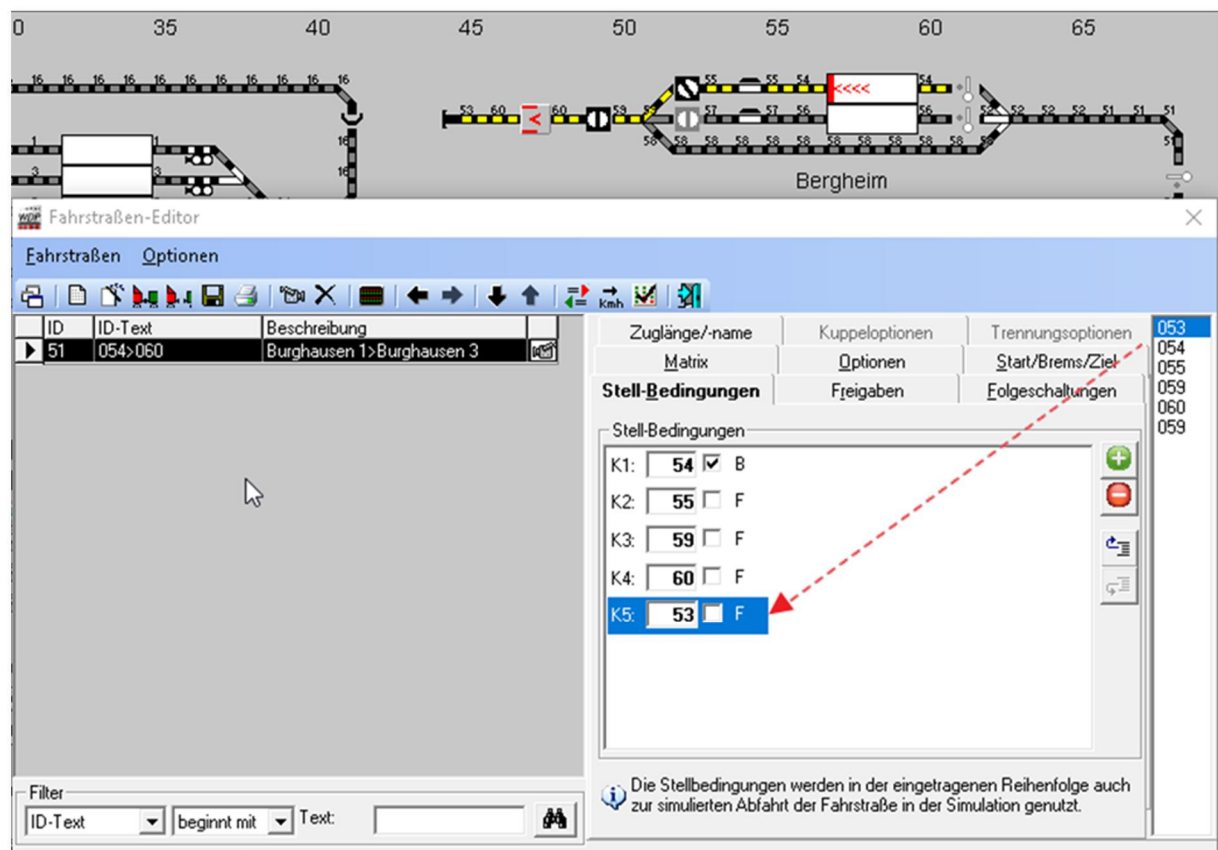


Fig. 6.81 The new contact has been added to the switch conditions

Using the index card "Conditions" you define the switch conditions for this route. In our example only the start contact has to be *"Occupied"* and all other contacts need to be *"Free"*.

Now save your changes using the button .



6.8.3 Changing switching conditions for the return tour

If you intend not to stop your trains in your station and continue their travelling the same direction, but to **turn their direction** and to drive back to where they have come from then you will have to change the automatically recorded switching conditions in the most cases. This is especially interesting to train number displays which haven't been configured as intelligent train number displays.

"Why do I need to change the switching conditions when driving a train backwards out of the station?"

The reason is that for your way back all contact after the start contact would automatically be recorded with the condition "free". But on the first of this contacts which are part of the station track the last wagons of your train will be standing and will cause an occupation message

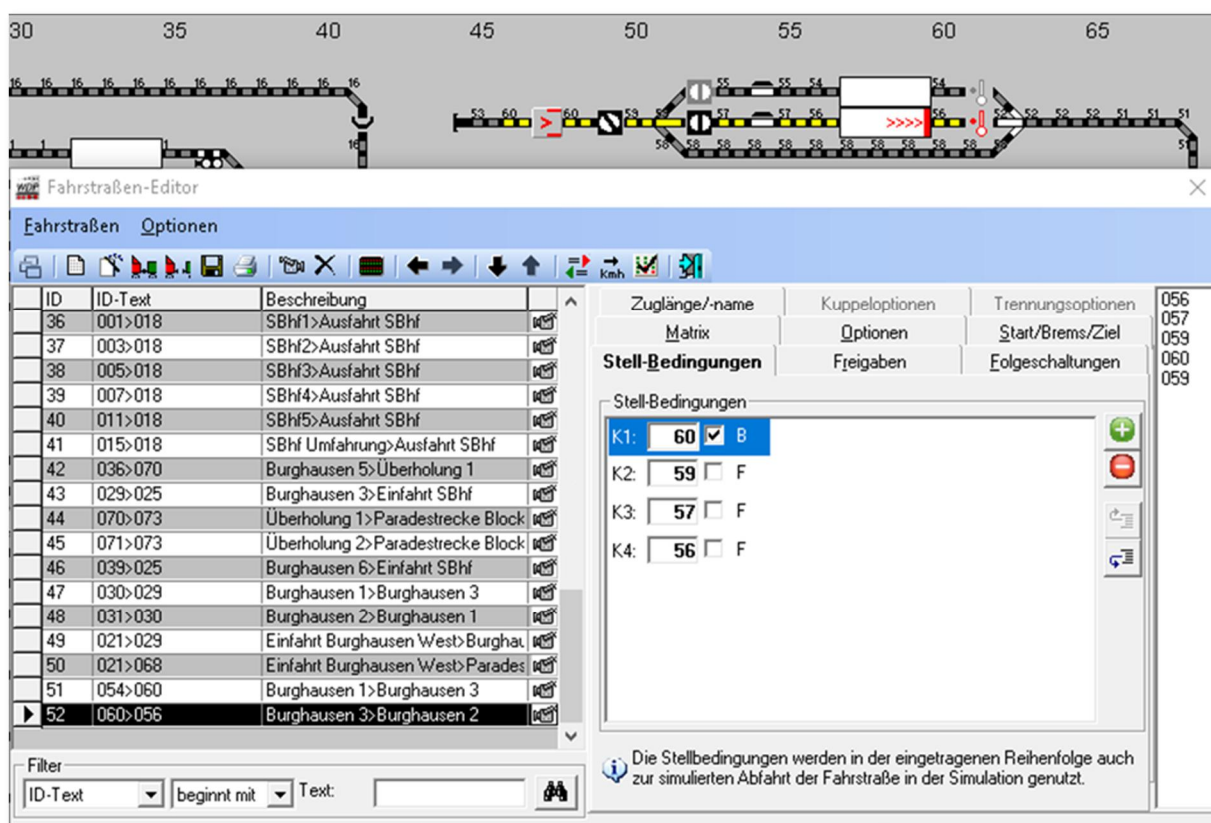


Fig. 6.82 The switch conditions for a route from "Bergheim" to "Haltepunkt Dorf"

We will explain this with a small example. In our example we use track 2 of Bergheim. The start contact for the route 060>056 is here contact 60. Our station track has also a second contact with number 59 directly before the exit signal. The train number display within in this track is defined as normal train number display.



A train arrived to this track. Due to its length it occupies both contacts, after it has stopped. After a turn the train should travel in the opposite direction to Bergheim.

In the switching conditions of the route 060>056 the start contact 60 has been set to switching condition "occupied" and all other contacts have been registered with the condition "free". This is normal for a route created with the route wizard

Depending on the train length contact 59 could also be occupied by the train's last waggons. When leaving the station to the left these conditions do not really be tested against the "free-condition", because this has already been done when the train reached the station.

Therefore, you might delete the registrations made for contact "C2", but the better solution is to set them to "Free/Occupied" for free or occupied (neutral).

Therefore, click with the left mouse button repeatedly into checkbox left of "F", until F/B is shown. The result is shown in Fig. 6.83 for feedback contact number 60.

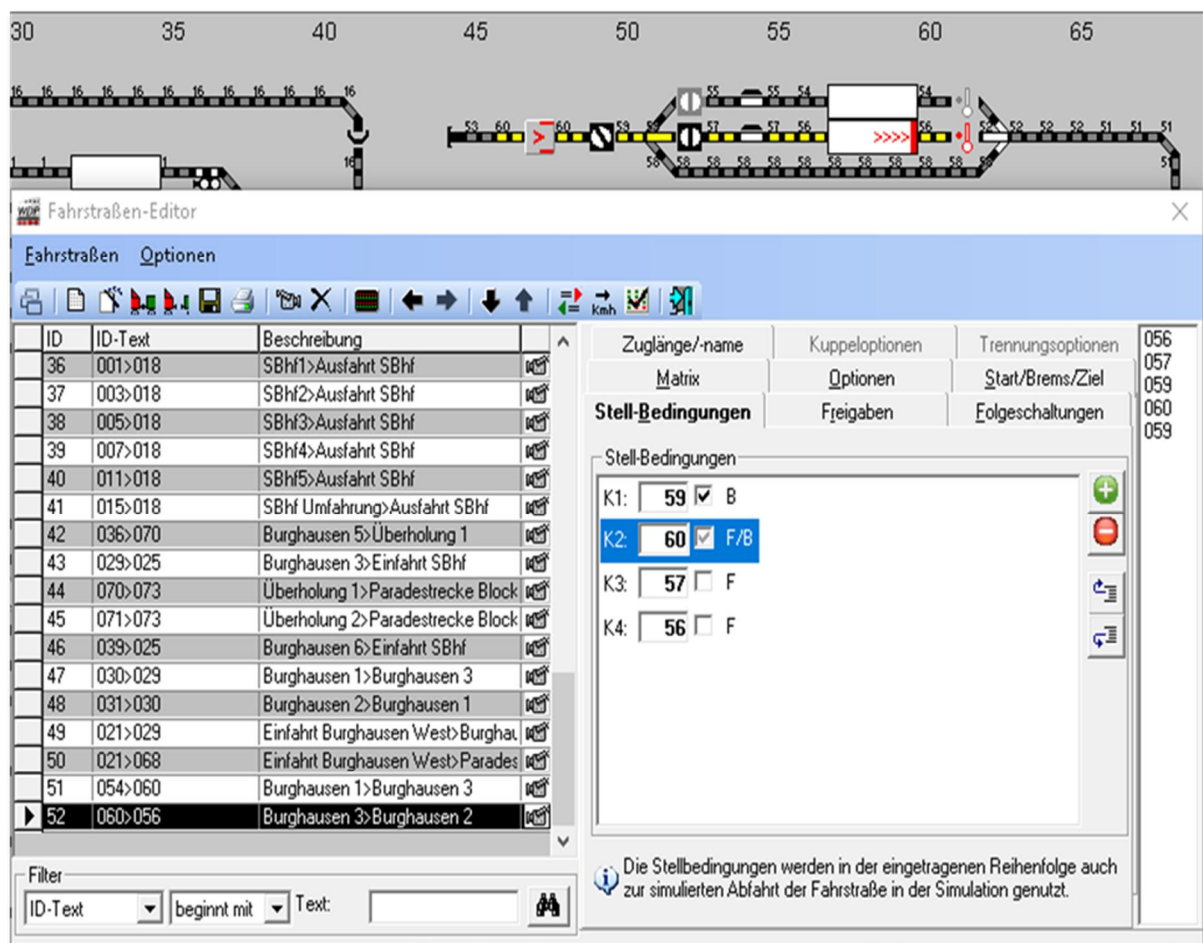


Fig. 6.83 The switch condition for contact 74 has been changed to "FREE/OCCUPIED".



If you don't make these changes, the train would never be able to return, because the switching conditions would never get true. **Win-Digipet** would show the error message "Not fulfilled switching condition C60=0" in the window "Selecting start/destination".



6.8.4 Warnings for switching conditions

In our example we added feedback contact 53 as additional condition to the switching conditions. This contact is not part of the route recording and because of this the background of the input box is set to yellow.

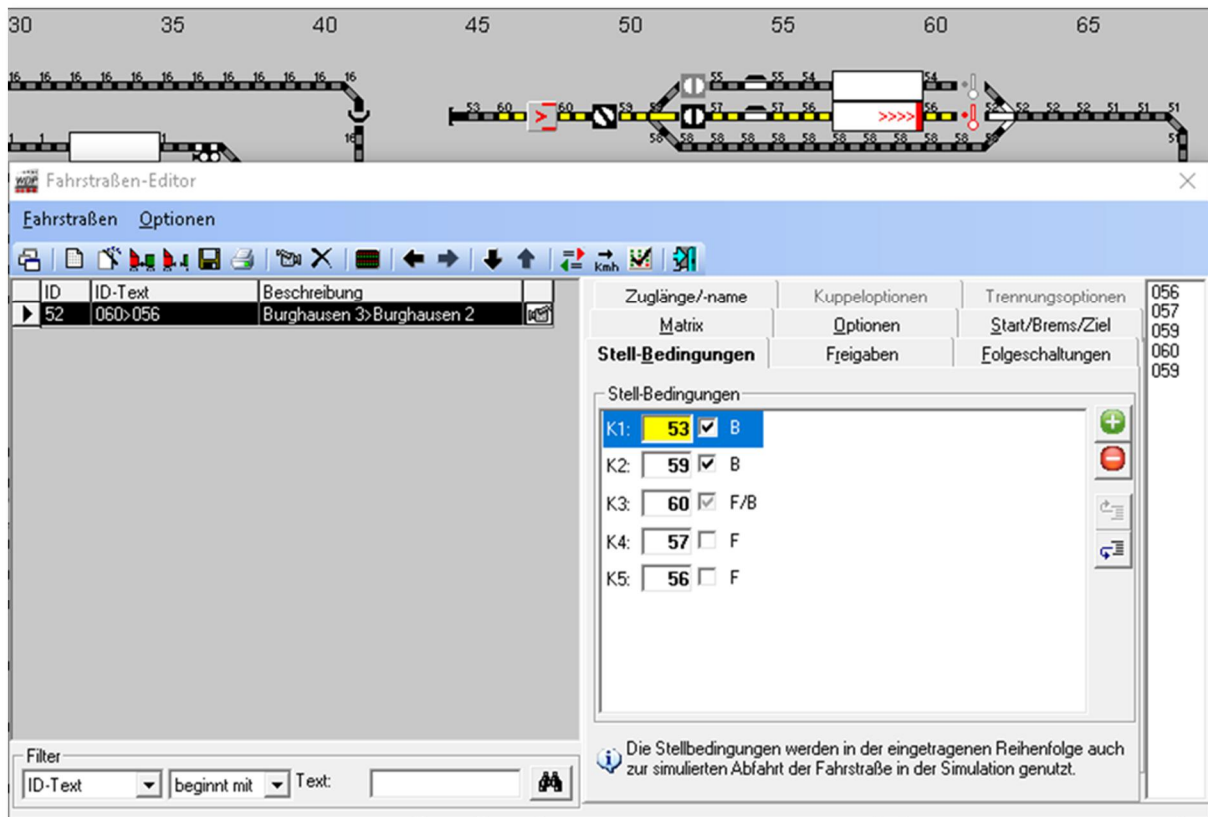


Fig. 6.84 The contact with yellow background does not belong to the route.

Win-Digipet does not know if you entered a wrong contact number by mistake or if wanted to add this contact number exactly. This yellow colour means "Warning" not "Error". It is now your task to judge if you entered the correct contact number for configuration or not.



6.9 Release conditions

Next click on "Release". On this index card you'll define the exceptions for the locking of routes and the conditions for their cancellation.

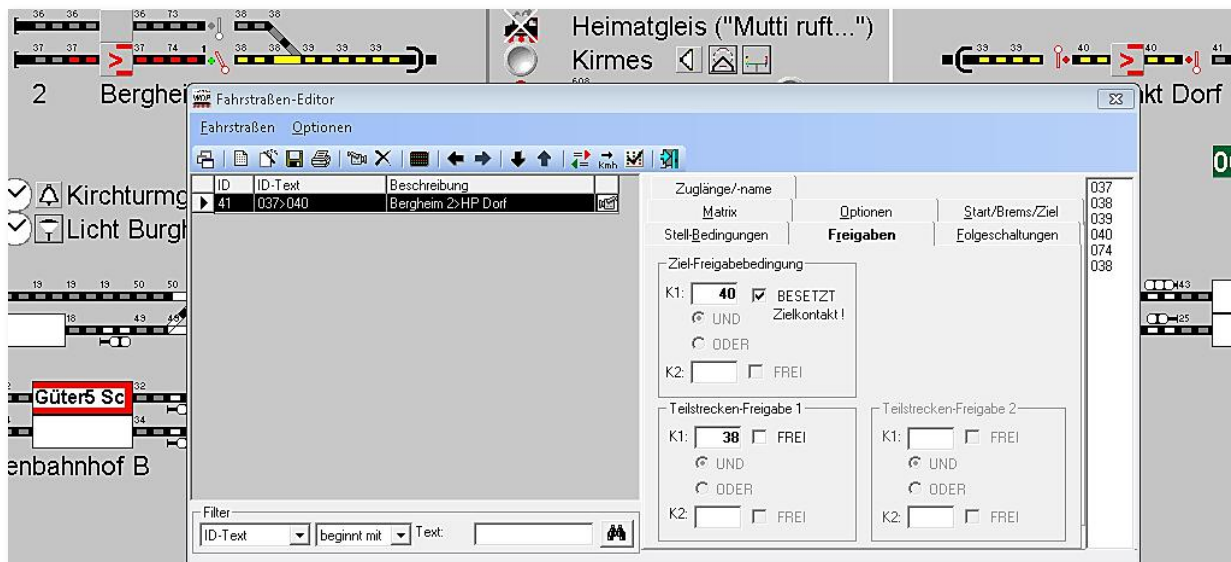


Fig. 6.85 The conditions for release of the route

Win-Digipet registered on this index card the conditions for the main and if necessary partial release, if you created your route using the route wizard.

Default setting for a route is:

- 🚂 the destination contact of the route, in our example FB contact 40 as C1 "OCCUPIED" (checked)
- 🚂 the partial release, in our example FB contact 38 as C1 "FREE" (unchecked)

"Destination release condition"

Here you define under which conditions the locking will be cancelled.

"Release" means:

Solenoid devices used by this route can be used again by another route as soon as contact C1 got occupied.

Another route (or any other itinerary), which contains a locked solenoid device- even if it is only one – of the switched route, can only be switched, after the release conditions have been met.



Again, the basic rule:

A route cannot be switched, if any of its solenoid devices is still active within another route.



This is the reason, why it is **absolutely necessary**, that each route has its **Release conditions**. Normally they are: If Destination -"Contact (C...) OCCUPIED", this means the train or locomotive has travelled through the route correctly.

"Partial route release 1 or 2"

Recorded partial routes in long routes can be released even though the train has not yet reached the destination release contact. Here you decide under which conditions the partial routes are released.

The partial route is deleted from the screen once the release conditions of the partial route have been fulfilled. It will be deactivated and all locked solenoid devices in the partial route will be released.

The condition for the release contact of a partial route is "if contact x free". However strictly speaking the condition is "if contact x **has been occupied and got free again**". Korrekt gesprochen muss es aber lauten, erst wieder freigegeben, wenn der eingetragene Kontakt x **besetzt war und wieder frei** ist.

For both partial releases an AND/OR-condition is possible and thus you can define different condition constellations for the partial release.

In addition, even in tours **all** registered switching conditions (except the occupied start contact) will be checked for "FREE" resp. "OCCUPIED".

6.9.1 *Error messages regarding unregistered contacts for partial releases*

If you recorded routes with partial releases, then you also need to register contacts for the activation of the release.

If you forget this, the according input boxes on the index card "Releases" will appear with red background. This error must be corrected so that the intended operation of the routes are warranted.

This error is indicated by the red coloured input box.



If you record routes with partial releases, you need to release every single partial release separately. A release at the end is not sufficient as this does not have any effect on the partial releases before.

If partial have not been released during the operation due to such missing contact registrations or problems with your feedback system, you need to release the route manually in the train inspector and correct the route **immediately**.




6.9.2 *Destination release condition with AND/OR*

The destination release condition as well as the partial release conditions can be enhanced by a second condition which can be combined with the first contacts with AND/OR.



If you use the **AND**-condition for the destination release, the train will not be stopped and the route will not be released until not both conditions have been fulfilled.

An example for a reasonable **AND**-condition is:

-  You are using long trains
-  You have larger set of turnouts
-  You equipped a short track behind the set of turnouts with a feedback contact

...then you could stop your train with the destination release condition "destination contact OCCUPIED and contact behind set of turnouts FREE" and also the release will not be done before this condition has been met

Using this functionality, you can ensure, that the last waggon of the train has left the set of turnouts before the train gets stopped. Of course you need to take care, that the whole train is not too long for the complete station track. Additionally, it is important, that all vehicles of the train have reliable feedback functionality.

6.9.3 ***Start-, Break- and destination-contact***

Next select the index card "Start/Brake/Destination" within the route editor. If you created the route using the route wizard or if you agreed to the according question after a manual recording, **Win-Digipet** already registered here the default contacts.

The default speed values from the system settings have been used as start- and brake-speed. If you want to use other speed values/contacts, you can change the values on this index card.




You may enter up to 21 track contacts with speed definitions into this list beside the start, breaking and destination contacts. All contacts must be registered at the route recording. In total a route can have 24 feedback contacts.

In the example shown in Fig. 6.86 the speed is considerably reduced, since this route is defined as shunt route.

You may also use the track speed defined at a contact. The corresponding procedure was explained in section 6.2.10.

It is **mandatory** to enter the **start-, breaking and destination contact** numbers of the registered route.

They are important for:

-  the start-destination function
-  the train number displays
-  as well as the tour automatic

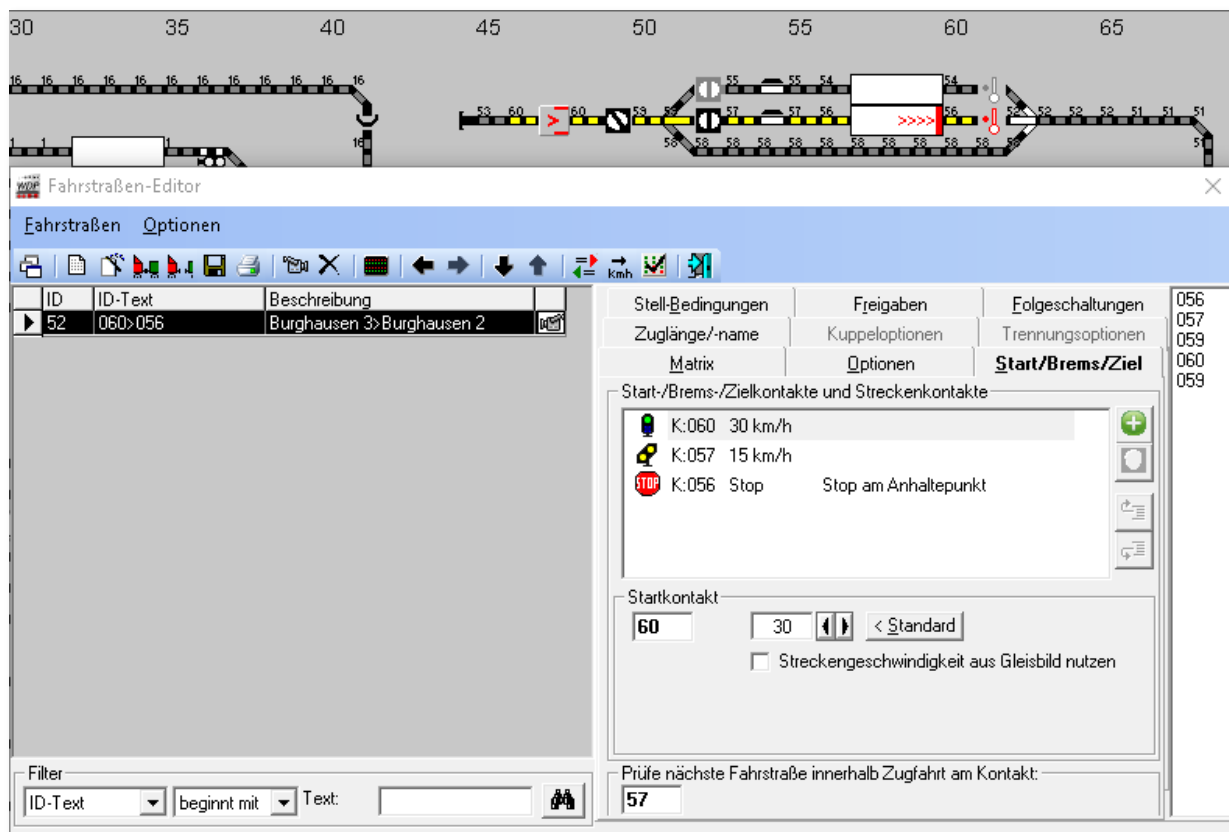



Fig. 6.86 The start-, brake and destination contacts as well as the according speeds are registered here.

Also, the check contacts needs to be registered. This contact is essential for the use of tours and within the tour automatic. By default, the program uses the brake contact as check contact. In case of an intelligent train number display the check contact must be positioned before the first contact of the intelligent train number display so that the check contact is reached at any stop position.

Using the symbols  you have to enter the speed in km/h for the start contact, itinerary contacts and braking contact in the input fields.






If you have registered default speed values for the start- and break-contact in the system settings, you only have to press the button '< **Standard**' in the routes editor and the standard values from the system settings will be transferred to your route.



The three itinerary contacts must be settled **before** the brake contact because otherwise they will be **ignored** after the brake contact has been occupied.



When controlling the trains **without profiles** using the start/destination function or the tour automatic the order of events would be as follows:

-  The train is on its **start** contact and the loco address (=train number) is has been registered in the train number display.
-  The loco starts to move with its starting speed registered in km/h
-  The **itinerary** contacts C1 to C3 are handled similar: When occupied the locomotive is (de-)accelerated according to the registered speed in km/h
-  The **brake** contact is handled also similar: When occupied the locomotive is (de-) accelerated according to the registered speed in km/h
-  At the **destination**-contact the locomotive will be stopped only if the release condition is fulfilled.



If you have selected "Immediate stop" in the vehicle database according to the vehicle database section 4.7.3, the locomotive will be stopped **immediately** when the release condition is fulfilled.

In that case the program will use any deceleration ramp, only the deceleration parameters of the locomotive decoder itself would have influence on the braking process.



6.9.4 Error messages regarding missing start-/destination contact number

If you no start- and or destination contacts have been registered, red symbols are shown in the according lines of the route editor. Additionally, the box for entering the feedback number becomes red.

Fig. 6.87 demonstrates two errors: the start and destination contacts are not assigned to train number displays.

Such errors need to be corrected. In this case the route has not yet been recorded.

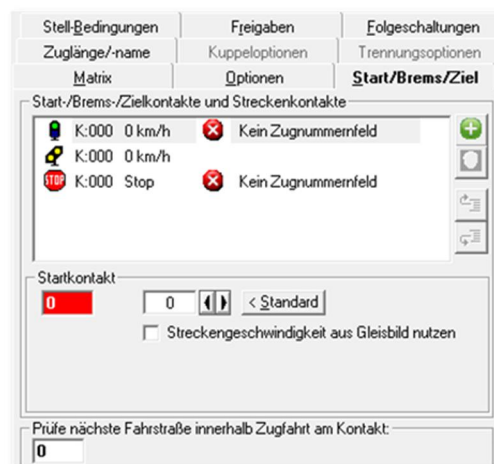


Fig. 6.87 Error are indicated by a red background



6.9.5 Start-/braking and destination contacts (intelligent train number display)

In the following example we want to show you what you have to do to switch from an older

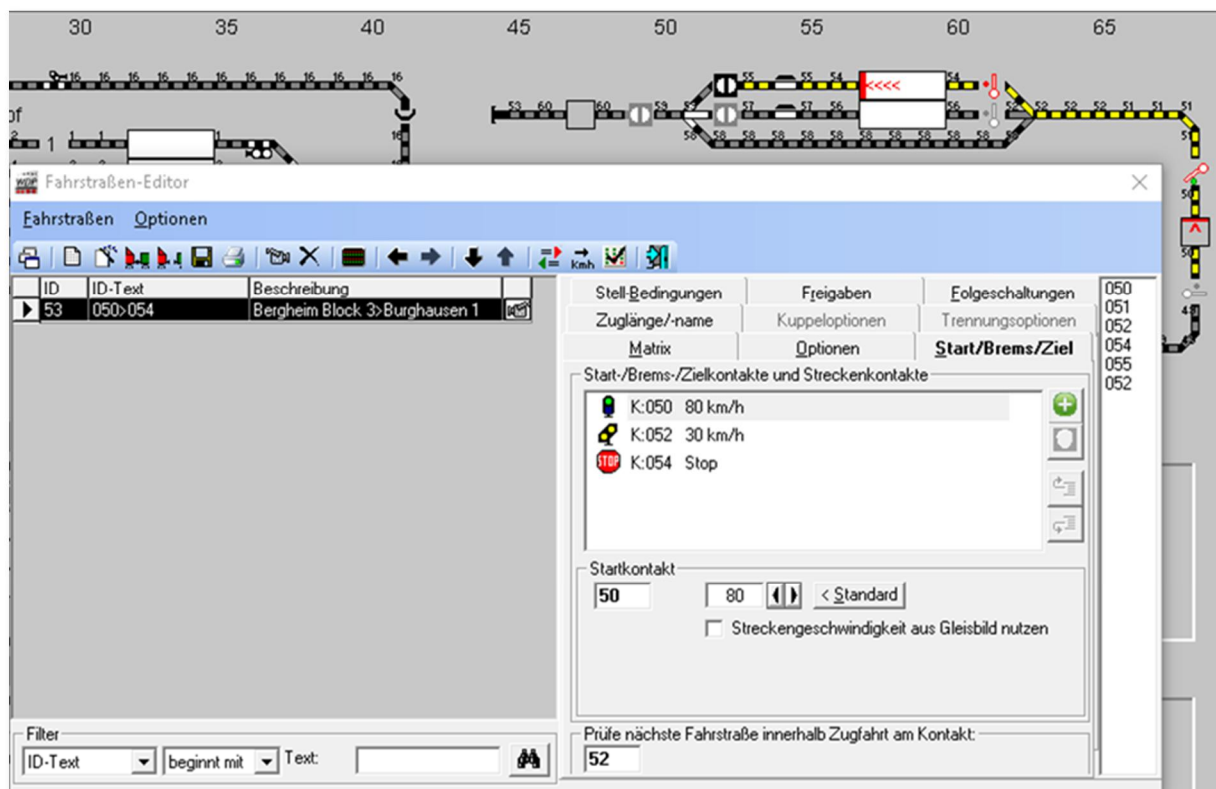


Fig. 6.88 The destination is no intelligent train number display until now

route without intelligent train number display to the intelligent train number display functionality.

Within the route editor the route 050>054 is shown with the index card "Start/Brake/Dest.". Speeds of 80 km/h and 30 km/h are assigned to the start and brake contact, respectively.



In addition, the train number display 054 has been changed to an "intelligent train number display" (iTND).

The dialog can be opened as explained in section 6.2.1 by clicking with the right mouse button onto the train number display within the track diagram and selecting <Properties train number display> with the left mouse button.

In our example we want to show the consequences of a train number display's change from normal to intelligent.

The iTND in our example contains the contacts 054 and 055. These contacts have been registered in the order from beginning to end.

We will not use a train length's limitation, because is not relevant for this example. Furthermore, we do not care for the settings for two tour directions.

After confirming the settings for the intelligent train number display in the train number display window with '**OK**' you have to reselect the route in the route editor to make the additional options for the intelligent train number display visible.

You can see in Fig. 6.90 that the option "Stop at contact" has been selected. This means, that at the moment the route will behave as before and the train will stop as usual using brake and destination contact.

For our first test with the smoother braking features of the intelligent train number display we will now select "Stop at stop point" (see Fig. 6.90). By this selection the train will be forced to brake smoothly.

In **Fehler! Verweisquelle konnte nicht gefunden werden.** you see that the check contact is part of the iTND, indicated by the blue background. This colour represents the hint that the tour cannot be continued, as long as the check contact has not been reached.

Because of this you should move the check contact to an earlier position within the route. The last reasonably usable within the route is the first contact of the iTND, because this contact will be reached in any case.

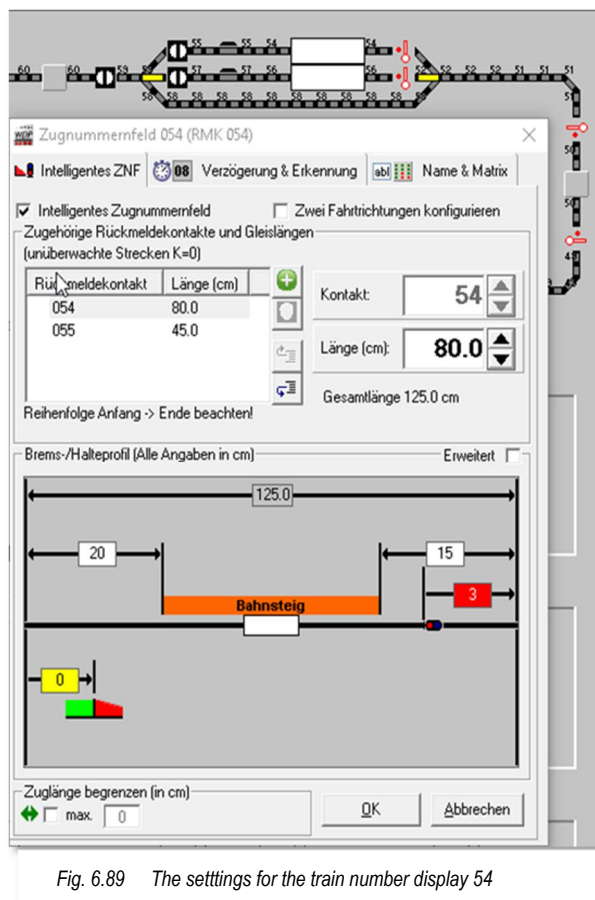


Fig. 6.89 The settings for the train number display 54



Ebenfalls blau hinterlegt werden beispielsweise die Bremskontakte, wenn sie zu einem iTND gehören und Sie auf der Registerkarte eine Geschwindigkeit vorgegeben haben. Diese eingegebene Geschwindigkeit würde beim Abbremsen auf dem iTNF ignoriert, da ja **Win-Digipet** beim iTNF die Berechnung des Bremsweges zum definierten Haltepunkt übernimmt

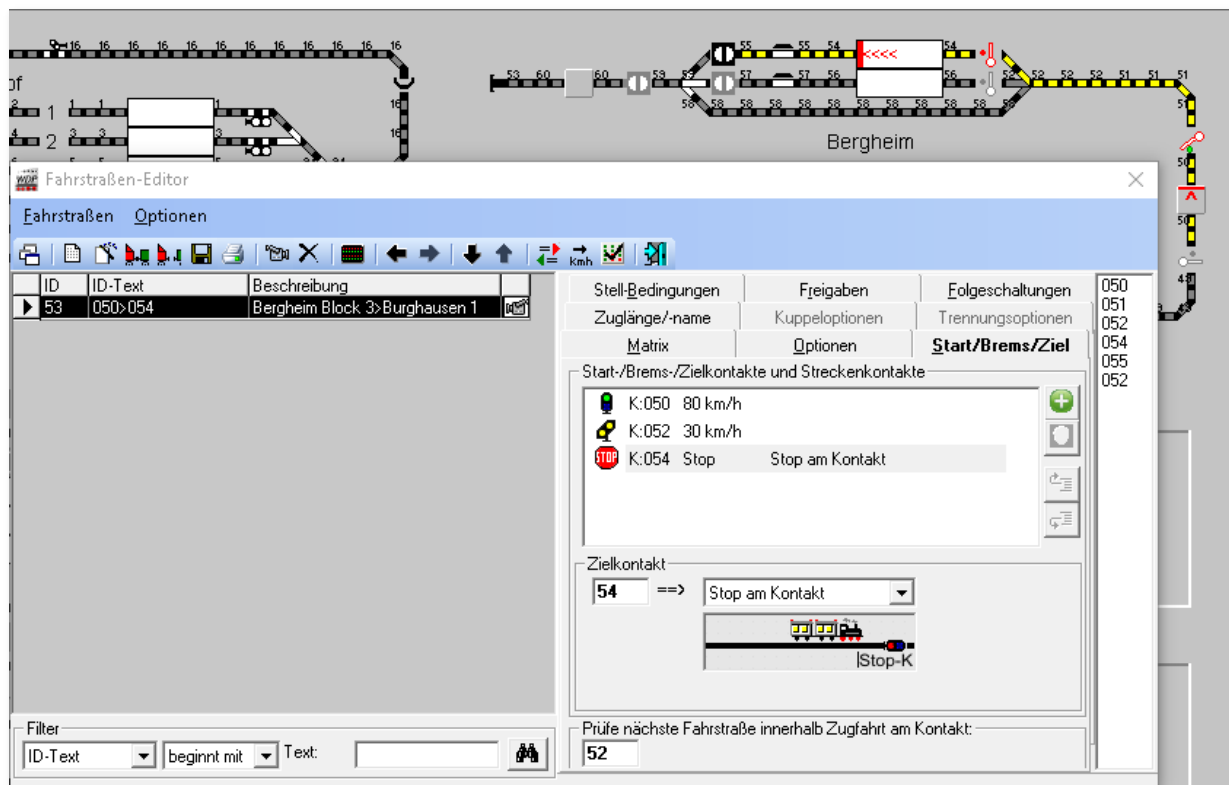


Fig. 6.90 After setting the iTND the index "Start/Brake/Dest." an additional list window is shown.

If a brake contact belongs to an iTND with a defined speed, the hint by a blue background is shown as well. The defined speed would be ignored, since **Win-Digipet** calculates the braking distance within an iTND automatically.



If you create routes using the route wizard or route navigator automatically two different variants might occur. These depend on the configuration of the used destination train number display.

New routes to an iTND will use the first contact of the iTND as check contact. New routes to a normal TND will use the brake contact as check contact.

When checking routes, it will be taken into account if the destination train number display is an iTND or a normal TND. If it is an iTND it will be checked if the check, contact is the second or later contact within the iTND.

For this case the input box for the check contact will be shown with cyan background as user information. If the check contact is equal to the first

contact of the iTND or any other previous contact no message will appear, because in this case the contact will be reached always.

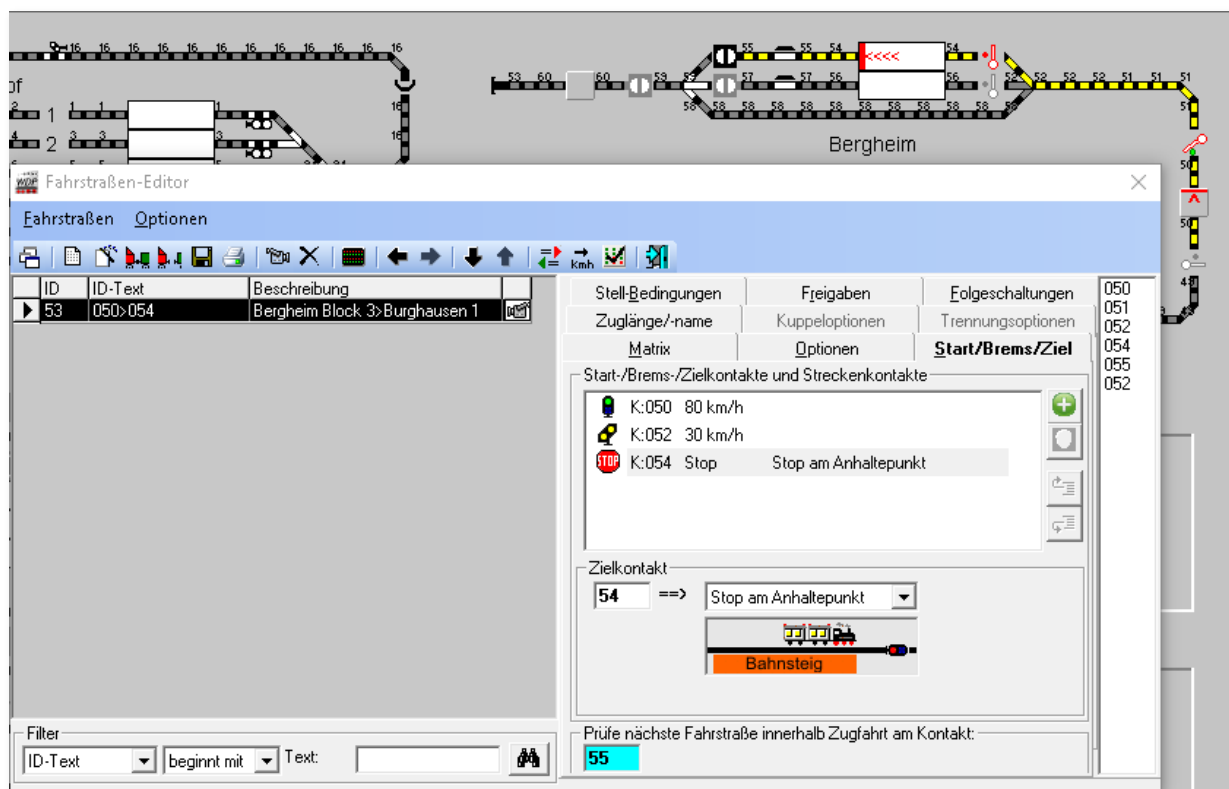


Fig. 6.91 The field with blue background indicates a special situation.

6.9.6 Intelligent train number display using "Stop in mid of platform"

As alternative to the stop option described in the previous section you can use the option "Stop in mid of platform".

Using this option, the program will stop with the mid of the train in the mid of the platform as long as the train is short enough to stop in this position without overlapping with its end to the former tracks. Otherwise the train will "Stop at the stop position" or "Stop at the signal" (depending which one is closer to the intelligent train number displays end).

The cyan input boxes would be shown again, if necessary as explained before. The only difference is the achieved stop position.

If you configure multiple routes with same start and destination for different stop positions, we suggest to enhance the ID-Text with suffixes such as "Middle".



You can easily create route variants with different stop positions using the option to copy a complete route to a new data record within the context menu of the routes list as explained in 6.7.2 and change the stop position afterwards.

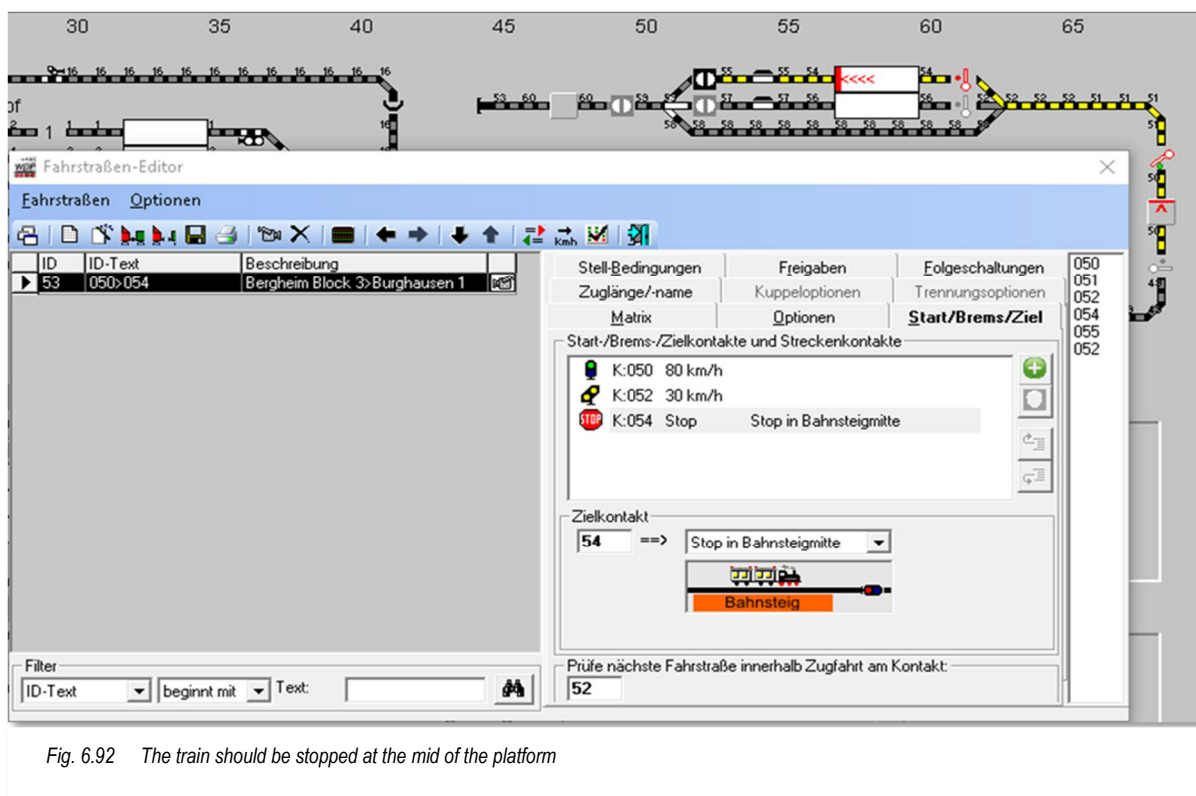


Fig. 6.92 The train should be stopped at the mid of the platform

6.9.7 Intelligent train number display using "Stop at begin of platform"

As alternative to the stop options described in the previous sections you can use the option "Stop at begin of platform".

Using this option, the program will stop with the end of the train at the beginning of the platform.

The cyan input boxes would be shown again if necessary as explained before. The only difference is the achieved stop position.

You can also easily create this route variant using the option to copy a complete route to a new data record within the context menu of the routes list as explained in 6.7.2 and change the stop position afterwards.

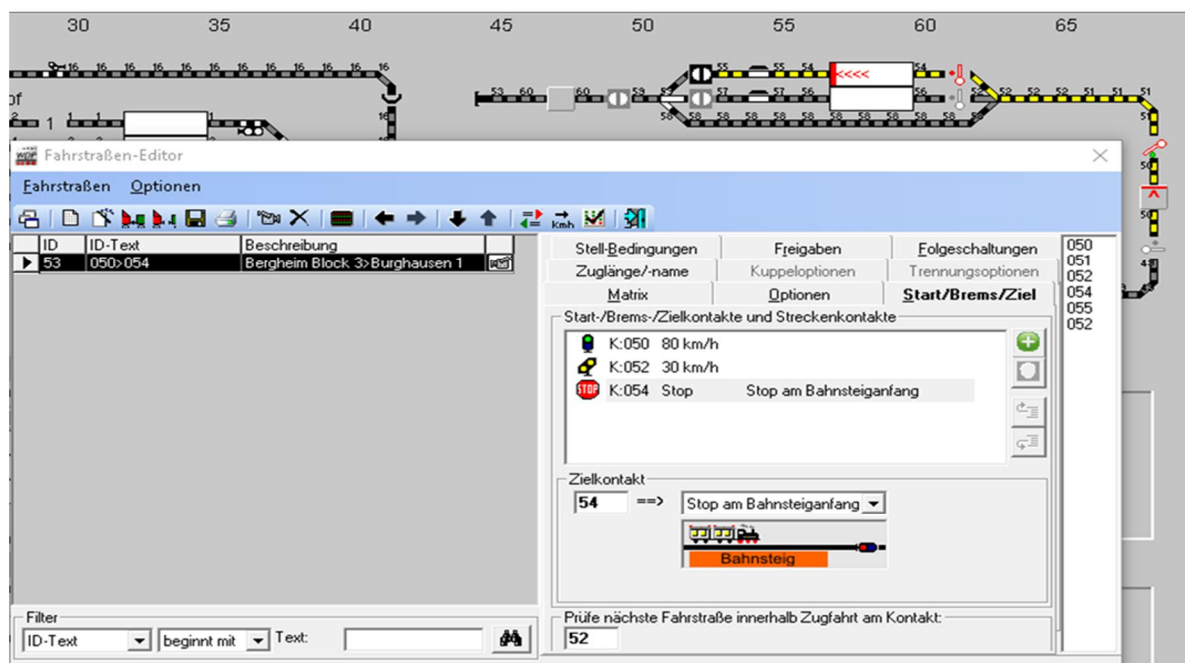


Fig. 6.93 The end of the train should be stopped exactly at the beginning of the platform.

6.9.8 Intelligent train number display using "Stop at signalFehler! Textmarke nicht definiert."

As alternative to the stop options described in the previous sections you can use the option "Stop at signal". Using this option, the program will stop at the signal position assigned in the intelligent train number display configuration. This is for example interesting for good's trains which usually do not stop at the platform, but stop at the signal.

The cyan input boxes would be shown again if necessary as explained before. The only difference is the achieved stop position.

You can also easily create this route variant using the option to copy a complete route to a new data record within the context menu of the routes list as explained in 6.7.2 and change the stop position afterwards.

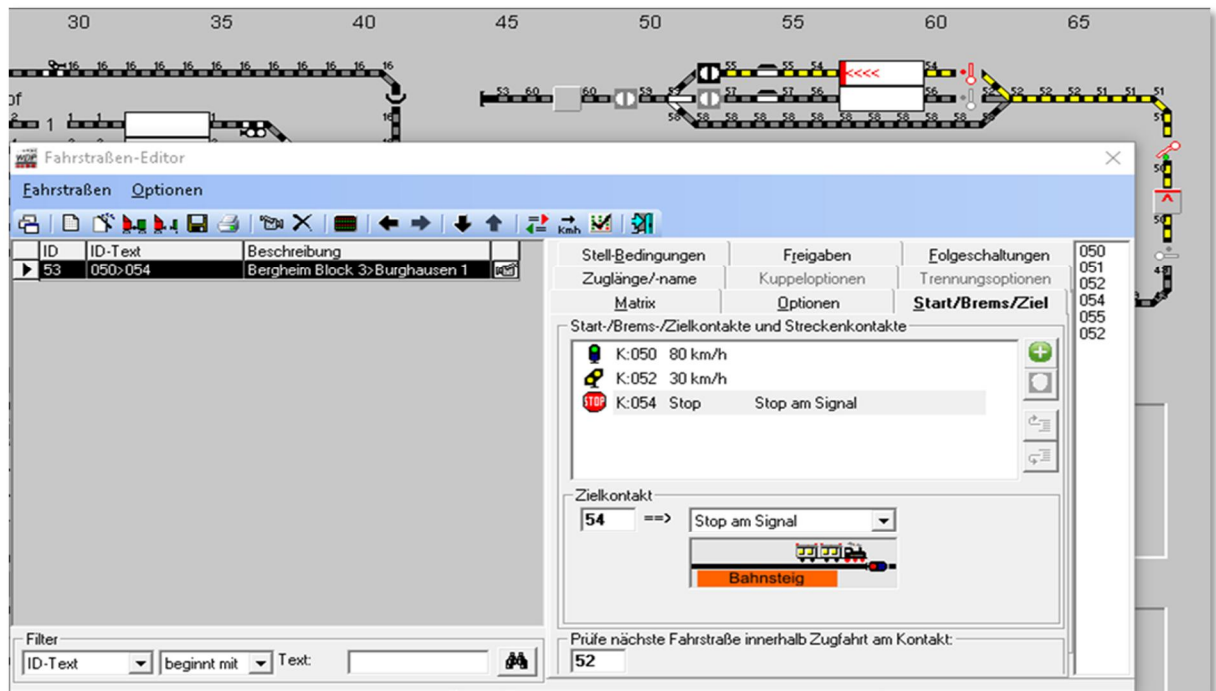


Fig. 6.94 The head of the train should stop at the signal position



6.9.9 Intelligent train number display with individual stop point (IAP)

In the following example, the track with its different sections should be changed, so that the first coupling of the train stops directly above the uncoupler.

First, we look at the extended configuration of iTND 54. The position IAP2 of the uncoupler is set at a distance of 30 cm from the track end. Here IAP2 instead of IAP1 was chosen, since for IASP1 the distance from the track beginning would have been relevant.

Since the back couple of the locomotive has to be stopped above the uncoupler, the locomotive must be stopped at a distance of 30 cm minus the length of the locomotive.

Of course, the length of the vehicle is delivered by the vehicle database.

Please look at the position of the stop points in the route configuration.

The index card start/brake/dest. of the route editor defines IAP2 as stop point. Its position has been measured before and the results have been entered in the iTND dialogue.

In order to achieve the desired uncoupling operation we have to apply the list in the area "destination contact" of the index card (see Fig. 6.96). By combining the different fields (contacts) it is possible to have a stop point at each part of the train. As a prerequisite the lengths of the different vehicles must be recorded in the vehicle database, the locomotive must be measured, and the train composition must be available.

In the example shown in Fig. 6.96 the different lists were set, so that the stop point (30cm) is achieved after the first locomotive from the train beginning into the train direction.

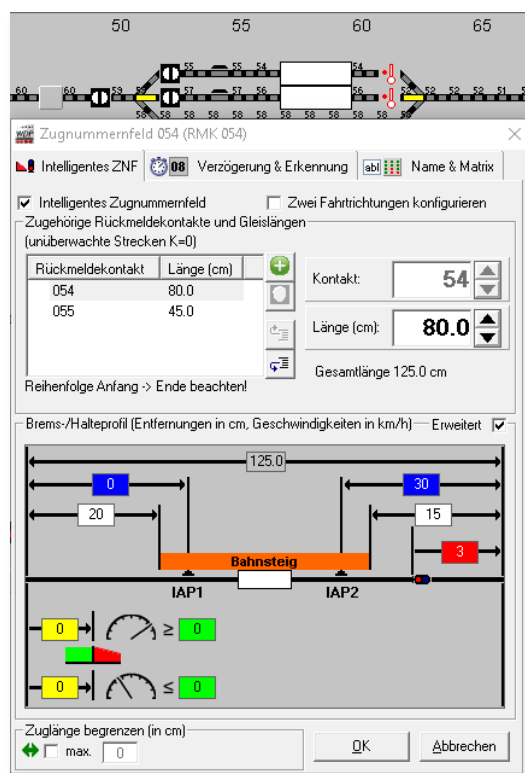


Fig. 6.95 The setting of an IAP in a iTND

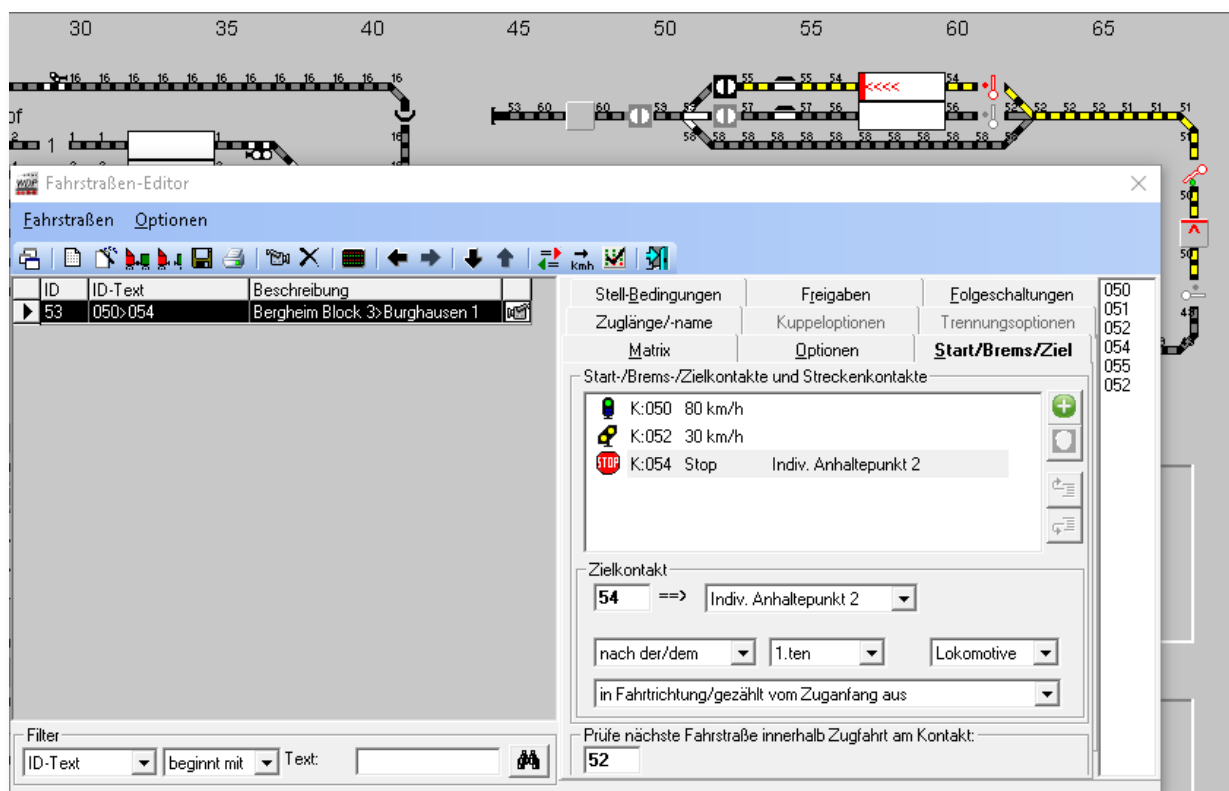


Fig. 6.96 The stop position was set to an individual stop point.

6.9.10 Hints regarding intelligent train number display for stops at the platform

The examples in the last sections had the intention to explain the different stop options using the intelligent train number display. Now it will depend on your fantasy and the virtual concept for your layout/stations which of these options you prefer.

You should limit the number of routes for the same start and destination just differing by the stop position to a minimum. As mentioned before you can choose within the route database for every usage of a route a different stop position. Using this way, you can define different stop positions depending on the train type, length etc.

Especially when using the option *"Stop at begin of platform"* you should try if your braking distance is long enough for all your trains, even for the shorter ones. Otherwise you should consider reducing the train's speed at normal brake contact before the start of the intelligent train number display.



When using the several stops the program will try to use the selected option as long as the train is short enough to stop in this position with overlapping with its end to the former tracks otherwise the train will "Stop



at the stop position" or "Stop at the signal" (depending which one is closer to the intelligent train number displays end).

If then the train still overlaps to the former tracks, you have to change the settings in the intelligent train number display or consider a train length limitation for this destination.


6.9.11 Check next tour at contact

When creating routes (semi-)automatically the check contact has been set to the brake contact. You should use the same logic when registering routes complete manually.

You can also use any other contact if you want to switch the destination signal (start signal of next route) to green long time before the train's driver can see it.

This contact will be used by the tours as demand contact for the next route.

6.9.12 Saving the route

Having completed all entries on the index cards 'Conditions', 'Start/Break/Destination' and 'Releases', click in the menu <Routes> on <Save> or on the button  in the toolbar





It is advisable to save from time to time also during the editing process and not only at the end. So you will prevent data loss in case of PC problems etc.

6.10 Registering Add-on switchings

If you created routes automatically using the route wizard, **Win-Digipet** already registered some add-on switching within the created routes. These add-on signal switchings are used to switch a for example green signal back to Stop (red) after a train has passed.

Win-Digipet offers also performing additional switchings of solenoid devices such as tiurnouts, turnout tables, sliding tables, while executing a route Even double-slip turnouts and uncouple tracks can be switched when a train reaches a specified contact.

Some examples:







-  "Switch the signal at the exit to red, after departure of the train"
-  "Switch a virtual switch to green"
-  Or, for block operations, "After a train has entered a block section, switch the signal to red, to "protect" the train in the block section, "Switch a signal to green".
-  "set counter xy to 3"

You can switch up to **20** additional solenoid devices per route by defined feedback contacts.



In previous versions of **Win-Digipet** add-on switchings could be applied to solenoid devices and counters. Now, different actions are possible as add-on switchings, when a contact gives the feedback “occupied” or “free”.

Here are examples of possible actions:

-  Switchings of solenoid devices and counters
-  Calculation of counters
-  Logbook- / Memo- / Text-Entry
-  Switchings of a virtual or moment contact
-  Locking of train number displays
-  Changes of the matrix (Loco-type, waggon-type, length (X)) and the train name

The window appearing with the index card “Add-on Switchings” offers a selection of actions when clicking with the right mouse button into the window (see Fig. 6.97).

6.10.1 Add-on switchings of solenoid articles

In our example in Fig. 6.98 an add-on switching was defined for the semaphore signal Bergheim block 3. This signal is be set from HP1 (when executing the route) to HP0, when contact 50 indicates **(now)free**. In this case, contact 50 is the start contact and, of course, still **occupied**, when the route is switched. The signal changes to HP0, as soon as the last vehicle, which activates contact 50, has passed this contact.

The letters behind the contact numbers in the lines of the add-on switchings are similar to the logic of the switching conditions (B=OCCUPIED, F=FREE).



During the automatic route creation with the route wizard, add-on switching like the one in the example before will be installed for every signal which will be passed in the correct direction of travel.

This is similar to the real world operation where in Germany every signal is switched back to Stop circa 55 meters after passing the signal.

The solenoid devices switched by add-on switching do not need to be part of the currently switched, they even can be part of other routes.

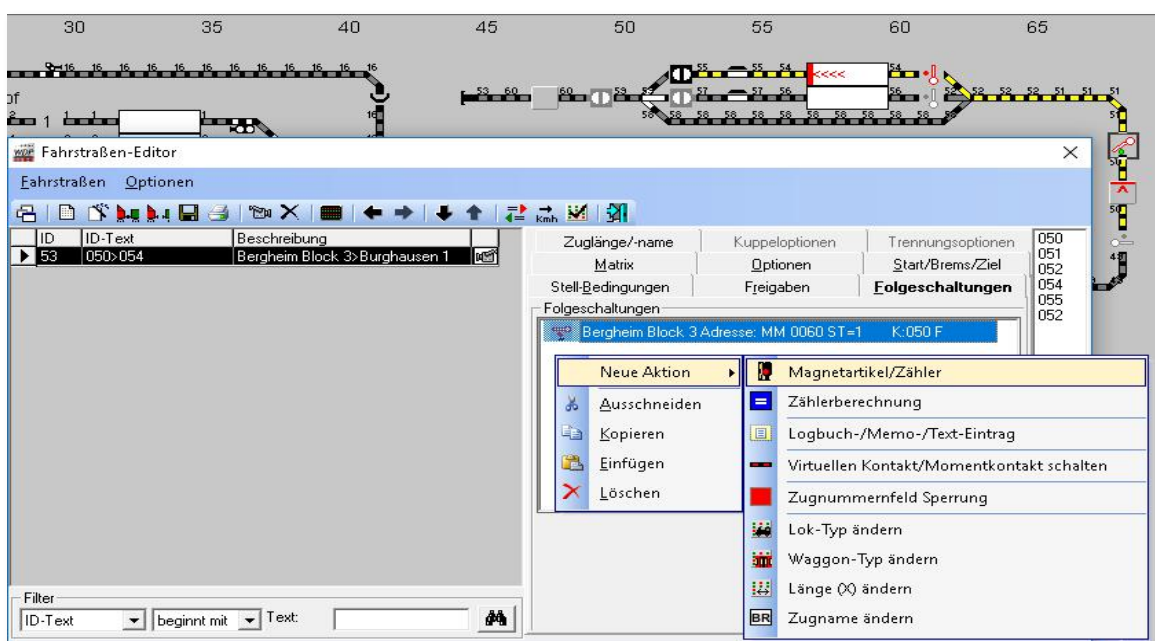


Fig. 6.98 The index card "add-on switchings" with the menu of available actions

A solenoid device can be registered in the list of the add-on switchings in two ways. Point the mouse pointer to the symbol of the track diagram, where you want to have an add-on switching carried out. Press the left mouse button: The mouse pointer changes to show a hand with a signal symbol. Keep the left mouse button pressed and drag this symbol to the list. Alternatively, you right mouse button in the list and the sub-menu shown in Fig. 6.98

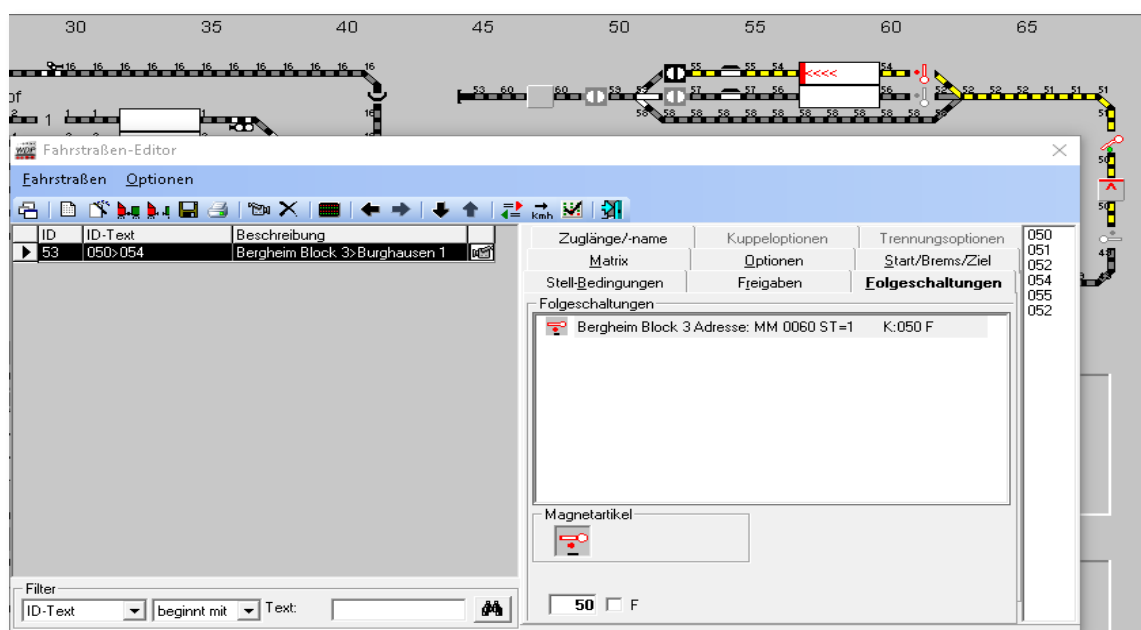


Fig. 6.97 A solenoid device to be activated by an add-on switching was defined in the route editor.



appears. Select the item "New action" and select the intended action in the now appearing sub-menu.

A solenoid device assigned to an add-on switching is surrounded by a black frame in the track diagram, indicating then add-on switching, when moving the mouse over the add-on-switching-picture-box in the editor.

As you can see in Fig. 6.97, it is your choice if you want to execute the add-on switching when a contact gets "OCCUPIED (B)" or "FREE" again.

"FREE" means in this case "FREE again" so it has to be occupied before.

A recorded add-on switching of this route can be deleted by deleting the contact number: Mark it (blue bar) and press "Remove" or the "CR" key.

6.10.2 Add-on switchings of counters

Similar to "normal solenoid devices" you can also use counter symbols as add-on switching in routes. Using this symbol, you could create dependencies in your later automatic operation.

In our example we dragged a counter to the add-on switching index card in the same way as a solenoid device in the last example.

The switching in our example would result in an increase of the counter by 1 (+1) as soon as contact 52 gets occupied.

The counter action can be changed between the following positions.

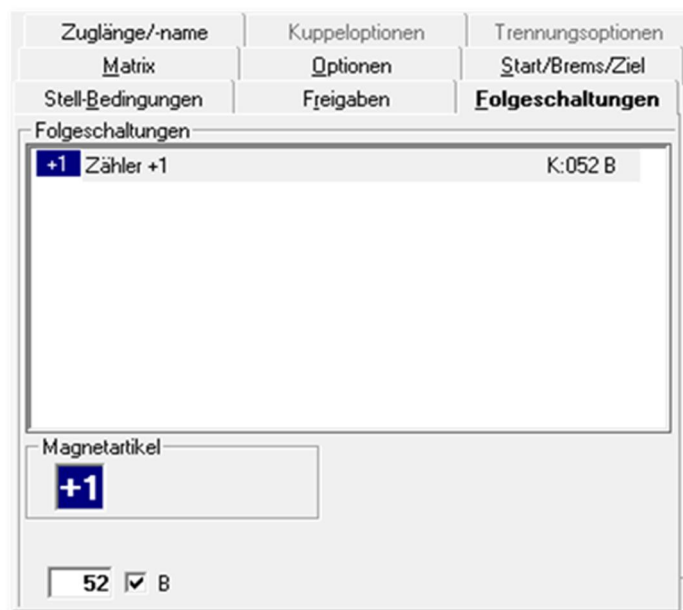


Fig. 6.99 Add-on switching with a counter

+1

The counter in the track diagram is increased by "1".

-1











The counter in the track diagram is decreased by "1".

00

The counter is set to "0" or any value from "0" to "999". After selecting "00" you can choose by a click with the right mouse button any new destination value for the counter from 0 to 999. The right mouse button click does not work for "+1" or "-1".

6.10.3 Add-on switchings of calculation of counters

Using this kind of add-on switchings the counter in the track diagram is changed as a result of different queries and operations such as:

-  The value of a counter is set to the value of another counter in the track diagram.
-  The value of a counter is diminished by the value of another counter in the track diagram.
-  The value of a counter is increased by the value of another counter in the track diagram.
-  The value of a counter is set to the number of vehicles on a certain train number display.
-  The value of a counter is set to the value of the length of the train shown in a certain train number display.
-  The value of a counter is set to the position of a vehicle within a train which is dependent of the class description of the vehicle. You may enter the class description by pressing the left mouse button and dragging the vehicle picture from the loco control or the loco bar to the field.
-  You may change the colour of the counter
-  The value of a counter is set to the hour value of the central clock of Win-Digipet.
-  The value of a counter is set to the minute value of the central clock of Win-Digipet.
-  The value of a counter is set to the “day value” of the central clock of Win-Digipet with
Mo=00, Tu=01, We=02, Th=03, Fr=04, Sa=05, So=06

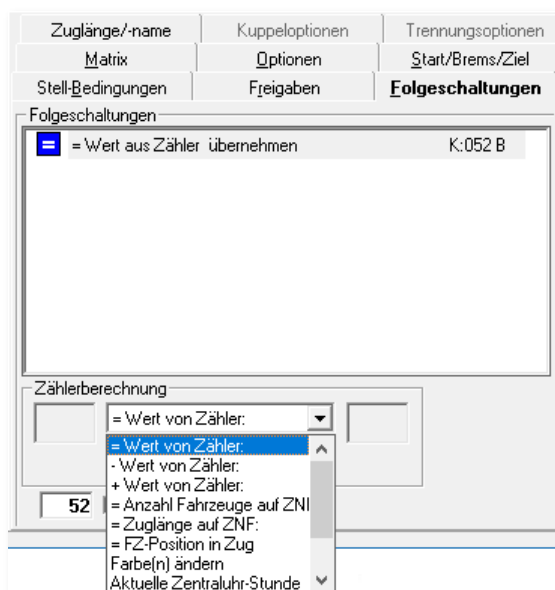


Fig. 6.100 The calculation of counters

6.10.4 Add-on switchings of logbook/memo/text entry

Using this kind of add-on switchings you may the create and show notes or similar at different parts of the program.




Entry in logbook

You may write any text into the logbook of Win-Digipet, which serves as operations log in the background and logs all events from the start to the end of the program. Thus, you may add you own information to the logbook.



Memo entry

The memo entry creates a virtual sticker with your text on the screen. Additional variables can be shown in the sticker such as values of counters, addresses of vehicles and train names on train number displays. These variables can be applied using the editor for “extended text messages”, which is accessed via the symbol .



Delete a memo entry



Change text in track diagram

The text replaces an existing text in the track diagram. The text to be changed is chosen by dragging the beginning of this text from the track diagram to input box “coordinates”. Using the editor for extended information text you may select italic, bold letters, or other attributes and change the colour etc..

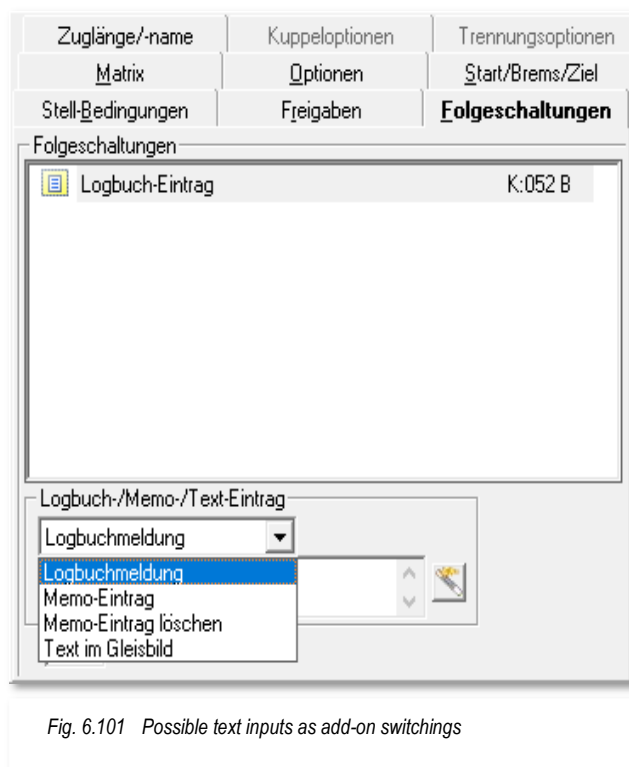


Fig. 6.101 Possible text inputs as add-on switchings

6.10.5 Add-on switchings of virtual contact

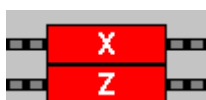
Using the add-on switching virtual contact you may switch on or off a physically non existing feedback contact. Virtual contacts are those contexts which are not existing in the feedback system. They must not be assigned to any feedback system. Virtual contacts are defined in the program part virtual contacts and pulse generators.



6.10.6 Add-on switchings of blocking of train number displays

Using this add-on switching you may initiate or delete blockings of train number displays. A destination or passage blocking - also direction dependent - can be assigned to train number displays.

Train number displays which are blocked for a passage route are indicated by "x" on red background. Train number displays which are blocked in respect to the destination of a train are indicated bar by "z" on red background.



Later in this documentation we will further deal with the blocking of train number displays.

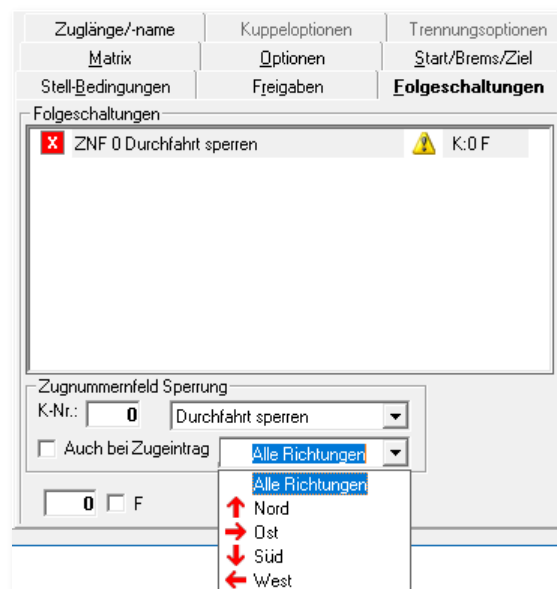


Fig. 6.102 The add-on switching blocking of a train number display.

6.10.7 Add-on switchings of changes of the matrix counters and train names

Using these add-on switchings (see Fig. 6.98) you may change the matrix settings of locomotive type, waggon time and the length. Furthermore, you may change the train name.

6.11 Registering Matrix settings

If you have made matrix/loco type settings for specific train number displays these settings will be transferred to automatically created routes (see section 6.2.11). If you create your routes manually you must make these selections by your own.



If you change the matrix for train number displays later, you have to the matrix settings in your routes manually.



(Un)locked for Loco-/ waggon type:



You can (un)lock routes for specific locomotives or trains as mentioned in the system-settings section 3.15; the input you made on the matrix index card in the system settings will be displayed in the selection boxes.

Using locomotive type, waggon type, length (X) and epoch you can select which locomotives/trains are allowed for the currently edited route

By clicking with the mouse to the button you can switch the selected type of locomotive/train or length on or off for this route. Using the left or right mouse button on the heading of the four columns you can select/deselect an entire column.

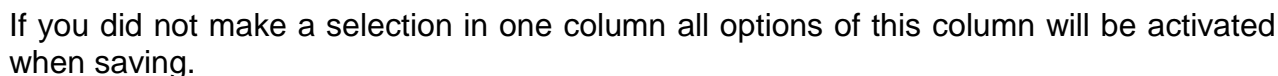
Using the left or right mouse button with the button 'All' you can select/deselect the complete list.

The colours of the button are used for:

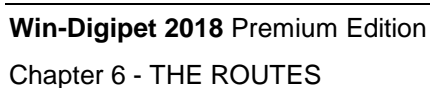
-  Green= Route allowed for this type of train
-  White= Route not allowed for this type of train.

By comparing the values of the route and the selection in the vehicle database the program can decide whether a locomotive is allowed to use a route or not.

A warning will occur, if you try to switch a route via the "Switch + Ride - function", if the train is not appropriate to the selected route, but nevertheless, these routes can be switched manually.





During the operation of the "Tour automatic", only appropriate routes will be switched by the system. This means for example: A Diesel-loco will never ride to the coal- or water station for steam-locomotives, if this route is closed for Diesel-locomotives. As another example, Fig. 6.103 demonstrates that the route 050>056 must be used by electric trains. Furthermore, the train length must match one of the length categories marked green.













definition doesn't meet your requirements for your model railroad, see section 3.10)

-  You have assigned a "loco type" to each loco in the locomotive-database
-  The locomotive must be registered in the train number display belonging to the start contact of a route.

Release/lock locos and blockade:

By clicking on the red button '**Lock individual loco(s)**' resp. the green button you can choose between these two options.

These options are used for:

-  **Release loco only**
-  After a click on the red button the button '*Lock individual loco(s)*' now in green colour changes to'.
-  If you enter up to 3 locomotives the matrix check refers only to these locomotives.
-  If you check the field right of one or more of these locomotive numbers, the train numbers of this/these locomotive(s) will be switched to red in the tour automatic at the destination of the route. This function is called 'destination blocking' or 'home track function'.
-  **Lock individual loco(s)**
-  After a click on the green button the button "Release loco only' now in red colour changes to '*Lock individual loco(s)*'.
-  If you enter here one or up to 3 locomotives and press "**All**" this route will be allowed for using with all locomotives except these three.
-  But, of course you can enter an additional "Release route for"-condition.

This index card gives you powerful features to release/lock routes for several trains. It guarantees, that no train going the wrong way in manual as well as in automatic operation.




A click on the button '**Lock indiv. loco**' will change the button to '**Release loco only**'. If you enter now no locomotive number at all, the route will be usable for any locomotive, no locomotive means in this case any locomotive.

Therefor just click on this button if you just want to allow the route only for up to three specific locomotives. If you pressed the button by mistake, press it again to restore your old matrix settings.










6.11.1 Testing the loco type selection

You can easily test which locomotive can be used by the actually edited route according to the registered loco type selection. Therefore, click on  in the toolbar of the editor.

A new window will appear showing all locomotives that can be used by the route according to the route's settings (see Fig. 6.103).

Folgende Loks/Züge sind durch die Einstellungen zugelassen

Baureihe (Digitaladresse)	Loktyp	Zugtyp	Länge [X]	Epoche	Länge (cm)	min. Radius
 81 001 (81)	Tender-Dampf	Zubringer	Einzelfahrzeug	Epoche III	12.8	
 BR92 (93)	Tender-Dampf	Güter	Einzelfahrzeug	Epoche III	13.0	
 T 16.1 (94)	Tender-Dampf	Güter	Einzelfahrzeug	Epoche II, E...	14.5	
 KLV53 (1053)	Diesel-Rangier.	Bauzug	Einzelfahrzeug	Epoche V	15.0	
 106 530-9 (1106)	Diesellok	Güter	Einzelfahrzeug	Epoche IV	85.6	
 132 020 (1132)	Diesellok	Güter	Einzelfahrzeug	Epoche I, E...	73.4	
 BR 648.1 (3648)	Diesel-Triebw.	RB Wendezug	Einzelfahrzeug	Epoche I, E...	48.1	

Einschränkungen
Freigegeben für:
- Loktyp: Tender-Dampf, Diesellok, Dampf-Triebw., Diesel-Triebw., Dampf-Rangier., Diesel-Rangier.
- Wagentyp: Regionalbahn, RB Wendezug, Güter, Zubringer, Bauzug
- Länge [X]: Einzelfahrzeug, Extrem kurz, Sehr kurz, Kurz, Mittel
- Epoche: Alle

Fig. 6.104 These vehicles are allowed on this route.

If you compare the allowed locomotives/trains with the settings in Fig. 6.103 you will see, that the route settings only are valid for few locomotives/train.

With a double click into the list you can change the list from showing all locomotives which are enabled for the route to all locomotive blocked by the current loco type selection of the route. This list mode is indicated by the red coloured background.

The next double click will switch back the list to its normal type. Using this list, you can easily find errors in your route definition.

6.11.2 Limiting the train's LoB allowed for a route

On the index card "Train length/name" you can limit the usage of the edited to trains who have a specific minimum or maximum length in cm. These values will be compared to the total train length resulting from the settings in the vehicle database and the train composition. This is a good addition to the matrix settings.



In the example of Fig. 6.103 the third matrix column refers to the length (x). All vehicles from "Single cab" to "Middle" are allowed.

This values such as short, very short have no direct value in cm, the mapping has to be done in your head.

On the index card "Train length/name" you can for example limit the "Maximum vehicle-/train length LOB" to value of "100 cm" as real length.

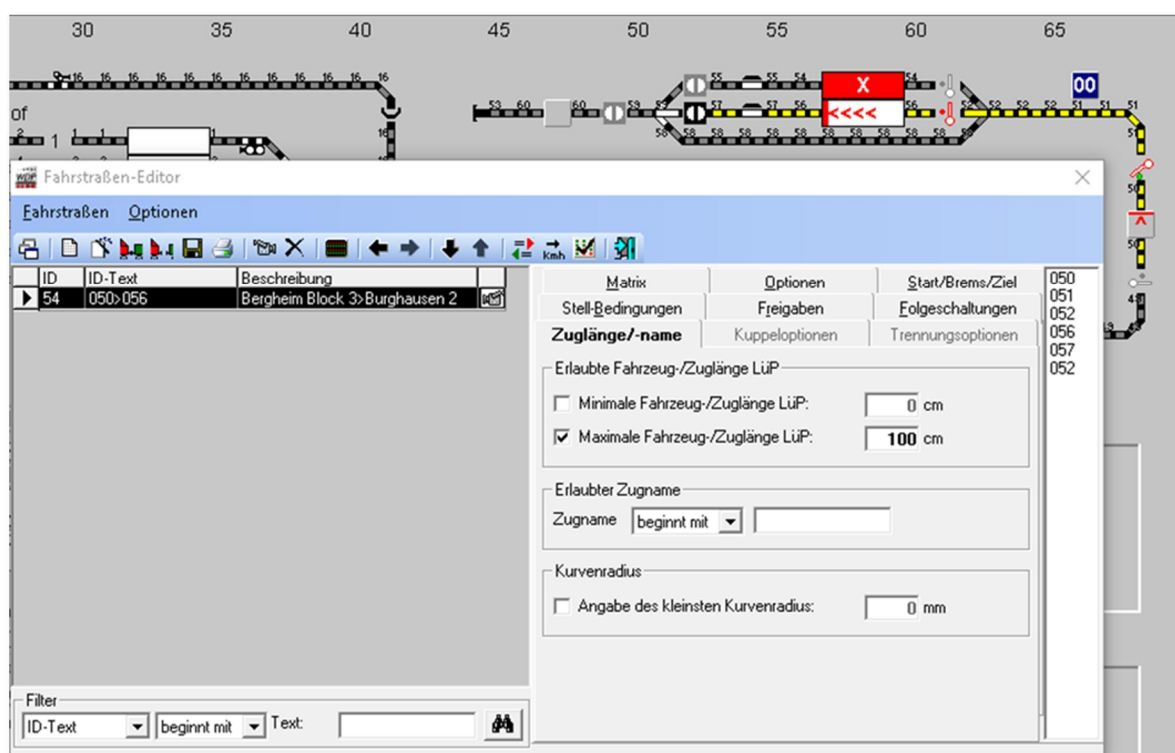


Fig. 6.105 The matrix settings using the column "Length(X)".

For the usage of this function it is important, that you registered the correct vehicle lengths in the vehicle database and that you combined all vehicles belonging to a train in the train composition dialogue.

In addition, you cannot only select a maximum train length, you also check "Minimum vehicle/train length LoB" to allow only trains with a specific minimum length.

In our example this does not make sense, but this may be for hidden stations, for example, with large difference in the tracks length, . Using this function, you can manage, that short trains do not block tracks for longer trains.



Please notice, that this length limit for routes is the second option to limit train lengths beside the possibility to limit the train lengths for iTND.

You should develop a small concept which option you want to use in which situation.

6.11.3 Valid train name for a route

Valid train name for route

On the index card "Train length/name" you can also select, that a route is only allowed for specific train names. Therefor enter a text in the according input box.

Using the combo box you can choose if you just want to allow one specific train or a group of trains.

The combo box offers parameters like *"starts with"*, *"contains"*, *"ends with"* and *"="*. These options are already well known from search and filter functions in other parts of the program (e.g. list filter function in route editor).

An example:

Entering the train name "IC 1234" combined with the combo box selection *"="* would limit the usage of the route just to the train named "IC 1234".

If you enter in contrast "IC" combined with *"starts with"* the route could be used by any train, which's name starts with "IC" (e.g. "IC 1234", "IC 4321", "ICE 1090").

6.11.4 Valid curve radius for a route

Finally, using the index card "Train length/name" you may define a minimal curve radius in this route. The route is blocked, if the curve radius is smaller than the minimum allowed radius you have entered in the vehicle data base.



6.12 Options, external keyboard, safety contact

This index card offers two additional functions. First you can activate routes using an external keyboard and second you can define a security contact for a route.

For users of external keyboards it is very useful, if routes and tours can be activated by two contacts (start and destination).

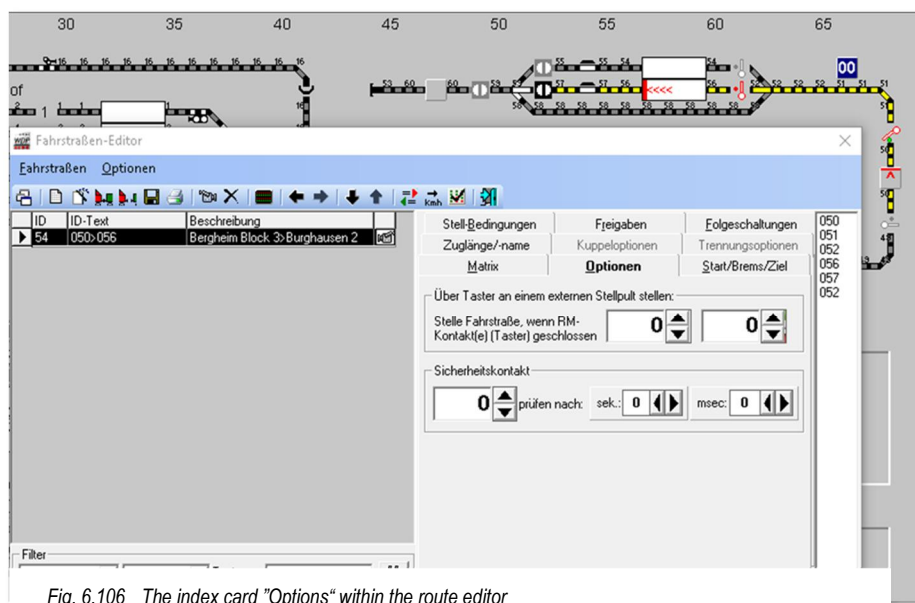


Fig. 6.106 The index card "Options" within the route editor

In both the route- and tour-editor you can enter two contacts of an external keyboard, which switch the route or tour, respectively, by an "And" link. The push buttons of the external keyboard must be connected to the feedback modules of your system.

6.12.1 Switch routes and solenoid devices via external switchboard:

For using this functionality, you have to activate the feature "Switch routes and solenoid devices by push key (external switch desk)" in the system settings.

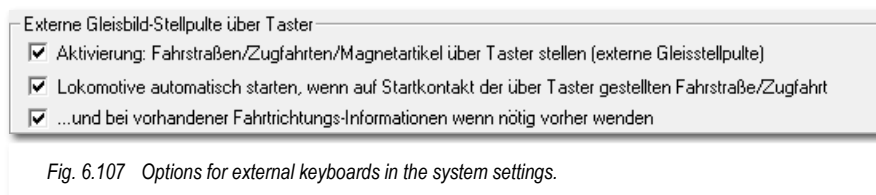


Fig. 6.107 Options for external keyboards in the system settings.

Fig. 6.107 Options for external keyboards in the system settings. shows a part of the corresponding system settings with three different options:

1. Activation: Switch routes and solenoid devices by push key (external switch desk)
2. Start Loco automatically, if on the start contact of the Route which is switched via push key
3. ...and if driving direction information is available and necessary turn




The first option must be selected anyway, if a route/tour is to be started via a push key.



In previous versions of **Win-Digipet**, when pressing the push key(s) assigned in the route editor only one route was shown. Now all routes are shown which are assigned to the same push key(s) (in the same order).

The further appearance of the start/destination windows depends on the selection of the second option. If this option is not activated, you can choose the route from a list of possible routes and start it.

If this option is activated, the first realisable route is chosen automatically. If no route can be switched the window disappears.

-  If you assign one contact to one route or tour, the function is not changed compared to previous versions of Win-Digipet:
Press contact → route/tour is switched
-  If you assign two contacts to one route or tour:
Press both contact simultaneously → rout/tour is switched
-  Did you assign route 1 to the contact combination x+y and route 2 to the reversed combination y+x, Win-Digipet waits , until you press and keep pressed the first key and then press the second key. In this way, Win-Digipet can distinguish this case as well.

Knowing this strategy, you can enter the corresponding contacts in the route-editor.

6.12.2 Safety contact

The safety contact is a function to reduce the consequences of turnouts, that doesn't switch proper.

Win-Digipet can only minimize the risk using this functionality, but it cannot vanish all risks caused by improper hardware functionality.



We suggest always solving hardware related problems fixing the hardware. Fixing via software should be only an interim solution, because it cannot remove the problem completely.

If a turnout integrated to your route does not switch always to the correct position, proceed as follows:

Drive the route with your slowest locomotive and measure with a stop watch the time from the start until the train reaches the safety contact behind the affected turnout. On the index card you can now register the measured time in addition with a small tolerance (see Fig. 6.106). You should try the route with several trains to get a proper value of time to reach the safety contact.

If the train doesn't reach the safety contact within the registered time-out after starting the route, because the turnout hasn't switched to the correct state or because another error occurred, **Win-Digipet** will perform the action selected in the system settings on the index card "Program settings – Routes".



You need to select which of the three available is the best one for your needs. We suggest

Bei nicht erreichtem Sicherheitskontakt


☒ Generell aktivieren ☒ Nur Lok stoppen ☐ Nothalt auslösen ☐ Alle Loks stoppen

Fig. 6.108 Options for the safety contact in the system settings

using the emergency stop only in exceptional cases. It is better just to stop the affected or all locomotives.

6.13 Converting routes to km/h

If you upgraded from an older version (**Win-Digipet** Pro X.3 or older) to the current version of **Win-Digipet**, the project type will automatically set to "Drive by km/h". Driving with the old relative speed step system is not available any more.

If you have routes within your routes database which have not been converted to km/h until now, you can also convert all routes to km/h using a comfortable new function; therefore, press the button  in the toolbar

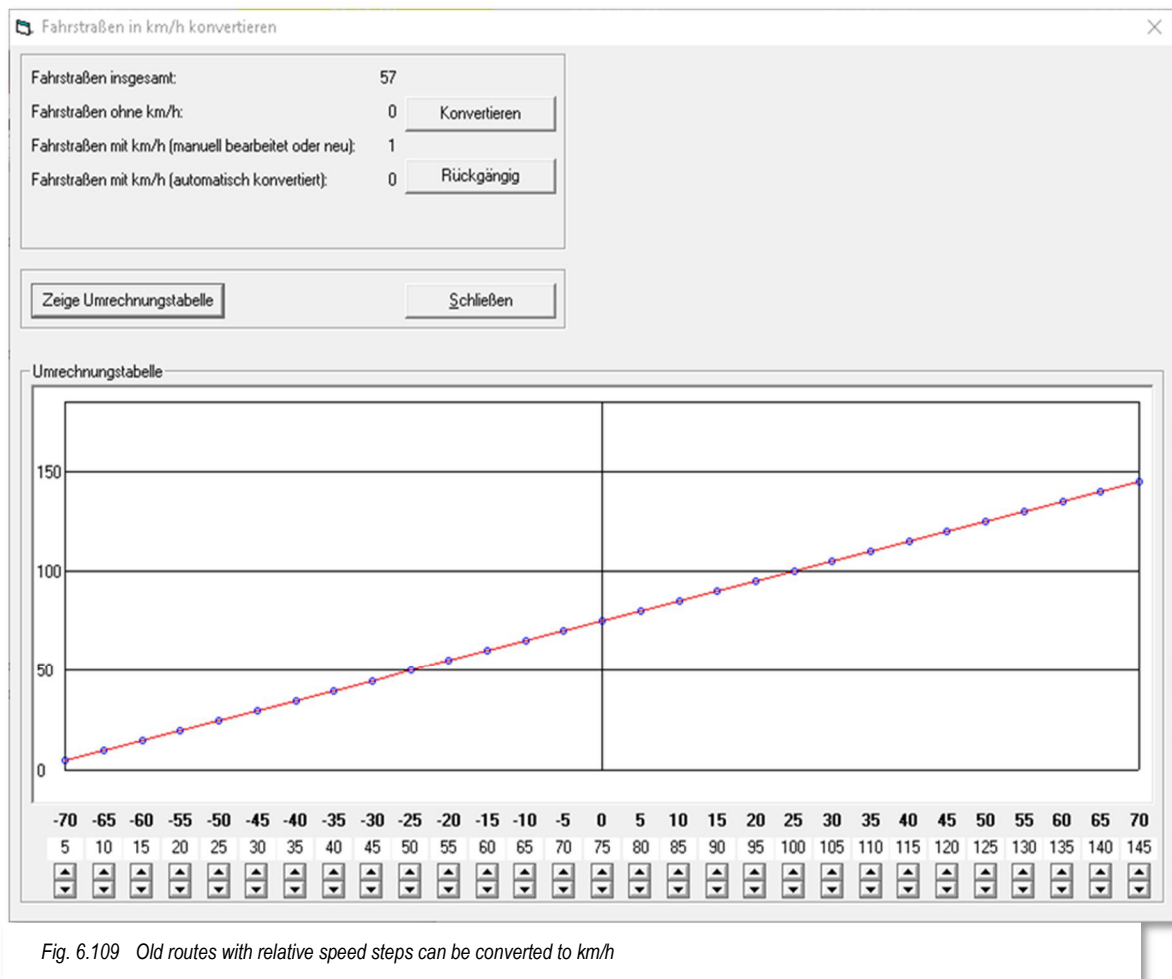


Fig. 6.109 Old routes with relative speed steps can be converted to km/h

A new window appears, showing you the conversion status of all routes.

The conversion is necessary because in the past the speed steps in **Win-Digipet** were set relative to a so-called start speed, now the program uses km/h.

The conversion is done using a conversion table.

The conversion parameters/table can be edited in the conversion table which can be displayed in the same window by pressing '**Show conversion table**'.

Here you can select the conversion between the old relative speed steps -70 to +70 and the resulting km/h values (below). Using the arrow buttons or the left mouse button on any of the points in the diagram you can change the converted speed for each speed step.



Using this button you can linearize the diagram. The button '**Convert**' will start the conversion of all routes which are unconverted until now.


The conversion of routes converted with this function can be reversed using '**Undo**', the conditions for the reversion have been described above. If you have changed a route manually or if you save it again later on the route editor, this route will be excluded from the Undo functionality.



6.14 *Allocation of routes to the virtual keyboard*

Up to **32** frequently used routes can be allocated in the main program to a **virtual keyboard**. The main program will execute them immediately by a mouse click (on assigned buttons).

These max. 32 routes can be allocated to the command buttons of the virtual keyboard, using the routes editor.

Click on the button  in the toolbar of the routes editor.

A window "Allocate virtual keyboard with routes" opens, containing 32 command buttons.

The **keyboard number** in the right hand display window is used in conjunction with the **used digital system**; more detailed description to this feature below in this section. Should you not owe an Intellibox, select "**1**" for the keyboard number.

Mark the route in the routes list which should be assigned to a command button of the virtual keyboard. Click again on the line in the list and, with the left mouse button pressed, drag it to the command button. Release the mouse button. You may recognize this functionality as "drag & drop".

The command button shows the **ID** number of the route and the route description is displayed in the bottom display line. For further routes proceed as described above.



Having completed all the inputs on the virtual keyboard, click on **'Save'**: The recorded route is saved and available for switching in the main program.

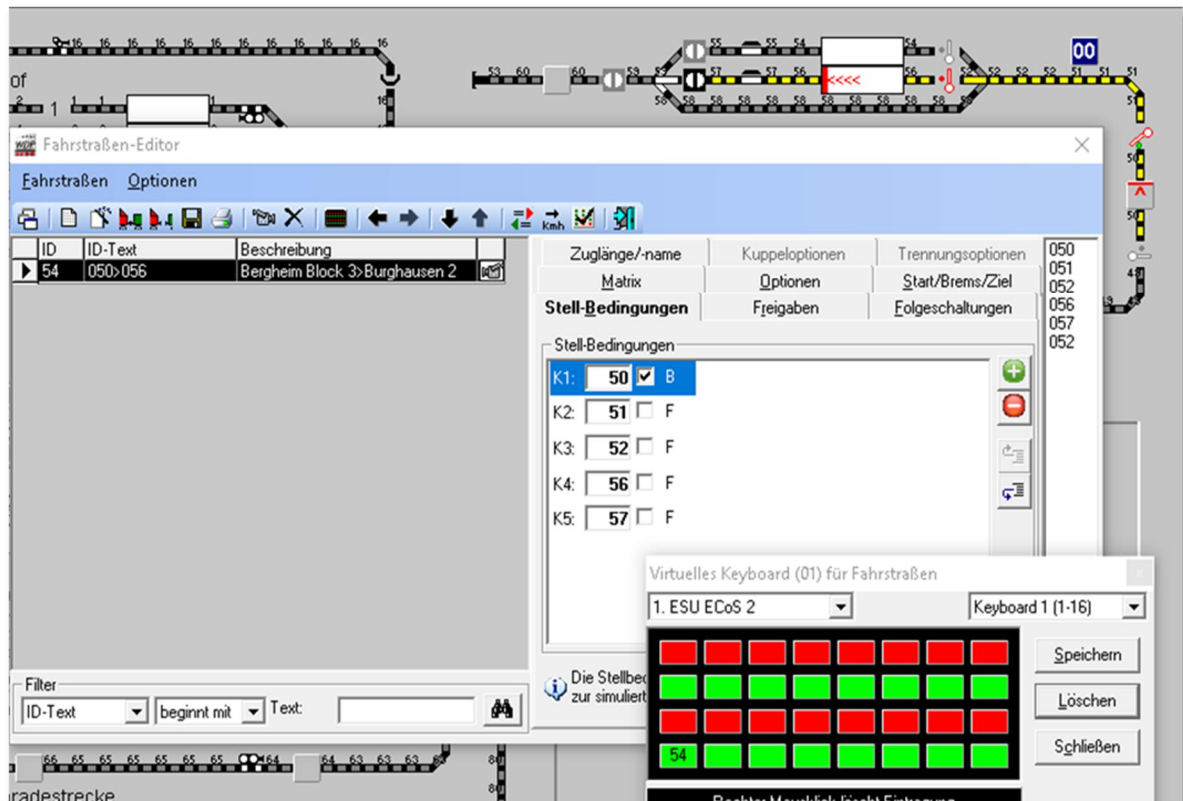


Fig. 6.110 A route has been assigned to a button within the virtual keyboard.

Routes can be **individually** cancelled on the virtual keyboard by clicking on the relevant command button with the right mouse button.

The switch **'Delete'** deletes **all** recorded routes registrations from the buttons.

Moving the mouse pointer over an assigned button displays the description of the route in the bottom display line.



Additional information for Intellibox users:

A true closed information loop between the layout and the computer is available, using the Intellibox (in contrast to the Märklin system).

Existing keyboard hardware, plugged in on the left-hand side of the Intellibox, can be used to switch the first group of 16 routes.

To utilise this function, activate the "Keyboard No." and the correct keyboard address in system settings under "Hardware – Digital systems". Activate the checkbox "Display of solenoid device position changes done via digital system/throttle".



With the virtual keyboard you can't drive any locomotives/trains on the layout. This function can only be used for switching routes; the trains have to be controlled manually.

6.15 Expert mode

The experienced users of **Win-Digipet** do know, that in many editors the so called expert mode offers additional functionalities.



But again: these functionalities are for experienced users, who are in the case familiar with manual route recording etc.

For the automatic train composition, a little bit more than basic knowledge is needed.

The expert mode has been introduced here, because most users will only be used to the comfortable route creation using the route wizard. The manual or the semi-automatic route creation is usually not very well known. But for the creation of train composition and division routes these are mandatory.

After activating the expert mode two new button in the toolbar of the route diagram editor are available (). Also the menu contains according new items.

Using these two buttons the new route types can be created. Furthermore, for the options of these new route types to additional index card "Coupling options" and "Division options" have been added. These are only selectable for the special route types.

Zuglänge/-name	Kuppeloptionen	Trennungsoptionen
Matrix	Optionen	Start/Brems/Ziel
Stell-Bedingungen	Freigaben	Folgeschaltungen

Fig. 6.111 Two additional index cards after activating the expert mode


6.15.1 Train division routes

A train division route splits a train into two parts. One part remains on the start train number display and the second one travels to the train destination display.

Within the start-/destination dialog train division routes are typed in bold.

In the route editor the train division routes just perform the logical division of the trains. The physical division has to be performed by uncoupling tracks, automatic couplers or also by manual uncoupling. This can be done by profiles for train division routes.



After the creation of a train division route using the button , the manual recording of the route and save-process, you can directly see a difference to normal routes.

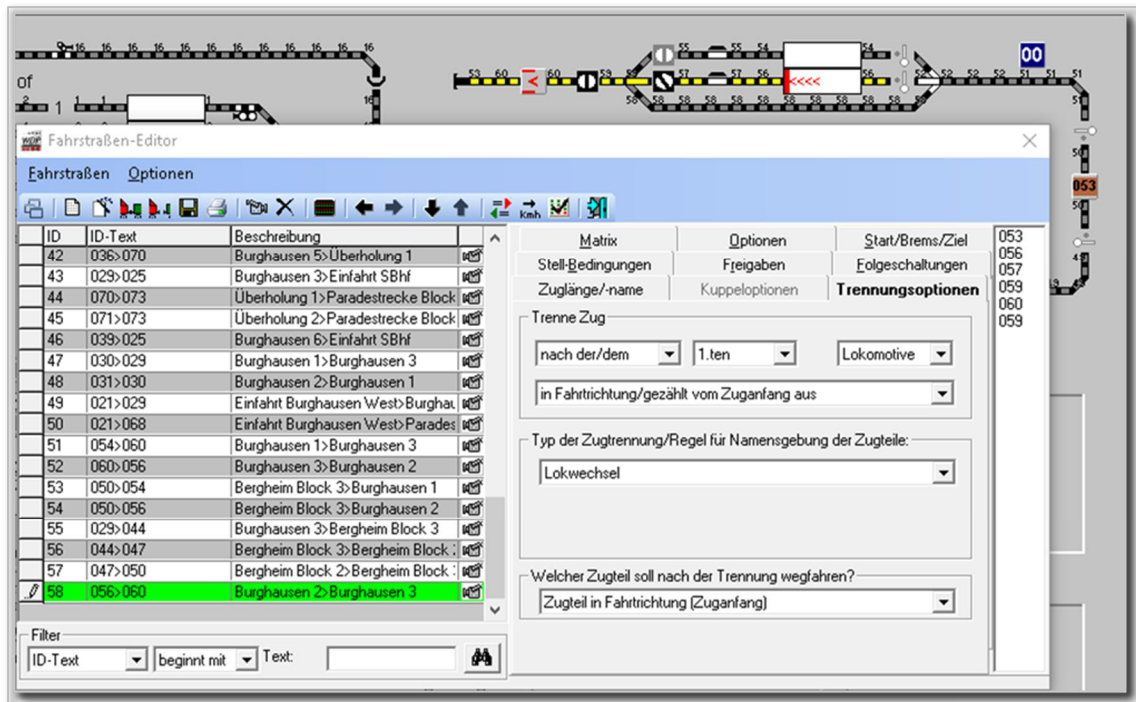







Fig. 6.112 A train division route with its special options.

Train division routes have a green background in the route list of the route editor for better distinction. Now also the new index card regarding the "Division options" has been enabled.

We distinguish between the following division types (similar to the real world trains):

-  **Locomotive exchange**
the locomotive(s) will be uncoupled from the train and leave to the destination
-  **End double heading**
one or more locomotive(s) at the beginning of the train will be uncoupled and leave to the destination
-  **End trailing locomotive**
one or more locomotive(s) at the end of the train will be uncoupled and leave to the destination
-  **Uncouple waggon**
one or more waggon(s) will be uncoupled from a train and will remain at the start.
-  **Divide train**
a train shall be divided (e.g. motor coach 1 shall head to destination A and motor coach 2 to destination B).



Release train

the train will be completely released.



Manual

You can assign new names to both parts of the train

On the index card for the train division options you can select several options within the selection/input boxes:



Position of train division

by combining the several combo boxes nearly every division position can be selected.

Into the middle list (1.th) also a counter display from the track diagram can be dragged (see Fig. 6.113).

Therefor drag a counter with pressed left mouse button from the track diagram to the number selection box. The direction of count can be configured in the selection box below (if you want to count from the head or the trail of the train).

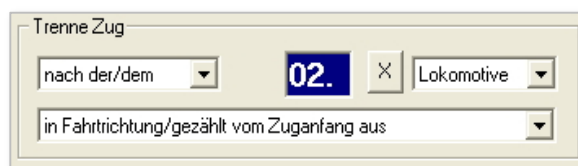


Fig. 6.113 Division options using a counter.



Type of train division

using this combo box you can select the type of train division as described above. The rules for the train division types and the according name assignment for the new train parts and matrix handling is described in the table on the next side.



Selection which of the train parts shall leave after division

You can select if the train part at the beginning or the end of the train (depending on the train's current direction) shall leave to the destination



Division type	Affected part of train	Name	Matrix	Release part train with one vehicle
Locomotive exchange	staying train part	from previous train	from previous train	no
	leaving train part	from leading vehicle	from leading vehicle	yes
End double heading	fore train part	from leading vehicle	from leading vehicle	yes
	rear train part	from previous train	from previous train	no
End trailing locomotive	fore train part	from previous train	from previous train	yes
	rear train part	from leading vehicle	from leading vehicle	no
Uncouple waggons	staying train part	from leading vehicle	from leading vehicle	yes
	leaving train part	from previous train	from previous train	no
Divide train	staying train part	from previous train + A (9. position)	from previous train	no
	leaving train part	from previous train + B (9. position)	from previous train	no
Release train	staying train part	from leading vehicle	from leading vehicle	yes
	leaving train part	from leading vehicle	from leading vehicle	yes
New name for leaving train part	staying train part	according route editor	from previous train	no
	leaving train part	from previous train	from previous train	no
New name for staying train part	staying train part	from previous train	from previous train	no
	leaving train part	according route editor	from previous train	no
New name for both train parts	staying train part	according route editor	from previous train	no
	leaving train part	according route editor	from previous train	no

If you use the name assignment by the route editor every train will get the name configured here.



The train division options have to be configured in such a way, that the division is possible the particular situation.


If you have for example fewer waggons in the train as the train division route would request, the route cannot be executed and you will get an error message.

6.15.2 Train coupling routes

A train coupling route is the counterpart to a train division route; it combines two train parts and/or vehicles to new single trains.

In the route editor the logical combination of the train parts can be configured. It is obvious, that also train coupling routes have to be combined with profiles.

Within the start-/destination dialog train coupling routes are typed in bold.

After the creation of a train coupling route using the button , the manual recording of the

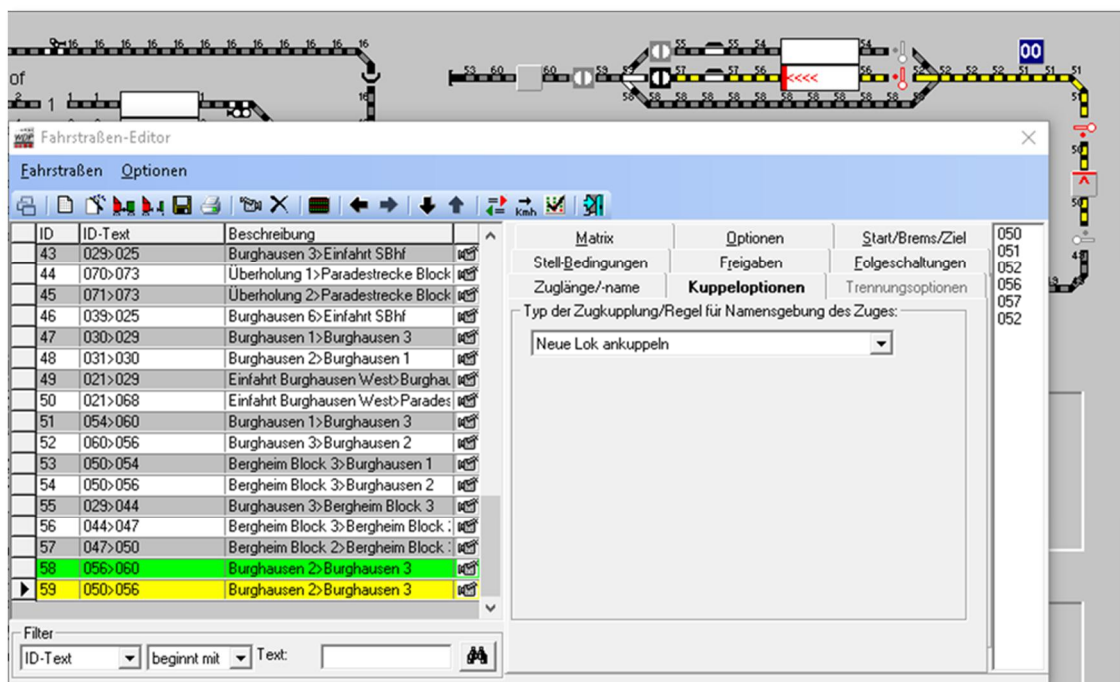








Fig. 6.114 A train coupling route with its special options.

route and save-process, you can directly see a difference to normal routes. Train coupling routes have a yellow background in the route list of the route editor for better distinction. Now also the new index card regarding the "Coupling options" has been enabled.

Similar to the train division routes we distinguish between different coupling types. They differ especially in their handling of the train's name and matrix. We distinguish between the following division types:



-  **Couple new locomotive**
a locomotive will be added to an existing train (in most cases train without locomotive)
-  **Start double heading**
a locomotive will be added as additional locomotive at the fore end of the train
-  **Add trailing locomotive**
a locomotive will be added as helper engine at the rear end of the train
-  **Couple waggons**
Win-Digipet distinguishes two cases: new waggons are brought by an additional locomotive or the train shunts itself to some standing waggons. **Win-Digipet** makes the decision itself by detecting in the train at the destination already contains a locomotive or not.
-  **Train junction**
can only be executed when as result of train division two nearly identical train names have been created (only allowed difference: character A and B at position 9 of the name).
-  **Manual**
using this selecting the users can select the used logic itself.






The rules for train coupling types are described in the following table:

	Name	Matrix	Leading vehicle	Only switchable if
Couple new locomotive	From train part at destination	From train part at destination	From driving train part	
Start double heading	From train part at destination	From train part at destination	From train part at destination	Train part at destination contains loco
Add trailing locomotive	From train part at destination	From train part at destination	From train part at destination	Train part at destination contains loco
Couple waggons	From train part at destination, if this contains a locomotive (Shunting locomotive brings additional waggons)	From train part at destination, if this contains a locomotive (Shunting locomotive brings additional waggons)	From train part at destination, if this contains a locomotive (Shunting locomotive brings additional waggons)	
	From driving train part, when there is no locomotive at the destination (Train shunting to additional waggons)	From driving train part, when there is no locomotive at the destination (Train shunting to additional waggons)	From driving train part, when there is no locomotive at the destination (Train shunting to additional waggons)	
Train junction	From train part at destination (minus 9 th character)	From train part at destination	From train part at destination	When result of division route (same name +A/B)
Manual	Selection from route editor: From standing train part From driving train part manual	Selection from route editor: From standing train part From driving train part	Selection from route editor: From standing train part From driving train part	When "From standing train part" is selected for leading vehicle, then this route can only be switched if the train part at the destination contains a locomotive

6.16 Route test

You can test your new routes immediately with **Win-Digipet**.

You can test your route with...

-  the **simulation** in **Win-Digipet** (you can follow the train on its virtual way on the screen)
-  the route testing function together with the simulation
-  the route testing function directly with your model railroad layout.



6.16.1 Find feedback contacts in the track diagram

Individual feedback contacts can be easily found in the track diagram, when you click and keep pressed the middle mouse button in a field for feedback contacts in the routes-editor. The track symbols related to the contact are marked by red frames. The frames disappear, when the mouse button is released.



This function can be applied in all editors of Win-Digipet where contacts are recorded.

6.16.2 Magnifier of feedback contacts

Under the menu <Options> <Display all feedback contacts> you can display all feedback contacts in the routes editor as well as in the main program.

You can check this switch to briefly check the recorded feedback contacts. All feedback contact numbers in the track diagram are displayed, but until you use this function no track occupancy will be shown. This function is temporarily switched off. Once the switch has been unchecked, everything works as before, including the track occupancy. Sometimes depending on the track layout the given contact numbers are not readable. As soon as point to a number, left click the mouse. The number is coming up enlarged.

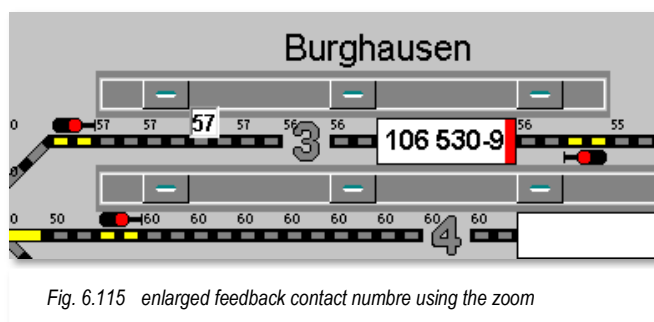


Fig. 6.115 enlarged feedback contact numbre using the zoom

The zoom doesn't work if you have activated the <Display info about symbol below mouse pointer> in the menu <Options>.



If you use this function in combination with the simulation, there will be no feedback information in the track symbols displayed and also you could not activate or deactivate feedback contacts by clicking on them.


Because of this you should deactivate this function before starting the simulation.

6.16.3 Route test with the simulation

You have just created your route and now you may want to test the route.

To do this **WIN-DIGIPET** supports a simulation mode. Close the route editor and drag a locomotive with pressed right mouse button to the start train number symbol of the route you'd like to test.



Now click on the symbol  in the toolbar of the main program. A little window labelled "Simulation ON" appears.







This number in this window indicates the time between two simulated events in the simulation, because of this a lower number results in a higher speed. We suggest using perhaps 2000 (msec.). This value gives you the chance to watch all events at your screen.



The simulation is set active after opening it, but you can start or stop it with two buttons in the small window.

WIN-DIGIPET automatically set all feedback contacts of the train number display, that show a locomotive number, to the state "occupied". By this usually the first switching condition of the route is fulfilled.

Now click with pressed middle mouse button on the start- and afterwards destination train number display. A list will appear showing you all routes and or tours from this start to this destination. Select the route to test in the list and press '**Switch + Drive**', the route will be executed immediately and the train seems to move along the itinerary.

-  The train number moves from the start to the destination contact as selected in the system settings.
-  The feedback contacts will be occupied in same order as the switching conditions were registered in the route editor. If the itinerary will be highlighted in red/yellow not in the correct order, then you should check your switching conditions.
-  All add-on-switching will be executed when the assigned feedback contacts have been reached/passed.
-  Also the partial releases will be executed.
-  The speed of the locomotive can be watched in the locomotive controls, the locomotive quick command bar or as tendency in the locomotive monitor.
-  When fulfilling the release condition, the entire/rest of the route will be deleted from the screen.

If you have recognized an error in your route correct the settings, you've done in the route editor.

Afterwards drag the locomotive again on the start train number display, set with a mouse click the destination feedback contact to "Free" and the start feedback contact to "Occupied" and start the route again with the start-/demand-function

You can test further routes also in the way.

Using the simulation, you can test your routes etc. without connection to the layout. Eventually errors will not have cost-expensive consequences.

If you leave the simulation you can decide whether to restore the situation before the simulation in your track diagram or not.



If you want to test a route with many feedback contacts or many add-on-switching it is sometime useful to stop the simulation and to (de-)activate the feedback contacts manually with mouse clicks. By doing this, it will be easier to recognize single events.

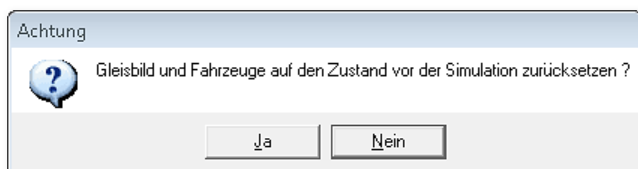


Fig. 6.116 security question when ending the simulation

When leaving the simulation, you should always answer with '**Yes**' to restore the real situation of your model railroad layout on the screen.




If you use the simulation with a connected digital interface no locomotive command will be sent and no solenoid device will be switched.

6.16.4 Route testing on your layout

Leave the routes editor and drag with pushed right mouse button a locomotive from a loco control or the locomotive monitor to the start train number display of the route to test.

Now place your locomotive on the start contact of your route and open the locomotive's loco control.

For monitoring your locomotive please open the train inspector via the button  in the toolbar of the main program. The train inspector is a good tool to monitor every single step of the route execution.



Now click with pressed middle mouse button on the start- and afterwards destination train number display.

A list will appear showing you all routes and tours from this start to this destination. The

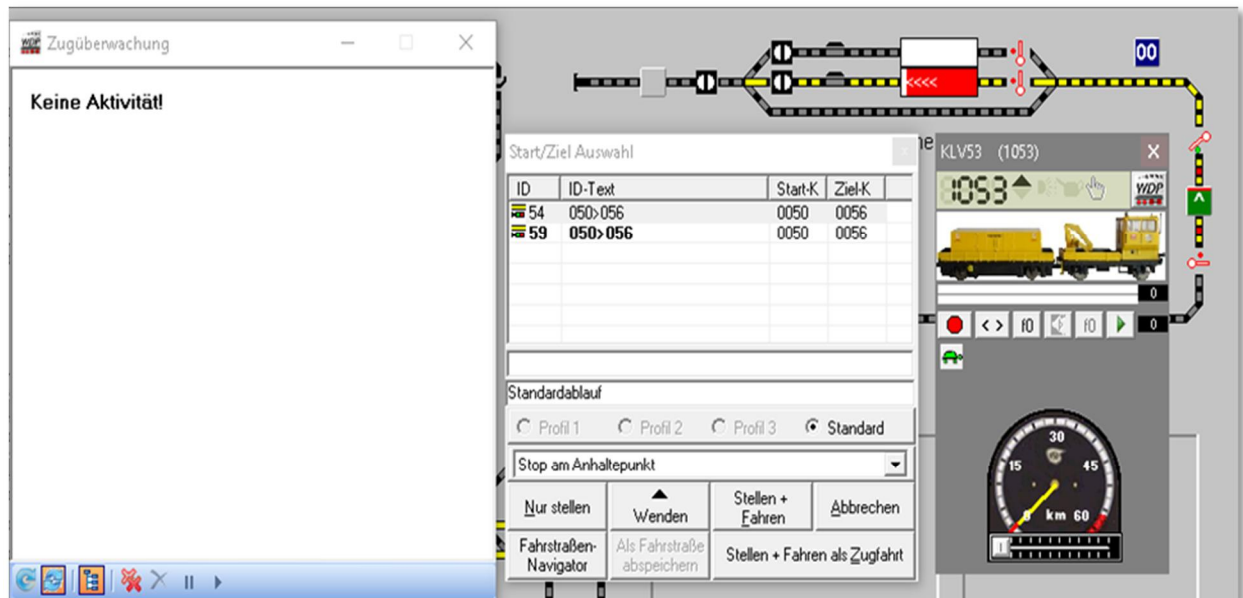





Fig. 6.117 Selection of the route for the test drive.

representation in this dialog indicates, that the second item in the list (ID 64) is a special route for splitting trains.

The first item in the list is the route with ID 46; we want to use this route for our test. Select the route to test in the list and press '**Switch + Drive**', the route will be executed immediately and the locomotive will start its journey.

Now you can monitor the movement of the train in the locomotive control and the train inspector.

In the train inspector you see for example...

-  the outstanding driving commands
-  the outstanding add-on switchings
-  and the outstanding release conditions

... for the executed route.

After finishing the route, the train inspector shall be empty. Otherwise you made errors in your route.



An exception are add-on switchings using "FREE" as condition, if the train hasn't left these contacts yet, because it has stopped at the signal before.



6.17 Other functions within the route editor

6.17.1 Disable request for saving


If you want to disable security queries to save your data records, then you can disable this request by <Options> <Disable request for saving>.



This function is dangerous and should be handled with care because one wrong mouse click can cause the loss of many data of the last changed and unsaved route.

6.17.2 Exchange loco address in all routes

If you have registered locomotive addresses in many routes it would be much work to exchange locomotive addresses in all routes manually.

If you want to exchange a locomotive address if you want to redefine your "Home tracks" for example proceed as follows: Click in the toolbar of the routes editor on the symbol  and a window according to Fig. 6.118 will be opened.

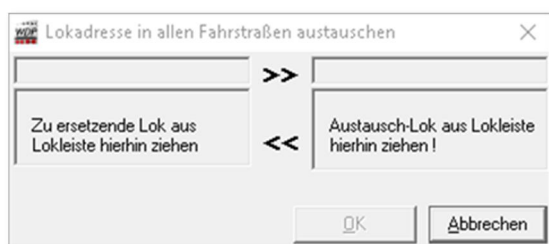


Fig. 6.118 Dialogue for general exchange of loco addresses

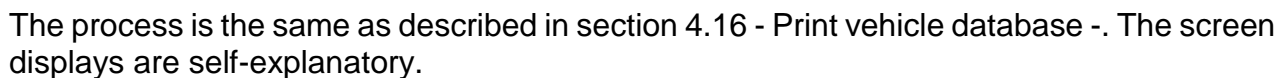


Fig. 6.119 The vehicles selected for the exchange have been dragged in to the window

Drag the "old" and the new "new" locomotive to the field ("drag & drop") (see Fig. 6.119), and click afterwards on '**OK**'. Now the selected locomotives will be exchanged in all routes.

6.17.3 Print route list

For printing a route list, press the button  in the toolbar of the routes editor.

[illegible]

button.

6.18 Exit routes editor

You will be returned to the main program **Win-Digipet**. You will maybe have to answer a security question before.

Using the check routine within the main program you can check if all your routes are correct.

WIN - DIGIPET

The control program

Version 2018 Premium Edition

Chapter 7



7. TOURS

7.1 General

Tours in **Win-Digipet** are similar to routes (see routes editor, chapter 8), but one tour usually contain more than one route. Tours are also defined from **one** start- to **one** destination contact. In contrary to routes the destination contact could be the same as the start contact, if there is a minimum of one block between the contacts. A train using a tour drives from block to block and will stop only if the next block is "occupied" and no valid alternative routes exist.

In **Win-Digipet** tours a registered in a table. Every tour stands for a train driving an itinerary from one start- to one destination contact using the routes, which were combined to a tour in the editor. A route can even use repeatedly a similar itinerary on your layout, but may **never** drive over the destination contact more than one time.

- ✎ The tour editor is used to register tours in **Win-Digipet**. The Tour-Editor / the tours offer the following possibilities:
- ✎ Combining existing routes to a tour.
- ✎ Add intermediate stops together with appropriate conditions
- ✎ Defining only one itinerary for the tour from start- to destination contact or defining itineraries with alternative ways if some blocks are occupied.
- ✎ Driving the train several rounds across the layout before reaching the destination.
- ✎ Even changes of direction are possible during a tour, if profiles with direction change commands exist for the used locomotives (expert skill level).
- ✎ Tours can be used by more than one train after the other or even at the same time.
- ✎ Of course the locomotive type selection from the routes editor will be taken into account, so you can still create individual using conditions for different locomotive types.
- ✎ Tours can be used in the tour automatic.

7.1.1 Check contact for tours within the route definition

Every time a train using tour reaches the check contact of its current route it will be checked if the next route is already switchable. If it is switchable all speed changes of the current route resulting from its brake, contact or the first contact of its intelligent destination train number display will be ignored and substituted by the start contact speed of the next route.

If the next route is not switchable when the check contact of the previous route has been reached, the train will be driven according to the settings of the current route. If then later the way of the next route gets free, the next route will be switched immediately and the new route will overrule the remaining elements of the previous route as described before. Because of this you might get the effect that the train which has been nearly stopped could start to accelerate into the next route.



Especially when using the "intelligent train number display" you should pay higher attention to the check contact, because for new routes the route wizard will choose the first contact of the iTND as check contact, while in routes not using the iTND function the check contact will be set to the brake contact.

You should follow this logic even for manually recorded routes. In any case the check contact has to be reached before the train gets stopped at the end of the route. The train will not continue its way in the tour if the check contact has never been occupied.

See also chapter 6, section Hints regarding intelligent train number display for stops at the platform ff – Routes for more information regarding this topic.


7.1.2 Switch conditions of routes within tours

During tour operation the switch conditions from the routes will also be taken into account. It will of course be ignored that the start contact has to be occupied if the train drives threw.



7.1.3 Release conditions of routes within tours

Also the release conditions of the routes will be executed as for solo routes. You can also use the partial releases.

7.2 Registering tours

The tour editor can be opened by <File> <Tour-Editor> or by clicking on the symbol  in the toolbar.

When opening the tour editor for the first time you will see an example entry, which could be overwritten by your first tour. **Win-Digipet** offers two possibilities for the creation of tours:






-  the comfortable tour wizard
-  the manual tour creation.

Before registering your first tours you should consider:



A tour has always only one **unique start** and only one **unique destination** contact.

Please answer the following questions before creating a tour:

-  where to start with the tour
-  where to end with the tour
-  which itineraries should be used by the tour
-  which alternative itineraries can be included in this tour
-  which train types should use the tour




- do you want more than one train to use this tour
- do you want to use home-tracks similar to the routes

Before starting with creation of a tour the following requirements have to be fulfilled:

- all necessary routes should have been created
- the loco/train type settings of the routes should have been checked
- the check contact has been registered in these routes and has also been eventually adapted to the usage of iTND

7.2.1 Creating tours using the tour wizard

To start the tour wizard just click on  in the toolbar of the tour editor. The wizard will ask you immediately for the start position (start train number display where the tour shall begin).

In our example we want the train to travel from track A3 in the hidden yard A over the complete layout back to its starting position.

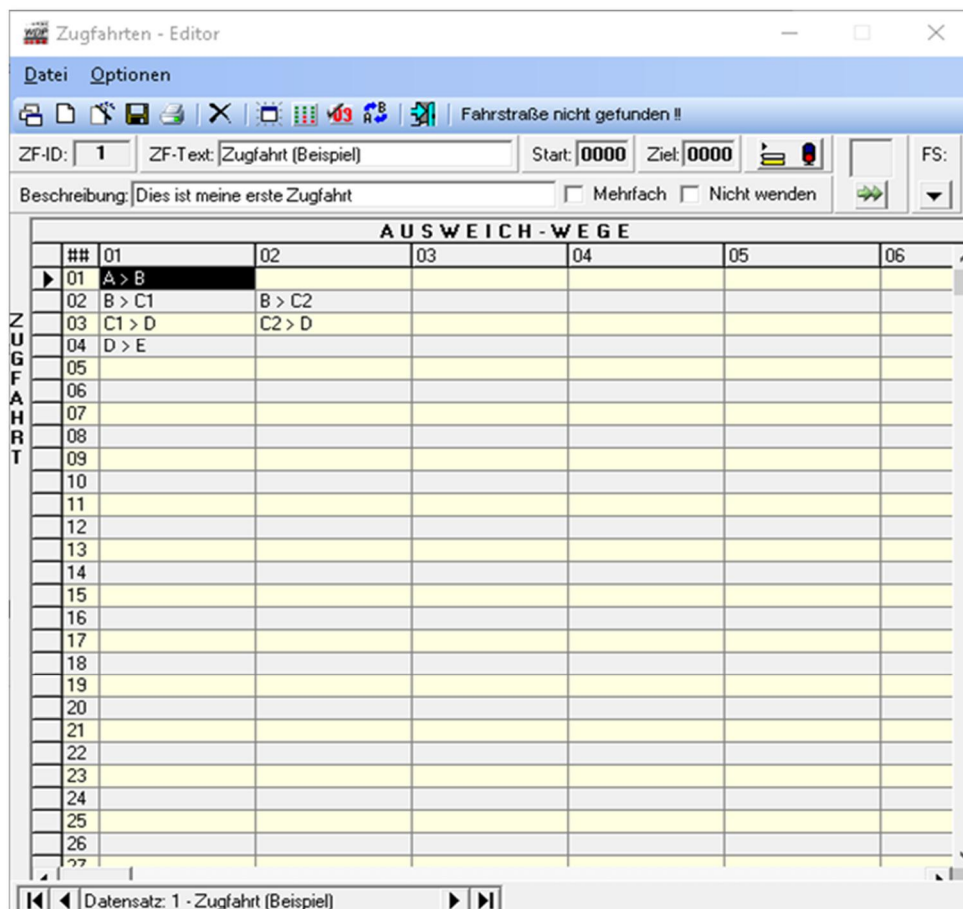


Fig. 7.1 The tour editor after its first start

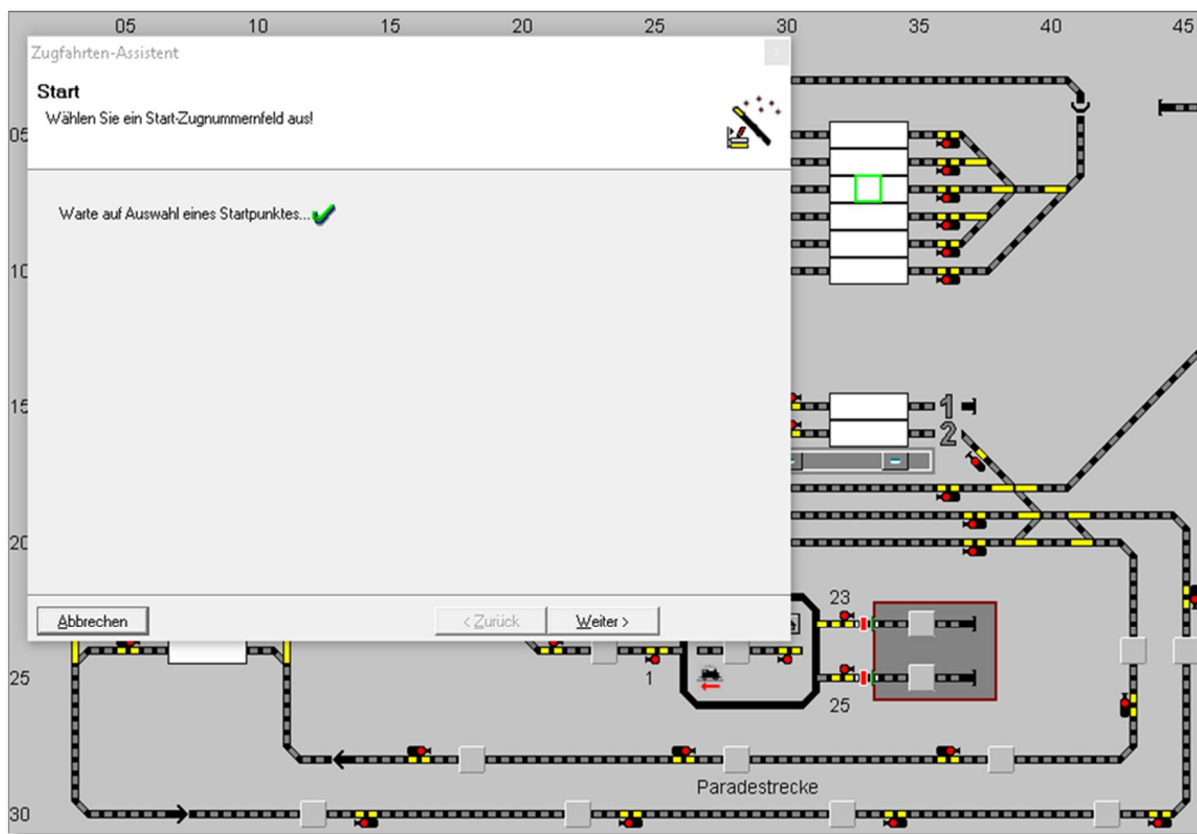


Fig. 7.2 The tour wizard accepted the selected start train number display

Just click with the left mouse button on the start train number display. It will be framed by a green border line and the input will be accepted by the tour wizard (green check mark). Now the button '**Next**' is clickable.

In case of a large train number display it does not make any difference if select the left, middle or right part. This can also be seen in Fig. 7.2 where we selected the middle part.



As start for a tour only train number displays are allowed. The selection of other track symbols is permitted.

After clicking '**Next**' all routes starting at this train number display will be shown in the left handed list.

In our example only one route (005>018) is available. We select the row continuing this route by a click and the routes itinerary will appear in the track diagram.

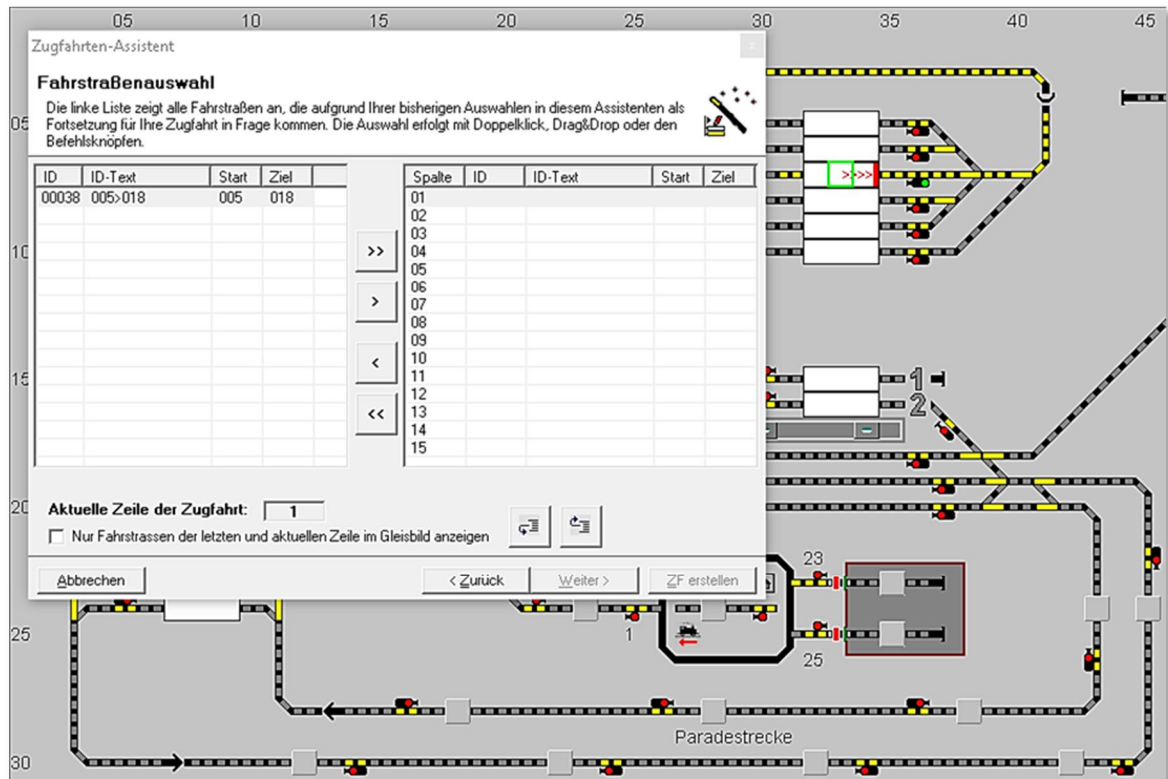


Fig. 7.3 Routes starting at the selected start train number display



Now the route has to be transferred to the right list. This can be done via drag&drop. But you can also use the four buttons between the lists.

The buttons with the single arrow symbol transfer depending on their direction the selected list entries from the left to the right list or vice-versa. The double arrows transfer in any case all entries from the left to the right or vice-versa.

In our case we only want to transfer the selected route so we pressed the second button (counted from top to bottom).

Now the button '**Next**' is selectable again and after a click the first route has been added to the route and the next step is available.

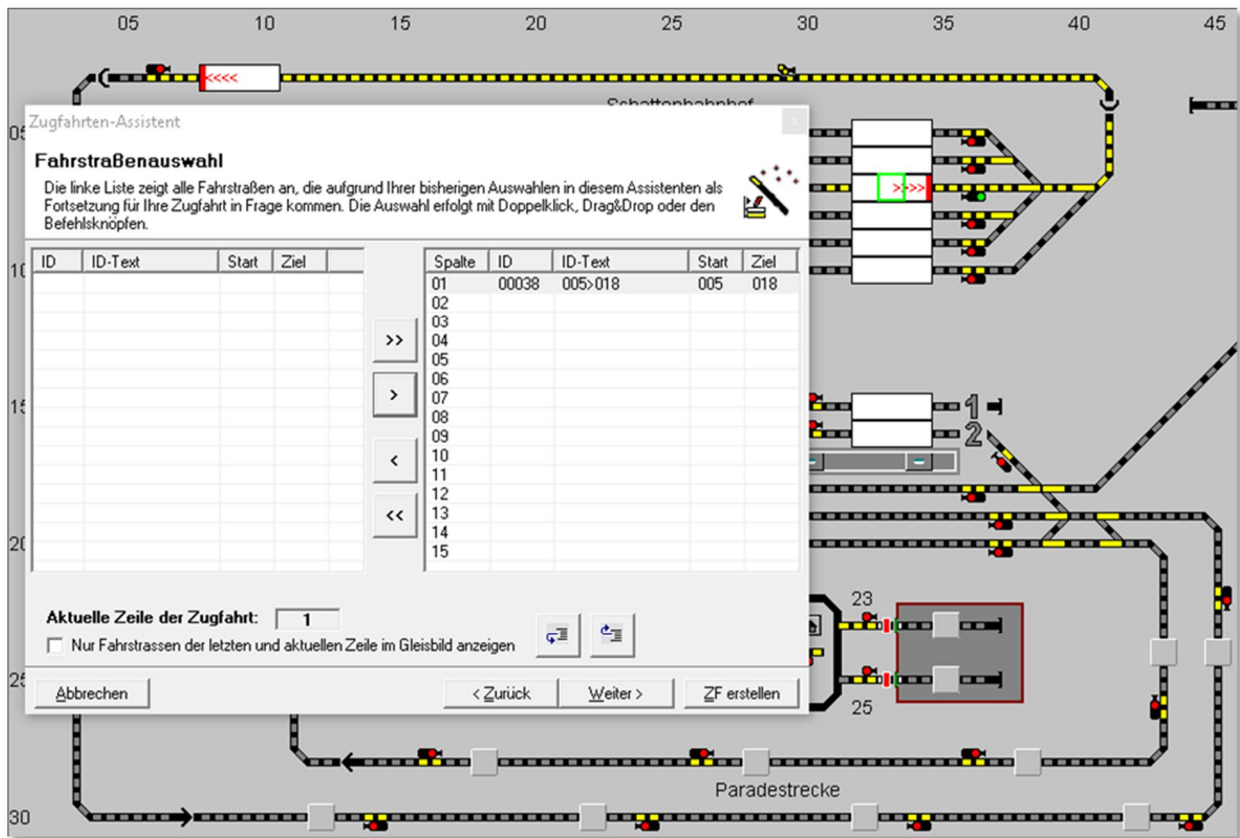


Fig. 7.5 The first route has been added to the tour

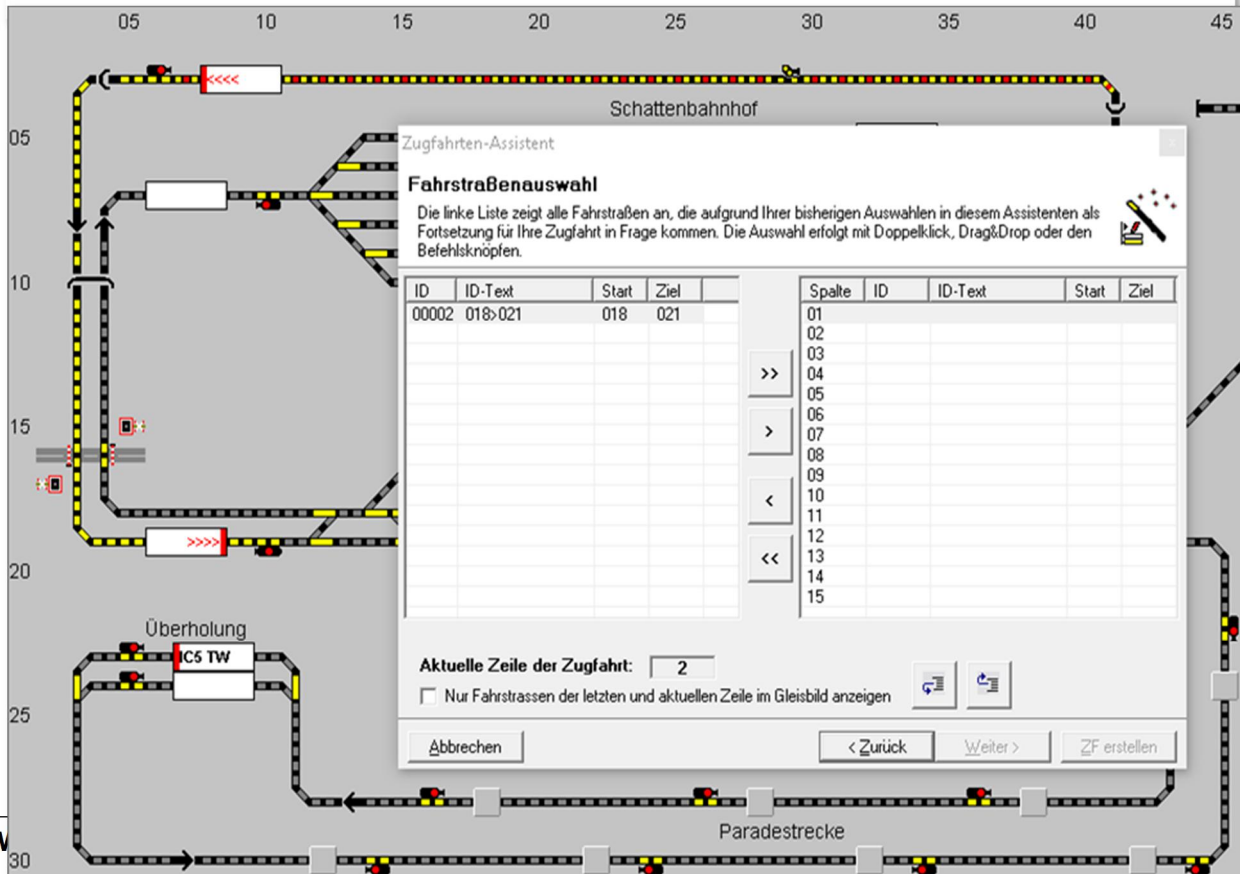


Fig. 7.4 The second route can be added to the tour



The tour can now be continued at the destination contact (018) of the first route we registered before. The tour wizard offers again a route and it can be transferred to the right list using the single arrow button (see Fig. 7.5).

At the next point (021) of our example the tour wizard offers 5 routes. For the definition of alternatives itineraries, you could now transfer all routes to the right list.

But for this first example we do only select the route 021>039 for transfer to the right list.

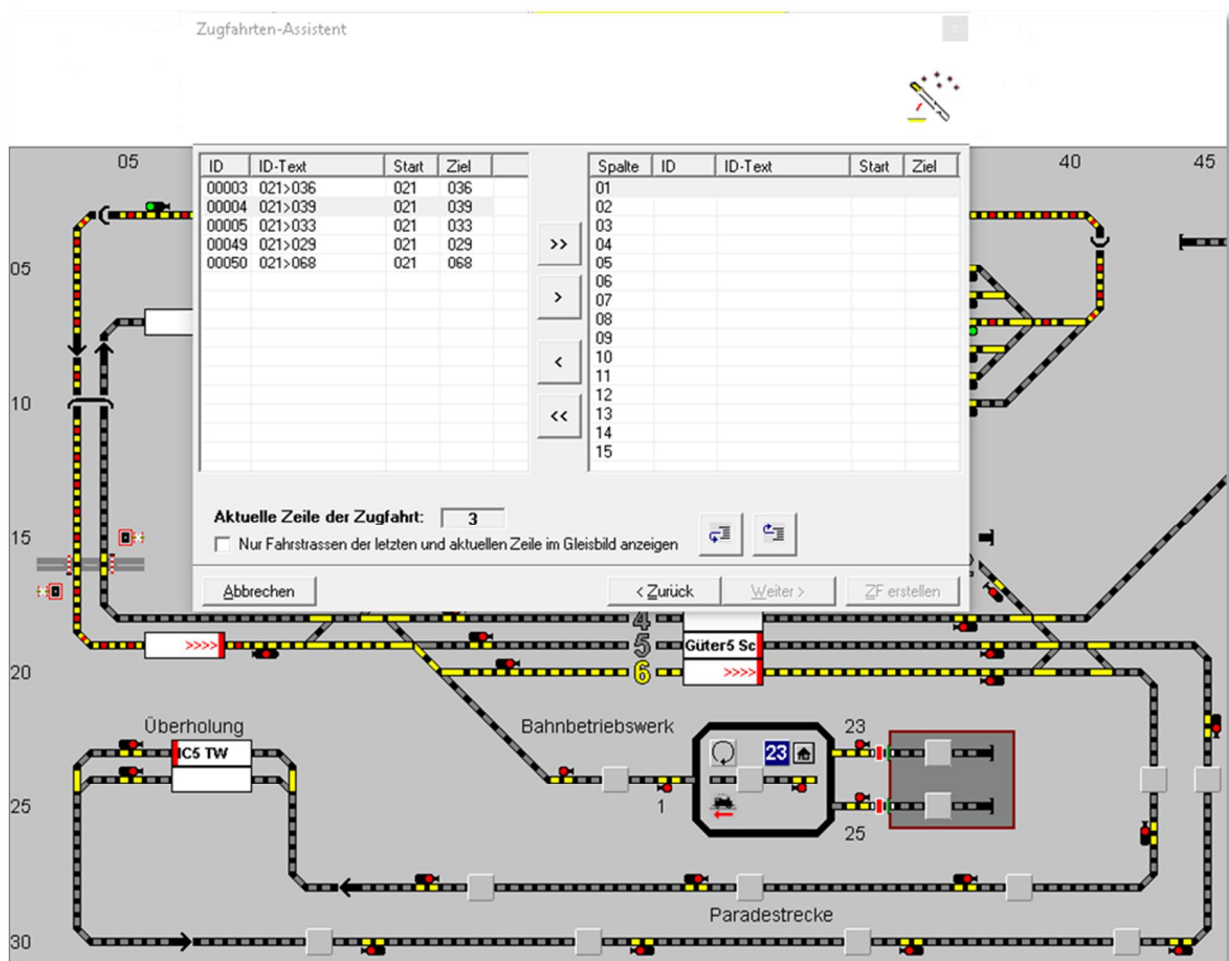


Fig. 7.6 The passage through the station shall always use track 6.














Your tour defined until now is also displayed in the track diagram. All routes registered before the current step are coloured yellow-red while the selection in the current step is coloured yellow. Also, the direction information for the train number displays is shown.

Using the check box in the window you can limit this display to the last and current step routes. This is useful when registering longer tours.

We'll shorten the next steps of our tour creation, because the principle is always the same.



Before the next step to be shown the following routes had been created according to the procedure described above.

-  039>062 → Burghausen 6 to Presentation Block 1
-  062>064 → Presentation track Block 1 to Presentation track Block 2
-  064>066 → Presentation track Block 2 to Presentation track Block 3
-  066>068 → Presentation track Block 3 to Presentation track Block 4
-  068>070 → Presentation track Block 4 to pass by track 1
-  070>073 → Pass by track 1 to Presentation track Block 5
-  073>075 → Presentation track Block 5 to Presentation track Block 6
-  075>077 → Presentation track Block 6 to Presentation track Block 7
-  077>079 → Presentation track Block 7 to Presentation track Block 8
-  079>081 → Presentation track Block 8 to Presentation track Block 9
-  081>033 → Presentation track Block 9 to Burghausen 4
-  033>025 → Burghausen 4 to entry SBhf
-  025>005 → Entry SBhf to SBhf 3



The registered tour until now is visible in the track diagram.

Our example tour has reached the start point as unique destination and because of this

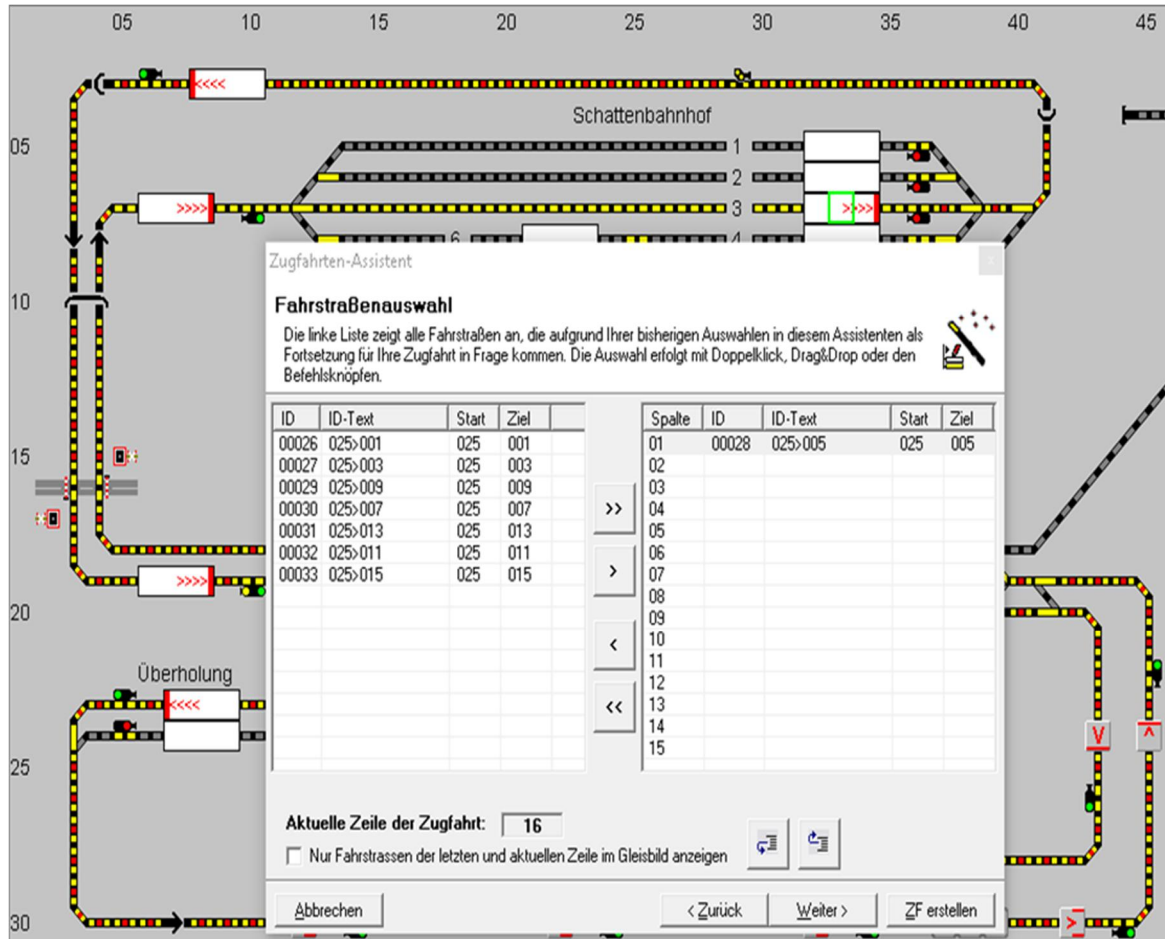


Fig. 7.7 The complete tour is visible and can be created.

the button '**Create tour**' is now enabled and we can press this to finish the route creation.



Zugfahrten-Assistent

Zugfahrt fertigstellen

Passen Sie falls gewünscht noch den ZF-Text und die Beschreibung an und bestätigen Sie anschließend die Erstellung der Zugfahrt!

ZF-Text:

Beschreibung:

☐ Ich möchte sofort noch eine Zugfahrt erstellen

Fig. 7.8 A description for the tour has been created automatically

After pressing '**Create tour**' the tour wizard creates a tour text and description using the start and destination train number display's texts and descriptions.

If you want to create a further tour you can check "*I want to create an additional tour immediately*", in our case just click '**Finish**' and the new tour should appear in the tour editor.

You can see that all routes previously chosen in the tour wizard have been added to the first column of

the tour editor.

A T-ID has been automatically assigned to tour and you can also see the start and destination contact number in the window (here 0005 in both cases).

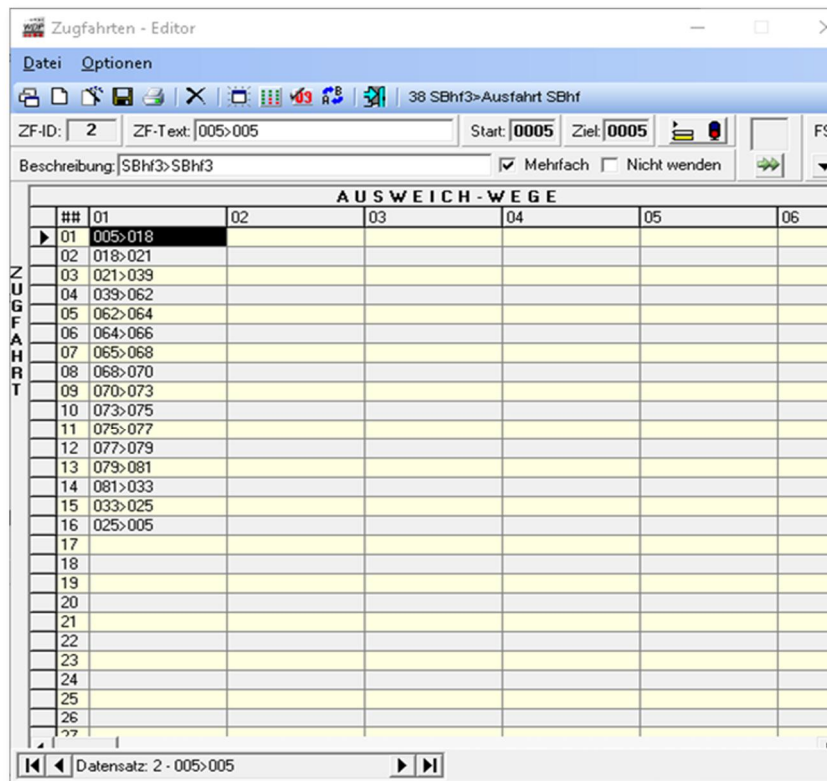


Fig. 7.9 The new tour in the tour editor

The tour wizard checked „Multiple" also. By this **more than one** train could use the tour **simultaneously**.



This means: **more than one** train may use this tour **at the same time** and each train would follow the preceding.

This is very useful feature by using longer tours to avoid traffic jams or the need to register additional tours. You should remember when using this option to give the train possibilities to continue at the end of the tour, because otherwise a traffic jam for the following trains would be the result.

By activating the check box “Do not turn” an automatic turn during a tour is suppressed. The automatic turn is dependent on the directions of the individual routes of the tour.



7.2.2 Show an entire tour

Win-Digipet can show you the entire tour in the track diagram. This is very useful to check

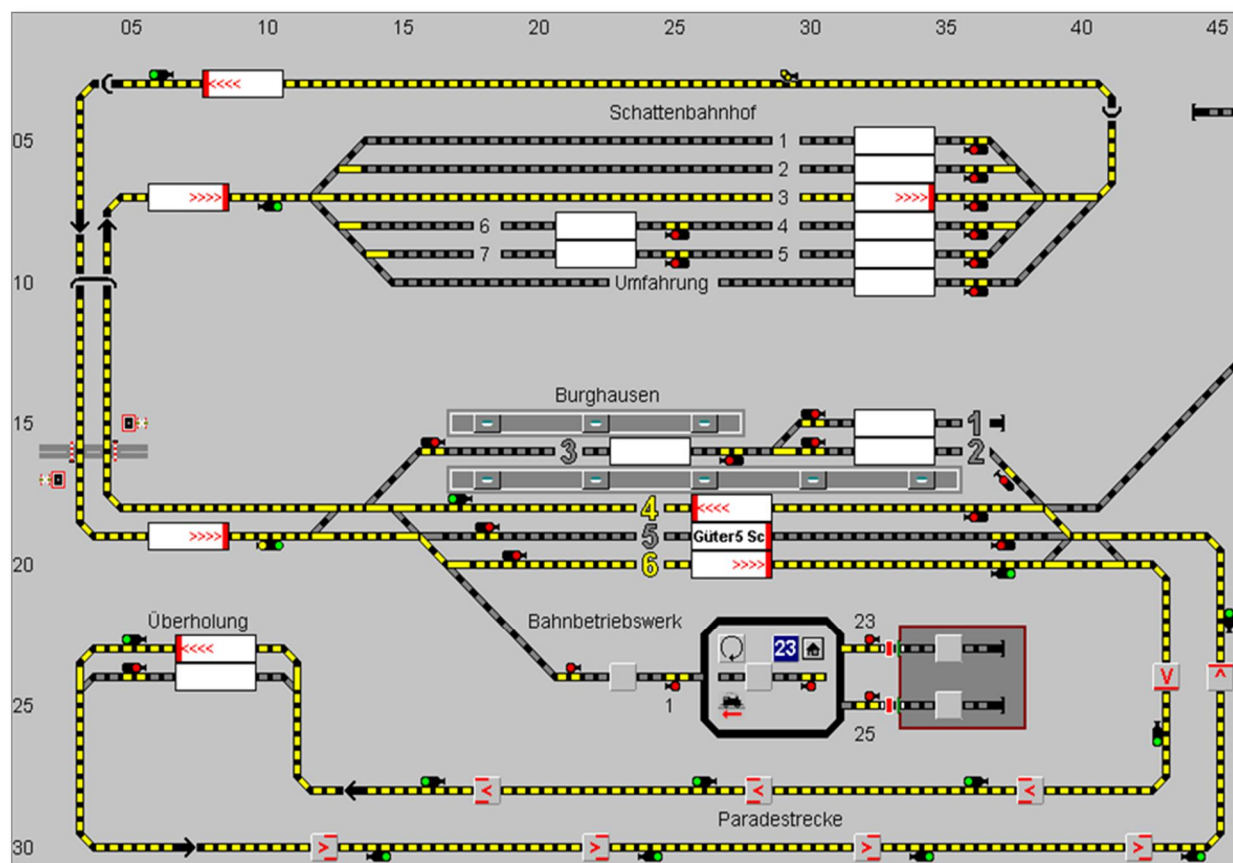


Fig. 7.10 Complete tour in the track diagram.

the main itinerary and the alternative itineraries of the tour. You can activate this function by a click on the symbol in the toolbar of the tour editor.

Usually, the start train number display will be highlighted in green and the destination train number display in red. The routes of the tour will be shown in the same way as single routes. The example given here is an exception: The train number displays are not highlighted red/green, since the start- and destination-TNDs are identical.

7.2.3 Registering tours manually

In the following section we want to explain the manual registration of a tour. In this example we'll show a tour from the exit signal of the hidden yard B1 to the entrance signal of hidden yard A. Start the registration by a click on the symbol in the toolbar of the tour editor. After a security question a new record with an empty table will be shown.



The routes are registered in columns (vertical) and rows (horizontal). **Win-Digipet** processes the registered routes from the top left to the right bottom. The vertical arrangement (top to bottom) of the routes describes the way from start to destination. The horizontal arrangement describes the possible alternative ways.

By principle **Win-Digipet** process the registration in the single lines from left to right (normal reading order). This means at first the first column will be checked if there is a suitable and switchable way for continuing the tour. If this is not possible the next column will be checked and so.

If a route can be switched within a row, all other columns will be ignored and the next route will be searched within the next row.

If no suitable way (this means no route with a start contact suitable to the destination contact of the previous route) can be found in this row, this row will be skipped and the search will proceed in the following row. So the next route may also be registered in the next but one or a later row.

You have two possibilities for the registration of routes to the tour editor, the first is much more elegant and faster.

First click to the cell, where you want to register a route and put into the selected cell the route with one the following alternative.



Alternative 1:

Click with the middle mouse button first on the train display of the start contact and afterwards to the one with the destination contact.

Then the "Select Start/Destination" window opens. In this window click on '**Copy for editor**'. This will copy and register the selected route into the designated cell of the table. The cursor will move to the next row.



Eventual error messages in the "Select Start/Destination" window could be ignored at this time, because these are only relevant when routes shall be switched by this window.

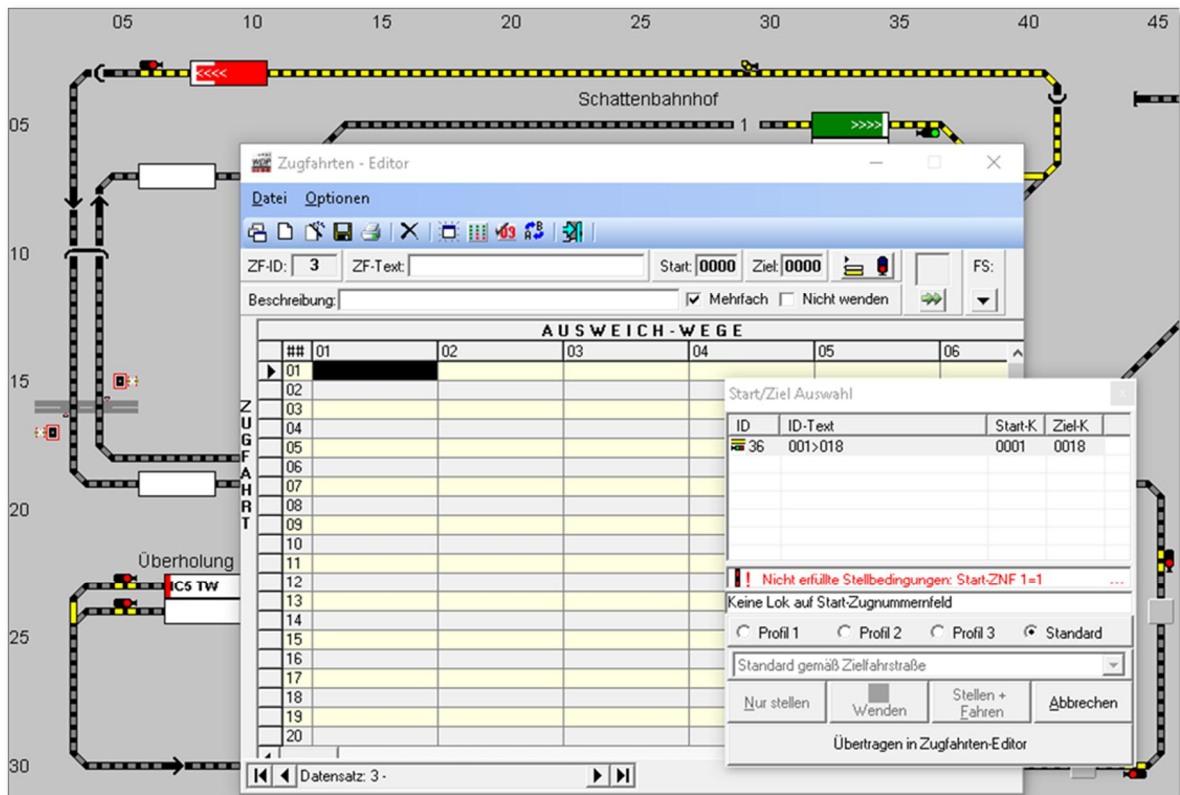


Fig. 7.11 selecting a route via start/destination function for registration within the tour editor



Alternative 2:

The second possibility is to open the context menu by clicking with the right mouse button on the cell to edit. In the context menu select <Routes list> or click on the arrow next to "R:" in the toolbar. This will open a list with all registered routes.

Select the desired route from the list and the route will be highlighted yellow, if it is not covered by the editor.

With a double click the selected route will be registered in the selected cell of the table and the cursor will move to the next row.

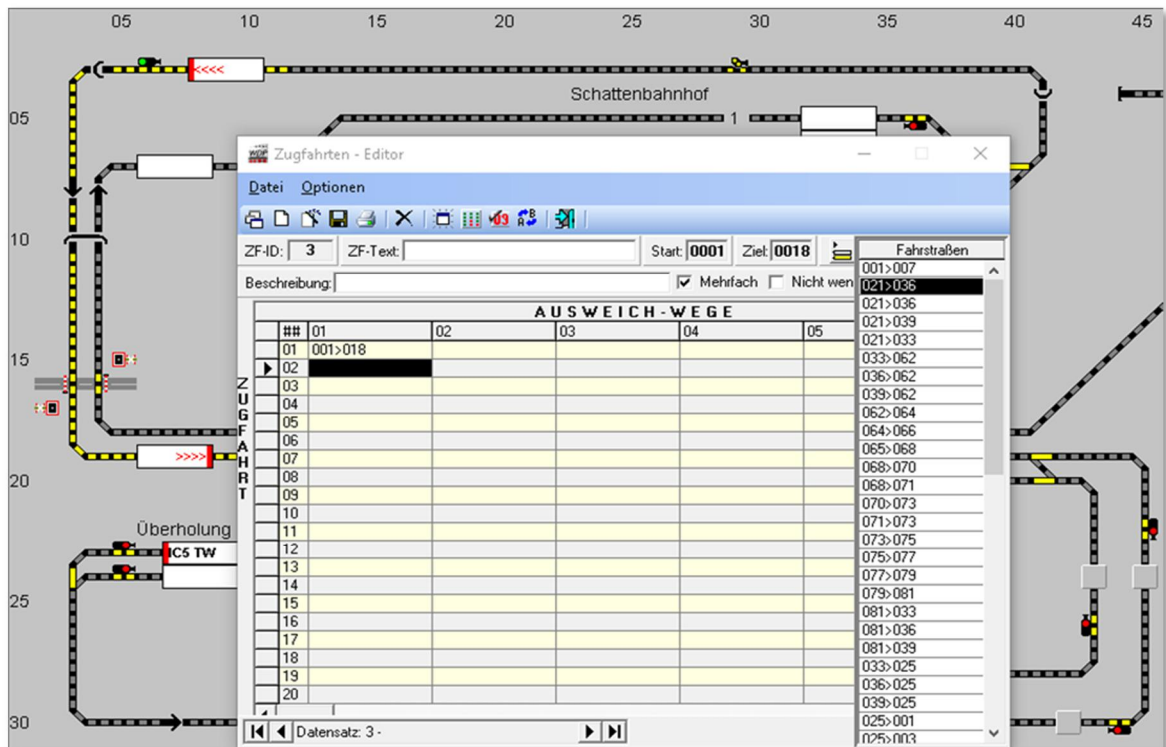


Fig. 7.13 selecting a route via the route list in the tour editor

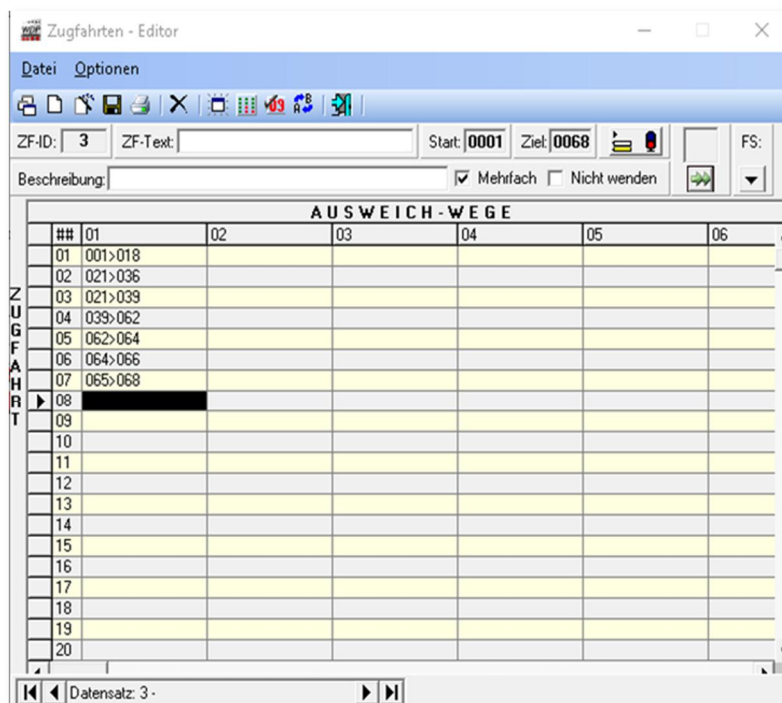



Fig. 7.12 The manually assembled tour is complete.

All other routes can be registered in the same way in the first column of the table. The desired result is shown in Fig. 7.14. In this figure we activated the display of the complete tour by clicking on the symbol .

After finishing the registration of the tour's routes, you can proceed with naming the tour (e.g. via automatic naming, see next section). Do also check "Multiple" if necessary.

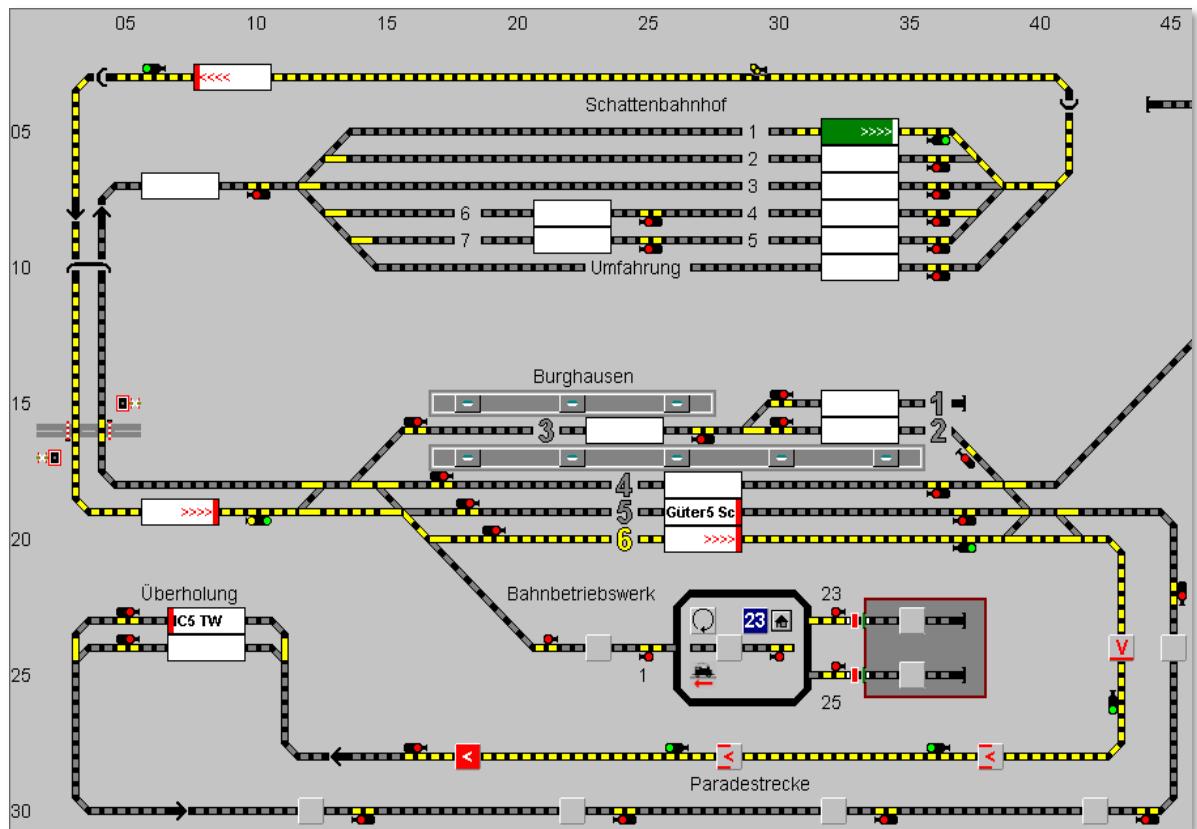


Fig. 7.14 The manually assembled tour is shown.

7.2.4 Renaming tours automatically

If you open with a right mouse, click the context menu over the tour registration grid you can select the command to rename tours automatically.

With a click on this command **Win-Digipet** renames tours automatically in the same way as the according function in the route editor. Therefore, it uses the registered names and descriptions of the start and destination train number display of this tour.

You can of course edit the automatic naming later. This e.g. useful for different tours using the same start and destination contact.

	Fahrstraßen-Liste	Alt+F
	Feld(er) einfügen	Alt+EINFG
	Feld(er) löschen	Alt+ENTF
	Ausschneiden	Strg+X
	Kopieren	Strg+C
	Einfügen	Strg+V
	Feldinhalt löschen	Strg+ENTF
	Datensatz speichern	Alt+S
	Komplett in neuen Datensatz kopieren	Alt+Strg+C
	Gesamte Zugfahrt anzeigen	Alt+Z
	Fahrstraßen-Matrix anzeigen	Alt+M
	Zugfahrt automatisch benennen	Alt+N

Fig. 7.15 The context menu in the tour editor

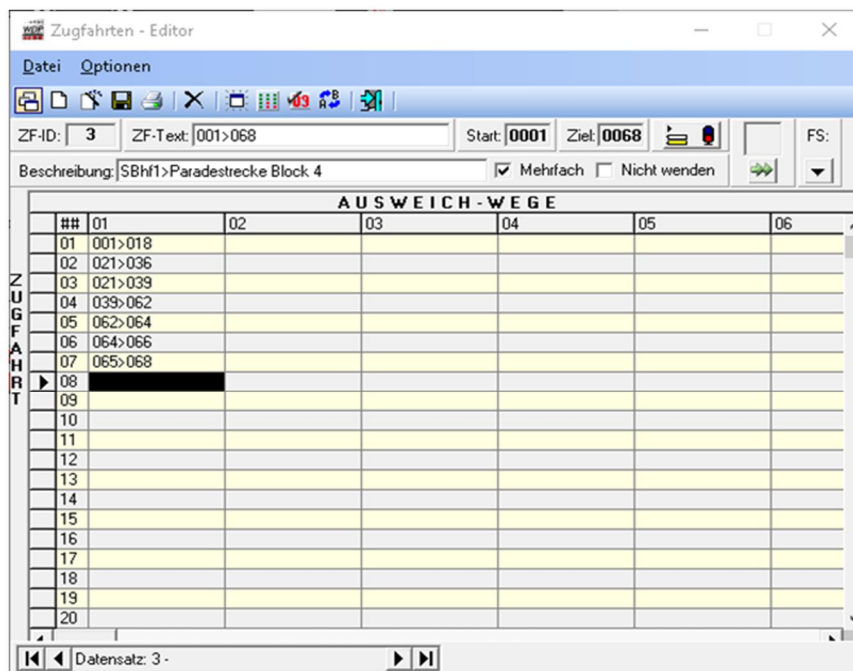


Fig. 7.16 Now the manually registered tour is complete and got its name automatically.

7.2.5 Testing tours with the simulation


After creating a tour, you might want to test your tour if this tour fulfils your needs.

You can test the tour using the simulation in **Win-Digipet**. We introduced the simulation already in the route's chapter.

Close the tour editor and drag with pressed right mouse button the train Güter5 Sc locomotive BR132 to the start train number display SBhf 1 in the hidden yard, if it hasn't been registered there before.



When reproducing our examples using the demo project WDP2018, check before that all trains and locos are placed on the correct train number displays according the pictures in this section.

You can start the simulation with a click on the symbol  in the main toolbar of **Win-Digipet**.

Please set the simulation speed to 2000 msec., so you can follow the process on the screen without problems.



The simulation gets active directly after it has been turned on. In the track diagram the feedback contacts of train number display containing a locomotive or train will be set to red/occupied.

The switch condition of the routes should be fulfilled by this and you don't have to do this yourself.

Select now your new tour using the start-destination function. In our example you have to click with the middle mouse button on the start train number display and afterwards on the destination train number display at block 4 of the presentation track. After the second click the window "Select Start/Destination" will appear.

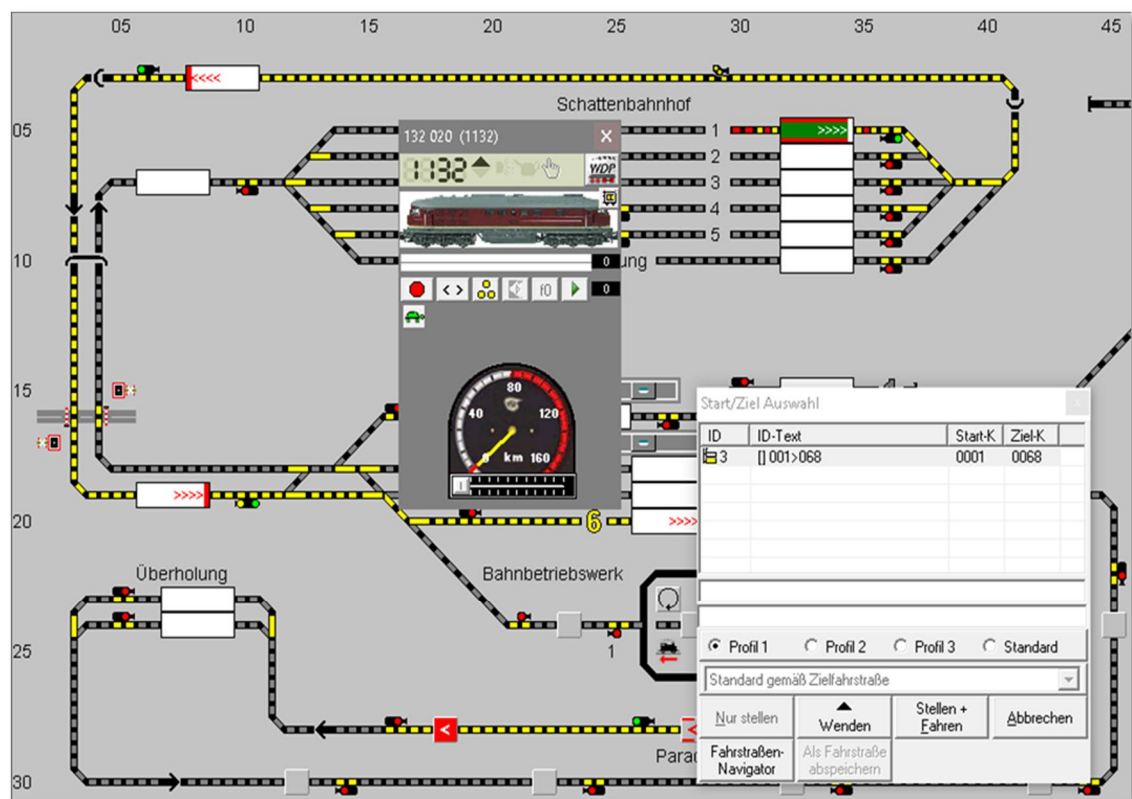



Fig. 7.17 Testing the tour in the simulation

In our example you can see the tour registered above by hand. s from the start to the destination. Tours are indicated by a small tour symbol in the start-destination dialog and by the tour-ID (T-ID). As you already know, routes are indicated by a small route symbol and by the route-ID (R-ID).

After clicking '**Switch + Drive**' the window "Select start/destination" will be closed and the „Tour event inspector" will appear showing the tour while it is being processed. The first currently switched route can also be seen in the track diagram.



The train will not be simulated driven and the train number will travel from train number display to train number display. If you now also open the locomotive control and the train inspector of **Win-Digipet** you can easily follow all steps of the tour on your screen.

You can open the tour event inspector using the symbol  in **Win-Digipet's** main window or using the key F7 on your keyboard.

In the "Tour event inspector" you can see which route is currently active, in the locomotive control you can see the trains/locomotives speed and in the train inspector you can see also sub-steps/processes belonging to the route's processing.

If you see errors during the simulated tour processing, you can correct these errors before testing the tour on your layout.



A train number of the start train number display has two red lines at the bottom and top. When the train number display has been transported to the destination train number display these lines will be white. These lines will stay white until the train reaches the destination train number display's contact or the train number display's first contact (in case of an intelligent train number display).

This will be the case if the train has already reached its destination or the tour cannot be continued at the moment due to unfulfilled switching conditions for the next route.



7.2.6 Adding alternative itineraries to a tour

In this example we want to add alternative itineraries to the tour created in section 7.2.3. Until now used only track 6 of station Burghausen for traveling through this station. In real life operation a blocked track 6 would result in a complete block of the tour. The train arriving from the hidden yard would stop at the signal and stay there until track 6 is free again.

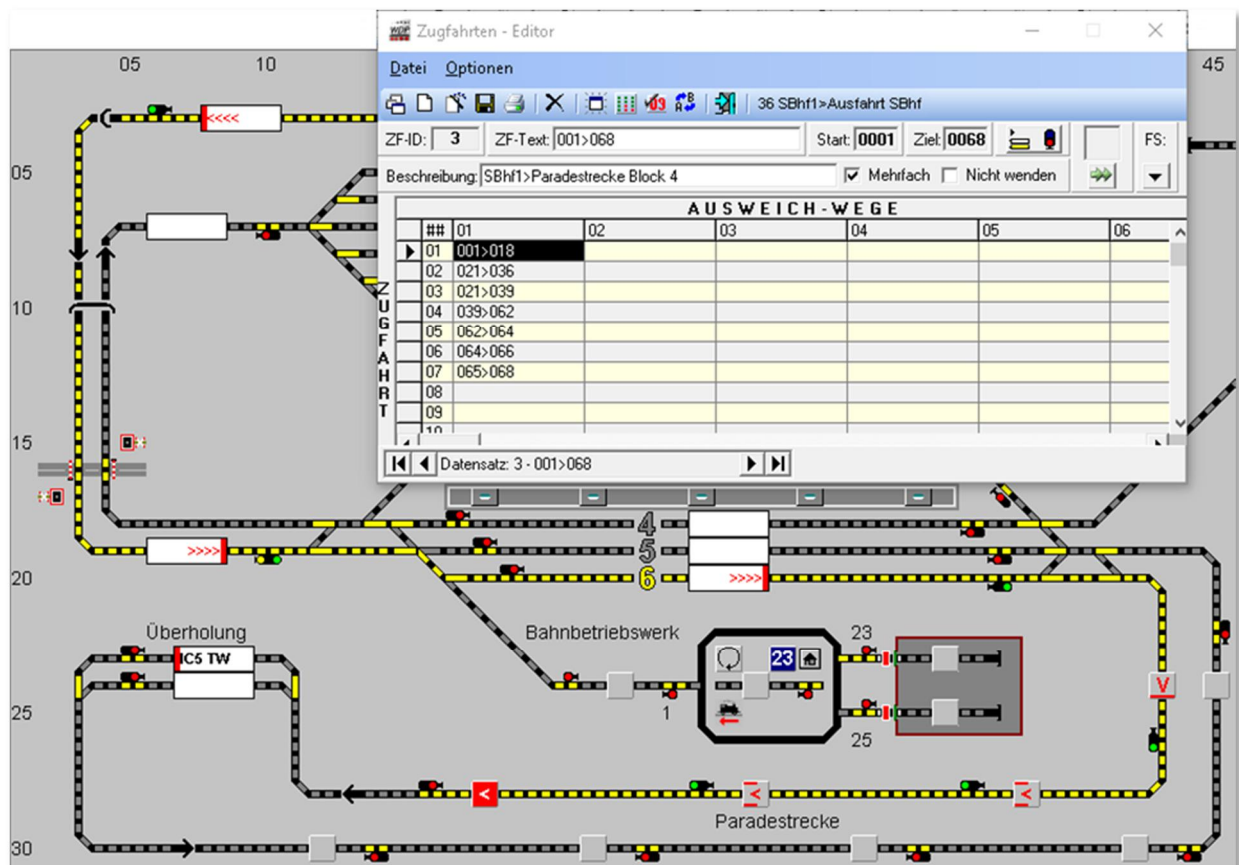


Fig. 7.18 Creating an alternative for traveling through the station.

The common way for solving this issue is the registration of alternative itineraries. In our example we want to add two additional drives using tracks 4 and 5 as options.

If you take a look at the track diagram, you will see that the common point for the travelling through tracks 4, 5 and 6 is the entrance signal West Burghausen. The corresponding train number display has number 021.



In the route list we will find the routes 021>036 (track 5) and 021>033 (track 4. From both tracks routes exist to the destination, the first block of the Presentation Track with train number display 062 (036>062 und 033>062).

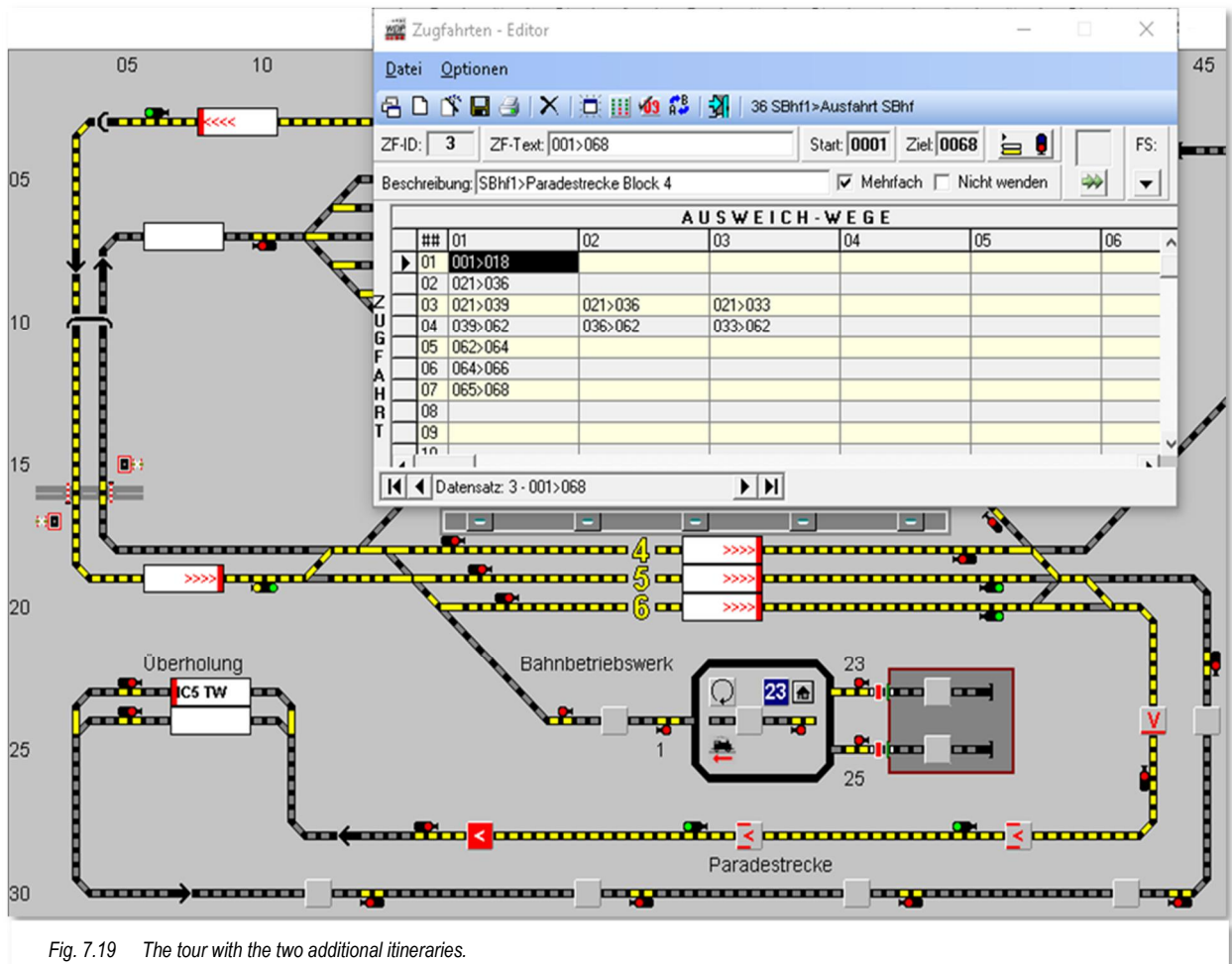


Fig. 7.19 The tour with the two additional itineraries.

After adding these routes you see the completed tour in Fig. 7.19. The tour with the two additional itineraries.. The new routes have been added in column 2 and 3.

On principle, **Win-Digipet** processes the registration in the single lines from left to right (normal reading order). This means at first the first column will be checked if there is a suitable and switchable way for continuing the tour. If this is not possible the next column will be checked and so.

If a route can be switched within a row, all other columns are disregarded and the next route will be searched within the next row.

If no suitable way (this means no route with a start contact suitable to the destination contact of the previous route) can be found in this row, this row will be skipped and the search will proceed in the following row. Thus, the next route may also be registered in the next but one or a later row.



All routes in row 03 have the same destination train number display (021). Because of this the condition of a unique start and a unique destination train number display has been fulfilled.



If you register alternative itineraries, you have to assure that the train never will come to a dead end.

But you don't have to register additional routes to continue with a route in the first column, because if **Win-Digipet** doesn't find a suitable route in the current row, it will continue searching the next row.

7.2.7 Turns within a tour

Within a tour automatic turns can be performed. For this purpose, the direction informations of the routes as parts of the tour are evaluated.

The example shows a tour from Burghausen Track 1 to Bergheim Track 2 and return. All necessary turn commands are executed by the tour. Furthermore, two intermediate turns (see next section) are included, so that the tours stop at Burghausen Track 3 and at Bergheim Track 2 for 30 seconds each.

If you define routes with necessary turns in tours, you must not define additional turn commands in profiles for routes or later within the automatic tour editor. Otherwise, you have double turns and the trains continue in the wrong direction.

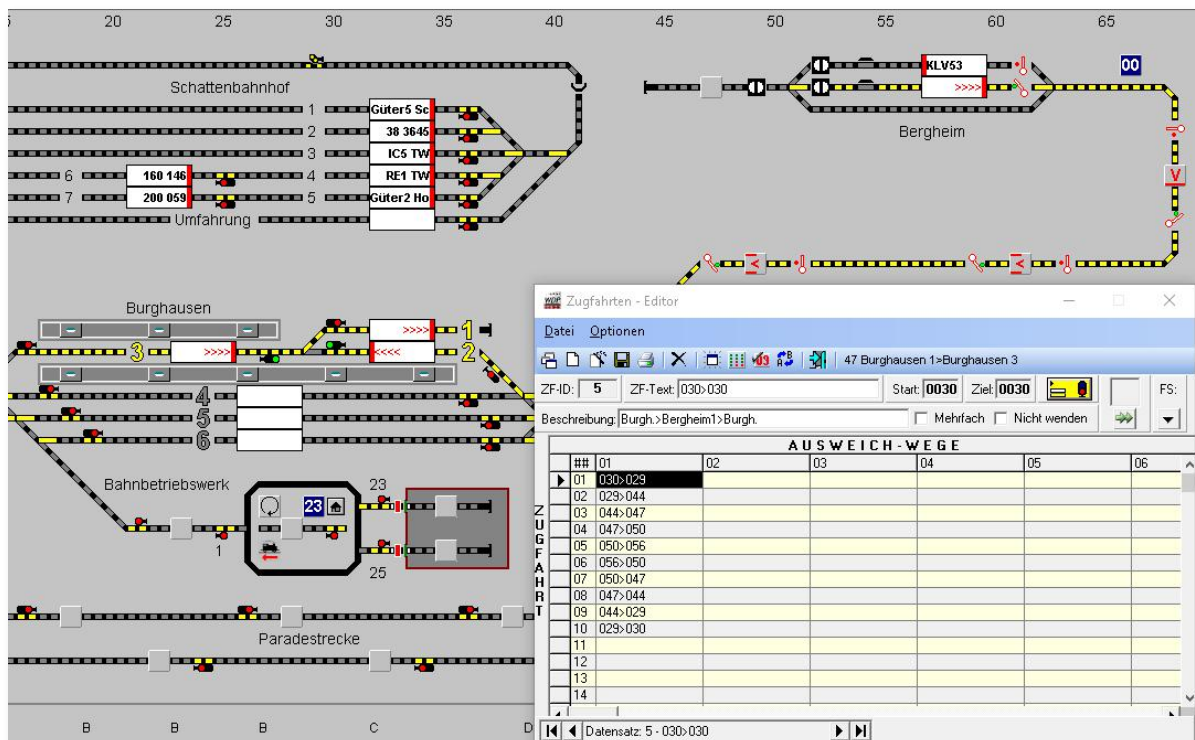


Fig. 7.20 The train turns several times automatically during a tour.




However, it is possible to suppress the automatic turn within a tour by activating the button "No turn" in the tour editor. In this case, you must define the necessary turn commands in the profiles or in the automatic tour editor-


Later when dealing with the automatic tours we will refer to Fig. 7.20 again.

7.2.8 Intermediate stops within a tour

You may include so-called intermediate stops in a tour. Usually a tour is performed without interruption, if the switch conditions are fulfilled. Maybe however, you wish to stop a train at a station and continue after a short while.

The example in Fig. 7.21 presents a round-trip (from SBhf track3 to SBhf track3). The train shall stop for 30 seconds at Burghausen station. Since this tour includes no passing route, the train shall stop at track 6 first and afterwards at track 4.

A new intermediate stop can be added by clicking on the symbol  in the toolbar and then with the right mouse button in the large window in the index card. Now a short menu appears from which you select "New intermediate stop" with the left mouse button.

As soon as the intermediate stop is added, the background of the symbol for intermediate stops becomes yellow . In this way you can easily see, how many intermediate stops are defined.

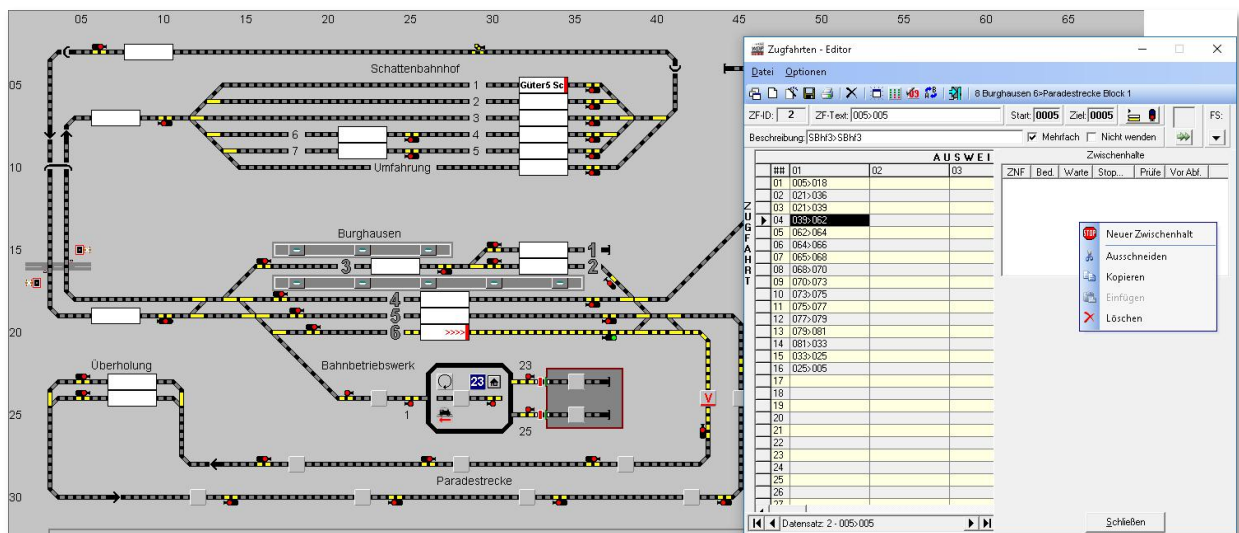


Fig. 7.21 Intermediate stops shall be added to a tour.

The index card shown in Fig. 7.22 has two items which inform about the feedback contacts, at which the tour is interrupted. Here again the contacts must represent train number displays. In this case the contacts 33 and 39, respectively, which belong to the train number displays in tracks 6 and 4, respectively, of Burghausen station.



Also for intermediate stops you can use different stop points, if the train number displays are "intelligent".

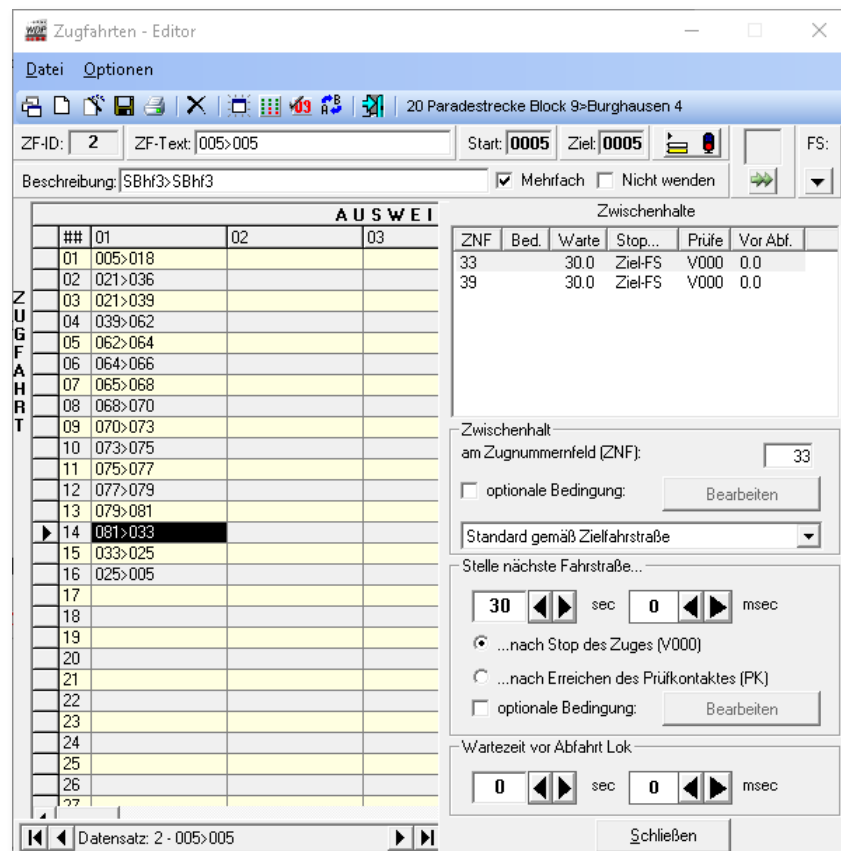


Fig. 7.22 wo intermediate stops are added.

Furthermore, you can combine the intermediate stop with appropriate conditions (see also the chapter "Tour automatic editor" or "Dispatcher") in order to deactivate or activate the stop.

At "Switch next route" you may register the stop period; in this case 30 seconds. You can decide whether the time counter starts with the stop of the train or when reaching the last check contact. In the tour event-inspector intermediate stops are marked blue.

Finally, you can define a "Waiting time before departure" which starts at the end of the waiting period registered above. The road is switched, but the trains waits until the end of the waiting time. In the tour event-inspector the waiting time is marked yellow.

7.3 Editing tools

If you want to edit, register or delete data you can use the context menu, by clicking with the right mouse button on the cell to edit.

The first and the last command have been explained in the previous sections. The other menu commands are self-explanatory in most cases.

You can open the route editor simultaneously to the tour editor. If you have opened the tour and the routes editor simultaneously then you can select with a double-click to a route in the tour editor this route for the route editor.











	Fahrstraßen-Liste	Alt+F
	Feld(er) einfügen	Alt+EINFG
	Feld(er) löschen	Alt+ENTF
	Ausschneiden	Strg+X
	Kopieren	Strg+C
	Einfügen	Strg+V
	Feldinhalt löschen	Strg+ENTF
	Datensatz speichern	Alt+S
	Komplett in neuen Datensatz kopieren	Alt+Strg+C
	Gesamte Zugfahrt anzeigen	Alt+Z
	Fahrstraßen-Matrix anzeigen	Alt+M
	Zugfahrt automatisch benennen	Alt+N

Fig. 7.23 the context menu in the tour editor

7.3.1 Copying, cutting and pasting of routes in a tour

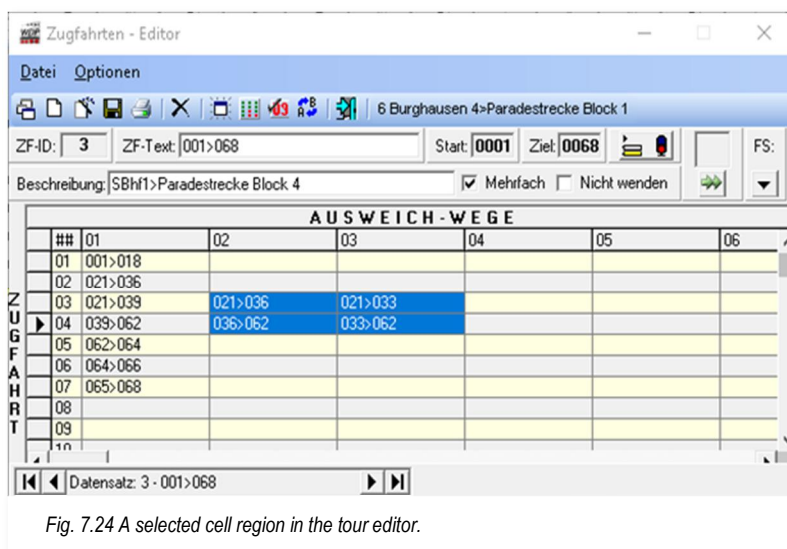
The editing functions in the context menu, behave similar to the well-known functions of popular office applications.

Just make your selection in the table and press the right mouse button to get access to all editing functionality included in the context menu. If you want to select a complete region of cells, click with pressed Shift key on the upper left cell of the desired selection and afterwards of the lower right cell. All cells in the selected region will be highlighted.

The selected region can be copied/cut by pressing the right mouse button and selecting <Copy> resp. <Paste>.

For pasting the copied or cut cell(s) select the upper left cell of the target (region).

Afterwards press the right mouse button and select <Paste> from the context menu.



AUSWEICH - WEGE						
##	01	02	03	04	05	06
01	001>018					
02	021>036					
03	021>039	021>036	021>033			
04	039>062	036>062	033>062			
05	062>064					
06	064>066					
07	065>068					
08						
09						
10						

Fig. 7.24 A selected cell region in the tour editor.



You can only select rectangular cell region like in Fig. 7.24 and not spread single cells like in Excel by pressing Ctrl during selection.

7.3.2 *Numbers of rows and columns in the tour editor*

In the tour editor of the Premium Version you can enter your routes in 60 rows and 15 columns.

Using copy and paste of rows/columns you might reach these limits. Please remember if such long/complicated tours are really useful and if you could substitute them with others which are shorter/less complicate.

If you have filled all 60 rows with routes and try to insert additional ones (e.g. from the clipboard) you will get an error message. The same applies if you try to overrule the limit of 15 columns.

This message appears also if the insertion of additional empty rows or columns would result in a shift of existing of the 60 rows/15 columns-border.



7.3.3 *Copy complete tour into a new dataset*

If you want to create tour which is very similar to an existing one, then you may wish to copy the existing tour into a new dataset and then adapt the copied tour to the needs of the changed tour parts (e.g. other alternative itineraries).

Navigate to the existing tour in the tour editor and open the context menu with the right mouse button and select <Copy complete data into new dataset>.

The copied tour will be added at the end of the tour list. The copied tour can be identified by the prefix "(C).." in the tour's description.

Now you can adapt the tour to the changed needs as shown in the former examples.

7.3.4 Show entire tour

Win-Digipet can show you the entire tour in the track diagram. This is very useful to check the main itinerary and the alternative itineraries of the tour.

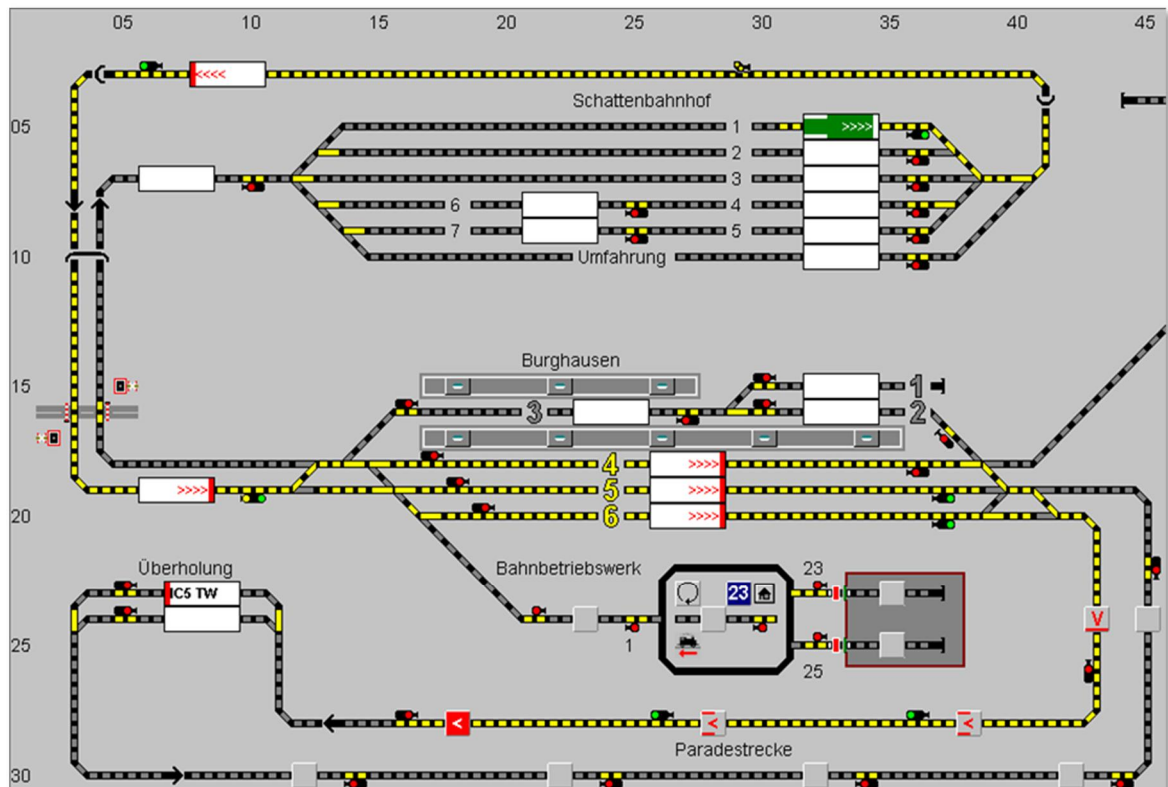






Fig. 7.25 Complete tour in the track diagram with alternative itineraries.

The start train number display will be highlighted in green and the destination train number display in red. The routes of the tour will be shown in the same way as single routes. You can even see the driving direction of the used train number displays.

If you take a look at the turnout position you can see with some experience the order of the alternative itineraries. The first route leads through track 5, the second through track 4 and the last possible itinerary leads through track 3.

You can activate this indication of the entire tour via..


-  Click on the symbol  in the toolbar of the tour editor.
-  Click with the right mouse button in the table and select from the context menu <Show entire tour>.
-  Select <Show entire tour> in the menu <Options>.



7.3.5 Display route matrix

When registering tours, you have to assure, that the train never will come to a dead end.

Because of this you should perform a matrix-test with your tour. You can perform the matrix test in three different ways:

- Click on the symbol  in the toolbar of the tour editor.
- Click <Route matrix> from the context menu, that you can open with the right mouse button
- Select the menu command <Options> <Route matrix>

Move the mouse cursor over the heading of the **first** column "01", then the cursor will change to a down-arrow with a mouse click you can also activate now the matrix-test.

If you check the matrix for the first column the program tests all rows and shows the complete matrix for the main itinerary.

For the alternative routes/itineraries you have to check the single route-entries one after the other by clicking to each entry.

Remember always not to "build" a dead-end, because of limitations of route's matrix.

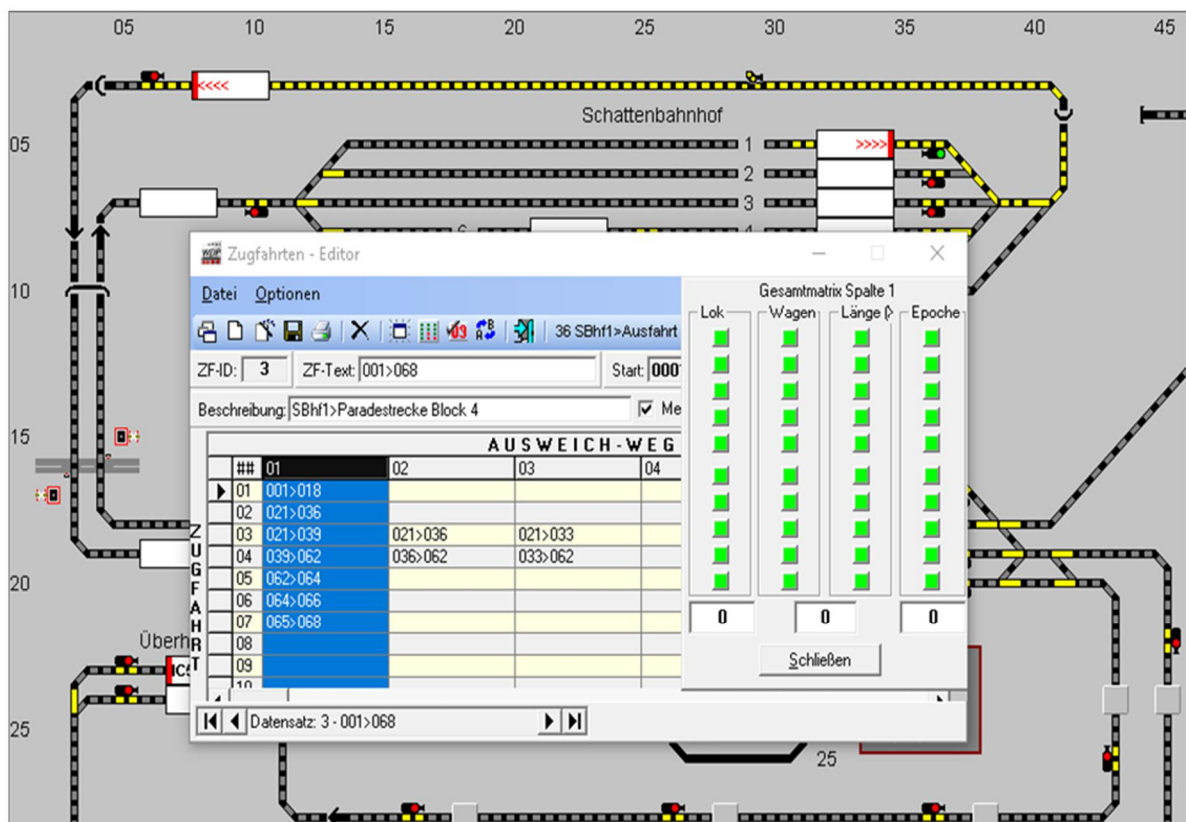



Fig. 7.26 The complete matrix of column 1 shows that only one type of waggon is allowed for this main way.



For this example, you should create a virtual switch (k84 symbol) anywhere in your track diagram. You should give this switch also an address because otherwise you won't be able to switch it manually.

Then you have to register this switch in the tour editor for your tour. You can open the field for registration of this symbol by the symbol  in the toolbar.

Drag the switch symbol to the picture box in the frame "Loc number on RED at destination, if".

You can switch the symbol with repeated clicks on this field to the desired condition state. Afterwards click on '**Transfer**'. The symbol will be shown in the tour editor. You can choose any solenoid device symbol you like for this function. In the example shown here the symbol at basic setting is red, while in the tour editor the setting green has been chosen. This means the train number will only be set to RED at the end of the route if switch is in green state at that moment.

If you want to delete the registered symbol you can press the button '**Delete entry**' in the same frame.



Fig. 7.28 Virtual switch "Mum calling..."



Fig. 7.29 The "Mum calling..." switch in the tour editor



This function is slightly different to the home track function in routes. In routes only the (three) selected loco numbers will be set to RED at the end of the route, while the function in the tour set **every** train to RED at the end of the tour.

7.5 Tour editor – external switchboards

With the new version of **Win-Digipeti** it is very useful, that routes and tours can be switched with two contacts (start and destination), which belong to an external switchboard.

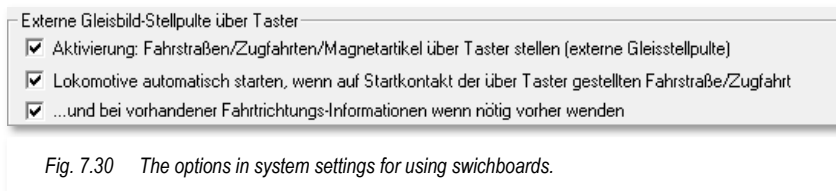
Up to two contacts of the switchboard can be registered in the tour editor - similar to the route editor - and switch the route or tour via an "AND" conjunction. The buttons of the switchboard must be connected to the usual feedback modules of your system.

In order to switch routes/tours with external switchboards you must activate the check mark "Switch routes, tours..." uniquely in the system settings of the index card Routes. Here you have three options:

1. Switch routes, tours and solenoid devices by push key(s) (external switch desk)
2. Start Loco automatically, if on the start contact of the Route which is switched via push keys



3. ...and if driving direction information is available and necessary turn.



The first option must be selected in any case, if routes or tours shall be switched with a switchboard.

The further appearance of the start/destination dialogue depends on the selection of the second option. If this option is not selected, you can select a route from a list and start it by yourself.

If the second option is activated, the program checks the first entry in the list. If this entry is okay, it is selected and switched. If it cannot be switched, the program checks the next entry. If no entry in the list can be switched, their window disappears.

The one or two registered contact(s) work(s) as follows:

- 🚂 If you have registered one contact for the route or tour, it works as known from previous versions of **Win-Digipet**:
Press contact -> the route or Tour (new) is switched.
- 🚂 If you have registered two contacts for the route or tour:
Press the two contacts simultaneously -> the route or tour is switched.
- 🚂 If you have registered the contact combination x+y for a first route and the reversed contact combination y+x for a second route, Win-Digipet waits until you press and keep pressed the button first registered and then press the second key. In this way, **Win-Digipet** can differentiate between the two cases.



7.6 Default window size

When working with the tour editor you can change the window size according to your

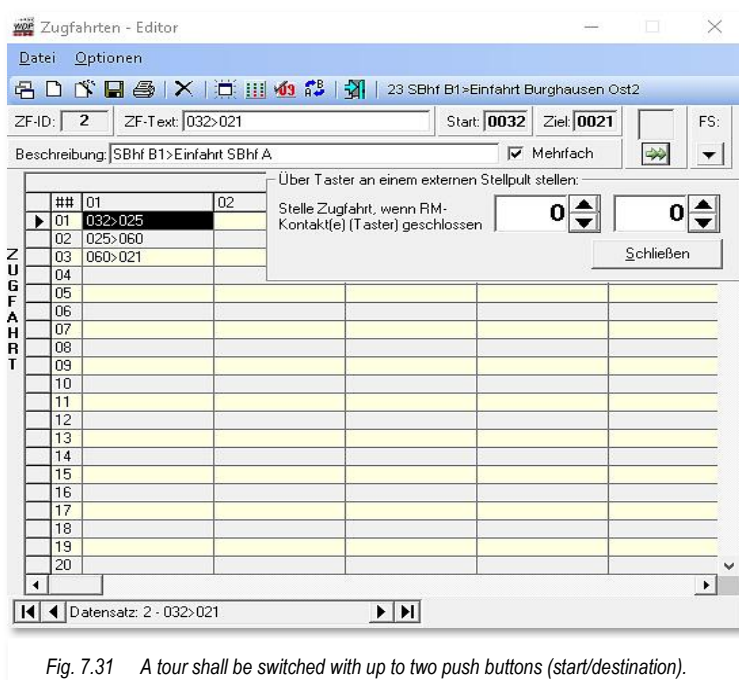



Fig. 7.31 A tour shall be switched with up to two push buttons (start/destination).


needs.

If you want to change the window size, move the mouse cursor to one edge of the window, the mouse cursor will change to a double arrow and with pressed left mouse button you can change the window size (typical for Windows).

To reset the window size to standard size, select in the menu <Options> <Default size> or click on the symbol  in the toolbar.

You can also change the width the columns similar by moving the mouse cursor over the separator of two columns, a double click will result to an optimized width adapted to the current text in this column.

7.7 Printing tours

For printing select the menu command <Options> <Print> or click on the symbol  in the toolbar.

You can choose between the options "All" and "Headlines" to decide what to print.

All other options are self-explanatory.



You can also export this printout into the file "Zugfahrten.rtf" to the **Win-Digipet** directory at your hard disk. The file is saved in the so called RTF-Format³⁰ (usable e.g. in Microsoft Word or Open Office Writer).

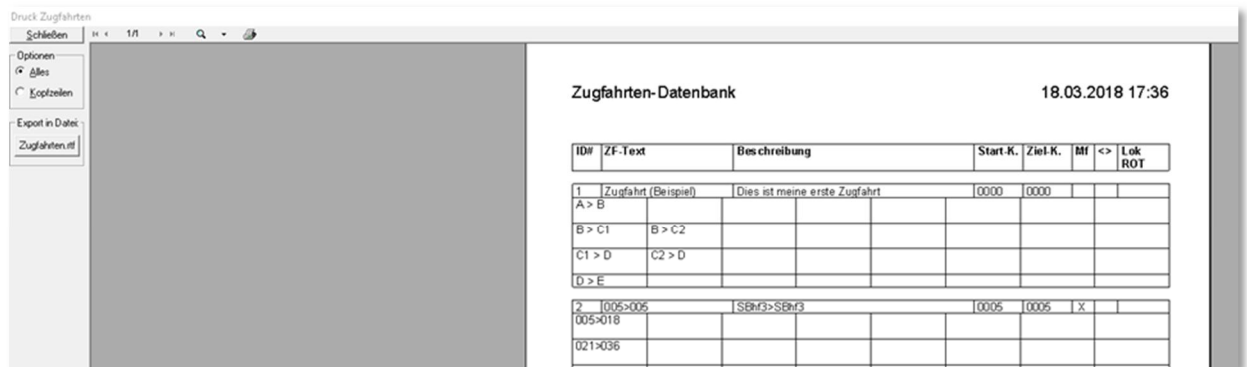



Fig. 7.32 preview window for printing tours

7.8 Tours list

You can display a list with all your tours.

Please open this list via the menu command <File> <Tours list> or by the symbol  in the

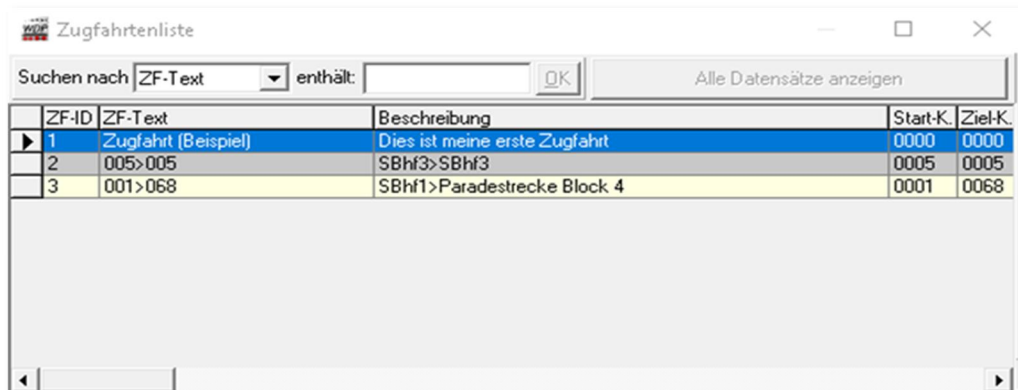


Fig. 7.33 The list of tours.

toolbar.

By clicking on the column's headers you sort the list by the different columns ascending or descending.

³⁰ RTF – Rich Text Format















You may wish to filter the data records in the tours list using the fields "Searching by" and "contains:" and restore the original view with '**Display all records**'.

If you select a tour in this list, this tour will be displayed automatically in the tour editor. Using this function, you can easily search for tours and select them for editing.

7.9 Tour event inspector *Fehler! Textmarke nicht definiert.*

Every time a tour is started, the tour event inspector will be opened. In the tour event inspector, you can see the processing of all currently active tours as well as routes called by the tour automatic.

The column "Loco" indicates the current state of the locomotive. Each possible state is indicated by a coloured square. The different colours have the following meanings:

	 000 =	driving
	 000 =	stopped
	 000 =	tour manually stopped (Pause)
	 000 =	tour stopped because of expired waiting time ³¹
	 000 =	Waiting time while intermediate stops
	 000 =	Waiting time between "Switching" and Starting the train

Below the list can see how many lines of each type exist in the list. In our example in Fig. 7. 34 we have one "driving" and one "stopped" tour.

The column "Message" shows an extended state message. In case of problems you might read here why the train does not continue for example.



Fig. 7. 34 The tour event inspector showing the state of the active tours.

With the buttons at the left bottom, a selected tour from the list could be paused, restarted and killed. These buttons only apply to the currently selected row.


With the round green button **all** tours could be paused and restarted again.

With a double click on a line in the inspector the

locomotive control of the corresponded locomotive would be opened.

³¹ The waiting time for tours can be configured in the system settings (Default value 600 sec)



With the symbol  the tour event inspector can be closed after answering a security question.







Never drive a train of an **active** tour manually or delete the train number in the track diagram, before you have killed or paused this tour.

7.10 Tour-Navigator

With the tour navigator in **Win-Digipet** you get a powerful feature for controlling trains on your model railroad layout.

With the tour navigator trains can be driven.

-  after cancelling an automatic operation
-  after the loss of the connection tour your digital system
-  after a crash or similar
-  before the start of an automatic with specific starting points

... very comfortably from any start to any destination contact of your track diagram, if some globally large tours have been defined.



Fig. 7.35 The context menu with the Navigator function

For starting the train navigator press on the start train number display with the middle mouse button while holding down the Alt-Key and do the same for the destination train number display.

As alternative you could click with the right mouse button on the start train number display and select <Select Start> resp. <Select destination (Tour Navigator)> on the destination train number display.

Now the train navigator of **Win-Digipet** will search for suitable routes to reach the desired destination contact.

7.10.1 Example for using the tour navigator

For the tour navigator you can create special. Using these special tours, the train navigator searches for usable subparts of this to drive your train from the desired start to destination.

In the following lines we'll explain the creation of such a specialised tour.



We want to create a tour for the tour navigator which is able to connect nearly every possible start with any possible destination point on your layout.

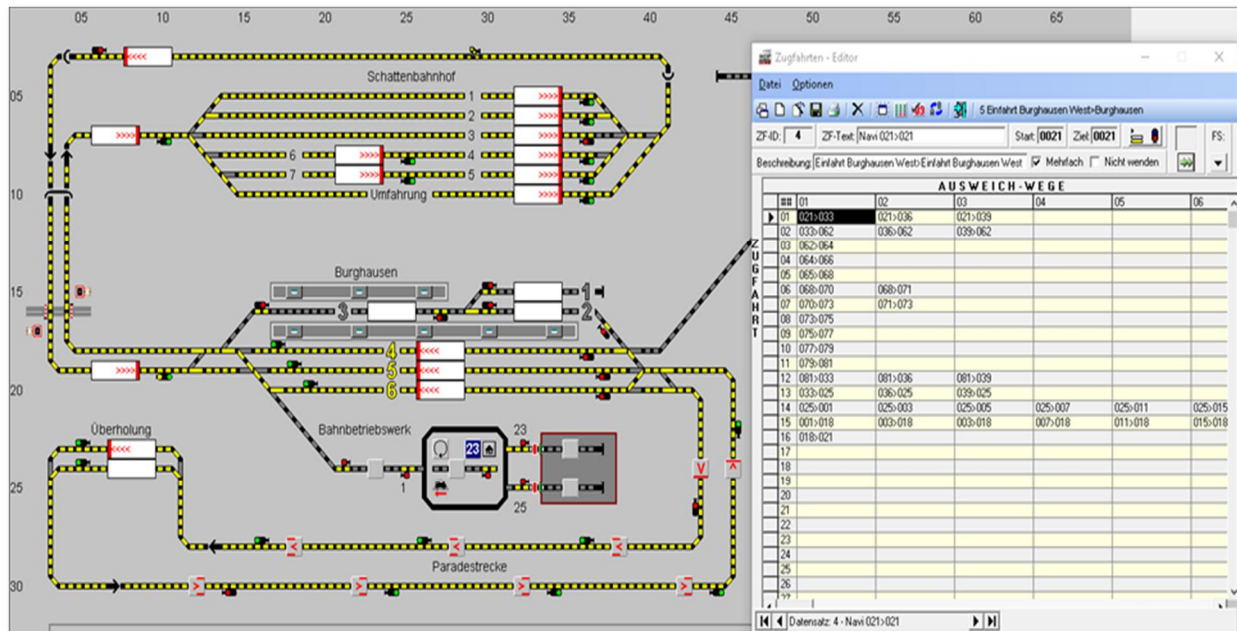


Fig. 7.36 A tour for the navigator in the editor.

Fig. 7.36 shows this navigator tour. We registered nearly all routes within this project including all stations. Using the Start-/Destination-Function with the navigator tour **Win-Digipet** will try to search an itinerary from start to destination.



Navigator tours can contain more than start- and/or destination train number displays. This is opposite to normal tour rules. Because of this you may not use these tours for other functions than the Tour-Navigator.



Tours designed for the tour navigator shall have the prefix "Navi " (ending with a space) in their "T-text". Please do **never** use this tour in the tour automatic.
The prefix in the "T-text" will exclude this tour from some checks in the check routines which would lead to error message otherwise.

7.11 Closing the tour editor

For closing the tour editor click on the symbol  in the toolbar.

After possibly answering a security question the editor will be closed and we'll back in the main program of **Win-Digipet**.

Version 2018
Premium Edition

Chapter 8












8. PROFILEs & LOCOMOTIVE-/TRAIN-MACROS

8.1 General

The profiles give you the potential to use individual driving- and function-facilities of your locomotives, trains, cranes and functionality models in the tour automatic and the semi-automatic operation ("Switch and Drive") with a minimum of work.

With the profile editor you can create profiles for every route/locomotive-combination.

The following sections will explain the creation of profiles. The profiles offer you the following opportunities:

-  The driving behaviour of different locomotives can be adapted individually to your routes
-  Even locomotives without load dependent regulation can be adapted for good driving behaviour.
-  All special functions of locomotives and functionality models and even sounds can be included in automatic operations.
-  When using profiles each locomotive can behave different when using the **same** route – independent from the setting in the routes editor or the vehicle database.
-  The execution of crane macros is possible when using automatic operation.
-  Individual sounds can be played anywhere and at any time.
-  The usage of the turntable and transfer table can be adapted to every locomotive, this gives you more safety.
-  Of course, profiles can be also used when using routes via "Switch and Drive."
-  Of course, profiles can be also used when using tours.

With the profile editor you can create for every route/locomotive-combination up to three profiles. They can be executed immediately when using "Switch + Drive" (but you can also refuse the use of them in specific situations) and within the automatic operation or for tours.

As basis for your own profiles you can ask the program to create profiles automatically using the values from the vehicle database and the route editor. Then you only have to customize the needed changes.

Win-Digipet will not allow creating more than 3 profiles for one locomotive/route combination.



The profiles have to be activated in the system settings of **Win-Digipet**. Otherwise, the menu command and the toolbar icon are not available.

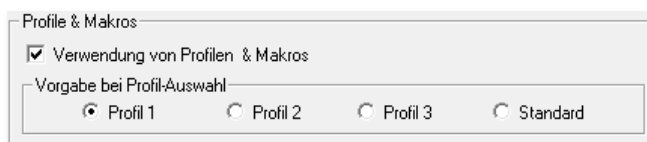



Fig. 8.1 Activation of profiles in the system settings.

8.2 Creating profiles

To open the profile editor, click on the symbol  in the toolbar of **Win-Digipet**. The so called Profile editor will be opened.

When opening the profile editor for the first time you will see data record with the profile text "¡Neues Profil!". Here you can register your first profile. The profile editor has two windows. Within the first window you will recognize a list with all your profiles and within the second window you can edit the contact events of the currently edited profile. With contact events you define which action shall be executed when a specific contact has been reached. The different type contact events have different symbols within the first column of the contact event list.

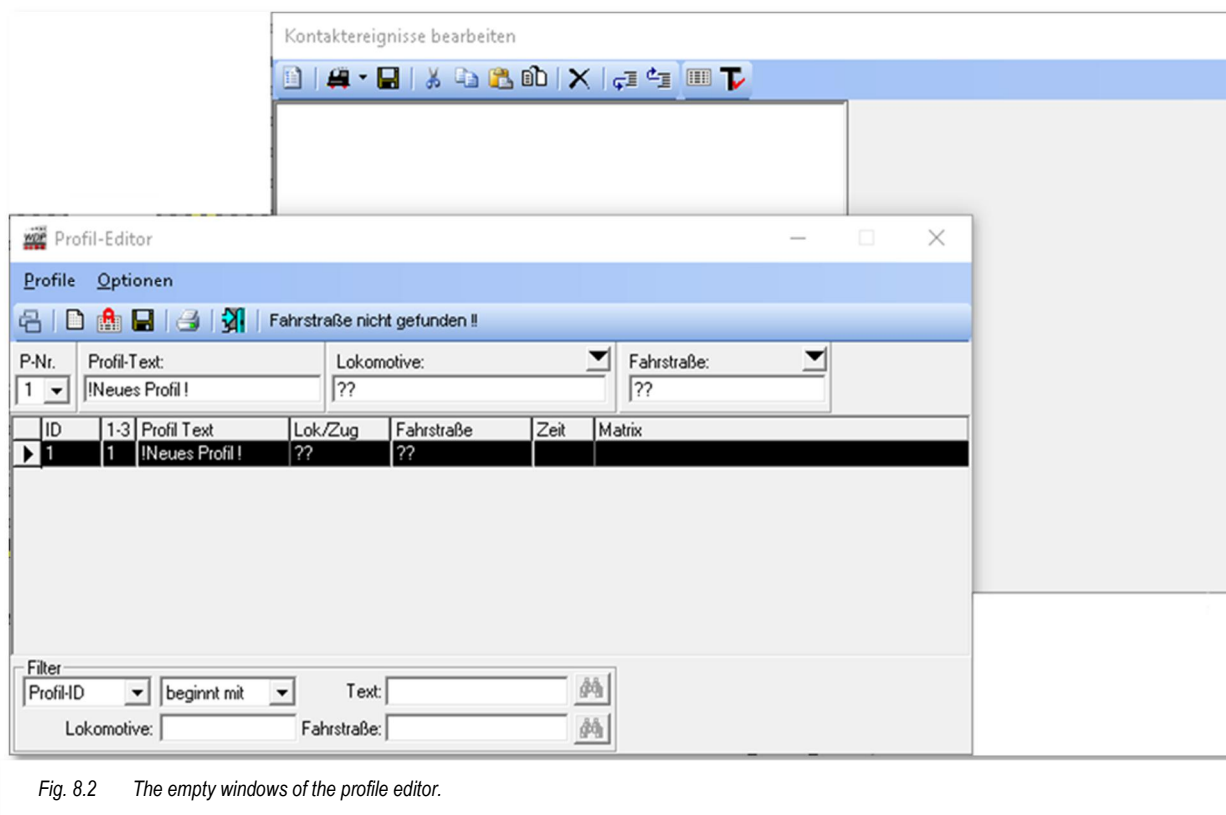





Fig. 8.2 The empty windows of the profile editor.

Before the creation you should make some considerations for which route and locomotive you will really need one or more profiles.

The number of profiles can enlarge very rapid and thus you should only necessary profiles.

For this purpose, **Win-Digipet** offers different types of profiles to reduce the amount of profiles to the necessary minimum and to avoid duplicates.

In **Win-Digipet** you can define these types of profiles:

-  **Locomotive specific profiles**
these profile will apply only to a specific locomotive-route combination
-  **ID0-Profiles**
these profile can be used by any locomotive/train using the selected route
-  **Train profiles**
these profiles for routes can be used by locomotives/trains which fulfil selected criteria like a name pattern, length or matrix values

As soon as a route is switched, the program checks, if profiles are available in the order listed above. If there is no profile, the standard settings of the route editor are applied.

Criteria for the creating of a profile are e.g.:



- 🚂 A locomotive with an extremely different driving behaviour shall be adapted for several routes to the driving behaviour of the other locomotives.
- 🚂 When leaving the train station with a passenger train e.g....
 - the route switches first
 - some seconds later a platform announcement will be played
 - and after a further delay the train departs.
- 🚂 A train shall stop exactly at the decoupling track.
- 🚂 A warning whistle shall be played before a level crossing without booms.
- 🚂 A heavy train shall drive slower in curves than another train.
- 🚂 A working train can stop for a short moment at a construction site for unloading material.
- 🚂 And even a big wheel or the illumination of houses can be switched on and off.

After making these considerations you can start the creation of profiles. You define them manually or the program can create the basic content of profiles automatically.



In **Win-Digipet** all locomotives are driven in calculated real scale speeds (km/h). Therefore, it is important to measure your locomotives. Because of this and because it is advised to use the intelligent train number display, all locomotives should have a very similar driving character and so fewer profiles are needed compared to former versions.

Because of this you should only create profiles for...

- 🚂 Speed adaptation in case of a specific situation
- 🚂 Function activation (e.g. sounds) of the locomotive's decoder
- 🚂 Sound playbacks (e.g. at the platform) via PC speaker
- 🚂 Shunt- and turn operations

Additionally, you should reduce the number of locomotive specific profiles to a minimum. We suggest using ID0 or training profiles as much as possible.

8.3 Creating profiles for all locomotives manually (Loco-ID 0)

Within the profile editor 3 profiles of type Loco-ID 0 (which are valid for all locomotives) are possible per route. The profile number 1-3 can be selected manually when creating such a profile from the combo box "P-No.". This can be very useful, take a look at the following example.



You could for example define the three possible profile numbers the following way:

- 🚂 Profile 1 - for locomotive functions **without** sound
- 🚂 Profile 2 - for locomotive functions **with** sound
- 🚂 Profile 3 - for special cases like constructions site etc.

You can use them selective within your automatics.

In **Win-Digipet** it is possible to create for **every** route **one** profile for **all** locomotives. In this profile you can include the functions for all locomotives.

This is for example interesting if you want the locomotive/trains to switch of their

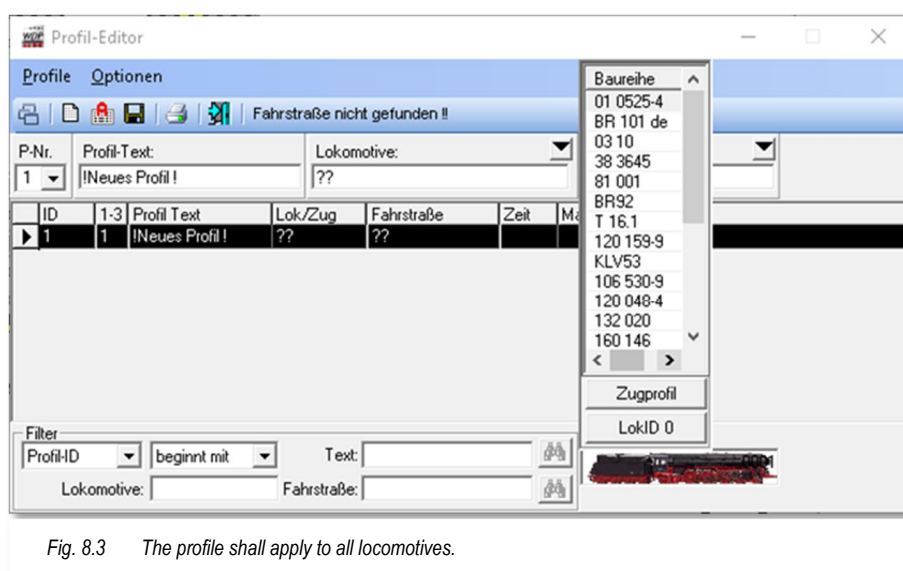



Fig. 8.3 The profile shall apply to all locomotives.

lights/sounds etc. in the hidden yard in order to save power, in detail:

- 🚂 the interior lights of all passenger cars
- 🚂 the steam function of the locomotive
- 🚂 the sound of the locomotive (steam- or motor sound)
- 🚂 or other functions

For creation of such profiles proceed use the button  after pressing the small arrow beside of "Locomotive".



If you don't see the Lok-ID0-Button, you have to resize the height of the profile editor.



To select the desired route, click in your track diagram with the middle mouse button on the start and destination train number display of the desired route.

The window "Selecting start/destination" appears showing the suitable routes for the

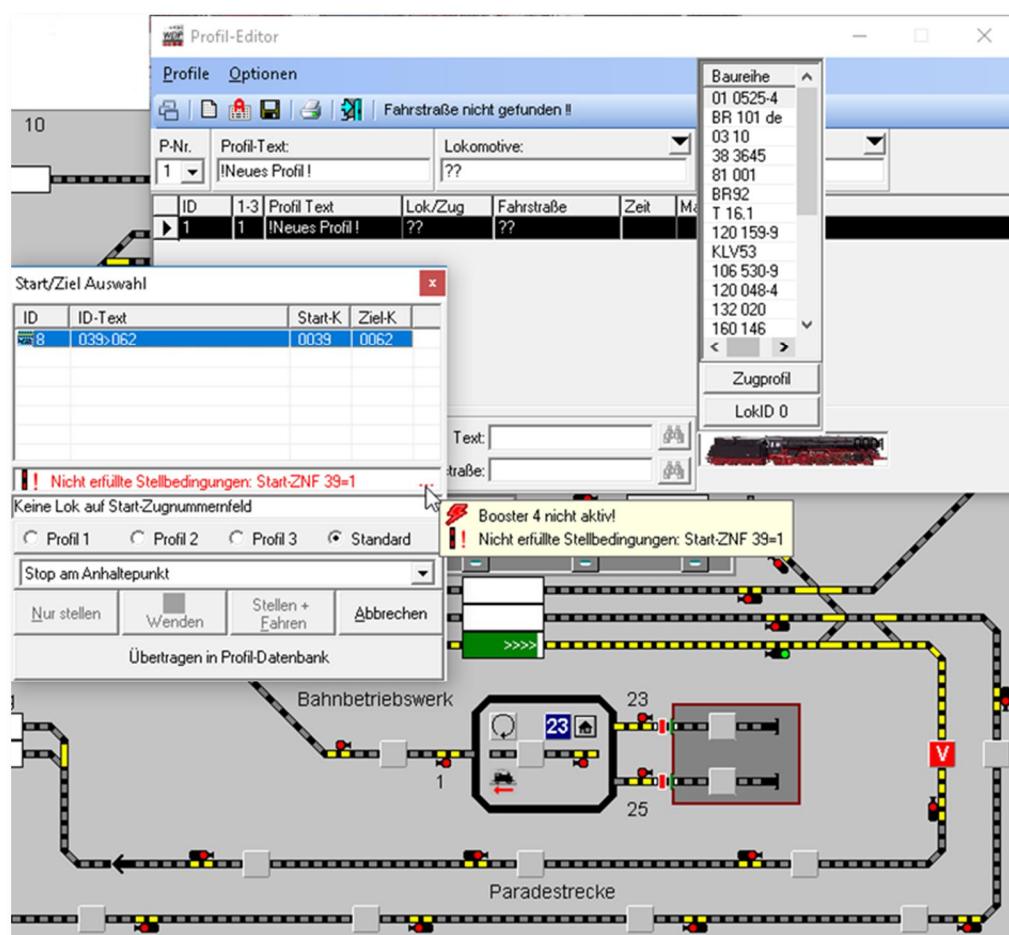


Fig. 8.4 The selection of the route via Start-/Destination-function.

selected start and destination contact with their ID numbers and texts. The first route in the list is preselected. If you want to use another from the list, just select it. The selected route will appear in the track diagram showing the itinerary of the route.

Select the desired route and transfer it via '**Transfer to profile database**' into the field "Route". Eventual error message regarding locked situation etc. can be ignored at this time.


You can also select the route by clicking on the small arrow right above the field "Route". A list showing all available routes with their ID texts will appear.

Select the desired route, the route will be shown in the track diagram immediately (maybe you need to move the window if the route's itinerary is covered by the editor). If you move the mouse over one of the list items, the long description of the route will be shown as



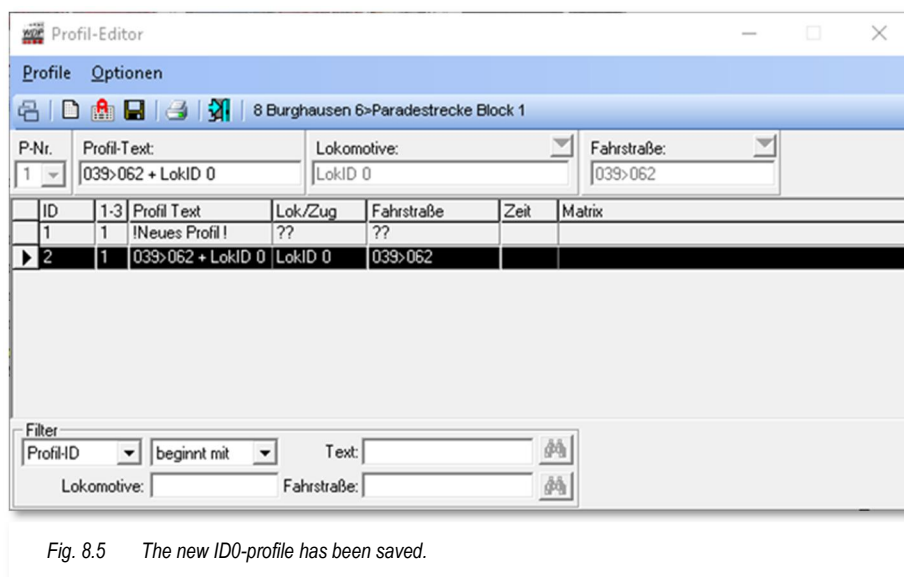
tooltip. Select the desired route via double click and transfer it this way to the profile data record into the field "Route".

The field "Profile text" asks you to give the profile a significant name. If you don't enter a text manually, then **WIN-DIGIPET** will assign a significant automatically when saving.

You can save the profile by a click on the symbol  in the toolbar of the profile editor.

In this case **WIN-DIGIPET** creates automatically a profile text out of the ID-text of the route and the class of the locomotive separated by the sign " + ".

After saving the new profile will be added to the profile list and an ID-number will be assigned automatically.



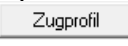
The profile number 1 to 3 has to be selected manually. Because of this it could occur that you create a duplicate profile.

In this case **Win-Digipet** will inform you, that already a profile with this profile number exists. The program will ask how to proceed.

If you select the button 'Yes' the program will jump to the already existing dataset. You can change the existing dataset.

If you press 'No' you can now change the profile number in the combo box "P-No." And save the profile with the changed profile number afterwards.

8.3.1 Creating train profiles *Fehler! Textmarke nicht definiert. manually*

The creation of train profiles is very similar to the creating of the locomotive independent ID0 profiles. For manual creation of such a profile you need to press the button  in the input box "Locomotive".

After this choice to create a train profile the input box "Locomotive" will be replaced by a box called "Train name" including a filter selection box and a text field. Using the textbox and the selected filter criteria you can filter which trains are valid for this profile depending on their names (or parts of their name).

In our example the profile is valid for all trains with a train name starting with "Güter". This would apply for example to the trains "Güter 1", "Güter 5" or "Güterzug". But a train called

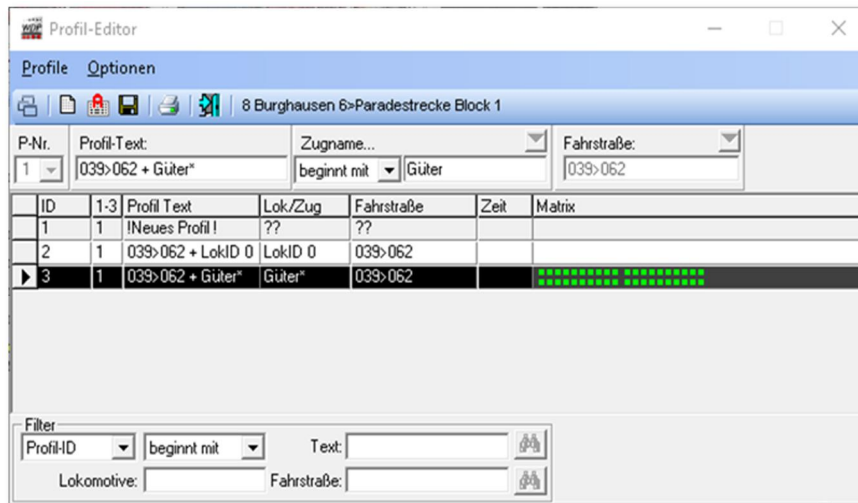


Fig. 8.6 The filter addresses all trains beginning "Güter".

"Blue Güterzug" would not be allowed. In this case, one would need the criteria "contains" instead of "starts with".

The route can be selected in the same way as for Loco-ID profiles using the start/destination function or the route list.

After saving the new profile will be added to the profile list and an ID-number will be assigned automatically.

8.3.2 Creating locomotive specific profiles manually

Within the profile editor 3 locomotive specific profiles are possible per route. This is e.g. useful if you want to specify special actions for single locomotives apart of the common operation for all locomotives (defined by Loco-ID 0 profiles). When using a route later on the program will first try to find a locomotive specific profile for this route, if no one is found the program will look first for a train profile, second for a common Loco-ID 0 profile and when even these is not available then it will use the standard driving defined in the route.

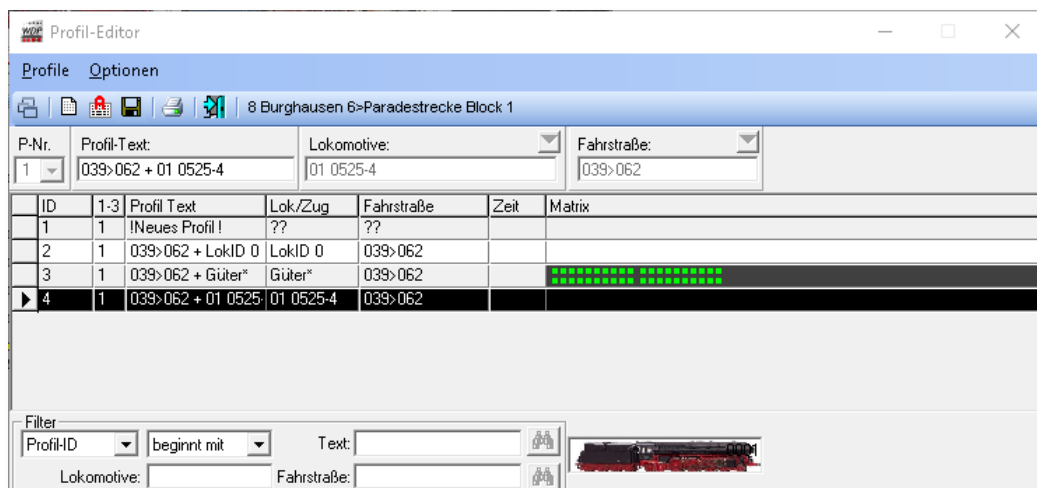


Fig. 8.7 The editor for defining a loco specific profile.

When creating profiles manually this can be done very quickly via the loco bar or opened locomotive controls.



Click on the desired locomotive and drag the locomotive with pressed right mouse button into the field "Locomotive" of the profile-editor. The locomotive has now been registered and is shown in the picture box at the right bottom of the editor.

You can also select the locomotive from a list if you press on the arrow down button in the box "Locomotive".

For the selection of the route proceed as described in the previous chapters.


After saving the new profile will be added to the profile list and an ID-number will be assigned automatically.

8.3.3 Creating contacts events automatically from the route settings

Within the previous sections you learned how to create profile data record for locomotive specific-, train- and ID0-profiles. Until this data records do not contain any contact event.

Select now the data record in the list you want to change with the left mouse button. Now change over to the window "Edit contact events" of the profile editor.

This window does not contain any contact events at the moment.

After pressing the button  in the toolbar of this window **Win-Digipet** automatically copies all speed values of the route (from the index card "Start/Brake/Destination" of the routes editor) and those values assigned to the contact events.

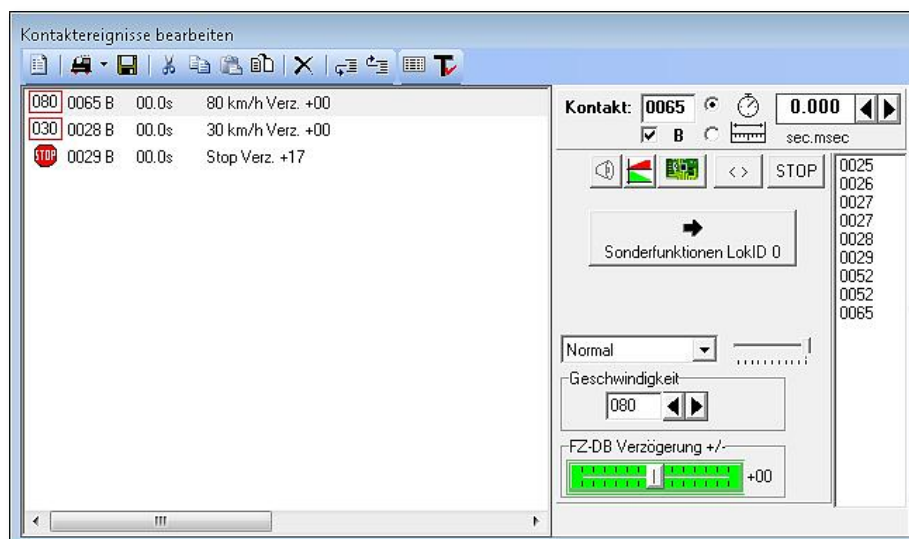


Fig. 8.8 The contact events for an ID0 profile.

The values for locomotive acceleration and deceleration will be transferred from the vehicle database for locomotive specific profile as absolute values. For Loco ID0-profiles and train profiles you can select a relative value (with +/-) you reduce or enhance the values relative to the values set in the vehicle database.



Our first example above shows a Loco ID0 profile. Here you can see the relative value change for deceleration resp. acceleration set to +00 for the first two contact events.

The second example is locomotive specific profile, where you can see absolute value for deceleration/acceleration rate at the slider and within the list.

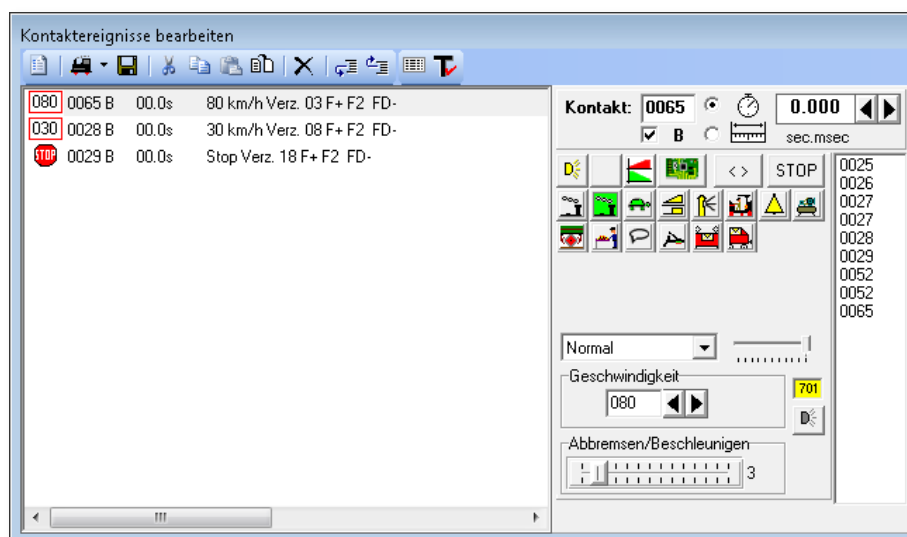



Fig. 8.9 Contact events of a locomotive specific profile.

We used for both examples a route ending at a normal train number display with start-, brake and destination contact as well as Stop at the destination contact.

In profiles heading to an intelligent train number display all speed changes at contacts which do belong to an intelligent train number display will be ignored, because the brake process is controlled by the intelligent train number display for this case.

8.3.4 Creating profiles automatically

If you want to create several profiles, you can save you a lot of time, if you force the program to create the raw profiles automatically.

Therefore, select the menu command <Options> <Automatic creation of profiles> or click on the symbol  in the toolbar.

A frame appears where you select different criteria which profiles should be created.

If you haven't selected any criteria yet, the lists will display all locomotives and routes.

You will see a couple of fields, which can be used to filter the displayed locomotives and routes.

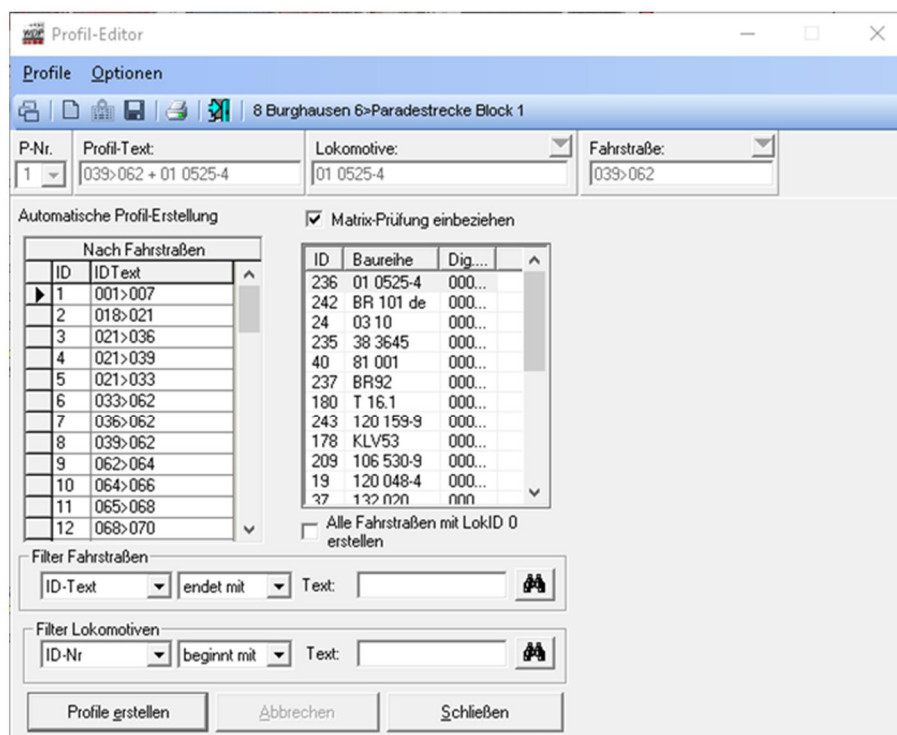



Fig. 8.10 The dialogue for automatic profile creation.

In our example we want to turn the train vehicle's interior illumination and the locomotive sound on when leaving hidden yard B. In the filter we select all routes, where the ID-Text **ends** with "018". We need to apply the filter using the button .

All routes, which do not fulfil this criterion, will disappear from the list "By Routes".

For the locomotives we did not apply a locomotive specific filter, because we want to create Loco ID0 profiles. Thus, we need to check " *Create all Routes with Loco-ID0*". This will result in just the creation of 6 profiles and not 6 profiles per locomotive.

You can reset the filters by selecting "All" from one of the combo boxes.

When you are satisfied with your selection of routes and locomotives, you can check "Matrix-check included" if you don't want profiles to be created for route/locomotive-combinations that are not allowed by the routes editor. After making your selections you can confirm them by pressing the button '**Create profiles**' and a new window will appear

If you are satisfied with the information in this window, select '**Yes**' and the profiles will be created automatically.

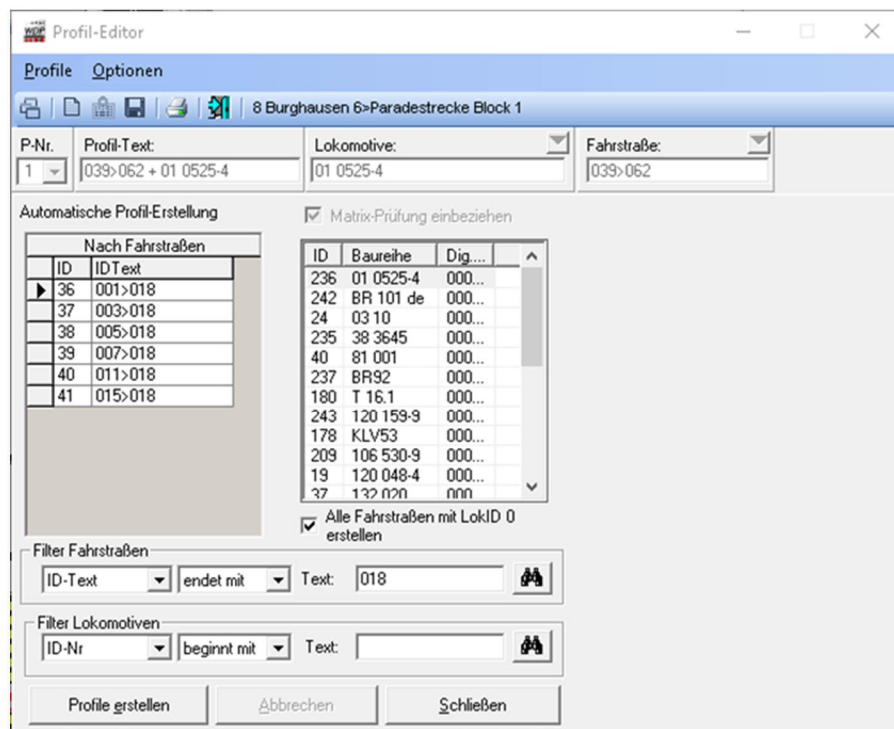


Fig. 8.13 For two filtered routes the profiles should be created automatically.

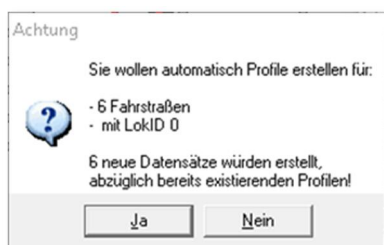


Fig. 8.11 Two profiles would be created.



Fig. 8.12 Two new profiles have been created.

After selecting '**OK**' the new profiles can be found in the profile editor.

For differentiation between already existing and automatically created profiles, the profile texts of automatically created profiles marked with "++" in the profile text.

For these profiles the contact events have also been automatically registered. These events are based on the settings in the vehicle database and the routes editor for the processed routes and locomotives (vehicle database only for locomotive specific profiles).



Every time you change an automatically profile manually you should delete the two characters "++" from the profile text. This is a good indicator for you, if you have adapted these profiles manually or not.




8.4 Adding and changing contact event lines

You can add/edit/change contact events any time. For each profile up to 60 contact events are possible.

The contact events are edited in the window "Edit contact events" (see Fig. 8.9).



If you change an already existing profile you should be careful with the button for transfer the basic contact events from the route (see 8.3.3), this would result in a loss of all changed contact events in this profile.

If you upgraded from a previous version of **Win-Digipet** you will notice, that the profile editor resp. the contact event editing window is new/has changed. The contact events are now more a cryptic character string. Now the contact events are represented in a user readable way. If you like to use the old representation, you press the button  in the toolbar of the window "Edit contact events".

The following figure shows you the new mode of contact event representation. Our example consists of three contact events. Each contact is represented by one row in the list. Each row consists of several columns. You can even assign more than one contact event to one contact and you can also add a time or distance delay before the event will be executed after the registered contact has been reached.

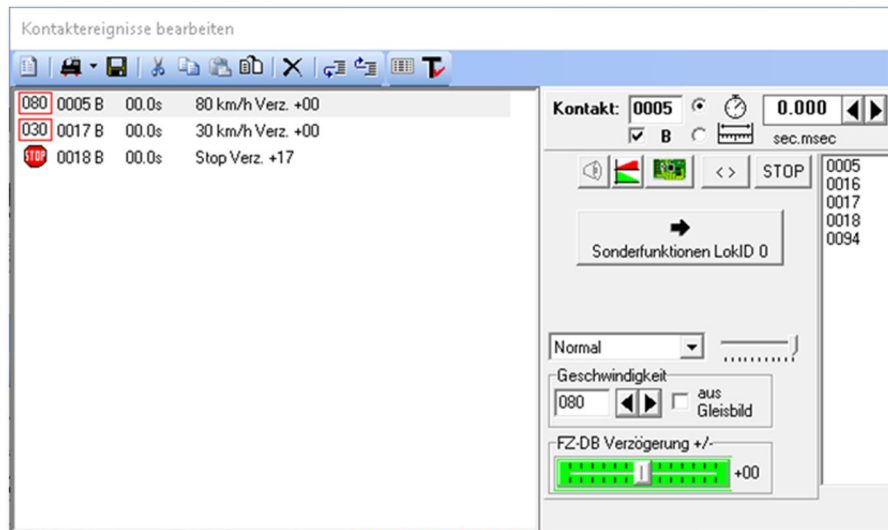


Fig. 8.14 Three contact events have been assigned to the route's contacts.

In the first column of each row the type of contact event is shown as small graphic. In the selected row in Fig. 8.14 this is a function and speed command (speed 80 km/h).

The second column contains the used feedback contact number for this event (in our example C0005). The "B" (or "O") in the third column stands for Occupied, another possibility would be "F" for Free. This means in our case the contact needs to get occupied to activate the contact event.



The fourth column could list a time or distance delay. This time/distance would be measured after the contact has been occupied (or got free). In our example we registered 00.0 sec. This means the event would be executed immediately after contact 0005 got occupied.

In the last column the speed values are shown and after this the acceleration resp. deceleration rate. In our example the value 0 means that there no delay for the locomotive to reach a speed of 80 km/h.

The row is completed by the list of activated (special) functions for this row. In our example the row lists only the default functions registered for this vehicle in the vehicle database.

The program offers 10 different types of contact events which can be used in this editor.



Fig. 8.15 The menu with the different contact event types.

- Speed- and function commands
- Playing sound files
- Playing video files
- Switching of solenoid devices and counters
- Changing the locomotive colour to black
- Execute a locomotive/train macro
- Execute a crane macro
- Changing the locomotive's/train's type, name or digital system
- Show a notification
- Operate T4T decoders

A new contact can be added by pressing the button in the toolbar of the window "Edit contact events". The symbol shows always the last used type of contact event. By pressing the small arrow on the right side of the symbol you can select other types of contact events.

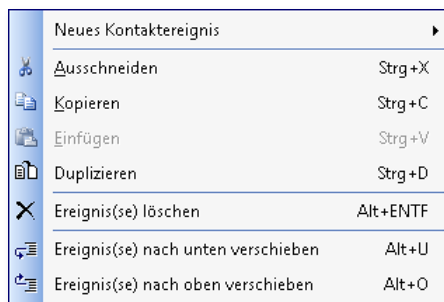


Fig. 8.16 The context menu of the contact event list.

As alternative you can also add contact events using the context menu which can be opened by pressing the right mouse button within the contact event list and choosing <New contact event → Type of contact event>. The new contact event will be inserted below the current row.

8.4.1 Editing helps

If you want to add or delete rows in your contact events or if want to cut, copy or paste one or more contact



events then you can open the context menu for the contact events by pressing the right mouse button on one of the contact event rows. Before opening the menu, you should select the row you want to change.

The menu item <Paste> cannot be used until you used the command <Cut> or <Copy> for another row before.

The last two menu items are used to shift (the) selected row(s) up or down within the list.

8.4.2 Loco functions for a single locomotive

The right part of the window shows you different options for handling a contact event. In the field "Contact" you need to enter the feedback contact number that shall be assigned to the event. The "B" (resp. "O") indicates that the contact needs to be "occupied". If you remove the check from the box, the text beside will change to "F" for "free".

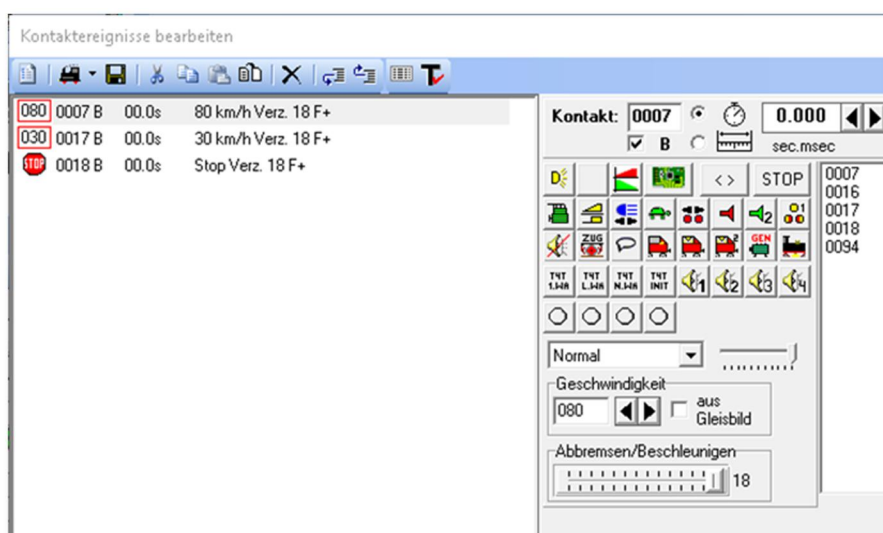


Fig. 8.17 The functions of the locomotive are shown with their icons.



Please take care about a speciality regarding contact events with option "Free".

For proper usage of this option you should use another contact before, which checks the contact for "occupied". Only by this you can achieve a functionality like "free after occupied before".

Using the two radio buttons you can choose between a time or distance delay after the contact has been activated (resp. got free). If you want a time delay, please enter a value with seconds/milliseconds or the centimetre for distance delay.



Furthermore, you can see in the lower part of the window the sliders/spin boxes for speed and the acceleration resp. deceleration delay of the locomotive.

These settings are completed by buttons showing the function of the locomotives with their assigned symbols. Also, the function buttons of a function decoder assigned to the locomotive will appear here.

The profile for Loc „BR 101 de shown in Fig. 8.17 shall now be enhanced in such a way, that in route 007>018 the steam engine sound shall be turned on when leaving the tunnel and the horn shall be activated shortly afterwards. Here we assume that the tunnel exit is in the middle of feedback contact 016.

The result shows the following figure. We added two contact events of the category for speed and function commands. These both events have been assigned to contact 0016. In our example, contact 0016 has an overall length of 120 cm. Because of this we assigned a “length delay” of 60 cm for switching on the engine sound (F1) after the contact 0016 got occupied.

The second event has also been assigned to the same feedback contact. With an additional delay of 1,0 sec the function "Horn (F6)" will be turned on. The time delay assigned here starts after the processing of the previous contact event line. You should of course take care, that the feedback contact is still occupied during this whole delay period.

Within the next contact events the functions will be turned on again, because this was the default selection from the vehicle database when transferring the basic speed commands from the routes/vehicle database to this profile.

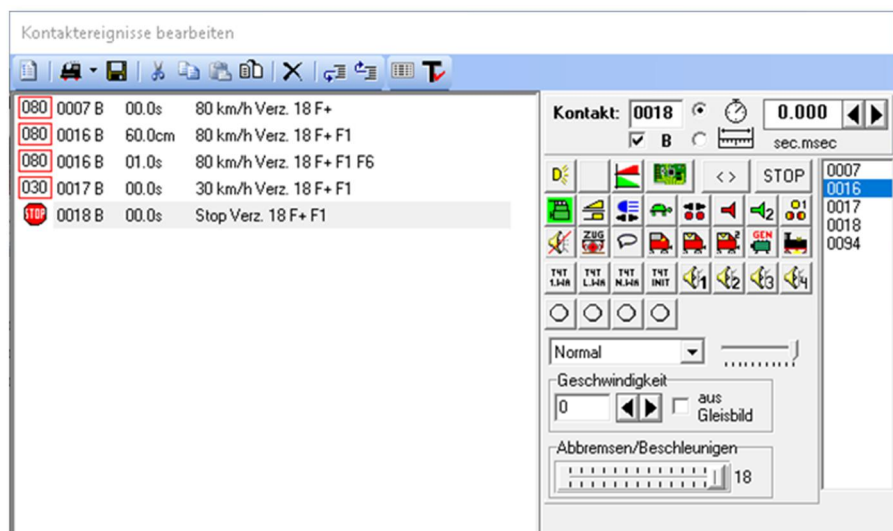


Fig. 8.18 Additional contact events have been inserted.

Furthermore, Fig. 8.18 indicates that the speed of 80 km/h defined at contact 0016 is not changed at contact 0017.



8.4.3 *Transfer of speeds at contacts from track diagram*

Selecting the option “From track diagram” speeds defined at contacts will be taken over. The speed desired at a contact can be registered at the feedback contact properties. For this purpose you click on the track symbol in the track diagram and select the short menu “Feedback contact properties”. You can register the speed in the index card “Delay and detection”. This speed will be transferred to the profile.

8.4.4 *Sounds assigned to special functions*

If you have assigned sound files to special functions within your vehicle database, you can set additional options for their playback for each contact event in your profiles.

The basic procedure is the same as for normal special functions. Additionally, you can choose in a combo box which of the speakers of your **2.1**, **5.1** or **7.1** sound systems shall be used for the playback. Using the small slider beside you can also adjust the playback volume of this sound.

8.4.5 *Enhancing or changing loco functions for Loco ID0 profiles resp. train profiles*

The same example as shown in 8.4.2 should now be shown for the same route for an ID0 profile.

The basic principle of processing is the same as for a loco specific profile. Compared to Fig. 8.18, you can see in the following figure, that the acceleration resp. deceleration delay is now shown as relative value +00 for both new rows.

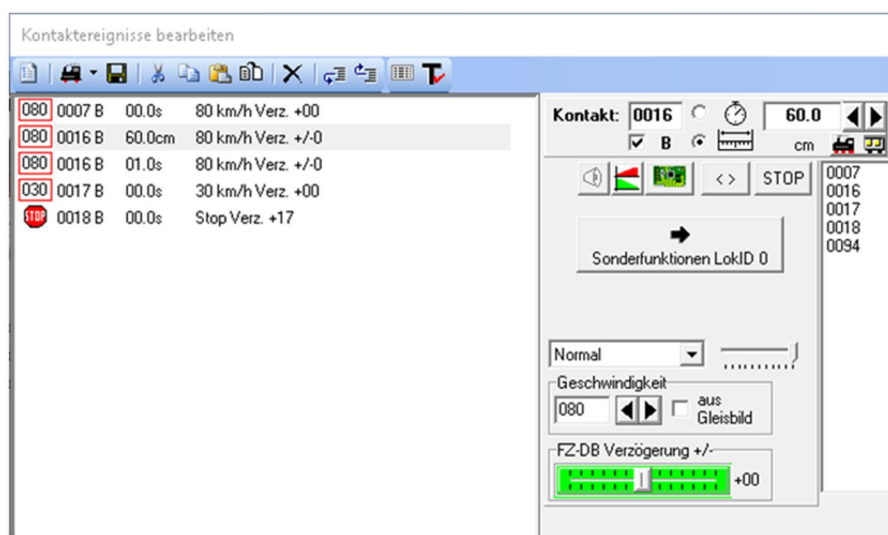


Fig. 8.19 The added contact events for a loco ID0 profile

You might recognize, that the right part of the window does not show any functions symbols.



What's the reason?

In case of a locomotive specific profile the functions symbols can be assigned to unique "F-Keys". This could only be applied to all locomotives if for all locomotives the same functions would have been assigned to the same "F-keys".

The special function cannot be configured after pressing the button '**Special functions Loco ID0**'. After pressing this button, the window will be enlarged to the right and all available function symbols are listed alphabetically. This list is the solution to the problem designed before. The functions for ID0 profiles are now longer identified by F0, F1 etc. but by their function symbol.

Let's take a look at the horn for example. In our example in the previous section the horn for locomotive BR 101 de had been assigned to special function F6. If we take now a look at locomotive 120 159-9, we would discover, that for this locomotive the horn is settled at special function F3. However, both locomotives use the same symbol for the horn function.

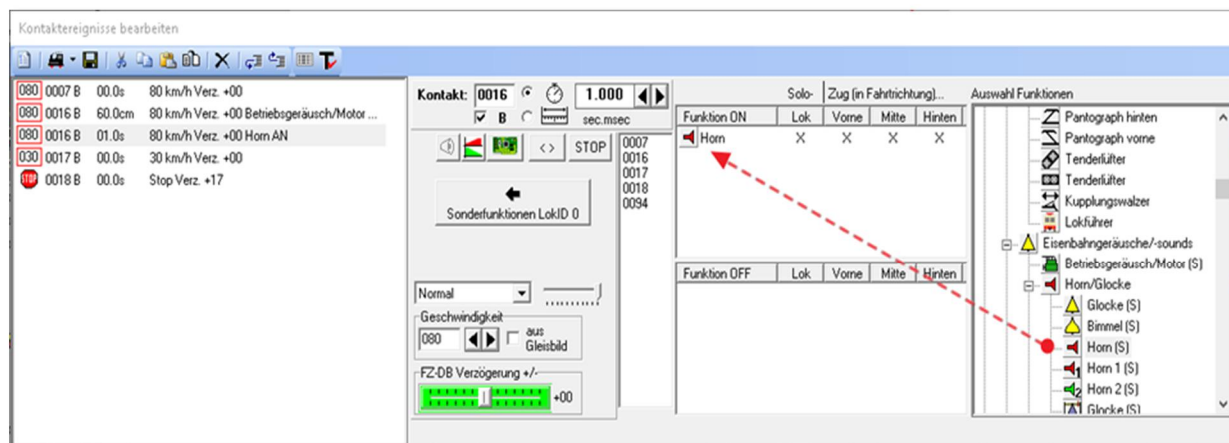


Fig. 8.20 the symbol for the special function will be placed using drag&drop

In our ID0 or train profile we will now use this function symbols to achieve an activation of the horn for any locomotive which has a horn function.

If a locomotive does not have a horn function, the horn activation command will be just ignored. Locomotives having a horn, but using another symbol for the horn, will also ignore this command within the profile.

In the list on the right side of the window all special functions are listed and can be dragged with pressed left mouse button the function lists left of the list. All functions in the upper list will be switched on when the select contact event is executed, all functions in the lower list will be switched off and all other functions will be left as they are before executing the contact event.

If you dragged a symbol by mistake to a wrong list, just drag it back to the complete function symbol list on the right side.


The functions symbol in the list "Function ON" will appear in the same order as in the right complete function list independently of the order of registration.



In the lists for function activation or deactivation four crossed (X) will appear beside the function symbol description. Here you can select if this function activation/deactivation should apply to Solo vehicles (without other vehicles resp. no train) or with in a train composition to the heading, the mid or the end vehicles of the train.



In order to switch on or off functions , you can add/remove the crosses with double clicks onto them or using the context menu of the list. The context menu can be opened using the right mouse button.

If you click with pressed Shift key onto one of the Xs in the list, the Xs can be switched to < or >. With this < and > you can achieve, that the function is only switched if the train drives forward or backward.



If you switch special functions with a Loco-ID 0 or train profile on or off they will be left in this state until they are switched off or on by another contact event.

You don't have to repeat this special functions if you don't want to change them (in contrast to locomotive specific profiles).

You can also use the button . Using this button all function changes will be deactivated for the currently edited contact event. In this mode the button will change its symbol to .

8.4.6 Speed changes or no change of speed

In our next example we want to change the example profile, so the current speed will not be changed at the first contact event of contact 0016, but a special function shall be activated. In the second event for contact 0016 we will reduce the locomotive speed.

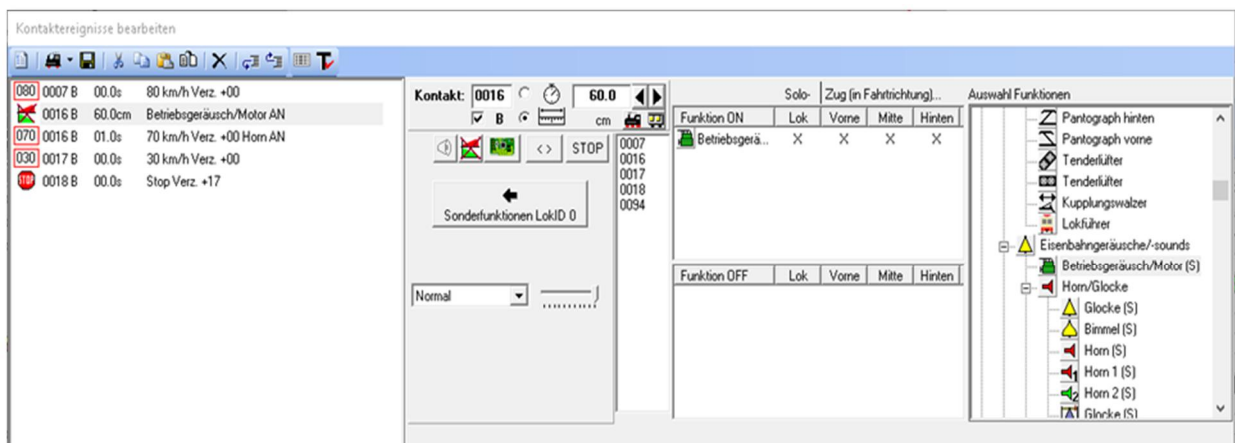


Fig. 8.21 No speed change configured for this contact event



Fig. 8.21 illustrates this situation. The second row is selected at the moment, the contact event type symbol in the first column has changed indicating, that no speed will be changed. This function can be activated using the button with the same symbol in the middle of the window.

Fig. 8.22 shows the next row in the list of contact events with the speed reduction to 70 km/h. We can change the speed value using the keyboard or the spin buttons beside the input box. Alternatively, you may use the two arrow push buttons on the right side of the text field.

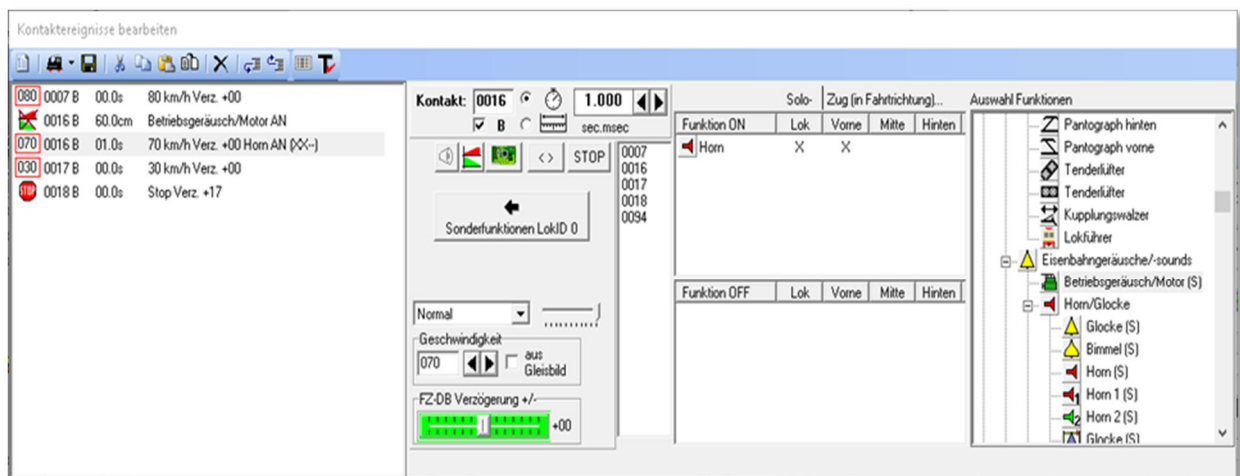





Fig. 8.22 The speed is reduced to 70 km/h at feedback contact 0016.

If you take a close look at the function you might recognize, that the whistle will only be executed, if the locomotive with horn functionality is a solo locomotive or at the heading or the end of the train. Using this configuration, the second locomotive within a double-heading train would not activate its whistle when the contact event will be reached.

You can register these driving direction arrows when holding down the 'Shift-key' and making a double-click in the according column.

8.4.7 Change of direction before a bumper

A turn command  should not be executed before the locomotive has already been stopped for a short while. Therefore, you should enter the turn command in an additional contact event some seconds after stopping the locomotive. Some examples for necessary turn commands are:

-  after stopping before a bumper
-  within a zig-zag shunting operation



Turn commands within profiles should always be used with care. Within the automatic operations of **Win-Digipet** there might be better options for turning the train/locomotive.

These are for example to decide automatically if a turn command is necessary at the beginning of a route or not.

Turn commands in profiles should also not be used for routes which are part of a turn. Thus, a turn command within a profile should only be used for really special operation like zig-zag shunting.

You need to take care, that no double turn commands e.g. in the automatic as well as in the profile are configured.

8.4.8 Change of direction in a zig-zag shunting route

In our next example we want to show you a **zig-zag**-shunting route. In this example we want to use route 054>056 (66) with Platelayer's waggon KLV53. You can of course also configure a loco ID0 or train profile in the same way.

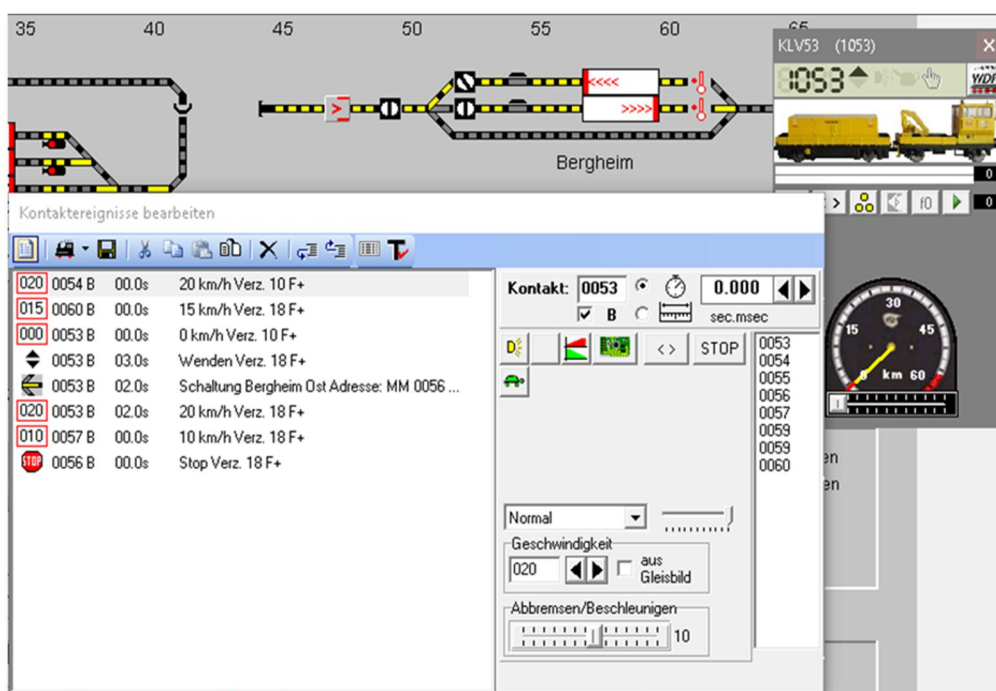


Fig. 8.23 The profile for the zig-zag shunting route.

In the first contact event row the Platelayer's waggon KLV53 starts at contact 0054 with a speed of 20 km/h. The light is turned on; all other functions are not relevant for this example.



The train will now pass contact 0055 without any events and changes, respectively, so that this contact need not appear in the list.

In the next row we select for "occupied" contact 0060 a speed of 15 km/h and in the next row for contact 0053 a speed of 0 km/h (not STOP) ³².

In row 4 the turn command will be executed after a delay of 3 sec. After this the train may not start, before the turnout has been set to the correct position.

The change of the turnout position is done by the contact event in row 5 after a delay auf 2 sec. For this change of the turnout position we used the contact event type "Solenoid/counter device switching". The turnout symbol can be placed in the configuration input box using drag&drop. The desired position can be selected by repeated clicks on the turnout symbol in the configuration box.


After a further delay of 2 secs the Platelayer's waggon KLV53 will start with a speed of 20 km/h to its destination track and will stop there at contact 0056 after braking at contact 0057.

Contacts 0057 and 0056 got a cyan background at the input box, because the train number display is configured as intelligent train number display and thus **Win-Digipet** controls the stop process by itself.

But you should configure this contact event nevertheless, because if you decide to start the route later using "Stop at contact" the train would overrun the bumper if no stop contact event has been configured.

8.4.9 Loco sound

You can play the sound which you have selected for a specific locomotive directly in a contact event row.

Just click within the contact event row configuration on the button  for the loco sound. The symbol for the loco sound is for locomotive specific profiles only visible if a loco sound has been configured for the used locomotive.

For Loco ID0 and train profiles the symbol is of course always visible but will only have an effect if the locomotive used in later operation has a configured loco sound.

8.4.10 Function decoder functions for a locomotive specific profile

The display of functions for a locomotive is dynamic. This mean only registered/existing function will be shown for the locomotive decoder as well as for a function decoder assigned to a locomotive. The explanation of the function symbols can be seen when hovering with the mouse cursor over the function buttons.

If a function decoder has been assigned to locomotive in the vehicle database, its digital address (here 701) will be show in a small yellow box. The functions of the function decoder

³² V=0 km/h can be entered by keyboard or using the spin buttons



will be shown next to the locomotive one's. The tooltip indicates function of a function decoder with the prefix "FD".

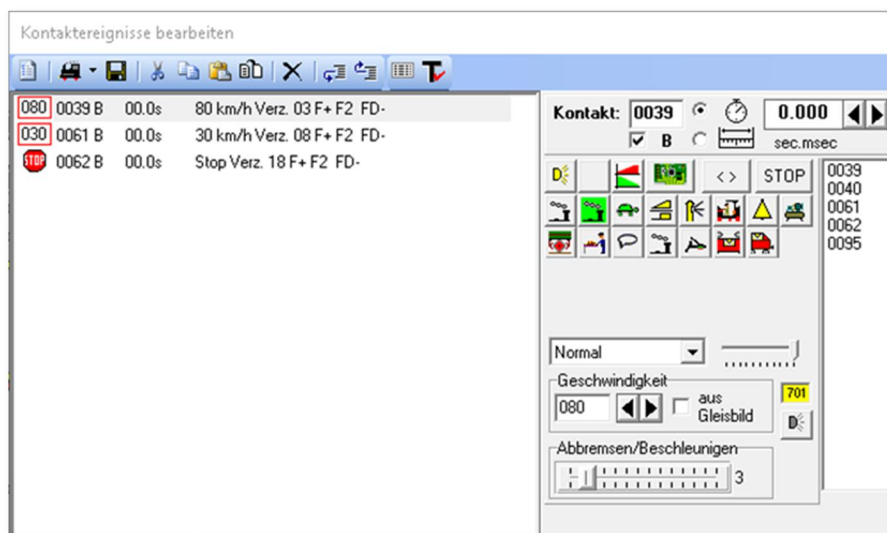


Fig. 8.24 The address and the function of a function decoder are shown.

8.5 Categories of contact events

8.5.1 Contact event category Speed-/function command

This category covers all commands for speed changes, change of direction as well as the execution of special functions using functions symbols.

We used this category in the previous sub-chapters/examples in detail and we will not explain it here again.



8.5.2 Contact event category Play sound

You can use the contact event category "Play sound" for playing sound-files from the subdirectory \SOUND of **Win-Digipet** as well as from its subdirectories. The program can play wav- as well as mp3-files.

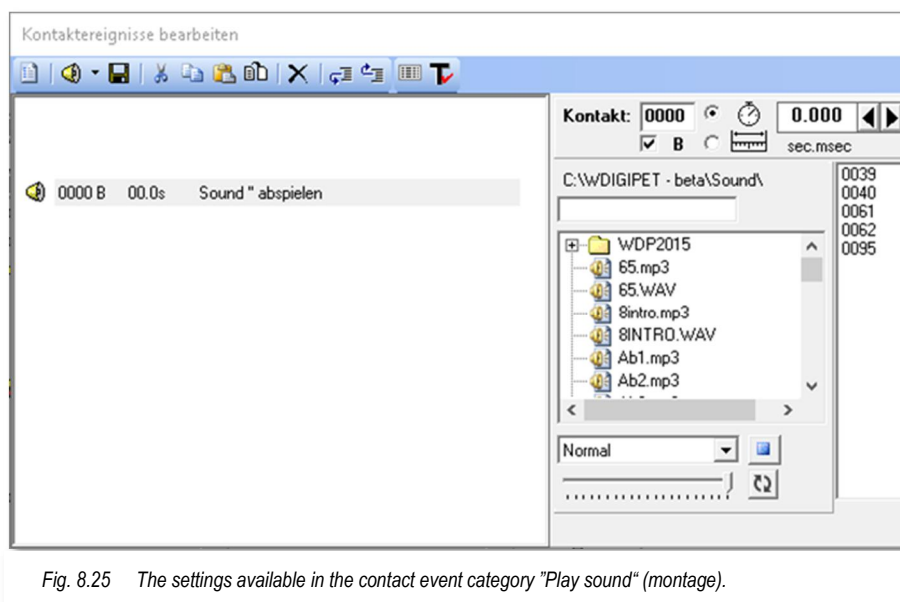



Fig. 8.25 The settings available in the contact event category "Play sound" (montage).

Select the file you want to play at the selected contact. The file's name as well as its playback time in seconds will be shown above the list.

Below the file selection box you can see an additional combo box where you can select which one of the speakers of your **2.1**, **5.1** or **7.1** sound systems should be used for the playback. The slider can be used to adjust the playback volume.

Using the button  **'Playback'** you can test the sound file immediately.

Clicking on the button  **'Repeat'** once let the sound file play repeatedly without end. If you click on this button once more, you will be asked about the number of repetitions.

If you want to playback wav-files using a single speaker from the selection, these files have to be Mono files. If the selected file is a stereo file, the program will ask you if you want to convert the sound file.

After selecting **'Yes'** the file will be converted and can be used afterwards.

In the file selection window during the conversion you can use windows typical functions like creating new folder, deleting files etc. You can use to save the converted file to any directory.

After saving the new sound file, the new file name has automatically been selected for the contact event.

The length of the sound file will be shown after a sound file has been selected. You can use this time information to adjust the flow of events within your profile.



8.5.3 Contact event category *Play video*

You can use the contact event category "Play video" for playing video-files from the

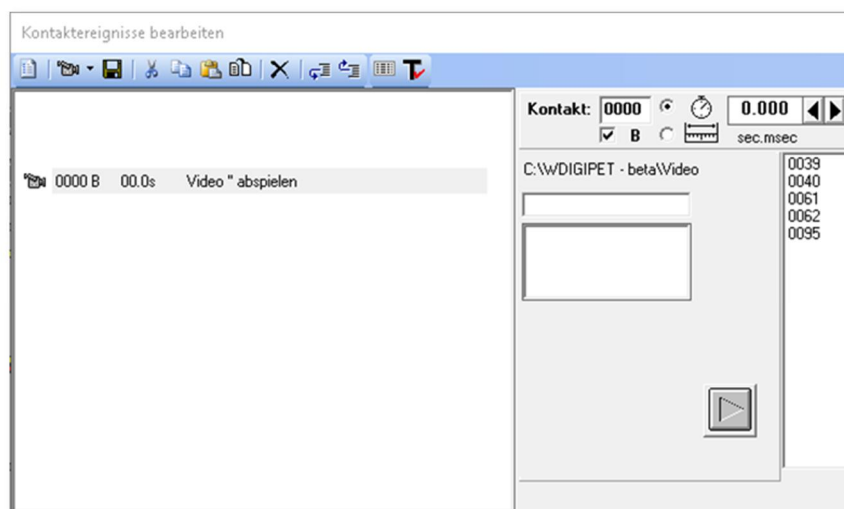



Fig. 8.26 The settings available in the contact event category "Play video" (montage).

subdirectory \VIDEO of **Win-Digipet** as well as from its subdirectories. The program can play avi-files.

Using the button  beside the file selection box you can start the test playback of the selected video file.

8.5.4 Contact event category *Solenoid device/Counter switching*

The contact event category "Solenoid device/counter switching" can be used to switch any solenoid device or counter to new position/state/value. These solenoid devices can be all signals, all turnouts, uncouple tracks, switches/push buttons and counters, regardless if they exist in real on the layout or if they have just been placed virtually in the track diagram.

The handling of this function is similar to add-on switches in the routes editor. Also the handling of counters is similar to the route editor.

In the rectangular window below "Solenoid device you can place the solenoid device or counter by "drag & drop" from the track diagram (in our example we used the bells of a church).

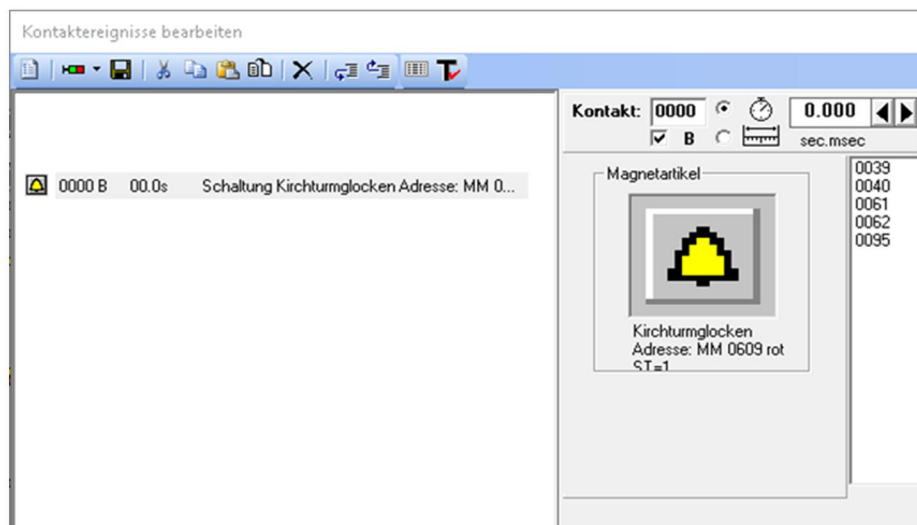


Fig. 8.27 The settings available in the contact event category "Solenoid device/counter switching" (montage).

Select the desired state of the solenoid by clicking on the picture of the device. During contact event execution the solenoid device/counter will then be switched to the new selected state.

8.5.5 Contact event category Set loco number back to black

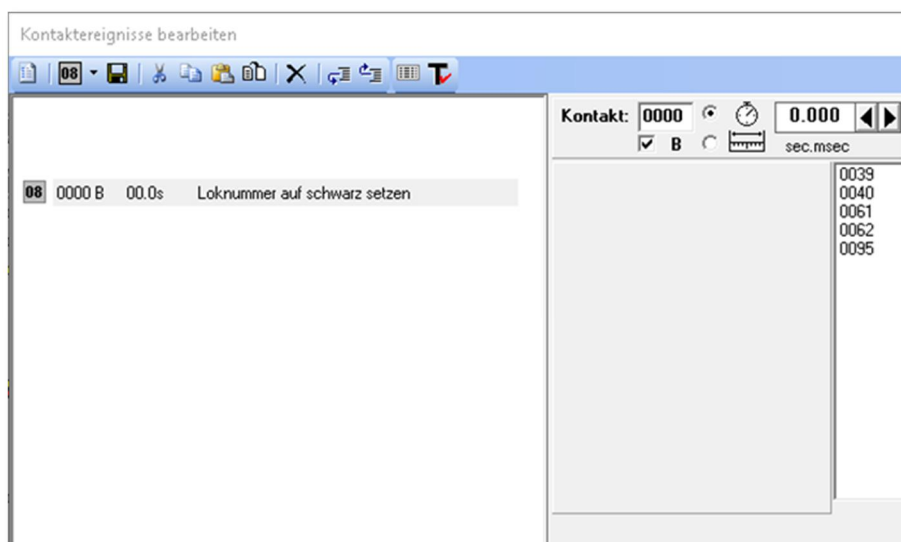


Fig. 8.28 Contact event category "Set loco number back to black" (montage).

This contact event category can be used to switch a train which is blocked "RED" for automatic operation back to "BLACK".



8.5.6 Contact event category Locomotive/train macro

You can also include already existing locomotive or train macros in the flow of your profile contact events. The index card contains a button '**Select macro**'. After pressing this buttons, a dialog window will open, where all existing locomotive resp. train macros will be listed.

Please select the desired macro with a double click. Afterwards the macros ID, its name as well as the configured locomotive/train will be shown on the index card.

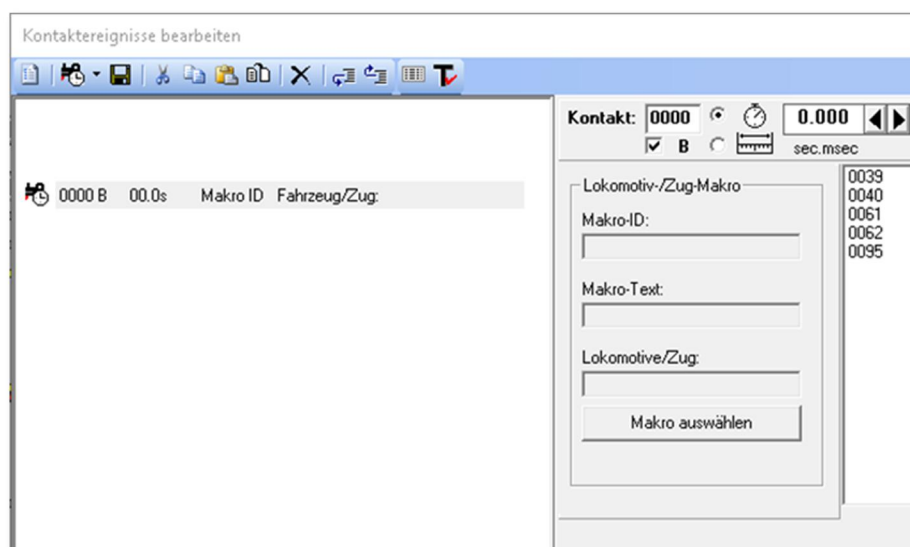


Fig. 8.29 the settings available in the contact event category "Locomotive/train macro" (montage).







8.5.7 Contact event category crane macro

If you created crane macros for your cranes you can include their execution in the profile, contact events. The index card contains two selection boxes. In the first selection box you can select the affected crane and in the second box the crane's macros.

8.5.8 Contact event category Matrix/Name/Digital system change

If you make shunting operations etc. on your model railroad you sometimes want to change the matrix automatically e.g. if you uncouple some waggons from a train and so a long train becomes a short one.

Possible situations for changing the matrix are:

-  A temporary change of the loc type (shunting loc with a freight train)
-  A loc with a changed waggon type (freight to passenger train)
-  A change of train length (length(X) (coupling and decoupling of waggons)
-  Or a change of the digital system

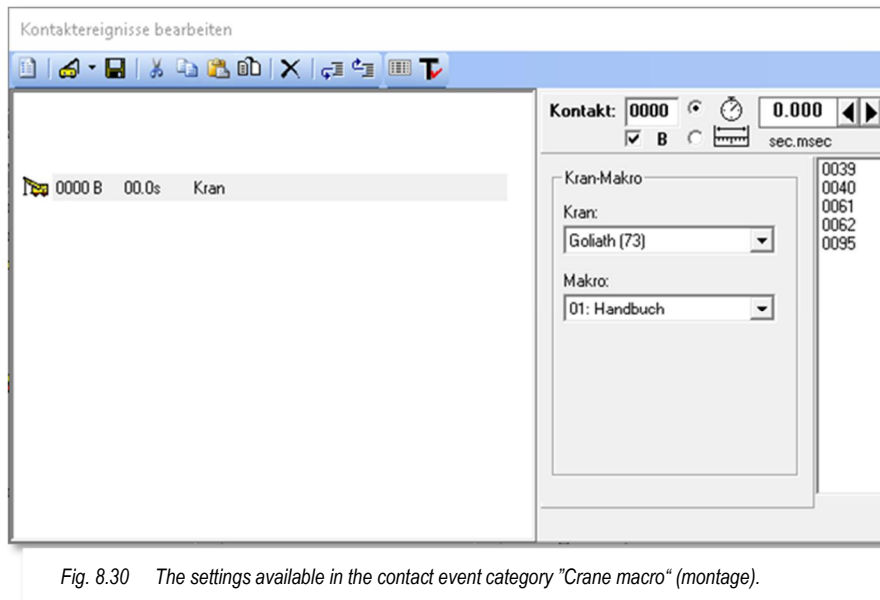


Fig. 8.30 The settings available in the contact event category "Crane macro" (montage).

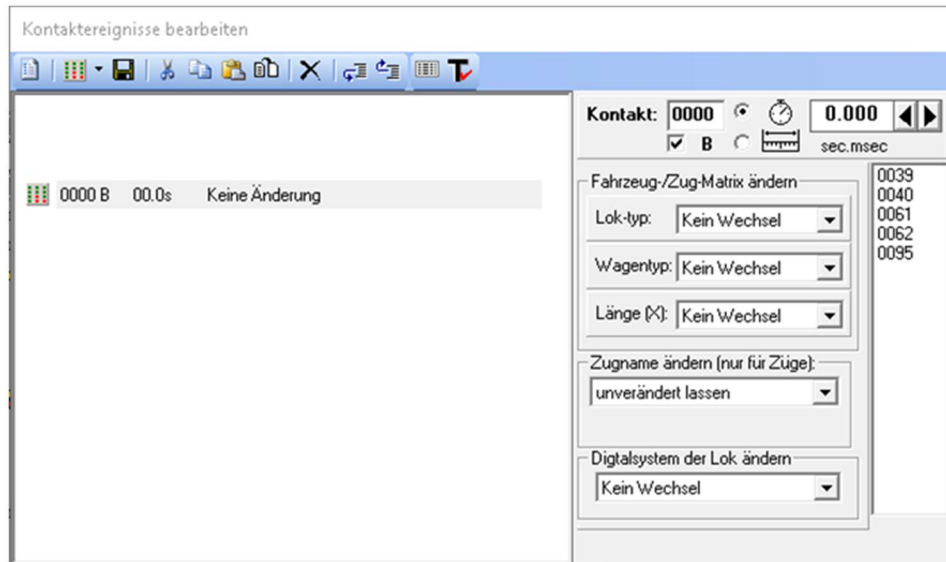


Fig. 8.31 The settings available in the contact event category "Matrix/Name/Digital system change" (montage)

The dialog offers the possibility to change single parts of the matrix. Using this functionality, you change the locomotive's resp. train's loco type, waggon type and/or Length (X).

Using this type of contact event, you can also change the train's name.

The digital system which controls the train/locomotive using the profile can also be changed using this type of contact event. The electrical handover of the locomotive/train between the two system has to be done using switching decoders (or similar, avoid any kind of electrical connection between both systems).

All selections can be made in combo boxes.

8.5.9 Contact event category Message text

You can use the contact event category "Message text" to interrupt the flow of events in the profile until the user confirmed a message on the screen.

A good example is a long locomotive driving to a turntable. In our example we installed a message in the profile event flow which forces the user to confirm, that the locomotive stopped in save position on the turntable.



The user has to confirm the message in the message window by checking the checkbox left of the message. The profile execution will be interrupted until the message has been checked.

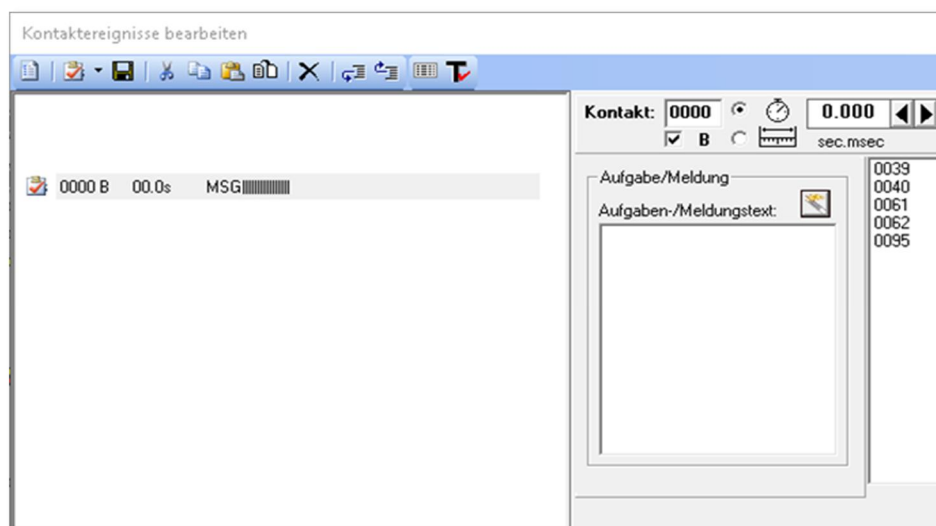










Fig. 8.32 The settings available in the contact event category "Message text" (montage)

Furthermore, you find an assistant for extended text input at the symbol , '**Extended text input**'.

There are the following variables for individual text messages:

-  Text
-  Counter value
-  Vehicle address at train number display
-  Train length at train number display
-  Train name at train number display
-  Number of vehicles at train number display
-  Time



The single variables can be combined, so that you can create a message matching the situation of the contact event in the profile.

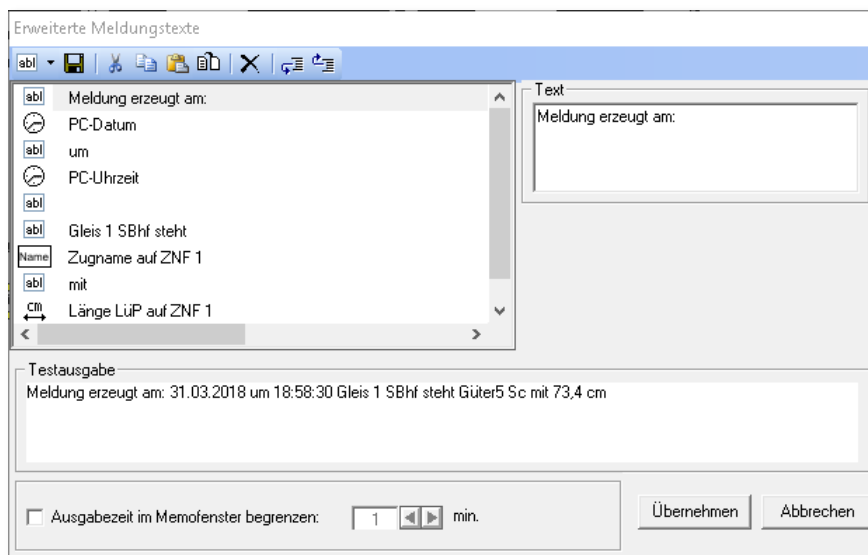


Fig. 8.33 The editor for extended text input.

8.5.10 Contact event category T4T-action

With the contact event category "T4T-action" you have to possibility to control T4T decoders provided by T4T.

The selection in the dialog can be done using selection boxes. You can decide if the command shall apply to all or a specific vehicle in the train composition. The T4T has to be configured for the used locomotive/train in the vehicle database before. In the input boxes at the bottom you can select the function you want to use and if you want to turn the function on or off.

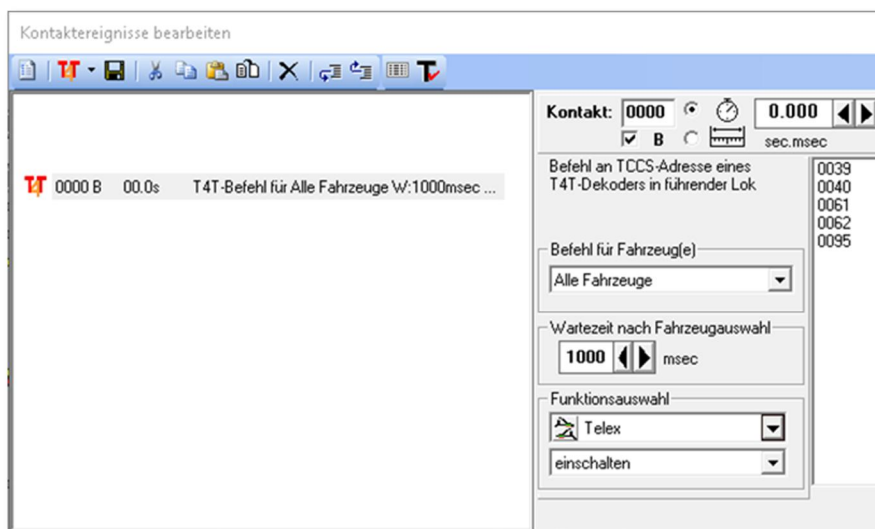


Fig. 8.34 The settings available in the contact event category "T4T-action" (montage).



The selection of a delay after the vehicle selection increases the safety of operation. The default value is 1000 msec.

Please inform yourself about the special functionality of T4T decoders in their operation manuals as well as on the manufacture's website.

8.5.11 Usage of a delay time in seconds

You can configure a delay time for the execution of a profile contact event row. This time can be configured in seconds (sec) and milliseconds (msec.) using the spin button in the upper right corner of the configuration window.

Using two examples we want to show you how you can improve the operation on your layout in detail.

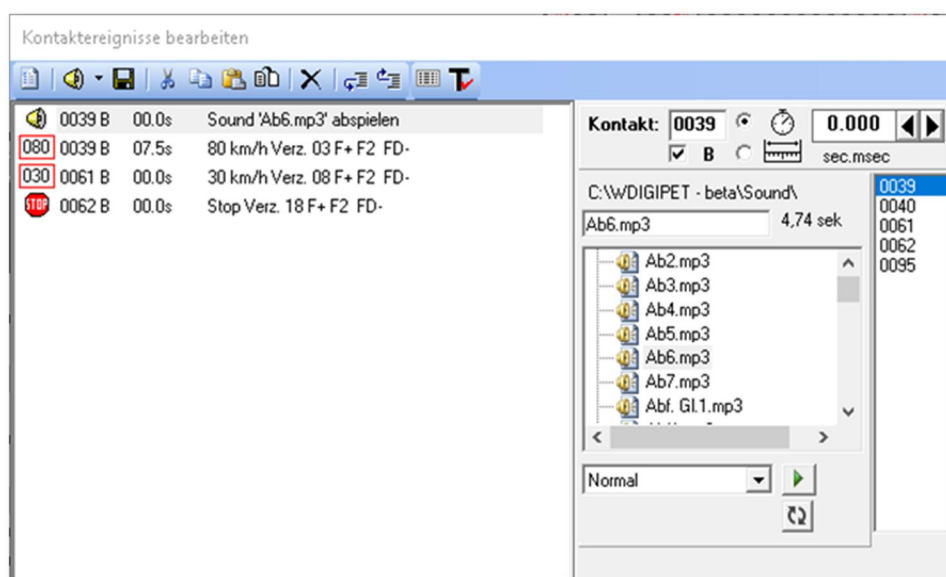


Fig. 8.35 The departure of train is after playing the sound.



You want to play a sound like "Attention at track 3" before a train leaves a station. The train shall not depart before the sound has been played completely. The sound file has a complete length of 7.14 sec. Thus we configured a delay of 9 secs for the second row. The time delays start just after the execution of the first row (start of sound file playback).



We also want to recall the zig-zag shunting route of section **Fehler! Verweisquelle konnte nicht gefunden werden.** we used in previous examples. In the profile for this route we also used several delays e.g. to achieve a save turn of the train or proper delay before a turnout can be switched after the train has been stopped.

Important in this scope is that a turn command should not be



executed before the train has been stopped for at least 2 seconds. A delay while the train is still moving will result in an abrupt stop of the train before the direction will be turned.

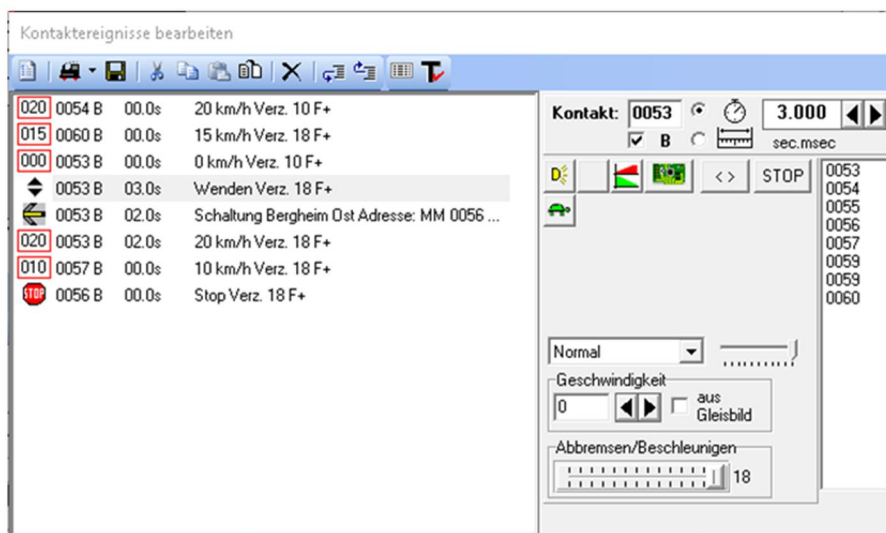


Fig. 8.36 The profile of the zig-zag shunting route.



Waiting times at start contacts of profiles will be ignored when a train passes through.

The registered times at start contacts will only be taken into account when the train has been stopped before switching the according route.

8.5.12 Usage of a distance delay in centimetre

In the previous chapter we described how to delay a contact event using a waiting time. But sometimes this will not lead to the desired result.

This might be the case if your trains travel (e.g. due to their maximum speed) with differing speeds on a part of your playout and you want to perform an event a specified distance after a contact has been reached. This distance delay can be configured in cm. Using this function, you can e.g. perform an action 10cm after a contact has been occupied independently on the train's speed.

The unit of this kind of delay in "cm" with one decimal place (for mm).


In our previous example of a zig-zag shunting route (see Fig. 8.23) we used this type of delay already to achieve a stop of the train after train has left the turnout and has travelled an additional distance.



Of course delays in cm make only sense for moving trains.

If you register at the **start contact a delay in cm**, the train will **never** start...

8.5.13 Train position at distance in centimetre

Using profiles the position of a train at a feedback contact can be evaluated. When activating the option 'Delay with centimeter' the additional symbol  for '**Extended position options**' is shown.

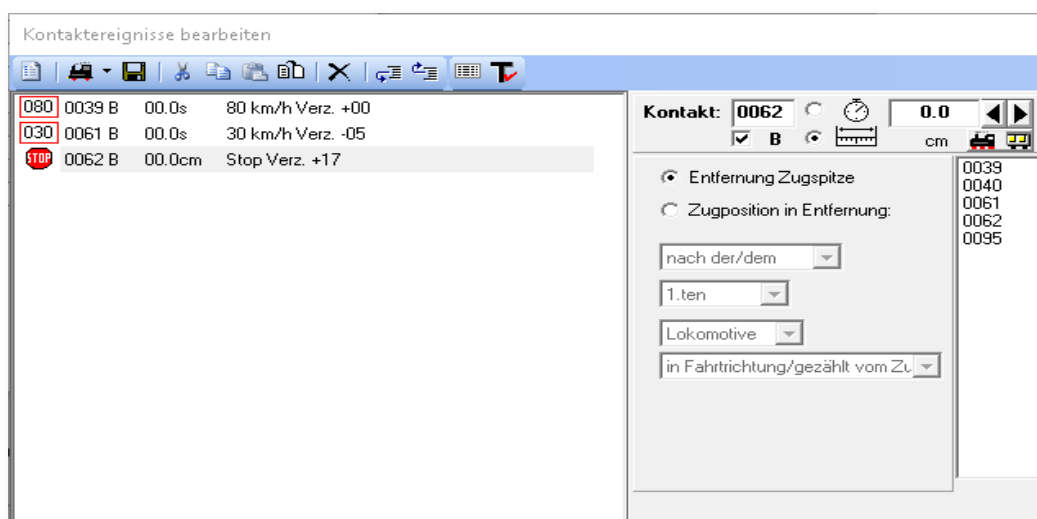






Fig. 8.37 The dialogue for extended position options'

As with an intelligent stop point (iAP) the option '*Train position at distance*' allows stopping an engine or train at a certain point by applying one of the following options:

-  Position (before/after)
-  Number (1. bis 50.)
-  Type (locomotive / waggon / vehicle)
-  Direction (forward / backward)

An example for 'occupied':

The train consists of a loc (20 cm) + waggon (30 cm) + waggon (30 cm)

The entry contact is occupied + 40 cm after the 1st locomotive in driving direction means:

The train drives 40 cm + 20 cm = 60 cm, so that the couple after the 1st locomotive is positioned exactly 40 cm at the beginning of the contact..



An example for 'free':

The train consists of a loc (20 cm) + waggon (30 cm) + waggon (30 cm)

The entry contact is free + 100 cm after the 1. locomotive in driving direction means:

The head of the train drives 100 cm + 20 cm = 120 cm more than the end of the contact, so that the couple after the 1. locomotive is positioned exactly 100 cm behind the end of the contact.

With drag & drop you can insert a counter from the train diagram into selection field.

8.5.14 Acceleration/deceleration settings in profiles

The acceleration/deceleration settings from your vehicle database will only be transferred for locomotive specific profiles as absolute values. For Loco-ID 0 profiles only relative values can be registered for the contact events. The +/- values will be used relatively to the settings made in the vehicle database.

Using the slide, you can select the change of the delay rate (plus=green resp. minus=red).

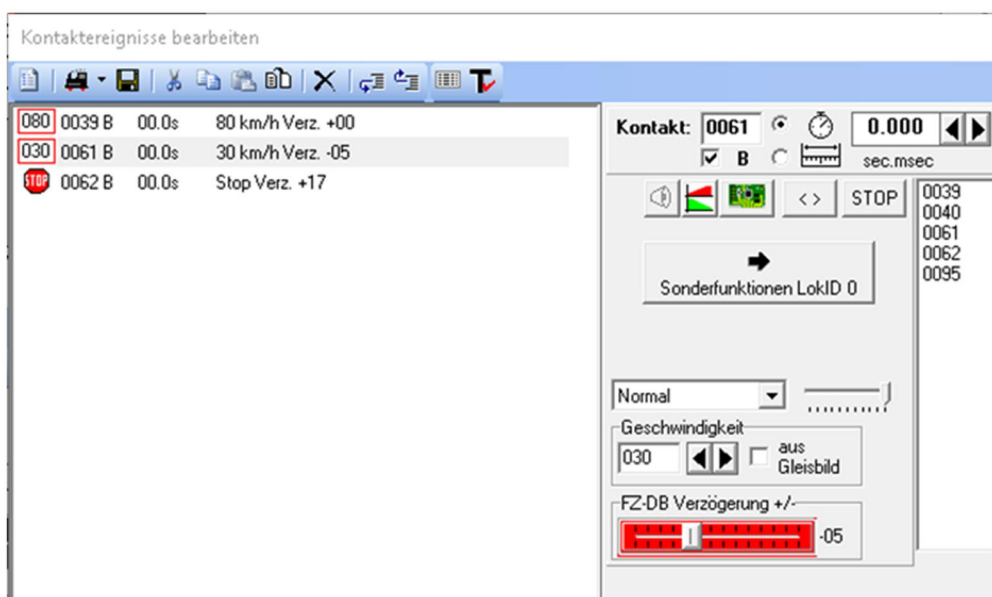


Fig. 8.38 the acceleration/deceleration rate is relative to the vehicle database settings

Using this you can vary the delay rates configured in the vehicle database.

The selected relative changes apply to deceleration as well as to acceleration rate.

Let's explain this by a small example:



In the vehicle database for deceleration a value of 10



and here in the Loco-ID 0 profile a value of -05



then during execution of this Loco-ID 0 profile the deceleration rate 5 will be used ($10-5=-5$). The same can be said analogously for the acceleration rate.

8.6 Different options

The menu <Options> gives you access to additional functions.



Always display feedback contacts

If you want to see all feedback numbers in your track diagram **every time** you open the profile editor check this switch.

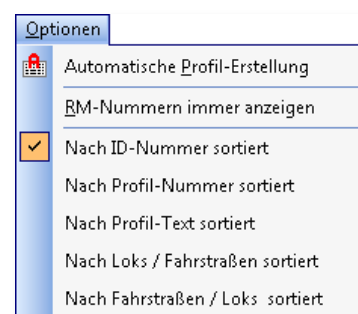


Fig. 8.39 the options menu of the Profile editor



If you want your profile with a locomotive in the simulation, then feedback contacts won't be highlighted in red and the feedback contacts can't be switched on and off with the mouse.

Because of this you should always switch this function off before testing locomotives with the simulation.



Different list sorting


Here you can choose the sorting criteria for the profiles list. The selected criteria will be checked. The last two sorting options offer to sort by locomotives and routes at the same time with sorting priority (e.g. first by locomotives then by routes and the other way round).

You can also change the sorting criteria also by clicking on the different list headers (ID, Profile-Text, Locomotive or Route). Repeated clicks on the same header change the sorting direction (up/down).

8.7 Testing profiles

All registered profiles can be tested immediately after their registration. Therefore, select the profile to be tested and place the locomotive/train on the start contact of the selected route.



Afterwards click on the symbol  in the toolbar of the window „Edit contact events“. The window's caption will change to "Test contact events".

On the left hand side of the contact event list a checkbox will appear. During test all already

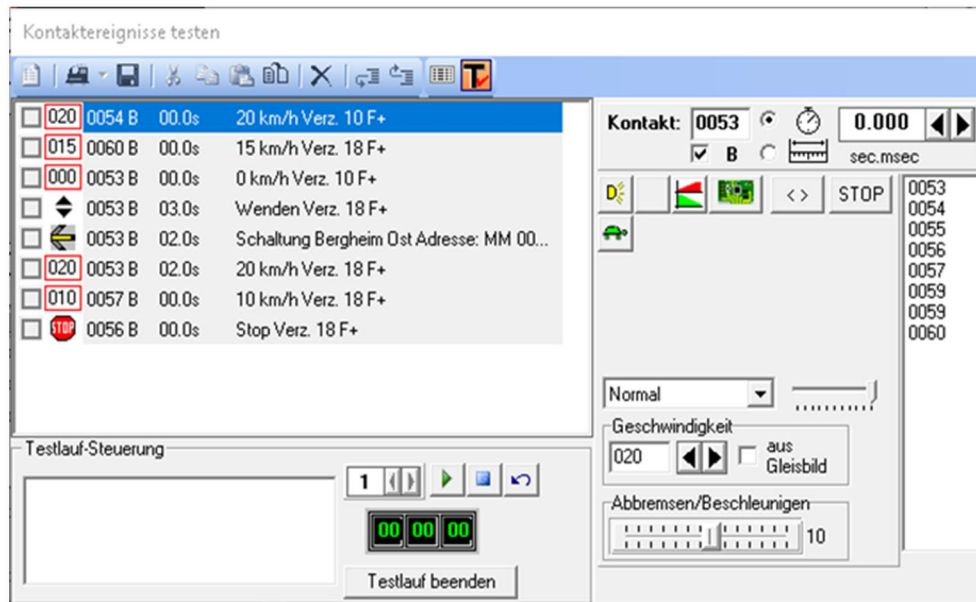



Fig. 8.40 In the "test mode" you can test the event flow of a profile.

executed contact events will be checked.

In the lower part of the window you can see a digital clock. The digital clock measures the length of the profile execution in real time (the time factor cannot be changed for profiles). If you export profiles to contact event rows in the tour automatic later, the program will recalculate the execution duration depending on the used time factor.

Now click on the button  'Start'. The digital clock starts running, the switching conditions will be checked, the route will be switched, and the contact events will be checked as soon as they have been executed (by the locomotive).



If you get the message **"Loco not on starting contact"** the relevant locomotive is not positioned on the starting contact or wrongly positioned.

Drag the correct locomotive from the locomotive selection onto the starting contact and repeat the test. The route will be switched if all conditions are met.

The clock stops when the destination contact has been reached and therefore the route release condition is fulfilled.




If you have **not** entered a release condition for a route for whatever reason – this would be a mistake – the clock will not start, if you click on "Start"; the route will not be released if the destination contact is reached. The destination contact must be entered always in the upper panel of the routes editor (supplementary marked with "dest. Contact").

You can also use the simulation for testing lines. But be careful, because the arrival time in the simulation will differ in most cases from the arrival time of the train on your model railroad layout. Therefore, you should register the arrival time again with real environment.

We suggest disabling the option "Always display feedback contacts" according to 8.6 during test mode.

If you made errors in your profile you will recognize, that not all contact events have been processed. You can then make the corrections and restart the test.

In case of any errors you might like to stop the locomotive during test run, use the button  **'Stop'** to perform this.

You leave the test mode with **'End test run'** and the running **time** will be **automatically** saved to the **column "Time"** in the list window of the **Profile editor**.

8.7.1 Drive loco/train back to start

In most cases you might want to drive your locomotive back to its start position after completing the test run. **Win-Digipet** offers a solution for automating this.

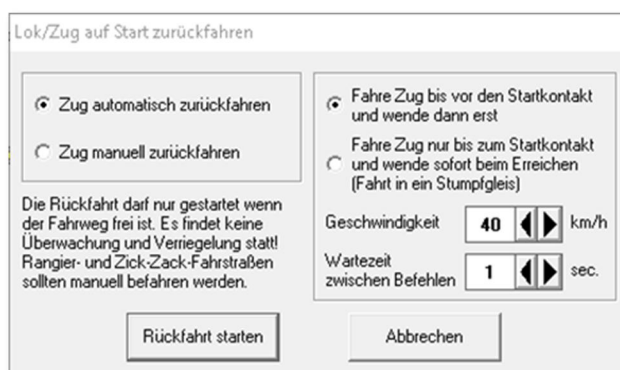



Fig. 8.41 the locomotive can be driven back to their start

Click on the button  in "Test contact events" mode. A window called "Drive loco/train back to start" will appear.

Using this window, you can drive the locomotive manually back to its start contact. Using this function, the locomotive's driving direction will be automatically changed after pressing the button **'Start return'**.

As second option the locomotive resp. the train can be driven back to the start contact automatically. When using this option, you can choose between two

additional options in the right part of the window to determine when the train shall be stopped again.

Using the first sub-option the locomotive will be driven back until the locomotive has passed the start contact (it is free again), after passing the start contact it will be turned and be driven slowly until occupation of the start contact. The second option will drive the locomotive just back until get start contacts get occupied. Then the locomotive will be turned immediately.

Using the simulation, the locomotive will just be placed again on the start contact.



Please note that this function does not switch any solenoid devices. Furthermore, please note that the track must be free, since there is no check of the contacts during the automatic return trip. This function is exclusively dedicated for the return trip back to the start contact of a route after the profile test.

8.7.2 Warnings concerning (wrong) contact numbers

Similar to the route editor contacts not belonging to a profile's route are highlighted in yellow.

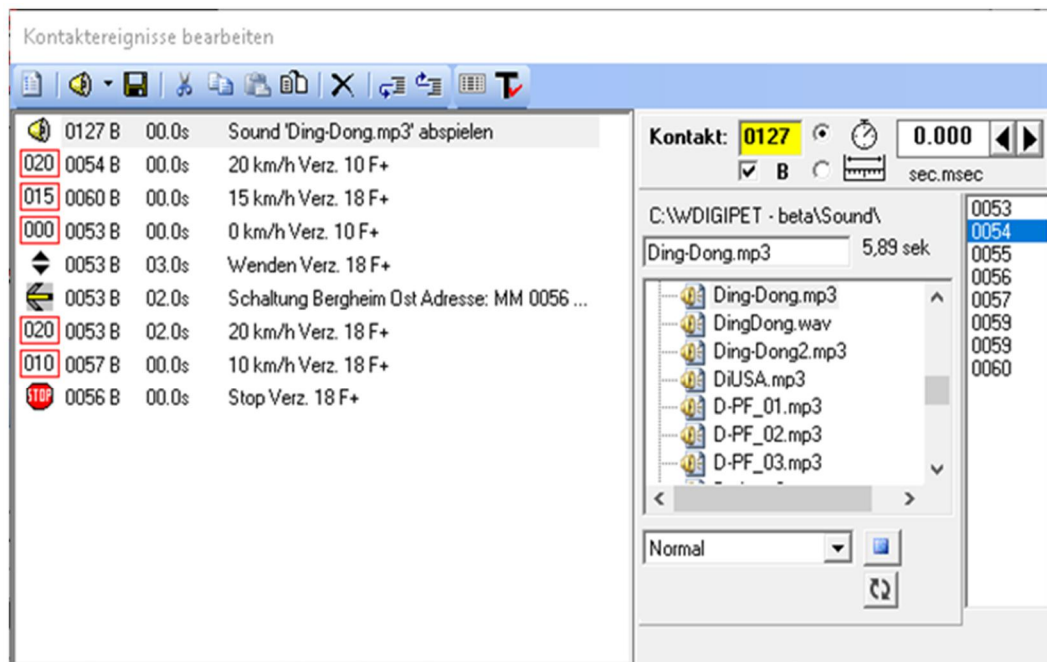


Fig. 8.42 A contact not belonging to the used route will be indicated.

In this example we used contact number 0065 to play a sound. This contact is not part of the used route. Without correction the profile execution might fail/might lead to false results. When correcting this contact please do also check the contacts for Start/Brake/Destination in the route editor. Maybe the error has been already transferred from a false setting for one of these contacts.

A contact with cyan back colour indicates (equal to the route editor), that the used contact is part of an intelligent train number display.



All driving commands assigned to such a contact of an intelligent train number display will be ignored because the stop process for an intelligent train number display is completely controlled by the program. Function commands will of course be executed. Please take care, that the used contact can be reached depending on the used stop position within the intelligent train number display.






Please do not remove contacts with cyan back colour from your profile. If you decide later to change an iTND back to normal train number display functionality or if you select "Stop at contact" when executing the route, then this contact event is necessary to stop the train.

8.8 Selecting/searching existing profiles

Already existing profiles can selected/searched in the Profile editor for editing etc.

Win-Digipet offers three possibilities:

-  Selection via text inputs and filters
-  Selection using the start-/destination-function
-  Selection using the start-/destination-function in combination with a locomotive and a route.



If the first data record called "! Neues Profil !" is selected you cannot use the start/destination function. Because you should overwrite this profile with real data.

8.8.1 Selection via filters

Registered profiles can be selected in the profile editor with the two filter selection frames using different criteria.

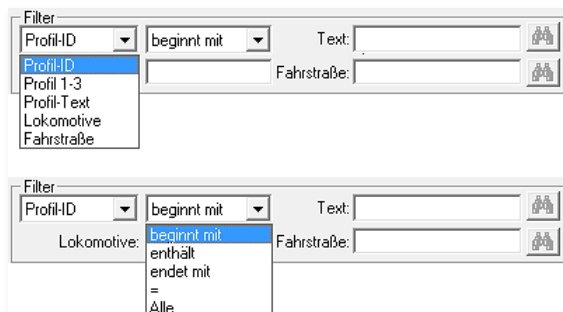




Fig. 8.43 The filter criteria for profiles.

Therefore, select first the two filter functions and enter a text in the field "Text".

If you want to search e.g. all profiles for route 039>062 just select the filter options to "Route =" and enter the text "039>062" to the input box.

Afterwards click on  and the results are displayed or an error message will occur if no profiles were found.

After a click on the symbol  the profile editor will display again all profiles.



8.8.2 Selection using the start-/destination-function

With this method you can directly search for all profiles for a specific route. Select the route with the start-/destination-function as already know from the route editor.


Using the start-/destination function you can select the route, the window "Start/destination selection" will appear, the route will be highlighted in yellow and the start TND will be coloured green and the destination TND red. After a click on the button '**Copy for editor**' the route will be automatically appearing in the search fields at the bottom the window.


8.8.3 Selection using the start-/destination-function combined with locomotive


With this method you can directly search for a profile with a specific locomotive/route combination. For this function the desired locomotive has to be registered on the start train number display of the route.

Select the route with the start-/destination-function. Using the start-/destination function you can select the route, the window "Start/destination selection" will appear, the route will be highlighted in yellow and the start TND will be coloured green and the destination TND red. After a click on the button '**Copy for editor**' the locomotive as well as the route will be automatically appearing in the search fields at the bottom the window.

The profiles will be filtered immediately but the filter depends only on the selected route.

Now click on the symbol  and the profile editor will show you the suitable profiles for the route/locomotive combination.



This selection function only works if a locomotive is registered on the start train number display otherwise no locomotive will appear in the field "Locomotive" and the button  will be deactivated. In this case you can also drag a locomotive manually to the input box "Locomotive"; the button will be re-enabled automatically.

8.9 Copy profiles to new dataset (other profile number)

If you want to change profiles, you can copy profiles very comfortably to a new dataset. Therefore, select the command < Copy profile into new data record > from the context menu.

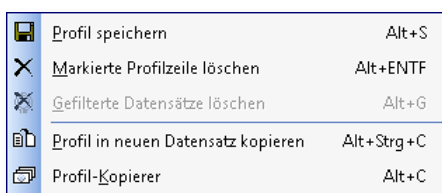


Fig. 8.44 Context menu of profiles list.

Select the desired source profile in the profile editor and open the context menu with the right mouse button in order to select this command.

Now you will see an additional window where you can select the desired destination profile number.



Confirm your selection with '**OK**'. Depending on your sorter order it will appear at the top or bottom of the list.

If the profile does already exist, a security question dialog will appear where you can select '**Yes**' or '**No**'.

Normally you will answer with '**No**' to control the already existing profile.

If you really want to overwrite the existing profile e.g. if you want to create a copy of the source profile enhanced by sound playback, select '**Yes**'.

8.9.1 Copying contact events from one profile to another

You have already created profiles for routes and registered special functions. The existing contact events within your profiles you can be copied easily to other profiles for reuse.

Therefor select one or multiple contact events in the window "Edit contact events" and click into the list with the right mouse button. A context menu will appear offering different commands; you can e.g. cut or copy the selected contact events.

Now select the destination position for the cut/copied contact events within the current profile or within another profile. Using < Insert copied event(s) > you can insert the previously cut/copied contact events.

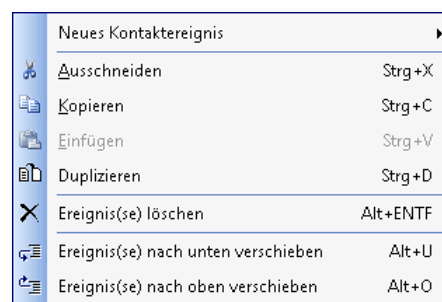


Fig. 8.45 The context menu for contact events.



If you would have <Paste> the currently selected, contact event would have been overwritten.

8.10 Profile copier

If you have created a profile for a locomotive-route-combination you can copy this profile very comfortably to another locomotive with similar driving characteristics.

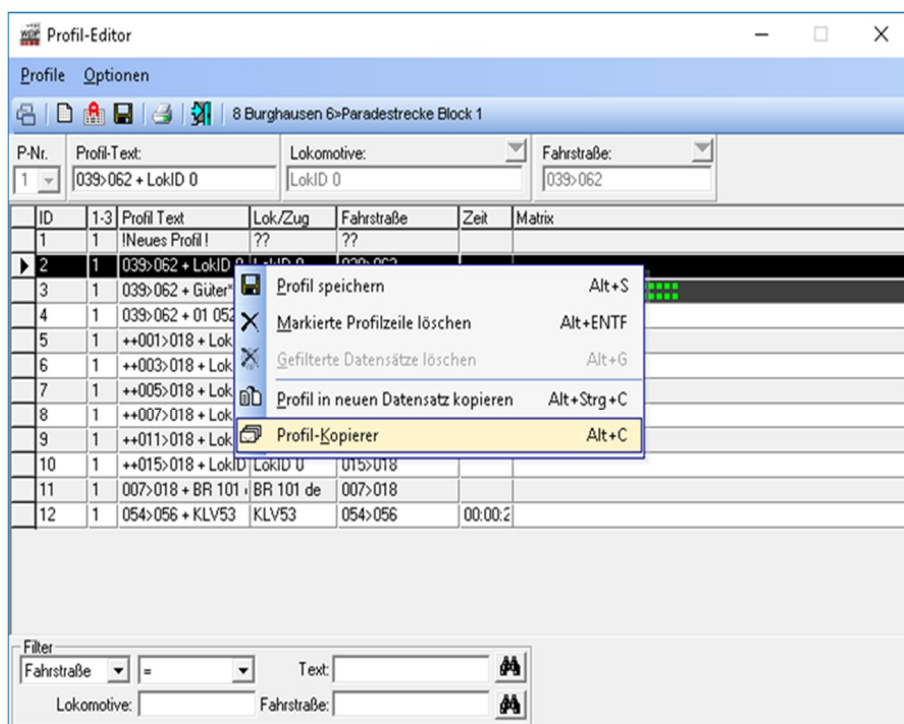


Fig. 8.46 The selection of the profile copier.

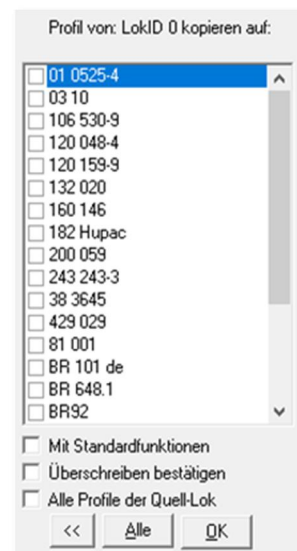


Fig. 8.47 The profile copier.

Select the desired source profile in the profile editor and open the context menu with the right mouse button in order to select the command <Profile copier> (see Fig. 8.46).

Now you will see an additional window where you can make different selections (see Fig. 8.47).

In the following window all possible locomotives for this route (depending on route's matrix) will be listed and you select for which locomotives and new profile for this route should be created based on the source profiles.

By checking "*With default functions*" the profile will be created based on the source profile, but using the standard functions from the locomotive data base instead of the locomotive functions used in the source profile (e.g. when copying a profile from a locomotive without interior lighting to a locomotive without interior lighting).

If you check "*Confirm overwriting*" you will be asked before profiles will be overwritten, if a profile already exists for one of the destination locomotives.

With the button '**All**' you can directly select all locomotives within the list. Only locomotives with matrix settings suitable for this route will be taken into account.

You can confirm your selection with the button '**OK**' or abort the profile copier by pressing the button <<.



The new copied profiles will be created using the profile number from the selection box P-No.

These new copied profiles will also have a prefix "++" in their profile text.

8.10.1 Profile copier for Loco-ID 0

Of course you can also transfer the contact events of a Loco ID0 profile to single locomotives using the profile copier. The settings are the same as for a locomotive specific source profile.

If you use the profile copier with a Loco-ID 0-profile as source profile the (de-)acceleration rate will be recalculated (with the help of the setting in the vehicle database) from the relative settings of the Loco-ID 0-profile to normal absolute settings (destination profile is a normal profile just for one route-locomotive-combination). Also, the special functions will be translated from settings such as "Steam on" to F1 on (of course only if F1 function is "Steam" for the locomotive).

8.10.2 Copying all profiles of a locomotive from a locomotive to others

If you have created multiple profiles for a locomotive, you can copy this profile very comfortably to other locomotive(s) with similar driving characteristics.

Select the desired source profile in the profile editor and open the context menu with the right mouse button in order to select the command <Profile copier>.

Now you will see an additional window where you can make different selections.

The procedure is similar to the one described in the previous sub chapters. Before pressing '**OK**' you only need to check "*All Profiles of Source-Loco*".

8.11 Deleting profiles

You have two possibilities for deleting profiles.




Deleting a single profile

For this purpose, select the profile to be deleted and open the context menu with the right mouse button. Select the menu command <Delete marked data record> and the selected record will be deleted from the database.




Deleting filtered profiles

For this purpose, select (a) data record(s) using the filter functions described before using the button .


If your satisfied with the filtered list, select the menu command <Profiles> <Delete filtered data> or click on the symbol  in the toolbar of the profile editor.

The filtered profiles will be deleted from the database.



If you have selected the filter criteria "ALL" all profiles will be displayed, but for your own protection the menu command and the symbol  in the toolbar will be deactivated.

8.12 Printing profiles

For this purpose, click on the symbol  in the toolbar of the profile editor. A preview window with several options will appear.

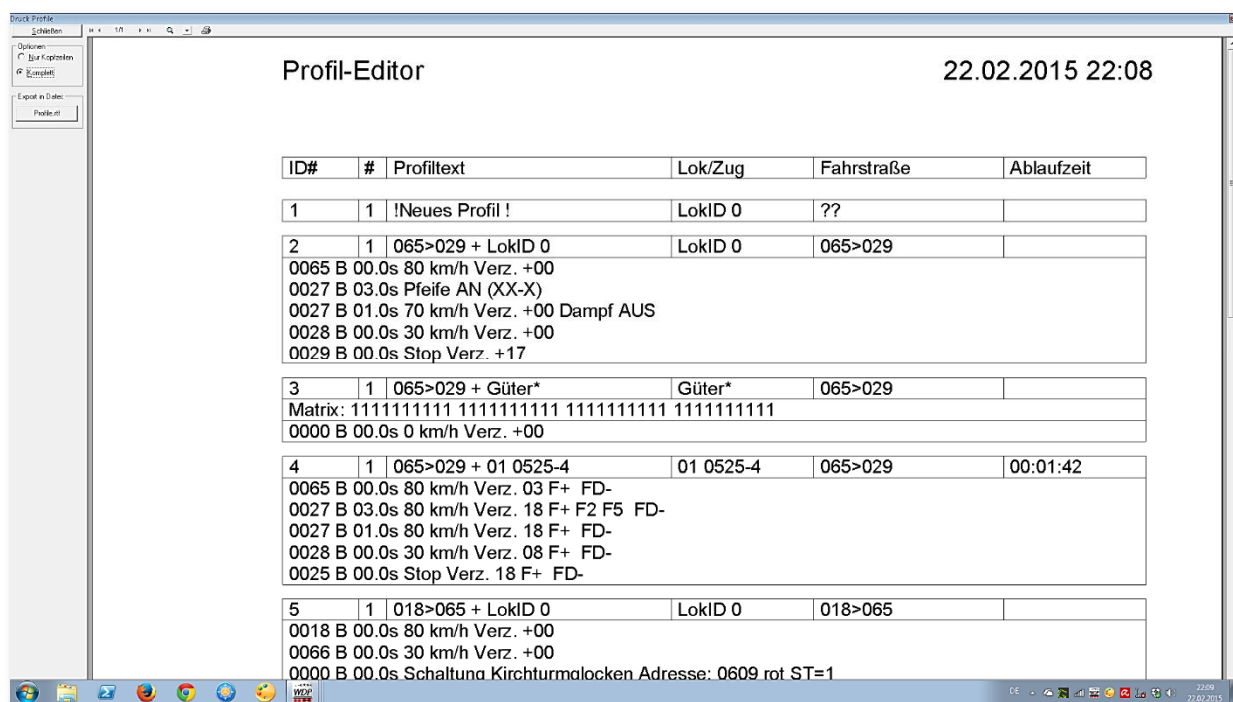


Fig. 8.48 the print preview of the profile editor

The displayed options are self-explanatory, you can e.g. choose between the options "All" and "Headlines" to decide what shall be printed.

You can even export the printout to the file "Profile.rtf" on your hard disk drive. The file can be used later in most common text editors.

8.13 Leaving the profile editor

You can leave the profile editor using the symbol  in the toolbar of the editor.




If you have unsaved data, **Win-Digipet** will ask if want to save this data. Afterwards the editor will be closed and you will be returned to the main program.



8.14 Locomotive/train macros

The so called locomotive/train macros are a new program part in **Win-Digipet** 2018 Premium Edition.

Locomotive/train macros are very similar to profiles. But they are independent of routes. Thus their event/step flow is not controlled by contact event. For macro only time and distance delays are used.

The symbol for start the locomotive/train macro editor is placed beside the symbol of the profile editor in the main toolbar of **Win-Digipet**.

After clicking the symbol  the locomotive/train macro will be opened consisting of two windows:

-  The macro editor
-  The editor for the single macro steps

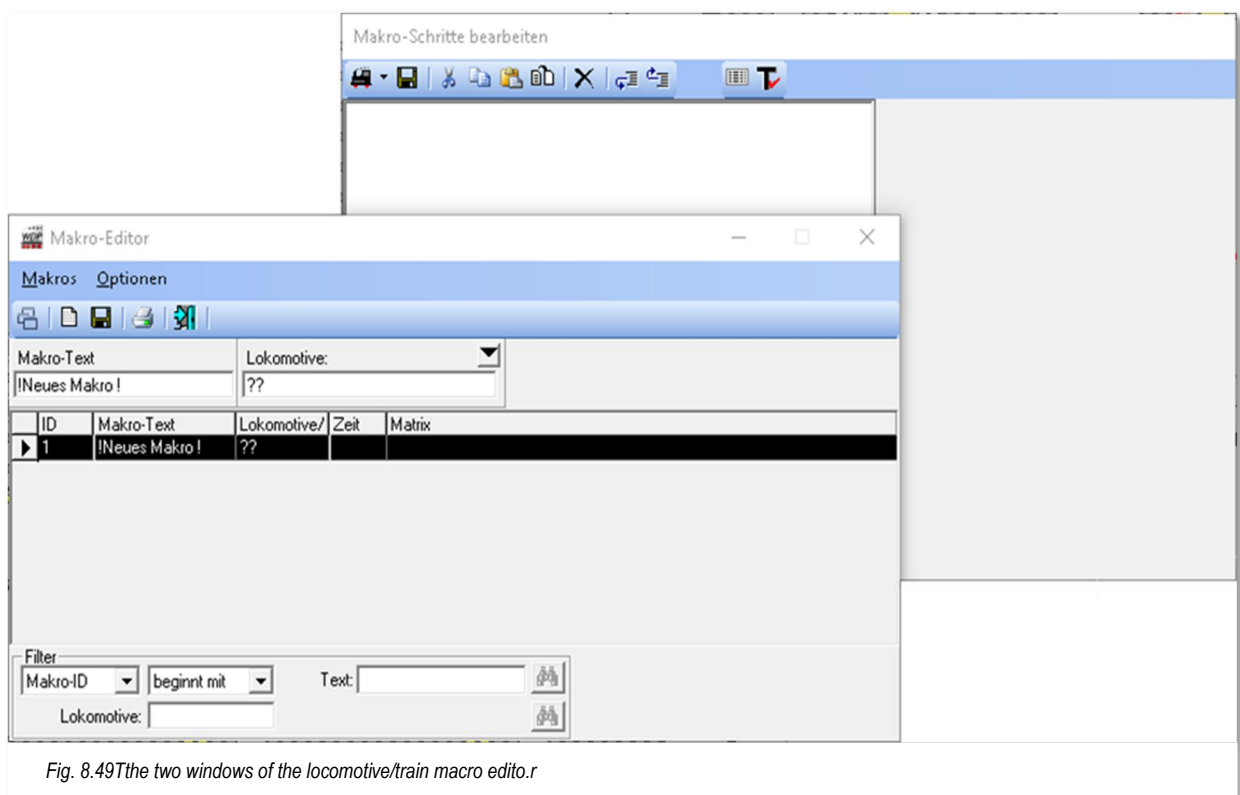


Fig. 8.49 The two windows of the locomotive/train macro editor.

If you compare these two windows to the ones of the profile editor you will discover, that they are very similar. In the Macro editor itself all available macros are listed. Only the




columns for Profile-No. and Route have been vanished, because they are not needed for macros.

In the window for editing the macro steps you can see the detailed steps/parts of the currently edited macro. The steps can be distinguished using unique texts and symbols.

The macro editor can even be opened will normal driving operation.

8.14.1 Creating a new macro

For creating a new macro click on the symbol  "Enter new macro" in the toolbar of the locomotive/train macro editor. Afterwards you should enter a meaningful name for the Macro text of the new macro.

In the column Locomotive you can select any of your locomotives, which are available in the vehicle database with the setting "On layout".

Three types of macros are available (similar to the profiles):

Locomotive specific macros

the macro (steps) can only be used for a single locomotive/are only valid for a specific locomotive

Loco ID0-Macros

the macro can be used by any locomotive/are valid for any locomotive

Train macros

the macro can only be used by locomotives/trains which are compatible to the selected filter settings

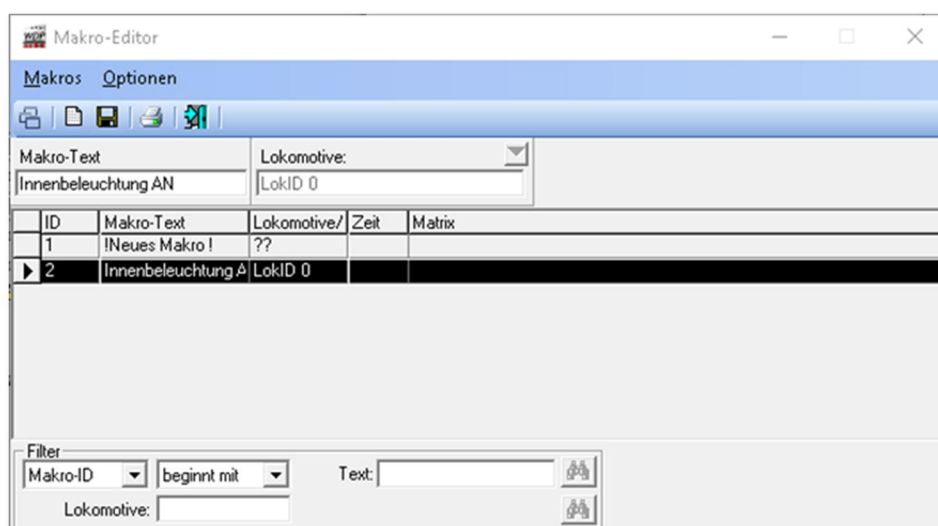


Fig. 8.50 A new Loco ID0 macro has been created.

Fig. 8.50 shows a new macro valid for any locomotive.



As name for this macro we used "Innenbeleuchtung AN" (Interior lighting on). The planned functionality of this macro is to turn the interior lighting of the train/locomotive after a delay of 2 seconds. This functionality should be independent on the used function symbol for the interior lights in the vehicle database.

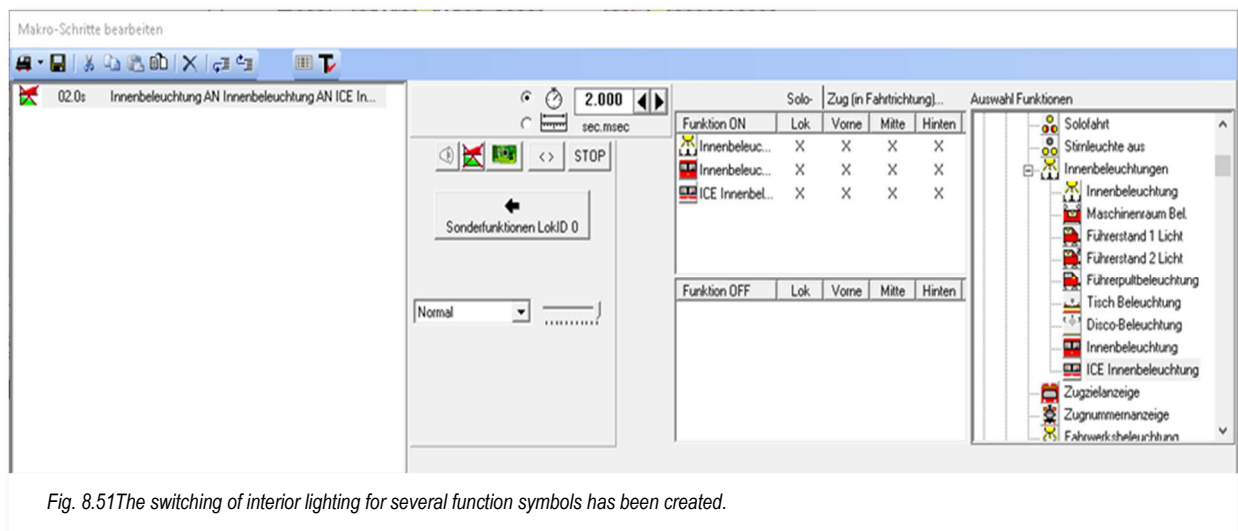


Fig. 8.51 The switching of interior lighting for several function symbols has been created.

The example shows a single macro step. Macro steps can be added in the same way as contact events of profiles (see section 8.4) using the button resp. <New step> available in the context menu which can be opened using a click with the right mouse button into the list on the left side of the macro step editor.

The example macro is a loco ID0 macro. Thus we need to press the button '**Special functions Loco ID0**'. From the list of function symbol, we drag all three available symbols for the interior lighting into the list field "Function ON".





Using this configuration, the macro will switch the interior lights on independently on the used in the vehicle database configuration of the locomotive.

This is of course a very simple example, but it shows the basic functionality of a locomotive/train macro.

Also the macro steps are structured into different categories similar to the ones for contact events. You can choose the different categories using the small arrow on the right side of the button . Available categories for macros are:


- Speed- and function commands
- Playing sound files
- Playing video files
- Switching of solenoid devices and counters
- Changing the locomotive colour to black



-  Execute a crane macro
-  Changing the locomotive's/train's type, name or digital system
-  Show a notification
-  Operate T4T decoders

A detailed explanation of these categories can be found in chapter 8.5.

8.14.2 Execution of a locomotive/train macro

 **Win-Digipet** offers three different ways for calling/executing a locomotive/train macro.

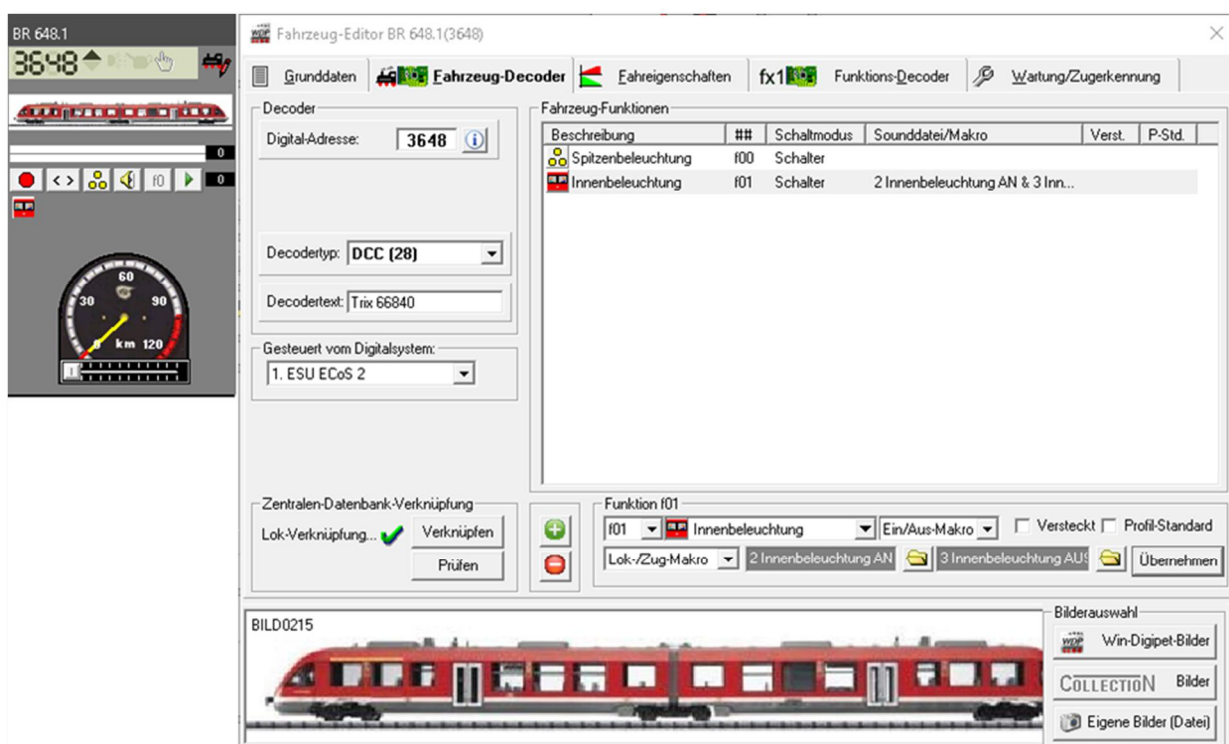



Fig. 8.52 Assignment of macros to a vehicle's special function

Loco control (big)

Within the big locomotive controls, you can find the button . After clicking this button, a list window will appear showing all locomotive/train macros which are suitable for this locomotive resp. train (locomotive specific as well as Loco ID0 or train macros). The program can of course only execute one macro per loco/train at the same time.

Assignment of a macro to a special function button



A macro can also be assigned to an unused special function button within a locomotive's control. Therefore open the vehicle editor and add a new function to your locomotive.

Within the special function configuration select in the lower right combo box "Loco/Train macro" using the open button beside the dark grey label box you can select the macro you want to use.

The macro will be executed later on every time the assigned special function button will be pressed within the locomotive control.



Calling/Executing a macro within a profile

A locomotive/train macro can also be activated using a contact event in a profile. Therefore, select the category Locomotive/train macro and select within the list which macro shall be executed (see section 8.5.6). Of course you can also use macros which have been assigned to special functions buttons as described before.

In contrast to crane macros locomotive/train macros will be part of the profile execution. This means a profile will be halted while the macro is executed.

You can trace the execution of locomotive/train macros using the Train inspector (F7) in the main program of **Win-Digipet**.



Calling as action in the dispatcher or tour automatic

A locomotive/train macro can also be activated as switching action in the program part "Dispatcher" and "Tour automatic", respectively.

Version 2018
Premium Edition

Chapter 9





9. TOUR AUTOMATIC EDITOR

9.1 General

The **Win-Digipet** Tour Automatic **Fehler! Textmarke nicht definiert.** (TA) gives you the possibility to operate your model railroad with a flexible "on demand" system as well as with a fixed timetable.

We distinguish in the tour automatic between driving...

-  by arrival where you get a very flexible operation
-  by departure time, where you configure every departure of a train with a fixed time and thus this kind of operation can be repeated at any time.

The tour automatic can be operated with the "by arrival" mode, the "by departure" mode or any kind of mixing of both of them. In our opinion the mixing is the most interesting possibility.

Most parts of the routes-editor known from **Win-Digipet** versions earlier than 2015 have been integrated in the tour automatic. Thus, you need just one automatic system for all cases in the future.

Furthermore, the tour automatic should be independent from the used locomotive and because of this an exchange of locomotives is much easier (of course you can also use fixed locomotives for all or some rows in the automatic if you like this).

In the tour automatic you can use routes, tours and profiles, so you can use also sound effects etc.

WIN-DIGIPET recognises which parts of your model railroad layout are currently occupied by trains/locomotives through feedback contacts. Routes begin at a **start**-contact and end at a **destination**-contact; the required registrations have to be made in the route editor.

In the tour automatic editor of **WIN-DIGIPET** you describe your tour automatic in tables. One row of your table stands for one locomotive-/train-movement described by a route or tour.

The **WIN-DIGIPET** tour automatic is mainly controlled via demand contacts. A demand contact is a feedback contact (= a contact track area) in **WIN-DIGIPET**. The defined feedback contact will operate the routes/tours, defined by you, as soon as the locomotive passes over it. Additionally, you have the chance to register very different conditions that have to be fulfilled, before an automatic row is allowed to execute. These conditions will be described later.

Three random generators help also to generate a very varying tour automatic in **WIN-DIGIPET**.













9.2 Planning and precautions


It is advisable to think about the way you want to create your automatic and to make some notes before you start to use the editor. You should even think about switching- and release-conditions of the used routes, if they are compatible to the planned operations.

In the tour automatic you can see directly how the several rows are treated.

In the tour automatic editor rows with...

-  the red clock symbol  by arrival after the demand contact the demand contact got occupied
-  the green clock symbol  are rows with a fixed departure time
-  the red clock symbol with yellow border  by arrival after the demand contact the demand contact got occupied plus a specified waiting time
-  the double arrow symbol  are rows with a fixed departure time with repetitions
-  the symbol  for solenoid device switching without using routes/tours

9.3 Registering in the tour automatic editor

Click in the main toolbar of the program onto the button  to open the tour automatic editor. If you haven't registered a tour before you will see an empty list. If you have already registered a tour automatic the tour automatic editor will automatically reload the previously used automatic.

In the left part of the tour schedule editor you see a list window and on the right side you see five index cards.











-  Conditions 
-  Follow-On-Tours 
-  Matrix 
-  Options 
-  Intermediate stops 




Fig. 9.1 Index cards in TA editor.

As soon as you have made registrations on an index card the tab of the card will be coloured yellow as soon as you leave this index card. The selected index card is always coloured grey.



Don't want to use the index cards within your tour automatic, you can use the buttons to hide (←) resp. show the index cards again (→).





You should directly assign a filename to your new tour automatic. You define as many tour automatics as you like. The file suffix of a tour automatic file is ".zfa".

To save your tour automatic to a file press the button  in the toolbar of the tour automatic. You should assign a meaningful name to your automatic and the file name may have a maximum of 25 characters. After clicking on 'OK' the file will be saved and the new name will appear in the headline of the editor.

9.4 The columns of the tour automatic editor

In the list window you will see up to 11 columns, the column "ID" is only used for information and cannot be edited manually. Some columns can be hidden with the menu <Options> <Column selection>, if you don't want to use these columns.

You can hide the columns:

-  Locomotive
-  Duration/arrival time
-  Demand contact
-  Turn command

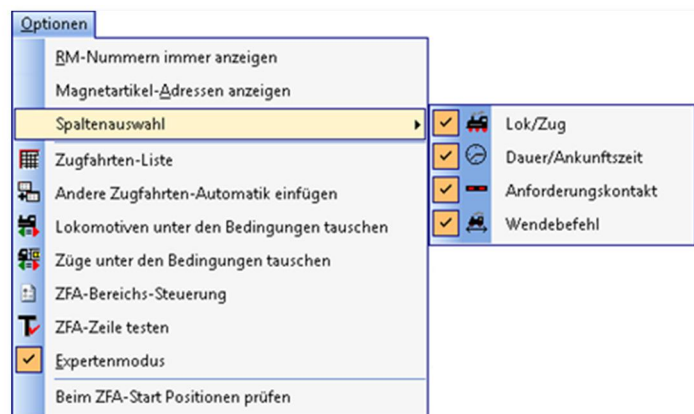


Fig. 9.2 Some columns of the tour automatic editor can be hidden.

In the first column "###" you can see the row number, up to 1999 rows are possible. A selected row will be under laid in black.

###	Zeit	Ankunft	A.K.	Lok/Zug	Zugfahrt/Fahrstraße	ID	Ablauf	Wenden	Warte	Beschreibung
001	00:00:00									
002	00:00:00									
003	00:00:00									

Fig. 9.3 The headings of the columns in the tour automatic editor.

In the list within the editors you can register the steps/actions of this automatic. Within the tour automatic a list box for selecting routes or tours does **not** exist. To register routes or tours just select those with the start-destination function.

9.5 The column "Time"

Click on the small arrow in the column "Time" in the desired row of the tour schedule editor. The time configuration window will open.

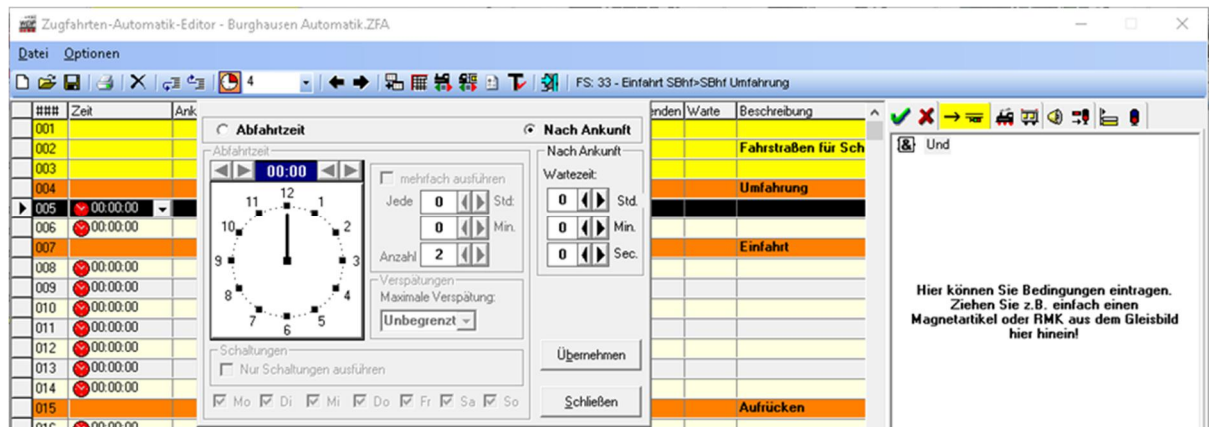


Fig. 9.4 All rows use by default the setting "By arrival" (red clock).


Here you can select when the row shall be executed.

By default, the radio button "By arrival" is set (see section 9.2). The rows registered with the setting will be executed as soon as the demand contact got occupied and the switching conditions of the route/tour as well as the further conditions of the tour automatic editor row are fulfilled.

If you select "Departure time" in contrast will be executed as soon as the specified departure time has been reached (or has already passed - in case of a delay) and the switching conditions of the route/tour as well as the further conditions of the tour automatic editor row are fulfilled.

After a, click on the button '**Transfer**', the small window will disappear and the selected time settings will appear in the column "Time".

9.6 The column "Time" – Route/Tour by arrival

This is the default settings, when registering data in the tour schedule editor and because of this you will normally see the symbol  in the column "Time" with the value 00:00:00.



Now select the row, where you want to register a tour or route. If you want the row to execute immediately after arriving of the train of the start contact and fulfilment of the switching conditions, you **don't** have to make additional registrations in the column "Time".

Now select with start-/destination-function the desired tour or route. In this example we will

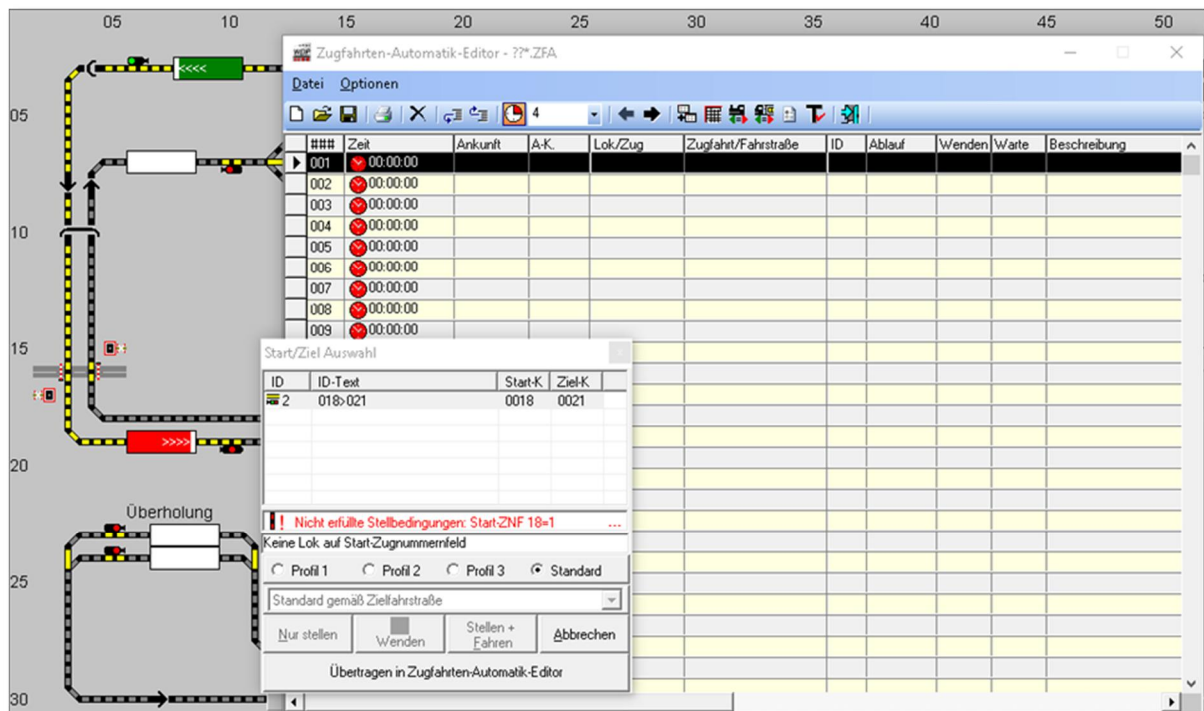


Fig. 9.5 A route has been selected with the start-/destination-function and can now be used in the tour automatic editor.

register a route (Fig. 9.5).

Click with the right mouse button in your track diagram onto the start- and then on the destination-train number display of the desired route. Possible warnings you may ignore, since you do not want to execute a route at this moment.



In the window "Start/Destination select" select the desired route and click on the button '**Copy for editor**'. The route will be transferred to the selected row of the table and the

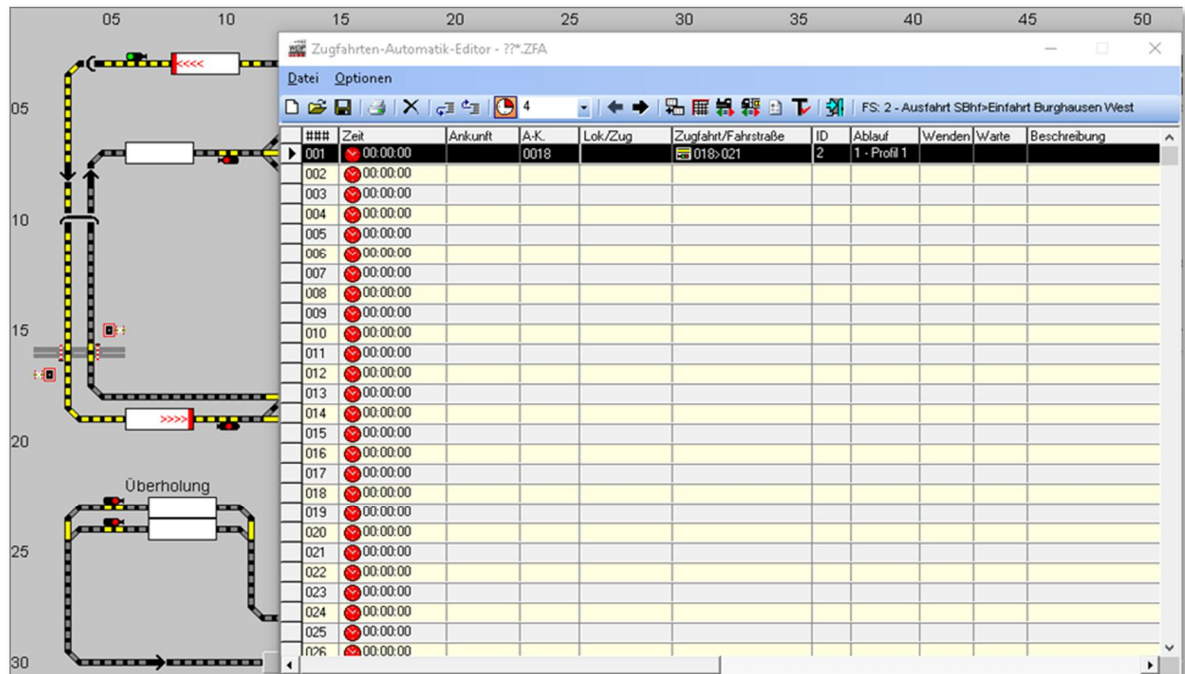


Fig. 9.6 The route selected by the start-/destination-function has been inserted in the tour automatic editor.

window "Start/Destination select" will disappear.

In the column "Event flow" the pre-setting from the system settings appears according to the settings on the index card "Program settings – Profiles"; here "Profile 1".

With this registration you made the basic settings for this row and if you don't need any additional conditions, you are finished with this row. The other options will be described later in this chapter.



The next rows can be registered in the same way or as described in the following section. You need to select the row you want to edit manually. Due to the many options available for each row the row will not be automatically changed after registering the route/tour as in the editors of former versions.

When registering routes/tours take care that the index card "Follow-on tours" is not selected, because in this case the route/tour would be used as "Follow-on".

9.6.1 Registering further routes or tours

For the further rows in the tour schedule editor it is irrelevant if use route or tours. Because of this you immediately start to create a tour automatic using your existing routes, and later also add tours after their creation.



A round-trip from the hidden yard traveling through Burghausen back to the hidden yard is our next example (Fig. 9.7).

</

Fig. 9.7 We registered a round trip containing single routes in the tour automatic editor.

During this round-trip the train will stop shortly as soon as one row has been executed completely. The train will start using the route of the next suitable row.

A round-trip for the same itinerary could also be configured using one single tour.

In our example the train will travel without stopping after every route. It will just stop after reaching the destination contact 005 in hidden yard A and then restart its round-trip.

Zeit	Ankunft	A-K.	Lok/Zug	Zugfahrt/Fahrstraße	ID	Ablauf	Wenden	Warte	Beschreibung
00:00:00		0005		005>005	2	1 - Profil 1			Rundfahrt mit Zugfahrt
00:00:00									

Fig. 9.8 The same roundtrip can be configured using a single tour.

You can distinguish between registered routes and tours by the symbol...

A registered route 005>018 uses a yellow square plus the ID text of the route

A registered tour []005>005 uses a green square plus the ID text of the route

9.6.2 Waiting time after arrival

Here you can configure the waiting time using hours/minutes/seconds.

This e.g. useful if you want to give the passengers of your trains the time to leave or enter the train after it has been arrived...





The waiting time can be set using the spin buttons. In the tour automatic editor rows with a waiting time use the red clock symbol with a yellow border  00:02:00 for distinction.



Fig. 9.9 Configuring the waiting time.



The definition of a time "After arrival" means:

-  When starting the tour automatic is occupying this contact resp.
-  During operation the train has reached the contact and could continue immediately.

Then the selected time period starts and delays the train's departure using the registered value.

The selected time has to be divided by the model railroad time factor. For example, the selected time of 2 minutes would result in a real time of 30 seconds when using a factor of 4 (see (Fig. 9.7)).

9.7 The column "Time" – Tour/route at departure time Fehler! Textmarke nicht definiert.

In the next row we want to register a train with a specified departure time. For this purpose, click on the small arrow in the column "Time" in the desired row of the tour schedule editor.

After a click on the arrow in the column "Time" a sub-window for configuring the time settings will appear. By the default the radio button "By departure" is chosen. Please do select now the radio button "Departure time". Now you can select the departure time by the arrow buttons at the top of the clock or directly by moving the watch hands.

Furthermore, repetitions, waiting times, maximum delays and weekdays can be selected. This will be explained later on in this chapter.

After the selection of the departure time, click on the button '**Transfer**' and the small window will disappear.

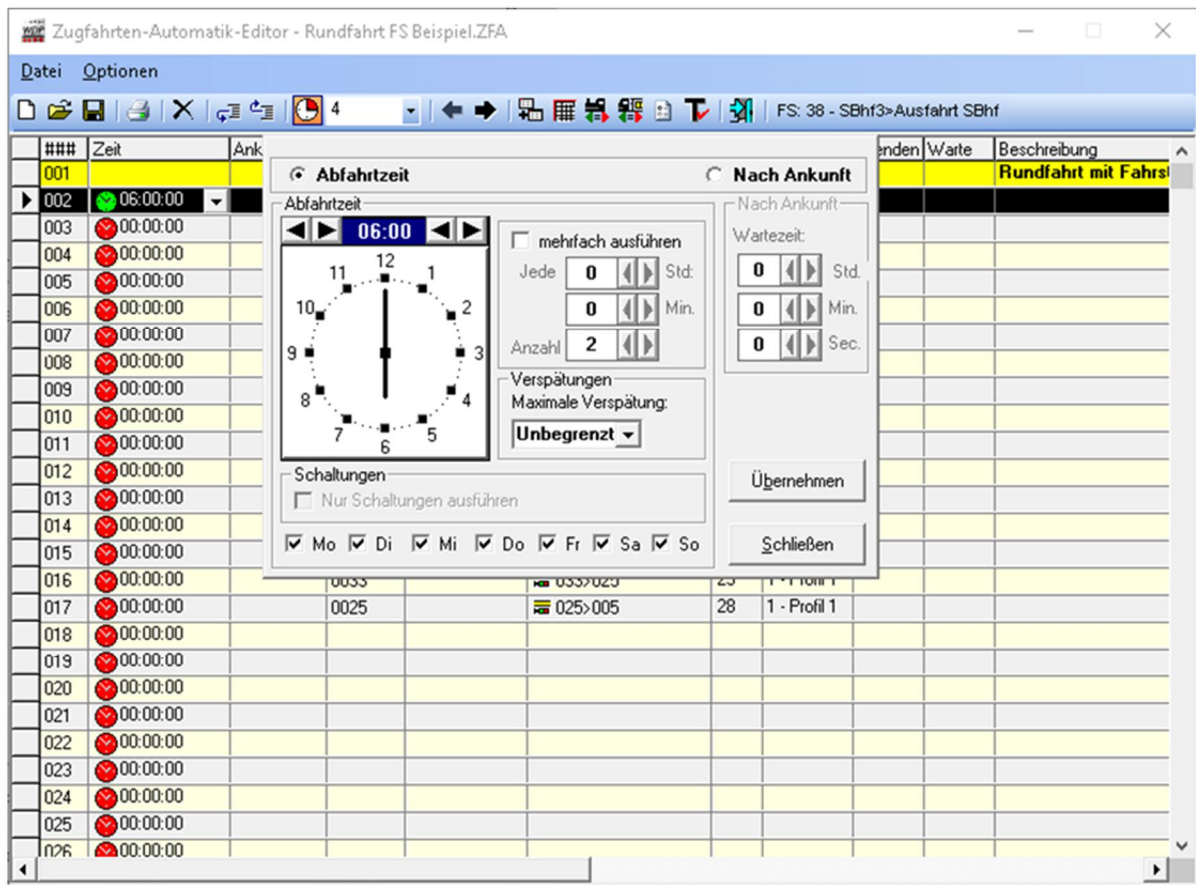


Fig. 9.11 For the registered route a fixed departure time shall be used.

The time will be transferred to the column "Time" and the time setting "Departure time" will be indicated by the green clock symbol 🕒 (departure time in our example 00:06:00).

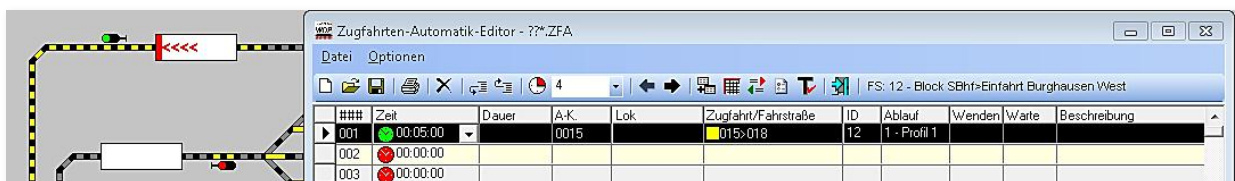


Fig. 9.10 The departure time has been set to 00:06:00 o'clock.

9.7.1 Departure at specified time/weekday (Departure time)

By default, all days of the week are checked (see Fig. 9.10) and you have just to choose the departure time.



If you want to create an automatic for a whole week, you can of course also select, that some train should not/only drive on several days. And if you like you could also use the real time.

This is of course much work, just to mention it...

9.7.2 Repetitions

Also repetitions of rows are possible. For example, it is possible to create an automatic, where some push-pull-trains drive a several tour x-times every hour.

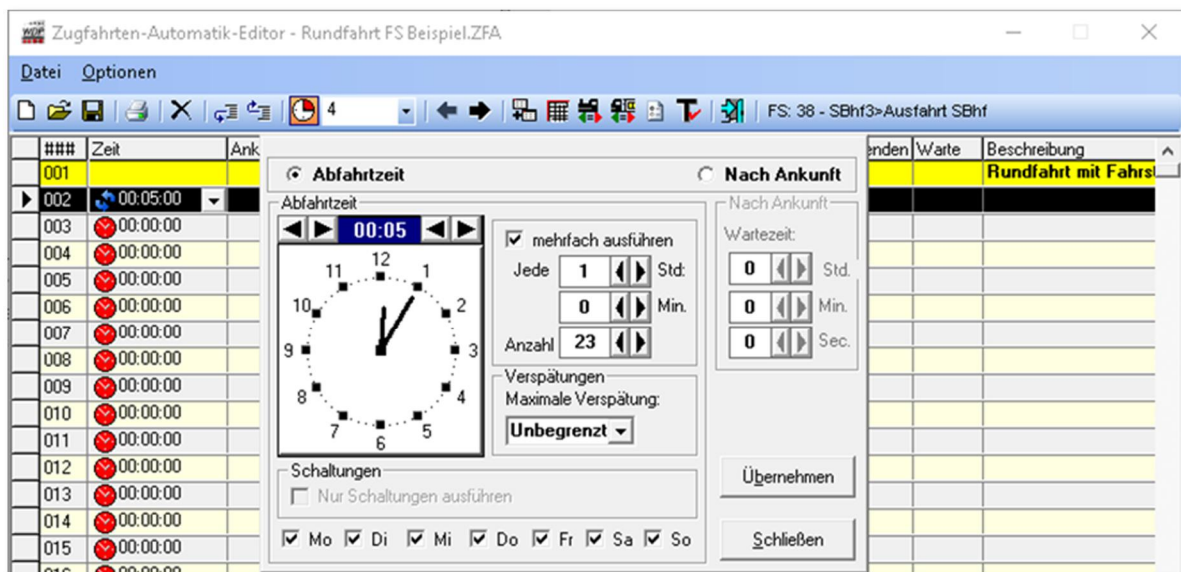


Fig. 9.12 The row will be repeated every 30 minutes.

The repetitions depend of course also on the selected departure time. If the departure time is set to 00:05, for example, and the route/tour shall be repeated every hour for **23-times**.

If you activate 'Execute multiple', the smallest value of repetitions is 2. You can of course combine weekdays and repetitions as you like. Every day the repetitions start from the beginning.

If you have checked "Repetitions" the column "Time" in the main list will contain the symbol . By this it is very easy to find rows with repetitions.

9.7.3 Delays

In the field "Delays" you can register the maximum delay from 1 to 180 min. or unlimited (Default setting).

Furthermore, these settings can be combined with every other setting.

If a train is delayed more than the chosen maximum delay time, the row execution will be skipped this time.



9.7.4 *Important information concerning departure time, repetitions and delays*



If you register **repetitions**, these are only executed as long as the repeated execution start time is before 0:00 of the next day (maximum time 23:59).

Let's make an example:

You have registered in the column "*Departure*" 20:15 and in the frame "*Repetitions*" 10 times every 30 minutes.

For this the row will be executed last at 23:45, because the next execution would be at 0:15 of the next day. This repetition after 0:00 won't be executed by **WIN-DIGIPET** due to the day change.

This does not implement **delays**, if your train shall start at 23:45 and has a delay of 20 minutes; the train will start anyway if you have registered a maximum delay of 16 minutes or more for this row.

9.7.5 *Solenoid device switching without vehicle movement*

In the tour automatic editor, you can even register solenoid device/counter switchings which are not dependant on a train movement.

With this feature you have the following possibilities within a started tour automatic:

- 🔌 to make solenoid device switching before the start of train operations (e.g. home track functions etc.)
- 🔌 switch important turnouts to a specific position before starting the automatic
- 🔌 to make solenoid device switching for accessory decoders (e.g. fun fair, windmill) at specified point of time

Therefore, click on the small arrow in the column "*Departure*" within the tour automatic editor, select the radio button "*Departure time*" and enter the desired execution time and check "*Switching solenoid devices only*". Repetitions are also possible; the solenoid devices will then be switched repeatedly.

Afterwards confirm your selections with '**Transfer**' and the appearance of the index cards for this row will change.

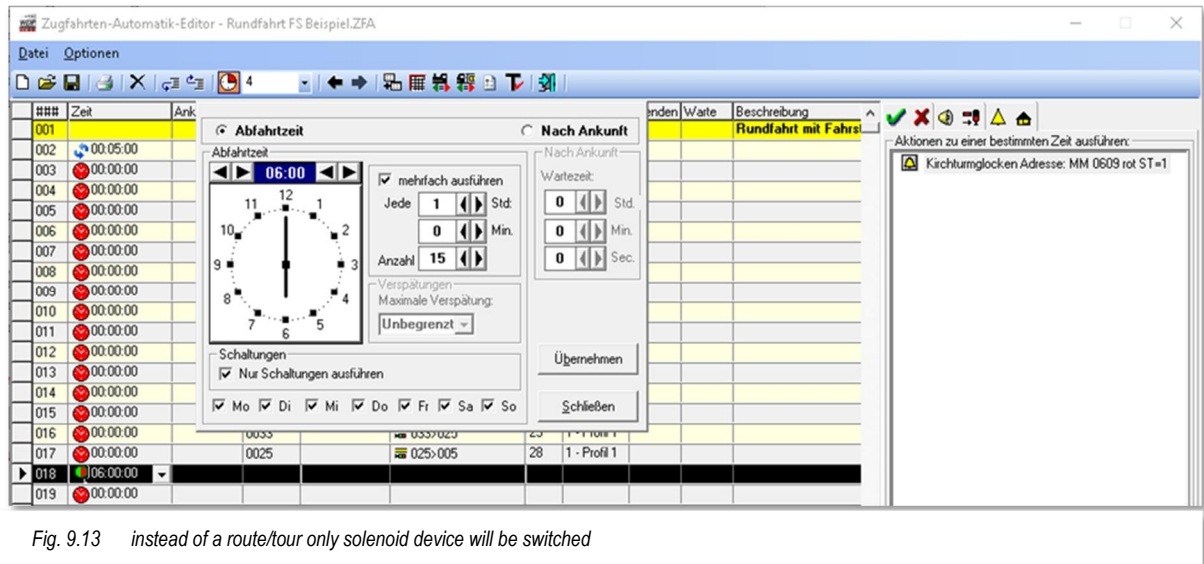



Fig. 9.13 instead of a route/tour only solenoid device will be switched

The index card "Switching SD"  will appear and unused index card for this kind of row will disappear. Drag now the solenoid device you want to switch from the track diagram to one of the input box on the index card "Switching SD" and release there the mouse button (drag & drop).

The picture (Fig. 9.13) shows a virtual switch, which is used in our demo project to start the sound of church bell ringing. The sound will be executed at 6 am for the first time and repeated 15 times until 9 pm.

If you want the solenoid device to be switched off again immediately you can also check "as key" for each solenoid device.

Single solenoid can be removed from the list by clicking on the corresponding line with the right mouse button and selecting 'Delete' in the short menu.

You can use of course the index card "Conditions" and "Options" to register further settings/conditions for the execution of this row. These entries are equivalent to those used in the dispatcher and in part to the add-on switching in the route-editor.

9.8 The column "Duration/arrival time"

Using fixed departure times with in the tour automatic editor you can create something like a timetable.

In the previous section you learned how to configure fixed departure time in **Win-Digipet**. Every route/tour needs an individual time for its execution until the train has reached its destination. When using all rows with specified departure time it is important to know at which time a train has reached its previous destination. Before the train has not reached its destination, it cannot be used in further rows (resp. makes no sense).



In the following example, which can also be found in demo project, you a short timetable for shuttle train.

###	Zeit	Dauer	A-K	Lok/Zug	Zugfahrt/Fahrstraße	ID	Ablauf	Wenden	Warte	Beschreibung
001										
002										Fahrplan
003										
004	05:00:00	00:02:00	0030	RE 3 TW	RE 3 TW	5	1 - Profil 1	A<>A		Pendelzug Burghausen
005	07:00:00	00:02:00	0030	RE 3 TW	RE 3 TW	5	1 - Profil 1	A<>A		Pendelzug Burghausen
006	00:00:00									
007	00:00:00									

Fig. 9.14 A "Timetable" within the tour automatic editor.

Row 4 is something like the start of the timetable. The departure time is here 05:00:00 for the first execution. But you can recognize by the symbol that for this row repetitions have been configured. In the column "Duration" you can see a value of 2 minutes. This time is needed for the completion of the tour 030>030.

This duration can be registered manually or you can measure the time by testing the tour automatic row using the function "Test TA row" which can be called using the button in the toolbar of the tour automatic editor.



The duration value in the Column "Duration" is shown as real time and not a model railroad time.

An execution of the function "Test TA row" while using the simulation does not make much sense, because you cannot measure real times using the simulation.

In row 5 the same route 030>030 has been registered. The difference is that this tour starts only at 7 o'clock on Saturdays and Sundays and is repeated every 2 hours.

In the figure you can see that the departure times in the rows 4 and 5 are shown in "green". This means your configuration is ok and there is no conflict between the tour schedules. If a departure time is shown in "red", there is a conflict with the previous tour so that this tour cannot be started in time.




The time settings in the column "Time" use the model railroad time. Thus, you must remember the model railroad factor in manual calculations of time.


The model railroad factor can be chosen in the toolbar of the tour automatic editor in the combo box . The value selected here will also be used later when executing the tour automatic. In our example a value of 4 has been used. This means 60 minutes model railroad time will result in 15 minutes real time.



You should choose a model railroad factor which can be easily used in your calculations. You should also consider using a time factor which can be used to simulate a complete 24 hours day in model railroad time. We do not think you like to stay at your layout 24 hours a day.

If you select a departure time in the column "Time" which can never be reached due to the arrival time of the previously used row by this train the departure time will be set to "red"  05:00:00 .

9.8.1 Switching the column "Duration/Arrival time"

The column "Duration" can be changed to the mode "Arrival (time)" by pressing the button  in the toolbar of the tour automatic editor. This will automatically change the columns heading to "Arrival".



###	Zeit	Ankunft	A-K	Lok/Zug	Zugfahrt/Fahrstraße	ID	Ablauf	Wenden	Warte	Beschreibung
001										
002										Fahrplan
003										
004	 05:00:00	05:08:00	0030	RE3 TW	 [030>030	5	1 - Profil 1	A<>A		Pendelzug Burghausen-
005	 07:00:00	07:08:00	0030	RE3 TW	 [030>030	5	1 - Profil 1	A<>A		Pendelzug Burghausen-
006	 00:00:00									
007	 00:00:00									

Fig. 9.15 The column "Duration" will change to "Arrival".

In the mode "Arrival time" the column will show the arrival time calculated using the duration and the model railroad time factor.

Using the example of the previous section, we will get a calculated arrival time of 05:08:00 in row 4.

9.9 The column "(D.C.)"

In the column "D.C."³³ **WIN-DIGIPET** registers automatically the start contact of the selected route/tour.

If you want to change this contact, click on the small arrow in this column. A small window will open as displayed on the picture. In this window you might change the demand contact number.

³³ D.C.: Demand contact



You can register the desired demand contact number via keyboard or you drag the demand contact number from a feedback contact in your track diagram with pressed left mouse button as shown in the picture. While this drag & drop-operation the mouse cursor will change its appearance.

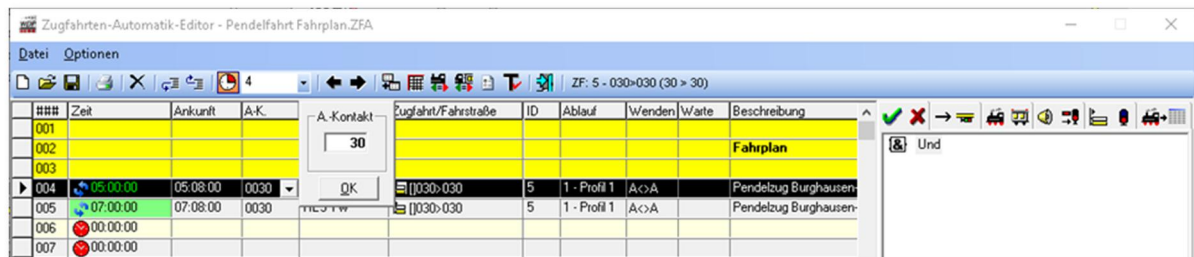


Fig. 9.16 Here we want to change the demand contact of a row.

The demand contact could be every feedback contact you like and might be used to create a dependency to another train.

With a click on the button '**OK**' the demand contact will be transferred into the column "D.C.". The changed contact number will be printed in **bold** letters and also marked with a star.



The small star can only be removed if you transfer the route/tour again to the row in the tour automatic editor using the Start-Destination function and the button '**Copy for editor**'.

This is the only way to remove the star from the column "D.C.".

9.10 The column "Loco/Train"

In this column you can register per row the locomotive which may use this row exclusively. This column is especially relevant for the usage of the tour automatic as timetable where each train/locomotive is bound to specified positions/event flows.



For the registration of a locomotive to the column "Loco/Tour" you have two possibilities. The first possibility is to drag the locomotive with pressed right mouse button from a locomotive control or the loco bar via drag & drop into the desired cell. This technique is known from the handling of locomotive numbers in other program parts of **Win-Digipet**.

For the second possibility you need to click on the small arrow on the right side of each cell in the column "Loco/Tour". Just select the cell you want to edit and press onto the small arrow button with the left mouse button. A window will appear showing you all available locomotives. You can select the locomotive with a double click.

If you drag a train instead of a locomotive in the column "Loco/Tour", the program will ask if you want to register the train or the locomotive of this train.

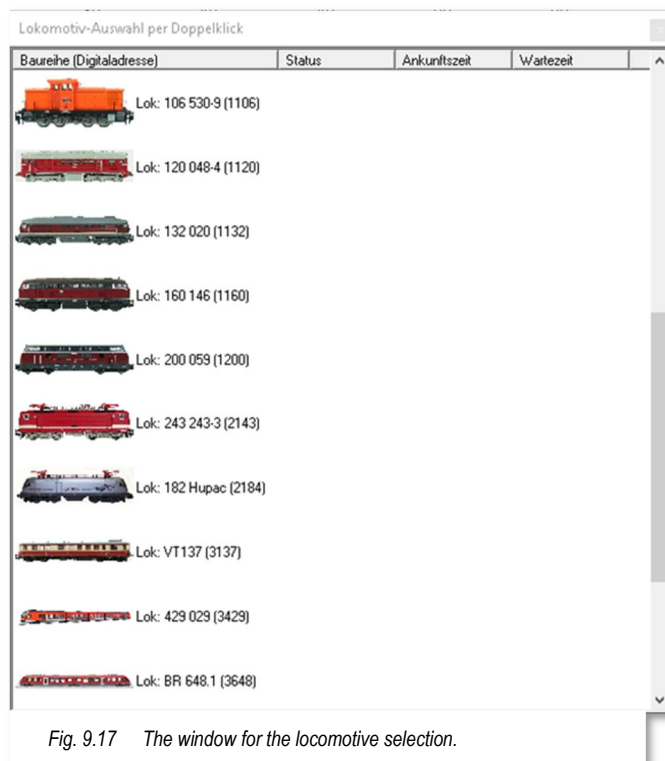


Fig. 9.17 The window for the locomotive selection.

9.11 The column "Event flow"

In the column "Event flow" the pre-setting from the system settings normally appear according to settings on the index card "Program settings – Profiles".

If you want to change the event flow, click on the small arrow in this column.

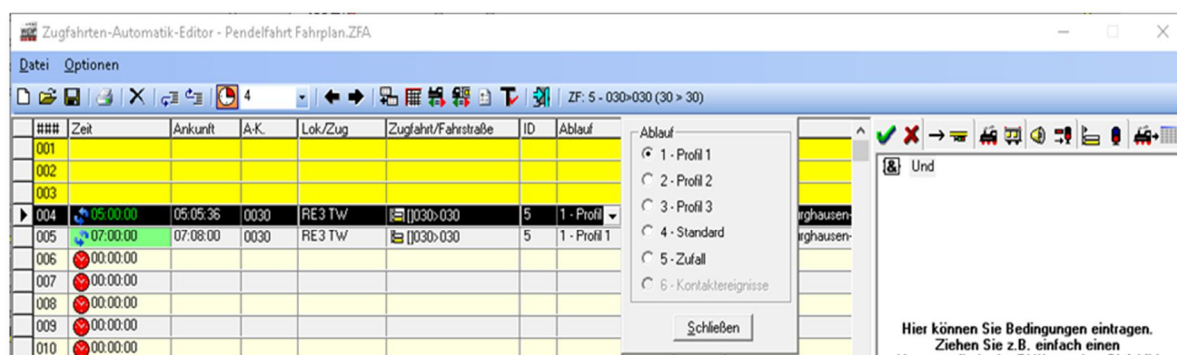


Fig. 9.18 The registered route/tour will be executed using the selected event flow.



A small window appears and in this window you select the desired event flow.

When selecting Profile 1-3 the row will be executed using the selected profile number. But if you select e.g. Profile 1 and Profile 1 does not exist for this route, the route will be executed using the standard settings from the route editor.

Even if you select Profile1 and for the route only Profile 2 exists, the route will be executed using the standard settings from the route editor.

The selection "By Chance" will use a random generator to decide which profile to be used.

With a click on '**Close**' you can transfer your choice to the column "Event flow".

9.11.1 Event flow using contact events

If you select the option "Contact events" as "Event flow" the window "Edit contact events" will appear. You now this window already from the chapter "Profile Editor" within this manual.

You can enter contact events in the same way as in the profile editor. You can use the same types of contact events.

Using this functionality, you can define a specific contact event flow for each route used in the tour automatic editor without the need to define profiles.

9.12 The column "Turn"

You want to change the direction of your locomotive/push-pull-train?

No problem; just register the turn command within the "Turn" column of the tour automatic editor.

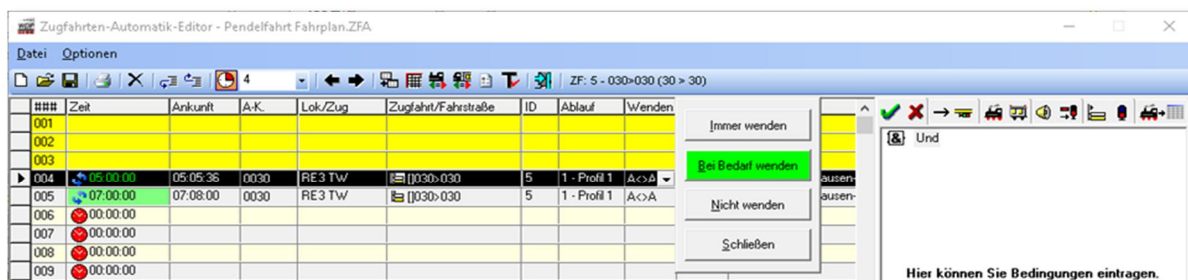


Fig. 9.19 The different options for "Turning" in the tour automatic editor.

For this purpose, click in this column and after on the small arrow. A window will appear showing you different options for turning the train/locomotive.



Turn always

the train will be turned every time this row of the tour automatic will be executed. This setting will be indicated in the column using the text "#<>#".



Turn if necessary

the train will only be turned, if the driving direction does not correspond to the driving direction of the used route/tour. For this the driving direction information of the train on the train number display will be used. This setting will be indicated in the column using the text "A<>A".



Don't turn

removes the turn setting from the column "Turn"

After a click on one of the buttons this will transfer the command to the column and the window disappears.

When re-opening the window the selected option will be indicated by a green background of the according command button.

You can leave the small window without changes with the button '**Close**'.

9.13 The column "Waiting time"

In this column you can register a waiting time **before** departure of the locomotive. When you register here waiting the route/tour will be switched and then the locomotive will not start until the waiting time is over. The waiting time value is set as real time value without influence of the model railroad factor

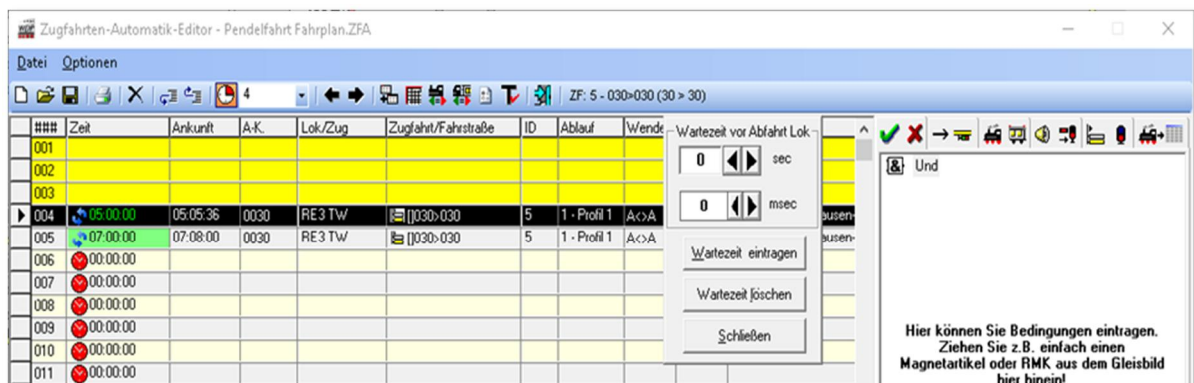


Fig. 9.20 The waiting time delays the departure of the locomotive after the row has been switched.

Click in the column and afterwards on the small arrow. The window shown in the picture will appear. Here you will be able to select a waiting time in seconds and milliseconds. The maximum value is 999 secs 900 msec.

With a click on the button '**Enter waiting time**' you'll transfer the waiting time into the list.

To delete a waiting time in a row, click on the button '**Delete waiting time**'.

To leave the small window **without** changes on the button '**Close**'.



You should not mix up this waiting with the "Waiting after arrival".

This waiting time here starts after the route/tour of the affected row has been switched. The train will not start its journey after the row has been switched until the waiting time is over.

A long waiting time might not be a good idea, because during the waiting time the route/tour has already been switched and no other train can cross the already switched itinerary.

9.14 The column "Description"

You can assign a description to every used row in the tour automatic editor for documentation purposes. This can be done in the column "Description". If you want to enter a description click into the desired cell and afterwards press on the small down arrow within this cell. An input box will open where you can enter a text for description. The text may

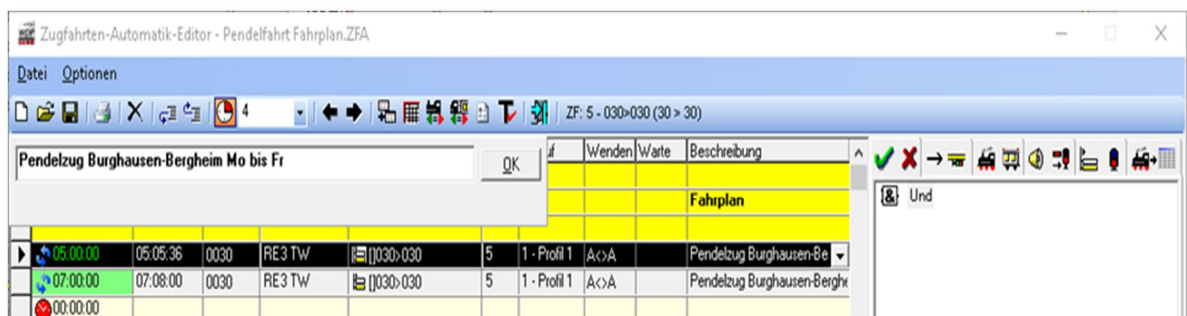


Fig. 9.21 A comment within a row for documentation.

not exceed 100 characters.

After clicking 'OK' the text will be saved in the column "Description".



You should document the functionality of all rows with special functions using this feature in the tour automatic editor. It is very helpful.

9.14.1 Inserting heading/descriptions

You get a clear view over your tour automatic configuration you can also add a description into **empty** rows of the tour automatic file.

In this case all other text will disappear from this row and the row will get another background (yellow). In the input box for entering the heading there will appear a second box (compared to the description in the previous section). If you click into this input box with the left mouse button, you can select the background colour of the heading row and by pressing into the box with the right mouse button the text colour.



This heading functionality does only work if no other columns have been used before.


After pressing '**OK**' the heading will appear in the column "*Description*" and the row will be coloured using the selected colours.

In Fig. 9.22 we demonstrate some coloured headings within the tour automatic editor.

Zeit	Ankunft	A-K.	Lok/Zug	Zugfahrt/Fahrstraße	ID	Ablauf	Wenden	Warte	Beschreibung
00:00:00									bunte Überschrift 1
00:00:00									bunte Überschrift 2
00:00:00									bunte Überschrift 3
00:00:00									bunte Überschrift 3
00:00:00									bunte Überschrift 3

Fig. 9.22 Some examples of heading rows within the tour automatic editor.

9.15 The index card "Follow-on tours"

On the index card "Follow-on-tours"  you can register up to 20 **following**-routes and -tours.



Take care about the word "**Follow**". This means of the start contact of the following route/tour has to be identical to the destination contact of the route/tour used in the selected tour automatic row.

The follow-on-routes are handled as routes in tour, i.e. the train will not stop before the signal, if the next block system is free and be used.

Due to this reason follow-on routes are a good idea to extend a row ending at the entrance signal of a station to all the stations tracks. The route/tour used in the affected row will end at the entrance signal of the station and the train will continue its journey as soon as track is free within the station if you have configured routes from the entrance signal to the stations tracks as follow-on routes. If one of the configured follow-on routes is free/usable when the train reaches the entrance signal, the train will continue to the station's track without stopping.

The check if a follow-on route/tour can be used will be started when reaching the check contact of the current route. If it is not possible to switch the follow-on route/tour at this time, the train will stop at the end of the route/tour. The colour of the tour will change in the



tour event inspector to red and message will inform you, that the destinations are occupied at the moment.


The train number remains green, because the train is still active in this row/tour. The train will continue its journey as soon as one of the follow-on routes/tours is free again.

If the follow-on routes/tours cannot be accessed within the "Waiting time for tours" defined in the system settings, the message within the tour event inspector will change to "Waiting time expired" and the tour has to be set to active later on. In this case rows starting at the point, where the train is waiting with the expired waiting time can take over the train.

In extreme situations such a paused train due to expired waiting time might result in a complete block of your automatic operation.

The route in the following example starts at the block signal after the hidden yard and ends at the entrance signal of station Burghausen. Starting at this point 3 follow-on routes have been configured to tracks 6, 5, or 4 of the station.

9.15.1 Registering follow-on routes/tours

On the index card "Follow-on tours" →  " you can register the follow-on routes/tours using the well-known Start/destination function and '**Copy for editor**'. Eventual red messages can be ignored in the selection window when registering routes/tours within an editor.

The order of registration defines the order of the execution/check of usage for the

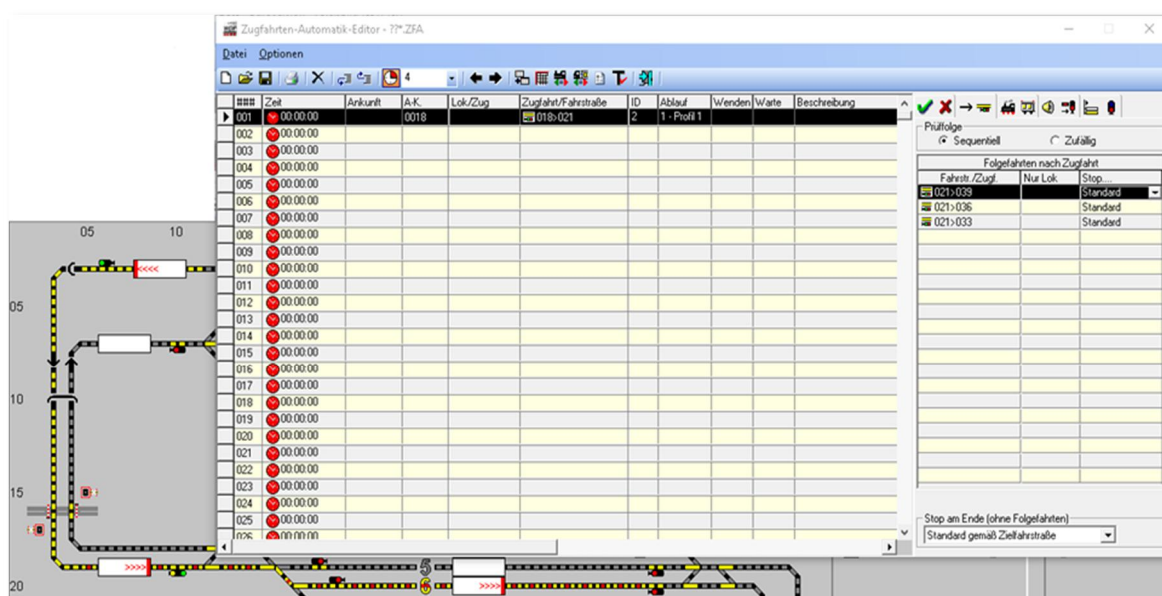


Fig. 9.23 3 follow-on routes have been assigned to row 1 in the tour automatic.

registered routes/tours.



By default, the radio button "*Sequential*" is activated. This means the follow-on routes/tours will be checked top to bottom. If you activate the button "*At random*" the program will try to switch the follow-on routes in random order.

If one route/tour from the list can be switched all other rows will be ignored.

In our example the routes will be checked in sequential order top to bottom, because we want to use track 6 always if possible.



After you have registered follow-on routes/tours you should not forget to change to the index card "Conditions" or any other index card. This will help you not registering routes/tours by mistake as follow-on route/tour when configuring the route/tour of another row.

9.15.2 Registering follow-up ways

On the index card "Follow-on tours" →  " you can also register follow-up ways.

But what are follow-up ways?

Follow-up ways are links/jumps to other tour automatic rows. A follow up way means "After reaching the end of the current tour automatic row immediately execute the linked follow-up way and this without stop if possible". The follow-up way can also be registered on the index card "Follow-on tours".

In previous versions of **Win-Digipet** a new row in the TA was only executed when a train has been registered to the according start contact, the start contact was occupied and the train was not active within another tour (this means it has been stopped).

A follow-up way will have the following function:

A row in the TA is executed. As soon as the check of the last route within this row has been reached, **Win-Digipet** will check if a follow-up way has been registered for the affected row. If yes it will try to execute/switch the route/tour of the follow-up way immediately.

If this possible the train will continue its journey without stopping. Thus it is possible to link any row within the tour automatic. As long as the way is free the train will continue without stopping.

The check if a follow-up way is possible starts at the check contact in the same way as for follow-on routes/tours. If it is possible to execute/switch the route/tour of the follow-up way, the program will do this immediately. If this is not possible the train will stop and the train number will disappear from the tour event inspector and the train number will be switched from green to black. Now the train can be taken over again by any row of the tour automatic as soon as one row starting at the train's position can be executed.

When are follow-up ways useful?

Follow-up ways are always useful, when trains shall continue their journey at a branch without stop into one or another way.

For follow-up ways the program will check the conditions and matrix settings of the linked rows in contrast to follow-on routes/tours, because a follow-up way is the real execution of



the linked row in the TA. At the end of a follow-on way the train always stops, whereas it continues in case of a follow-up way, if further follow-up ways are to be performed. Thus, you can create round trips using follow-up ways, which run without stops – provided the track is free.



In contrast to follow-on ways the follow-up ways allow checking the recorded conditions and matrix, since a follow-up way corresponds to a row in the tour automatic. Of course, all other options such solenoid switchings etc. of the linked row will be executed.

How do I register follow-up ways?

There exist two ways for registering follow-up ways. We will describe the more comfortable one first:

The first way is very easy by using drag&drop (see Fig. 9.24). Move the mouse pointer in the left list above the row you want to use as follow-up way and drag this row with pressed left mouse button into an empty row in the follow-up...-list.

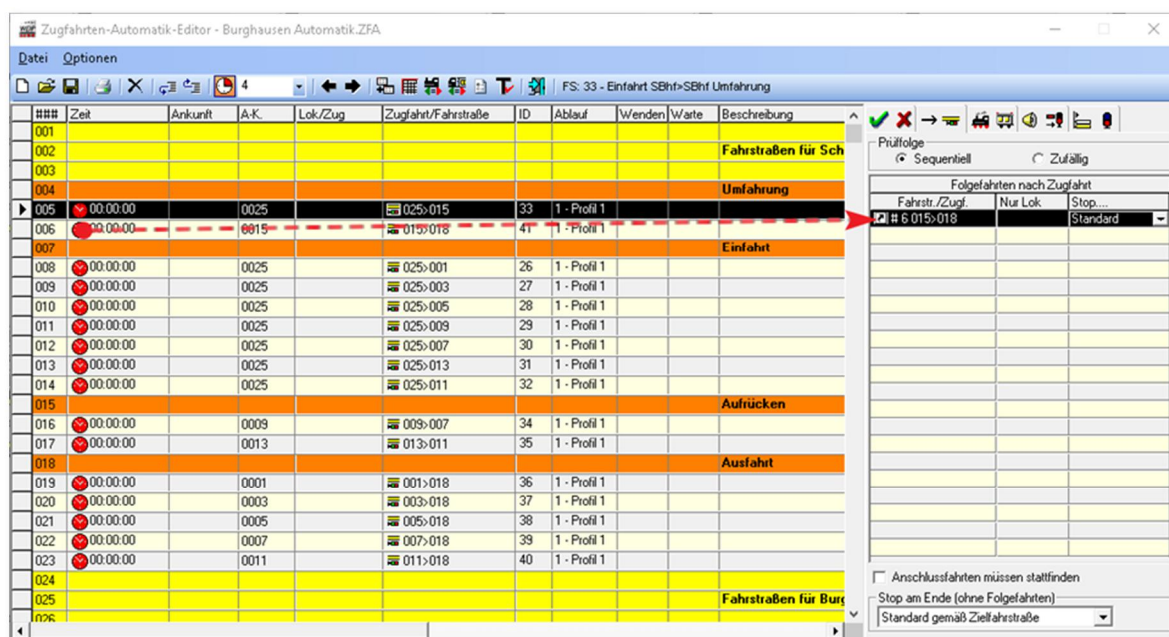


Fig. 9.24 The registration of follow-up ways on the index card "Follow-on tours".

For the second way to register another follow-up way please click into an empty row of the window 'follow-up ways' so that this line is marked. After clicking the right mouse button you select the command <follow-up way in row...> in the appearing short menu.



Then, the dialogue “Selection of follow up way for” is opened. Later this dialogue will be mentioned again, since it acts as a search function in the tour automatic editor.

In our example (Fig. 9.25) the essential criterion of follow-up ways has already been defined, the start contact. This contact must be identical to the destination contact of the route/tour for which the follow-up way is registered. Here the start contact is 015 with only one corresponding route (015>018), which is registered in row 6.

If there are several routes/tours in a tour automatic with the same start contact, you can check/uncheck the favoured entries. The selected entries are recorded when pressing the button ‘Transfer’ in the index card „Follow-on ways”


Fig. 9.25 The selection of a follow-up way.



Important!

For follow-up ways only links to rows using the time setting “By arrival” (red clock) are allowed! In these you may also not configure a turn command.

9.15.3 Adding, changing or deleting follow-on-routes/tours and follow-up ways

On the index card "Follow-on-tours"  you can also assign one locomotive to each follow-on-tour/route. If you do this, this follow-on-route/tour will only be used by the registered locomotive. For this purpose, drag the picture of the desired locomotive with pressed right mouse button from the locomotive bar or a locomotive control to the column "Locos only" of the desired row as show in the button and release there the right mouse button ("drag & drop").

Due to such a configuration this follow-on route/tour or follow-up way can only be used by the configured locomotive. You can remove this locomotive later if you want also delete single rows or insert new for follow-on-routes/tours. For this purpose, select the desired



row and open the context menu with the right mouse button and use the according command.



If you hover with the mouse over the locomotive's class in the list, you will see within tooltip additional information regarding the locomotive.

The column "Stop ..." can be used to define the stop position of the follow-on route/tour. You can now select for routes/tour which will end at an intelligent train number display if the train shall stop according to the selection in the route or you can select another stop option.

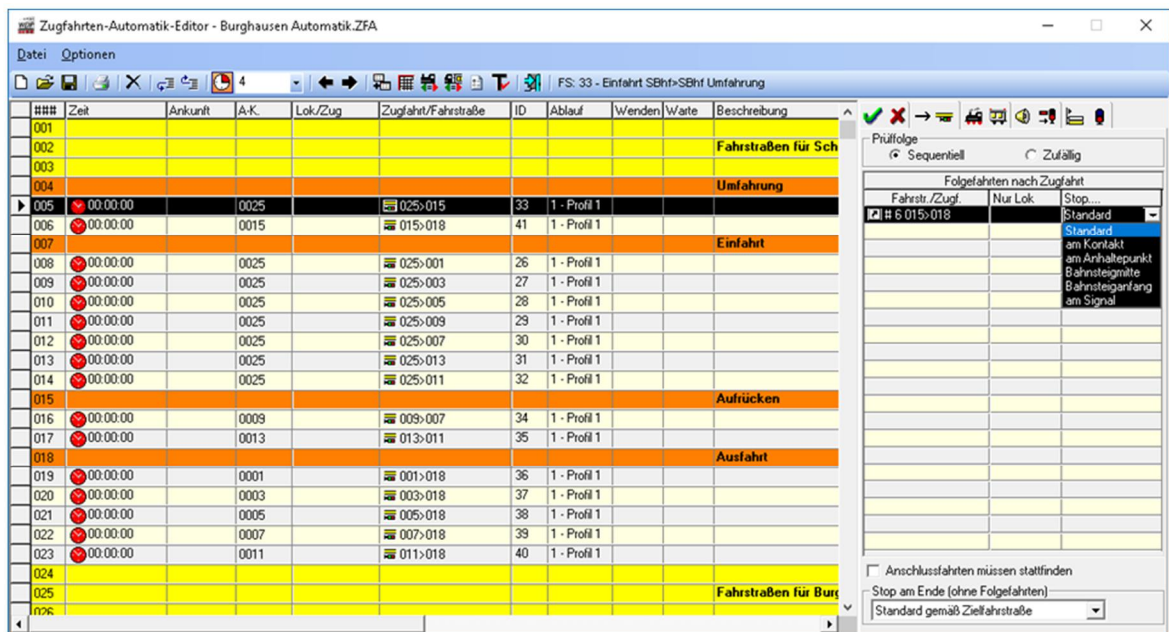


Fig. 9.26 The selection box defines the stop position within an intelligent train number display for the selected follow-on/-up way..

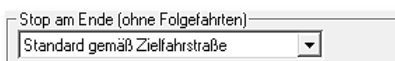


If you make changes within your tour automatic (e.g. inserting or moving rows) the reference to the row number for follow-up ways will be automatically updated to the new row values.

Deleted rows will be shown as error and also been reported by the check routine within the main program.

The selection "Standard" will stop the train at the stop position defined in the route editor for the used route.

The same selection box is available at the bottom of this index card. Here you can select the stop position within an intelligent train number display for the row itself. This will only be taken into account if the row is not executed as follow-up way.





For the example shown in the figure above this would mean for the follow-up way in row 6, that you need to configure in the lower selection box the stop position of the train. The stop position selected here would be used for the case that route 015>018 cannot be executed as follow-up way for the current row (here TA row 005).

9.15.4 Executing follow-up ways compellingly

The advantage of follow-up ways compared to follow-on ways is, that the row in the tour automatic is finished, as soon as no follow-up ways can be switched at the end of this row. However, there may be situations, when the locomotive/train shall not to leave the predetermined way, (e.g., also other trains are starting or there are different to the nations).

The purpose of the option 'Follow up ways have to be executed' is to prevent such a situation. If this option is activated and the train stops at the end of the actual tour automatic row, this row remains in the tour inspector until a final up way can be switched.

This option is only presented, when exclusively follow-up ways are registered on the index card 'follow-up ways'.

9.15.5 Editing the list of follow-on and follow-up ways

You can also delete complete rows within the follow...list. For this purpose, select the desired row and open the context menu with the right mouse button. The menu commands of the context menu are self-explanatory, but we will explain some.

The command <Delete cell content> deletes all registrations in the row but not the row itself.

If you just select <Delete tour> then only the tour/route will be deleted from this row.

If you want to delete the complete row you have to select <Delete line(s)>.

<Delete locomotive(s)> will only remove the registered locomotive from the row.

If you want to change the order/manner of selection of follow-on-routes/tours, set the radio buttons to "Sequential" or "At random". You can use the command <Move row(s) up> and <Move row(s) down> to move rows within the list.



Of course, you can also select multiple rows on this index card and execute the context menu commands for all of them. For multi-selection select the first row, then press the Shift key and click onto the last row you want to select. All selected rows will be highlighted and cannot be deleted, move, cut, copied, pasted etc.

Anschlussfahrt in Zeile...		
	Ausschneiden	Strg+X
	Kopieren	Strg+C
	Einfügen	Strg+V
	Ausgeschnittene Zeile(n) einfügen	Alt+Strg+V
	Zeileninhalt(e) löschen	Strg+ENTF
	Leerzeile(n) einfügen	Alt+EINFG
	Zeile(n) löschen	Alt+ENTF
	Fahrt(en) löschen	Alt+F
	Lokomotive(n) löschen	Alt+L
	Zeile(n) nach unten verschieben	Alt+U
	Zeile(n) nach oben verschieben	Alt+O

Fig. 9.27 The short menu of index card 'follow-on ways'.



9.16 The index card "Conditions"

On the index "Conditions  

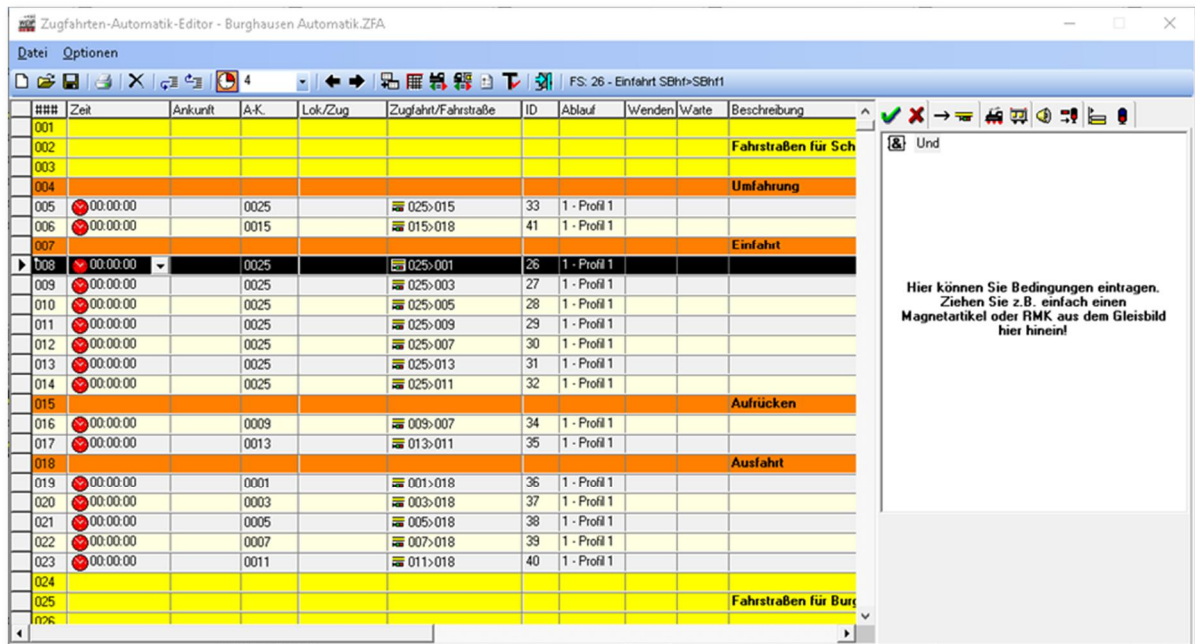


Fig. 9.28 No conditions have been configured for the selected row.

By default, there are no conditions listed, you can see just an empty "And" folder. This folder is the "root" of the condition tree. The conditions are displayed as tree similar to the appearance of the windows Explorer.

The tree will be evaluated from bottom to top. This means the conditions within one folder have to be fulfilled to fulfil a top folder.

The folder defines the type of linking for the conditions in this folder. The most simple folder type is "AND". This means all conditions within the folder have to be fulfilled to achieve also a "TRUE" state for the folder itself. Beside this folder type "AND" additional folder types like "OR" and "NOT" are available.



When opening the context menu of the "AND" folder with the right mouse button you will see several menu commands for filling and manipulating the condition tree. For registering a new condition, you use the command <New condition>. The available conditions are shown in Fig. 9.29 and Fig. 9.30.

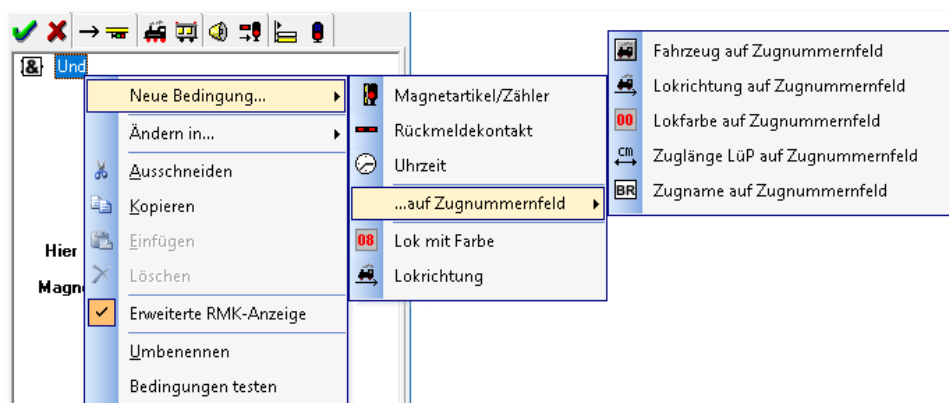


Fig. 9.30 The list of the possible conditions (normal mode).

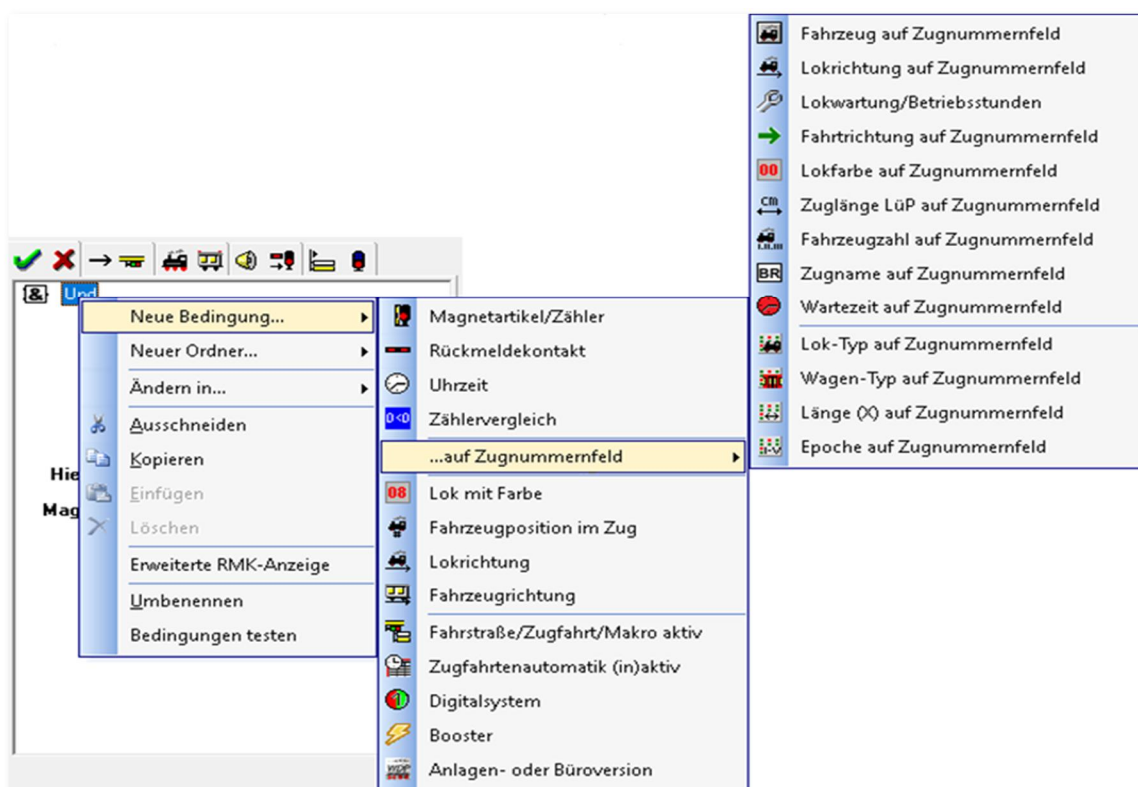


Fig. 9.29 The list of the possible conditions (expert mode)

The different conditions will be explained within the next sub-chapters.



The condition tree is not only used for the conditions in the tour automatic, but also for the "Dispatcher" and for the "Intermediate stops".

Some of the conditions are only available in the expert mode. Of course, it is hard to draw a line between "Beginners" and "Experts". We assigned conditions to expert mode, which need more than basic knowledge of **Win-Digipet**.

9.16.1 Condition "Solenoid device/counter"

Solenoid devices

Using this type of condition, you can tell the tour automatic to execute a route/tour just if a solenoid device is set to a specified state. The used solenoid device can be a real or virtual solenoid device (turnout, signal, switch, push button etc.).

For inserting such a condition press the right mouse button onto the folder "And" select <New condition> <Solenoid device/Counter>. Within the folder "And" you will see now a signal symbol and the description "Solenoid device/Counter".



Fig. 9.31 The condition "Solenoid device."

You can now register the desired solenoid device via "drag & drop" to the input box "Solenoid device" within the condition tree. Therefor click on the desired solenoid device in the track diagram and drag it with pressed mouse button to the input box "Solenoid device" and release the mouse button there. For solenoid device you can now decide which state shall result in a "true"-condition by clicking on the solenoid device symbol in the input box. After every click the solenoid device will show the selected state. You know this procedure already from the add-on switchings in the routes editor.

You can also register solenoid device conditions very easily by just dragging the desired solenoid device onto the "AND"-folder within the tree and release the mouse button there.

The solenoid device shows not the state to be checked (e.g. green for a signal). Using repeated clicks, you can change the desired state.

Further solenoid devices can be registered the same way as shown in our abstract example (Fig. 9.31). In this configuration the selected tour automatic row can only be executed if both solenoid devices have been switched to the configured state.

If you have assigned names to your solenoid devices, you will also see these names in the tree. This will help you identifying the switch's usage. This example shows, that it is really advisable to assign names to solenoid devices.



If you hover with the mouse over such a solenoid device in the condition box, the according symbol in the track diagram will be framed by a small box to indicate its position.

Counter

You can evaluate counters in your track diagram in the condition tree in the same manner as solenoid devices. You have different possibilities to do this. In our example we want to execute a tour automatic just if a counter is equal to 0.



Fig. 9.33 Setting a destination value..

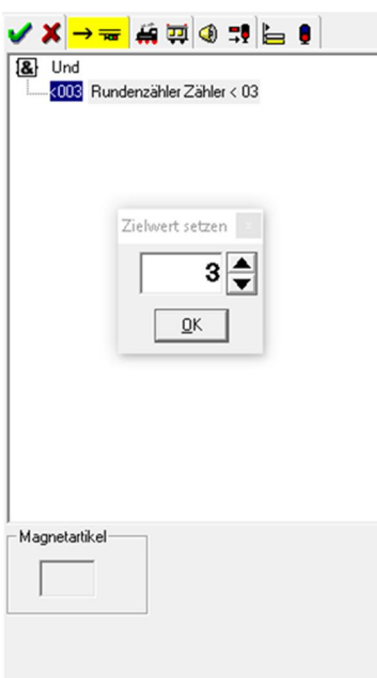


Fig. 9.33 The condition "Counter".

For inserting such a condition press the right mouse button onto the folder "And" select <New condition> <Solenoid device/Counter>.

Now you can drag the desired counter symbol to the input box below the three.

Now you change the counter function with repeated clicks onto the counter symbol in the input box. You need to click repeatedly until you have reached the function "=00". If you click now with the right mouse button into the input box, the small window "Set target value" will appear.

You can open the window also via middle mouse button plus pressed Shift key in the region of the counter entry.

Within this window you can choose the value using the keyboard or the spin buttons with the mouse. Afterwards you need to confirm the value with '**OK**'.

The destination value can be used to compare if the current counter value is smaller, larger or equal to chosen value. A counter can have the values from 0 to 999. Negative values are not allowed. Thus, a condition "is smaller than 0" can never be "TRUE".

The compare operation smaller, larger or equal can be selected via clicks with the left mouse button into the input box.

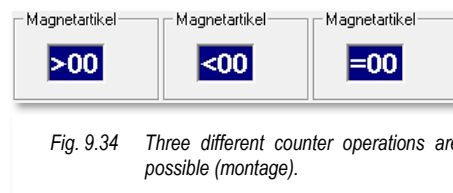


Fig. 9.34 Three different counter operations are possible (montage).



9.16.2 Condition "Feedback contact"

If you want to execute the tour automatic row only if a specific feedback contact is occupied or free, this condition will be your right choice.

For inserting such a condition press the right mouse button onto the folder "And" select <New condition> <Feedback contact>.

Within the folder "And" you will see now a track symbol and the description "FB-N° 0 free". The feedback contact number can be entered via keyboard or "drag & drop".

Therefore, click with the left mouse button onto a track symbol using the desired feedback contact number and drag it with pressed mouse button in the input box of "Feedback contact" below the condition tree in the tour automatic editor.

You can choose whether the condition shall become true when the contact is occupied or free. By default, no check is set. Thus "F" (free) is shown. When checking the box, the label will change to "B" (occupied).

The text within the tree view will change "FB-N° 0 free" to "FB-N° xxx free" or "FB-N° xxx occupied".

The feedback contact used in Fig. 9.35 represents a special case, since it belongs to a train number display. If it is an intelligent train number display the condition includes all its contacts if the check box below the text box is checked.

In our example the tour automatic row will only be executed, if all contacts of iTND°54 are free.

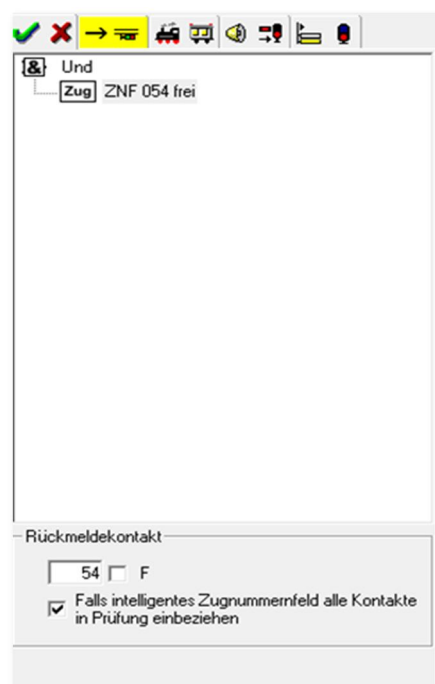


Fig. 9.35 The condition "Feedback contact"

9.16.3 Condition "Time"

If you want to execute the tour automatic row only at a specific time, this condition will be your right choice.

For inserting such a condition press the right mouse button onto the folder "And" select <New condition> <Time>.

After selecting this condition from the context menu you can select at which time (and how long) your condition shall become true. You can also select at which days of the week the condition shall be taken into account and if the condition shall be become valid more than one time per day (e.g. hourly).



In our example the registered tour automatic row will only be executed between 01:00 and 04:00 (01:00 plus 3 hours). This is possible at every day of the week. If you want to exclude single days of the week just remove the checks before the days.

By activating the corresponding button repetitions can be defined.



The condition will be checked against the tour automatic clock and **not** the central clock.

The repetition makes of course no sense when using repeated rows with the symbol der eingetragenen Zeile das Zeichen



Fig. 9.36 The condition "Time".

9.16.4 Condition "Counter comparison"

If you want to execute the tour automatic row only if two counters in track diagram have a specific comparison state between each other, this condition will be your right choice. The counters can be entered via "drag & drop".

The following comparisons are available:

- Equal (=)** - the value of the 1. counter equals the value of the 2. counter
- Greater (>)** - the value of the 1. counter is greater than the value of the 2. counter
- Smaller (<)** - the value of the 1. counter is smaller than the value of the 2. counter
- Greater-Equal (\geq)** - the value of the 1. counter is greater than or equal to the value of the 2. counter



Fig. 9.37 Condition "Counter comparison".



Smaller-Equal (\leq) - the value of the 1. counter is smaller than or equal to the value of the 2. counter



Unequal (\neq) - the value of the 1. counter does not equal the value of 2. counter

In the example of Fig. 9.37 the value of the 'blue round counter' must be greater than the value of the 'number trains SBhf', so that the route/tour recorded in the tour automatic can be started.

9.16.5 Vehicle on train number display

If you want to execute the tour automatic row only when a specific vehicle is on a specific contact, this condition will be your right choice.

For inserting such a condition press the right mouse button onto the folder "*And*" select <New condition> <...on train number display><Vehicle on train number display>.

The numbers of the vehicle and contact can be entered with the keyboard or via „drag & drop“.

This function can be used, for example, to start a railbus after an ICE has arrived neighbouring track.

Fig. 9.38 indicates that KLV53 as the driving of the train must have arrived at TND 054, so that the condition becomes „TRUE“.

Of course, you can identify the vehicle also with its digital address.



Fig. 9.38 The condition "Loco on train number display".



For this condition you have to use feedback contact numbers from a **train number display**.

For fulfilment of this condition the chosen train number has to be visible in the train number display.

In the previous version of **WinDigipet** the contact had to be occupied by the locomotive. This is changed in the 2018 version, since such a condition can never be fulfilled during a tour, where the locomotive is already assigned to next TND, when it occupies the feedback contact.



9.16.6 Condition "Loco direction on train number display"

If you want to execute the tour automatic row only, if the direction of the locomotive which shall use this row has a specific direction, this condition will be your right choice.

Please do not mix direction of locomotive with direction of route. Here the direction of the locomotive on the TND is actually important.

For inserting such a condition press the right mouse button onto the folder "And" select <New condition> <...on train number display>< Loco direction on train number display>.

After selecting this condition from the context menu you can select for which locomotive direction the condition shall become true.

This condition may be useful for push-pull operations or in the depot near the turntable/transfer table.



Fig. 9.39 The Condition "Loco direction on train number display".

9.16.7 Condition "Loco maintenance/operating hours"

If you want to execute the tour automatic row only if the locomotive which shall use this row needs maintenance or not, this condition will be your right choice. The maintenance feature can be used for real maintenance (e.g. oiling cycles) as well as for charge cycles (e.g. model railroad cars).

For inserting such a condition press the right mouse button onto the folder "And" select <New condition> < Loco maintenance/operating hours >.

After selecting this condition from the context menu you can modify the condition with the options below



Fig. 9.40 The condition "Loco maintenance/operating hours".



9.16.8 Condition "Driving direction on train number display"

If you want to execute the tour automatic row only if the direction of the locomotive or train which shall use this row has a specific direction, this condition will be your right choice.

For inserting such a condition press the right mouse button onto the folder "And" select <New condition> <...on train number display>< Driving direction on train number display>.

After selecting this condition from the context menu you can select for which locomotive direction the condition shall become true.

For example, you may apply this condition in push-pull operations or in the depot near the turntable/transfer table.

Using the radio buttons you can select the desired driving direction like North, South, East or West.

The driving direction can only be checked for contacts which are also used for a **train number display**.

When using this condition remember that direction of the locomotive (forwards/backwards) is not the same as the driving direction (North/South/East/West) relative to the track diagram (Top=North). A locomotive can e.g. leave a station to North forwards as well as backwards.

Fig. 9.41 shows a condition for contact 054. This row can only be executed, if the driving direction in the train number display of contact 54 is set to "East".

9.16.9 Condition "Loco colour on train number display"

If you want to execute the tour automatic row only if the loco number on the TND has a specific colour, this condition will be your right choice.

For inserting such a condition press the right mouse button onto the folder "And" select <New condition> <...on train number display><Loco colour on train number display>.

The contact number can be entered with the keyboard. There are five buttons to select the desired colour:

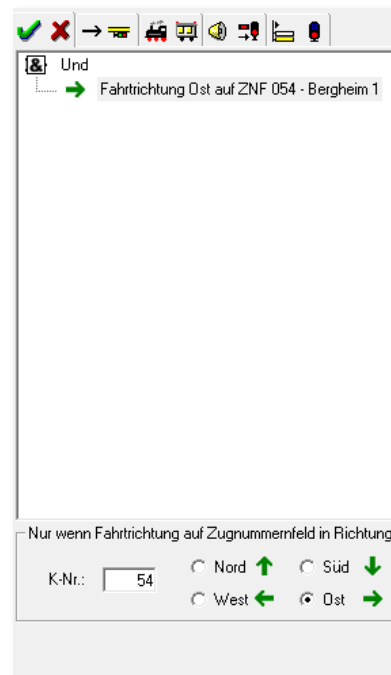







Fig. 9.41 The condition "Driving direction on train number display".



Fig. 9.42 The condition "Loco colour on train number display".



-  Black – normal driving operation.
-  Green – Loco/train is on its way.
-  Red – Loco/train is disabled for the contact controlled tour automatic.
-  Blue – Loco/train is disabled for the time controlled tour automatic.
-  Violet – Loco/train is disabled for any tour automatic.

In our example the tour automatic row will only be executed if the loco number of the TND 054 -Bergheim 1 is black.

9.16.10 Condition "Condition "Train length LoB on train number display"

If you want to execute the tour automatic row only if trains of specific lengths are on a specified contact number, this condition will be your right choice.

For inserting such a condition press the right mouse button onto the folder "And" select <New condition> <...on train number display><Train length LoB on train number display>.

After selecting this condition from the context menu you can select for which contact number (field C-No) and for which trains lengths the condition shall become true.




Therefore, just enter the feedback contact number or drag it from a track symbol in your track diagram using this feedback to the number field.

Afterwards enter a train length LoB in cm and select if the condition shall become true if the length of the train on the specified contact shall be equal or larger than the entered length (minimum-condition) or if it shall be shorter or equal the entered length (maximum condition).

The length check can be performed for the whole train or just single vehicle within the train. Make your choice using the input box "In train check for...":



Fig. 9.43 The condition "Train length LoB on contact"

-  **Leading vehicle**
the LoB of the leading vehicle
-  **Single vehicle, Single loco resp. Single waggon**
check the LoB of a vehicle at a specified position within the train.
-  **Any vehicle, Any loco resp. Any waggon**
condition fulfilled if any vehicle within the train fulfils the condition.

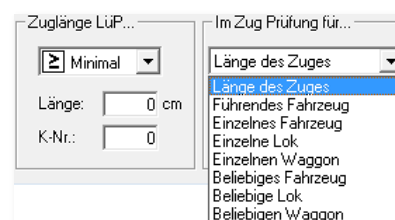


Fig. 9.44 Check length for...



For this condition you have to use feedback contact numbers from **a train number display**.

For fulfilment of this condition the length of the train registered within this train number display needs to meet the registered condition.

9.16.11 Condition "Condition "Number of vehicles on train number display"

If you want to execute the tour automatic row only if trains with a specific number of vehicles are on a specified TND, this condition will be your right choice.

For inserting such a condition press the right mouse button onto the folder "And" select <New condition><...on train number display><Number of vehicles on train number display>.

After selecting this condition from the context menu you can select for which contact number and for which vehicle types and numbers the condition shall become true.

Therefore, just enter the TND number in the field C-No. or drag it from a track symbol in your track diagram using this feedback to the number field.

Afterwards select the type of vehicle (all, locomotives, waggons), the number to compare to and the condition:

=	Equal
>	Larger
<	Smaller
≥	Larger or equal
≤	Smaller or equal
≠	Unequal

For this condition you have to use feedback contact numbers of a train number display.



Fig. 9.45 The condition "Number of vehicles on train number display"

9.16.12 Condition "Name of train on train number display"

If you want to execute the tour automatic row only if trains with a specific naming are on a specified contact number, this condition will be your right choice.

For inserting such a condition press the right mouse button onto the folder "And" select <New condition> ><...on train number display><Name of train on train number display>.






After selecting this condition from the context menu you can select for which TND and for which names the condition shall become true.

Therefore, just enter the fcontact number of the TND or drag it from a track symbol in your track diagram to the number field (C-No.).

Afterwards enter a text a select whether the train name shall be equal to this this or start with this text or end with this or just contain this text. You could for example if the train's name starts with "IC". This condition would be true for train names such as IC0815, IC4711, but also for ICE620

The name check can be performed for the train's name or just single vehicle within the train. Make your choice using the input box *"In train check for..."*:

-  **Leading vehicle**
the name of the leading vehicle
-  **Single vehicle, Single loco resp. Single waggon**
check the name of a vehicle at a specified position within the train.
-  **Any vehicle, Any loco resp. Any wagon**
condition fulfilled if any vehicle within the train fulfils the condition

For this condition you have to use feedback contact numbers of a train number display.



Fig. 9.46 The condition "Name of train on train number display".

9.16.13 Condition "Waiting time on train number display"







If you want to execute the tour automatic row only if a specific condition for the waiting time on train number is fulfilled, this condition will be your right choice.

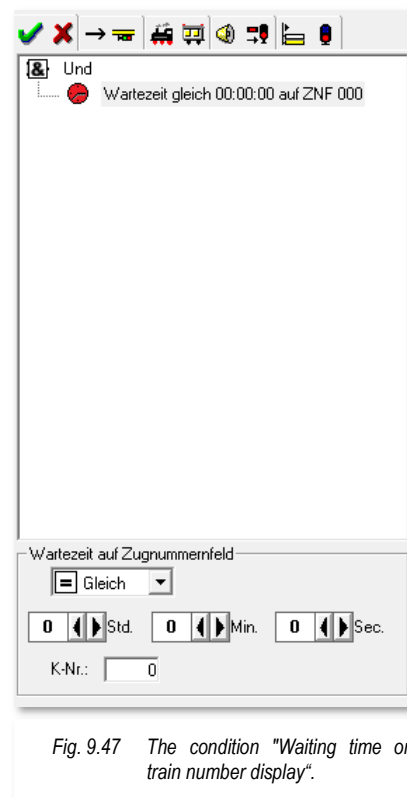
For inserting such a condition press the right mouse button onto the folder "And" select <New condition> ><...on train number display>< Waiting time of train on train number display>.



Enter the values for hour, minute and second into the corresponding fields. The resulting time is compared to the time of the train at the TND

The following comparisons are available:

-  **Equal (=)** - the waiting time of the locomotive on the TND equals the entered time.
-  **Greater (>)** - the waiting time of the locomotive on the TND is greater than the entered time.
-  **Smaller (<)** - the waiting time of the locomotive on the TND is smaller than the entered time.
-  **Greater-Equal (\geq)** - the waiting time of the locomotive on the TND is greater than or equal to the entered time.
-  **Smaller-Equal (\leq)** - the waiting time of the locomotive on the TND is smaller than or equal to the entered time.
-  **Unequal (\neq)** - the waiting time of the locomotive on the TND does not equal the entered time.







The time entered here is always the real time. If necessary the program converts the waiting using the model time factor defined in the tour automatic-



9.16.14 Conditions concerning the matrix on train number display

If you want to execute the tour automatic row only if a specific locomotive type, waggon type, train length(x) or epoch is on a specified on train number display, this condition will be your right choice.

For inserting such a condition press the right mouse button onto the folder "And" select <New condition><on TND> ...

-  <Loco type on TND>
-  <Waggon type on TND>
-  <Length(X) on TND>
-  <Epoch on TND>

After selecting this condition from the context menu you can select which of this matrix type has to contain a specific value for the train currently staying on a specific TND.





Therefore, just enter the feedback TND number or drag it from a track symbol in your track diagram using this feedback to the number field.

Afterwards select the desired matrix value from the combo box above.

For this condition you have to use feedback TND numbers from a train number display.

In a train the matrix of the train can be different to the matrix of a single vehicle within the train. Thus, you can choose if you want to check the train's matrix or just the matrix of a single vehicle within the train.

These are in detail:

-  **Matrix of train**
-  **Leading vehicle**
the matrix of the leading vehicle
-  **Single vehicle, Single loco resp. Single waggon**
check the matrix of a vehicle at a specified position within the train.
-  **Any vehicle, Any loco resp. Any wagon**
condition fulfilled if any vehicle within the train fulfils the condition

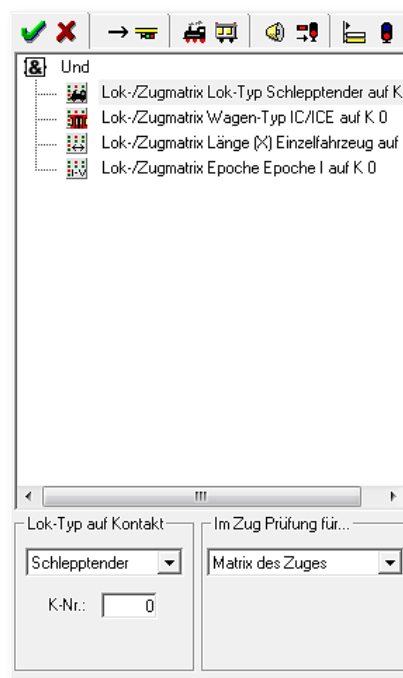


Fig. 9.48 The matrix conditions



9.16.15 Condition "Loco with colour"

If you want to execute the tour automatic row only, if the loco number – independent of a TDN ! - has a specific colour, this condition will be your right choice.

For inserting such a condition press the right mouse button onto the folder "And", select <New condition> <Loco with colour>.

The loco number can be entered with the keyboard or dragged it from loco bar to the field loco. s feedback to the number field.

There are five buttons to select the desired colour of the locomotive:






-  Black – normal driving operation.
-  Green – Loco/train is on its way.
-  Red – Loco/train is disabled for the contact controlled tour automatic.
-  Blue – Loco/train is disabled for the time controlled tour automatic.
-  Violet – Loco/train is disabled for any tour automatic.




Fig. 9.49 The condition "Loco with colour".

9.16.16 Condition "Vehicle position in train"

If you want to execute the tour automatic row only, if the condition for the position of a specific vehicle within the train is true, this condition will be your right choice

For inserting such a condition press the right mouse button onto the folder "And" select <New condition> <Vehicle position in train>.

Enter the digital address of the vehicle into the field 'vehicle'. You may also drag&drop the picture of a vehicle to this field. Drag locomotives from the loco control or the loco bar. If you want to enter the position of a waggon - which has no digital address -, drag the picture from the waggon-monitor to the field 'vehicle'. Open the waggon-monitor with the symbol  in the symbol bar "Inspector" of the main program.







The value of the vehicle position is entered using the arrow buttons.





Fig. 9.50 The condition "Vehicle position in train".



The following comparisons are available:

-  **Equal (=)** - the vehicle position equals the entered value.
-  **Greater (>)** - the vehicle position is greater than the entered value.
-  **Smaller (<)** - the vehicle position is smaller than the entered value.
-  **Greater-Equal (\geq)** - the vehicle position is greater than or equal to the entered value.
-  **Smaller-Equal (\leq)** - the vehicle position is smaller than or equal to the entered value.
-  **Unequal (\neq)** - the vehicle position does not equal the entered value.

Using the selection list at the bottom of the dialogue you can determine from where the positions is counted:

-  in driving direction/begin count from head of train
-  against driving direction/begin count from end of train

9.16.17 Condition "Loco direction"

If you want to execute the tour automatic row only, if the direction of the locomotive on the start TND is the desired one, this condition will be your right choice.

Please do not mix direction of locomotive with direction of route. Here the direction of the locomotive on the start TND is actually important.

For inserting such a condition press the right mouse button onto the folder "And" select <New condition> <Loco direction>.

After selecting this condition from the context menu you can select the forward or backward direction of the locomotive.



Fig. 9.51 The Condition "Loco direction on train number display".




9.16.18 Condition "Driving direction"

If you want to execute the tour automatic row only, if the direction of the vehicle on the start TND is the desired one, this condition will be your right choice.

Please do not mix direction of vehicle with direction of route. Here the direction of the vehicle on the start TND is actually important.

For inserting such a condition press the right mouse button onto the folder "And" select <New condition> <Vehicle direction>.

Enter the digital address of the vehicle into the field 'vehicle'. You may also drag&drop the picture of a vehicle to this field. Drag locomotives from the loco control or the loco bar.

If you want to enter the position of a waggon -which has no digital address -, drag the picture from the waggon-monitor to the field 'vehicle'. Open the waggon-monitor with the symbol  in the symbol bar "Inspector" of the main program

After selecting this condition from the context menu you can select the forward or backward direction of the locomotive.



Fig. 9.52 The Condition "Vehicle direction".

9.16.19 Condition "Route/Tour/Macro active"

If you want to execute the tour automatic row only, if a specific route, tour, or loco/train macro is active, this condition will be your right choice.

For inserting such a condition press the right mouse button onto the folder "And" select <New condition> <Route/Tour/Macro active >.

The following options allow specifying your selection:

r








-  Route active
-  Tour aktiv
-  Route or tour active
-  Normal route active
-  Coupling route active
-  Decoupling route active
-  Macro active



Fig. 9.53 The condition „Route/Tour/Macro active“



For all selection you can choose further filters: "any" and...

For all of these options you can define additional filters to decide if the condition shall fire for any route/tour/macro or just for specific ones.

Additionally, you can also enter specific locomotives/trains which are using the route/tour/macro at the moment. You can filter the locomotives/trains using their name/address/class. You can use the well-known filters here.

9.16.20 Condition "Tour automatic (in)active"

If you want to execute the tour automatic row only, if a different tour automatic is (in)active, this condition will be your right choice. With **WinDigipet** you can run five tour automatics at the same time.

For inserting such a condition press the right mouse button onto the folder "*And*" select <New condition><Tour automatic (in)active>.

In this condition the name of the TA will be used as criteria. For the filtering you can use the well-known compare functions such as "Equal", "Starts with", "Contains" and "Ends with".

But you can also check via "All" if any TA is active. We think you will use the "All" criteria just in the dispatcher, because in the tour automatic it will make no sense.

The condition will be true, if TA is "active" or "inactive". Both checks are possible



Fig. 9.54 The condition "Tour automatic (in)active".



9.16.21 Condition "Digital system"

Using this condition, the execution of the tour automatic row depends, whether a specific digital system is active or not.

For using this condition press the right mouse button onto the folder "And" select <New condition><Digital system>.

From a selection list you can choose a specific digital system. The condition is fulfilled depending whether you have chosen the state "active" or "inactive" for the specified digital system



9.16.22 Condition "Booster"

Using this condition, the execution of the tour automatic row depends, whether a booster area of your layout is switched on or off.

For inserting this condition press the right mouse button onto the folder "And" select <New condition> <Booster>.

This condition needs the configuration of the booster management in the main program of **Win-Digipet** as well as in the track diagram editor.

At the bottom of the window there are two selection lists. The upper one is to select the area. With the other lower one you select whether the condition is true for a switched on or a switched off booster.

9.16.23 Condition "Layout or office version"

Using this condition, the execution of the tour automatic row depends, whether the online version or the office version is applied.

For inserting this condition press the right mouse button onto the folder "And" select <New condition> <Online or office version >.

This condition has been designed primarily for the dispatcher of **WinDigipet**. Using this condition allows ignoring the state of boosters and the track power, which are, of course, not available for the office version.

The condition will be true, if the selected version of **WinDigipet** is active.



9.16.24 Combine conditions

If you need to check more than one condition then these conditions have to be linked logically. You can imagine that it makes a difference if you want to execute a row in the tour automatic as soon as one of the registered conditions gets true or if you want to wait with the execution until all conditions are true.

These logical links use the Boolean algebra. Within the program all conditions that shall be linked with each other are placed in a so call folder or group within the condition tree.

These logical links are well known in the digital technique. There they are called AND, OR, NOT, NOR and NAND. The link defines which combination of input signals lead to TRUE or FALSE at the output.

Similar to these logical circuits within the digital technique **Win-Digipet** uses the operators "AND", "OR" as well as "NOT" to group conditions in folder. "NOT" is only available in expert mode.

9.16.25 Combine conditions with "AND"

The link "AND" is the standard combination of the conditions in **WinDigipet**.

This link means that all combined condition must be fulfilled, so that the output signal is also fulfilled, i.e. "TRUE".

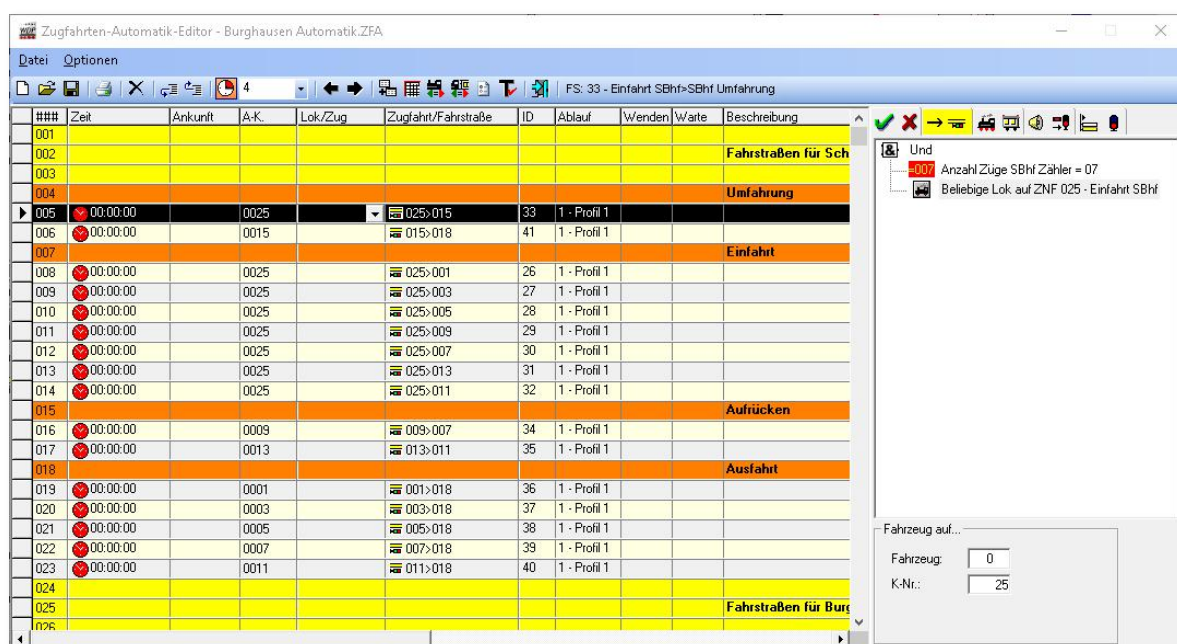


Fig. 9.56 Both conditions must be fulfilled, so that row 005 can be executed.

The example in Fig 9.56 shows that row 005 of the tour automatic can only be executed, if the counter "# of trains HY" has the value 7 and if an arbitrary locomotive has arrived at TND "025 – entry HY".



9.16.26 Combine conditions with "OR"

The link "AND" can be changed to the link „OR“.

For this purpose press the left mouse button onto the folder "And" and then click the right mouse button. Select <Change to> and then <OR>.

Alternatively, you may press the middle mouse button onto the folder "And" and change to "OR".

This combination "OR" means that at least one condition – as input signal - must be fulfilled, so that the output signal is fulfilled, i.e. "TRUE"

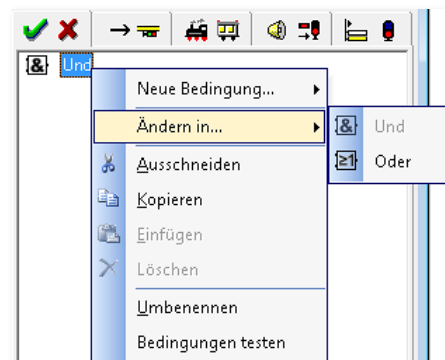


Fig. 9.57 Changing to the logical "OR".

Zugfahrten-Automatik-Editor - Burghausen Automatik.ZFA

Datei Optionen

FS: 3 - Einfahrt Burghausen West>Burghausen 5

###	Zeit	Ankunft	A-K.	Lok/Zug	Zugfahrt/Fahrstraße	ID	Ablauf	Wenden	Warte	Beschreibung
015	00:00:00		0009		009>007	34	1 - Profil 1			Aufrücken
017	00:00:00		0013		013>011	35	1 - Profil 1			
018	00:00:00									Ausfahrt
019	00:00:00		0001		001>018	36	1 - Profil 1			
020	00:00:00		0003		003>018	37	1 - Profil 1			
021	00:00:00		0005		005>018	38	1 - Profil 1			
022	00:00:00		0007		007>018	39	1 - Profil 1			
023	00:00:00		0011		011>018	40	1 - Profil 1			
024										
025										Fahrstraßen für Bur
026										
027										Einfahrt Burghause
028	00:00:00		0018		018>021	2	1 - Profil 1			
029	00:00:00		0021		021>033	5	1 - Profil 1			
030	00:00:00		0021		021>036	3	1 - Profil 1			
031	00:00:00		0021		021>039	4	1 - Profil 1			
032	00:00:00		0021		021>029	49	1 - Profil 1			
033										Ausfahrt Burghause
034	00:00:00		0033		033>062	6	1 - Profil 1			
035	00:00:00		0036		036>062	7	1 - Profil 1			
036	00:00:00		0039		039>062	8	1 - Profil 1			
037										Paradestrecke <-
038	00:00:00		0062		062>064	9	1 - Profil 1			
039	00:00:00		0064		064>066	10	1 - Profil 1			
040	00:00:00		0066		066>068	11	1 - Profil 1			

Oder

- Beliebige Lok auf ZNF 033 - Burghausen 4
- Beliebige Lok auf ZNF 039 - Burghausen 6

Fahrzeug auf...

Fahrzeug: 0

K-Nr.: 39

Fig. 9.58 At least one condition must be fulfilled, so that row 005 can be executed.

The example in Fig 9.56 shows that row 030 of the tour automatic can only be executed, if an arbitrary locomotive has arrived at TND 033 or 039.



9.16.27 Testing conditions

All conditions within the tour automatic editor can be tested immediately by selecting <Test condition> from the context menu of the condition tree (can be opened by clicking with the right mouse button into the condition tree).



Fig. 9.60 The result of the condition testing.

After activating this mode green checkmarks and red crosses left of each condition in the condition tree will show you if each single condition is currently fulfilled. When changing e.g. solenoid device states etc.

in your track diagram the condition test will be updated immediately.

The test function can also be used in the simulation mode of **Win-Digipet**. Using the simulation mode, you can test the conditions without connection to your layout.

Fig. 9.60 shows a test situation where the condition "Any Loco on TND 033" is fulfilled. The other condition "Any Loco on TND 039" is not fulfilled. These two conditions are linked by an "OR". Thus, the overall result is "True", because at least one condition is fulfilled.

After making tests you should deactivate the test mode, because only after deactivating the test mode all edit function within the tree are available again.

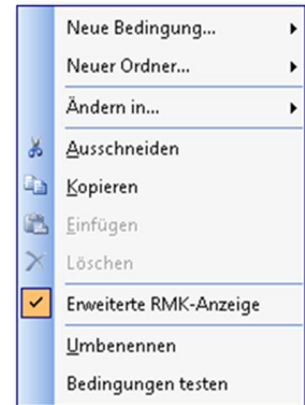


Fig. 9.59 Context menu.

9.16.28 Activating the expert mode

After activating the expert mode via the menu <Options> and <Expert mode>, several new options are available within the condition tree which are shown in the figures. In addition, you can also place sub-folder/groups into existing conditions groups/folders.

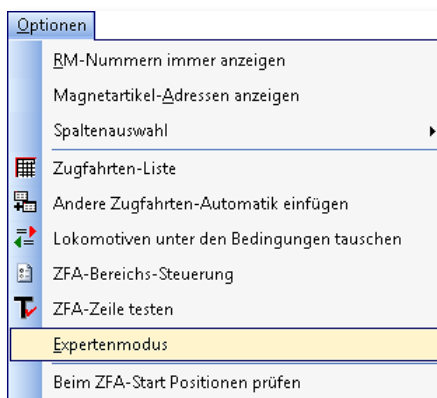


Fig. 9.61 the menu Options

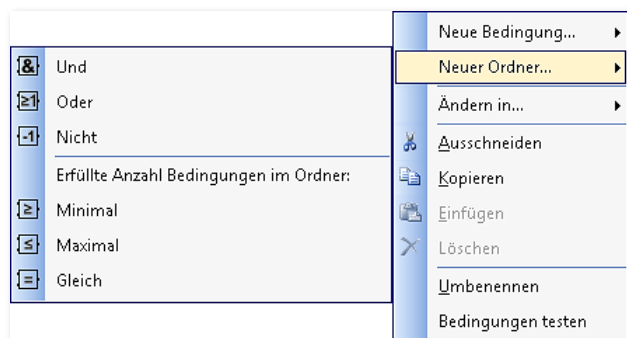


Fig. 9.62 additional linking modes in the expert mode

After activating the expert mode, several additional conditions are available (see Fig. 9.29)



9.16.29 Execute TA row only, when ... but not, when...

All conditions described above can be linked with a "Not", if the expert mode is active.

In the following example we want to execute a route/tour from the station Burghausen to the passing by tracks only when both tracks are free and there is no train on its way to one of these tracks.

Within the graphic you can see a mixture of "And", "Or", and "Not" links. Furthermore, the

###	Zeit	Ankunft	A-K	Lok/Zug	Zugfahrt/Fahrstraße	ID	Ablauf	Wenden/Warte	Beschreibung
015	00:00:00		0009		009>007	34	1 - Profil 1		Aufrücken
016	00:00:00		0013		013>011	35	1 - Profil 1		
017	00:00:00		0001		001>018	36	1 - Profil 1		Ausfahrt
018	00:00:00		0003		003>018	37	1 - Profil 1		
019	00:00:00		0005		005>018	38	1 - Profil 1		
020	00:00:00		0007		007>018	39	1 - Profil 1		
021	00:00:00		0011		011>018	40	1 - Profil 1		
022	00:00:00								Fahrstraßen für Burghausen
023	00:00:00								Einfahrt Burghausen
024	00:00:00		0018		018>021	2	1 - Profil 1		
025	00:00:00		0021		021>033	5	1 - Profil 1		
026	00:00:00		0021		021>036	3	1 - Profil 1		
027	00:00:00		0021		021>039	4	1 - Profil 1		
028	00:00:00		0021		021>029	49	1 - Profil 1		
029	00:00:00								Ausfahrt Burghausen
030	00:00:00		0033		033>062	6	1 - Profil 1		
031	00:00:00		0036		036>062	7	1 - Profil 1		
032	00:00:00		0039		039>062	8	1 - Profil 1		
033	00:00:00								Paradestrecke <-
034	00:00:00		0062		062>064	9	1 - Profil 1		
035	00:00:00		0064		064>066	10	1 - Profil 1		
036	00:00:00		0066		066>068	11	1 - Profil 1		

Fig. 9.63 A simple example of "NOT"-links.

test mode for this condition tree has been activated. Using this we can retrace the situation with the track diagram.

A green check mark before a folder or conditions means "true" while a red cross indicates that a condition or folder has the state "false". These are the of the logically combined conditions.

To check the total result look at the group of the very high links. Here the link is "AND". Since all conditions are fulfilled, the very link is "TRUE" and the route/tour can be executed.

The practical usage of this example could be, that you want not to overload the hidden yard with more trains as hidden yard tracks are available.



9.16.30 Condition group/folder "Minimal"

The normal condition groups/folder "**And**" becomes/valid true if **all** conditions within this group are fulfilled and the groups/folder "**Or**" becomes/valid true if **at least one** condition within this group is fulfilled.

Condition groups/folders with the Attribute "Minimal" get valid if **a minimum specific number** of conditions within this folder are fulfilled. Therefore, select the "AND" group, open the context menu of the condition tree with the right mouse button and select from the menu <Change in><Minimal>. This option is only available in the expert mode.

After selecting this group type you have to select how many conditions have to be fulfilled minimally.

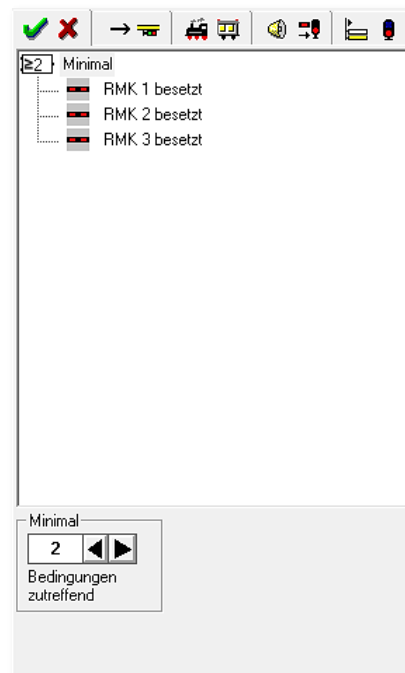


Fig. 9.64 How many conditions needs to be true as minimum?

9.16.31 Condition group/folder "Maximal"

The normal condition groups/folder "**And**" becomes/valid true if **all** conditions within this group are fulfilled and the groups/folder "**Or**" becomes/valid true if **at least one** condition within this group is fulfilled.

Condition groups/folders with the Attribute "Maximal" get valid if **a maximum specific number** of conditions within this folder is fulfilled and not more. Therefor select the "AND" group, open the context menu of the condition tree with the right mouse button and select from the menu <Change in><Maximal>. This option is only available in the expert mode.

After selecting this group type you have to select how many conditions may be fulfilled maximally.

These numbers of conditions can be set using the spin buttons below the low the tree after selecting the "Maximal" folder.



Fig. 9.65 How many conditions may be true as maximum?



Try every condition using the test function before using it in real life. You can also use the simulation for this.



9.16.32 Condition group/folder "Equal"

The normal condition groups/folder **"And"** becomes/valid true if **all** conditions within this group are fulfilled and the groups/folder **"Or"** becomes/valid true if **at least one** condition within this group is fulfilled.

Condition groups/folders with the Attribute "Equal" get valid if **an exact specified number** of conditions within this folder is fulfilled and not less or more. After selecting this group type you have to select how many conditions should be fulfilled exactly. Therefore, select the "AND" group, open the context menu of the condition tree with the right mouse button and select from the menu <Change in><Equal>. This option is only available in the expert mode.

After selecting this group type you have to select how many conditions have to be fulfilled exactly.

The number of conditions can be set using the spin buttons below the low the tree after selecting the "Equal" folder.

In our example the folder gets free if one of the three conditions gets true. It makes no difference, if this is TND 1, 2 or 3.



Fig. 9.66 This number of conditions has to be fulfilled.



All examples are relatively simple. We choose these examples for easier understanding.

Of course, you can create much more complex conditions.

9.16.33 Renaming condition groups/folders

For easier documentation the condition groups/folders within the condition can be renamed.

Therefore, open the context menu by clicking with the right mouse button on a condition group/folder within the tree and select <Rename>. Afterwards you can add a description to the group/folder (the logical names "AND", "OR" etc. cannot be removed). Especially for complex condition trees you should make extensive usage of this functionality.

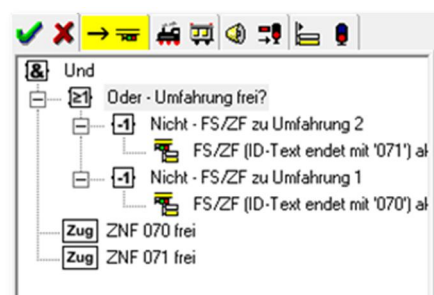


Fig. 9.67 Some folders have been renamed.



9.16.34 Hints regarding moving, deleting conditions etc.

All conditions regarding feedback TNDs, solenoid devices and counters can be created easily by dragging the according symbol from the track diagram to the desired position within the tree box.



Within the test mode (Menu command <Test conditions>) you cannot drag any symbol from the track diagram to the condition tree.


If you want to test feedback TND conditions within the test mode, you need to activate the simulation. Afterwards you can activate/deactivate the feedback TND virtually within the track diagram and the feedback monitor.



You can delete conditions which you do not need any more from the condition tree after selecting them using the "Del"-key on your keyboard or via the "Delete"-command from the context menu (right mouse button) of the condition tree.

All conditions within the tree can be moved using the left mouse button to another position within the tree.



9.17 The index card "Matrix"

On the index card "Matrix"  you register several additional conditions for the execution of the selected row. But you should remember that you are now working with two matrixes.

-  The route matrix
-  The tour automatic row matrix as described here, this matrix can be used to make more exclusions.

When making registrations on this index card you should always remember your registrations on the index card "Loco type" in the routes editor.

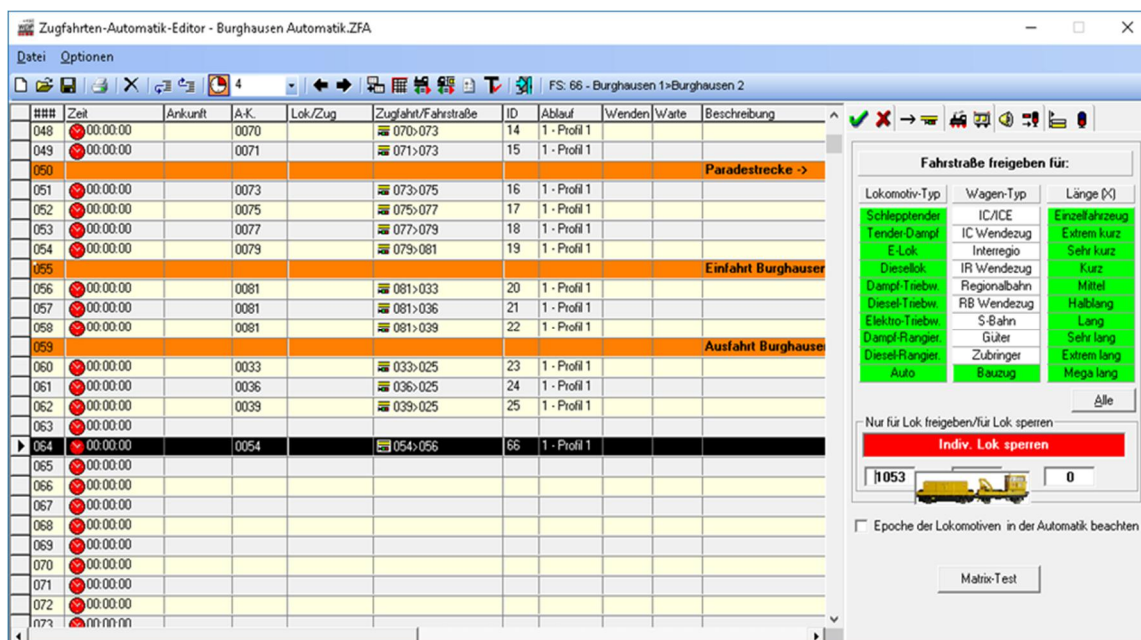


Fig. 9.68 The settings on the index card "Matrix" allow one types of waggon.

In our example we use the matrix to allow this tour automatic row **only** for maintenance trains. Furthermore, the locomotive with address 1053 is **excluded** from this usage of this row.

You don't have to think of any further matrix settings e.g. the route matrix would be used to block this route for all electrical locomotives, because the itinerary of this route has no overhead TND line. Such matrix settings should be made in the route editor, because these settings are global for this route.

The matrix in the tour automatic is mainly intended for taking influence on the current playing situation.

Here the radio button, which you use for locking trains, as shown in the picture, should be set to "Lock indiv. loco".



If you want to lock just up to three locomotives, you have to press the button 'All' to check all fields of the matrix.

A green selection in the matrix allows these kinds of trains to use the selected row.



If you enter with selected button "Release loco only" one or more locos in the "Enable tour for"-selection area will be deactivated and only the registered locomotive numbers will be allowed for this route/tour.

The numbers of these locomotive(s) have to be entered into the input boxes. This can be done via keyboard or via "drag & drop". When you hover with the mouse over one of the addresses the according locomotive will be shown.

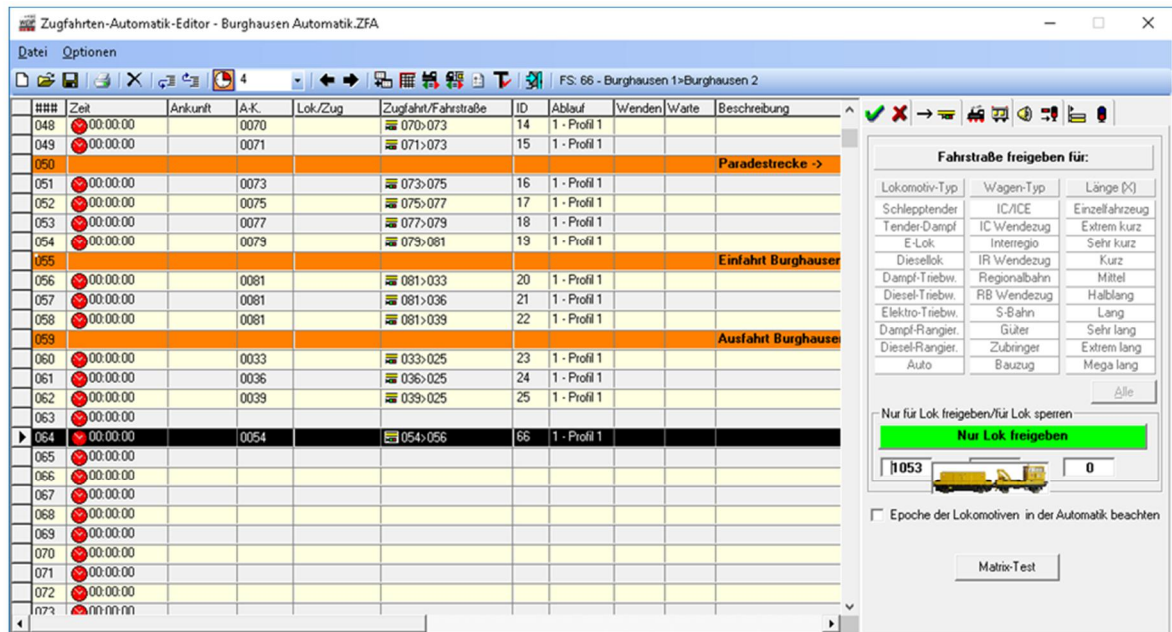


Fig. 9.69 the settings on the index card "Matrix" allow just one locomotive

In this example the row may **only** be used by locomotive 1053. No other locomotive may use the row. In this case no further matrix selection is possible.

Prerequisites for the matrix check are:





You have activated the switch "Switch only, if route isn't locked by special loco/wagon type" in the "system settings / routes"



You have registered up to 10 names for loco types/waggon types/length (X)/epoch in the system-settings (if the default definition doesn't meet your requirements for your model railroad)



-  You have assigned a "loco type" to each locomotive in the vehicle-database
-  When executing the according row, the locomotive/train has to be registered with its train number/name on the start train number display of the according route/tour.


In the tour schedule editor, you can also use the matrix test function via the button '**Matrix Test**'. This function is already known from the routes editor.

If you check "*Consider epochs of locos in automatic*" this will also be taken into account when executing the tour automatic. These check boxes have to be set for every single row where you want to check the epoch settings.
















Using **this** test of the matrix only the matrix from the tour automatic will be taken into account. While executing the matrix of the used route (possibly within a tour) will also be taken into account.

9.18 The index card "Options"

On this index card  you can make some registrations to take individual influence on your automatic operation. Special influence can be taken on the locomotives colour.

The influences of the locomotive's colour in **WIN-DIGIPET** are as follows.

If the colour of the train number in the train number display is...

-  "BLACK"  the train can be used in the tour automatic
-  "GREEN"  the train is active in a tour.
-  "RED"  the train will not continue driving in all lines of the tour automatic with the symbol  ("By Arrival"). The locomotive is disabled for the contact driven tour automatic.
-  "BLUE"  the train will not continue driving in all lines of the tour automatic with the symbols  ("Departure Time") or  ("Repeated departure time"). The locomotive is disabled for the contact time tour automatic.
-  „VIOLETT“  the train will not continue driving in all lines of the tour automatic. The locomotive is disabled for the any tour automatic.

Furthermore, you can configure on this index card the so called "Automatic sections" of the open tour automatic file and you can assign the currently edited row to one or more of these automatic sections.



In the box "Actions while tour/route" you can open a context menu with the right mouse button. Using this context menu, you can configure actions that shall be executed while the route/tour of the currently edited row is executed. Possible actions are:

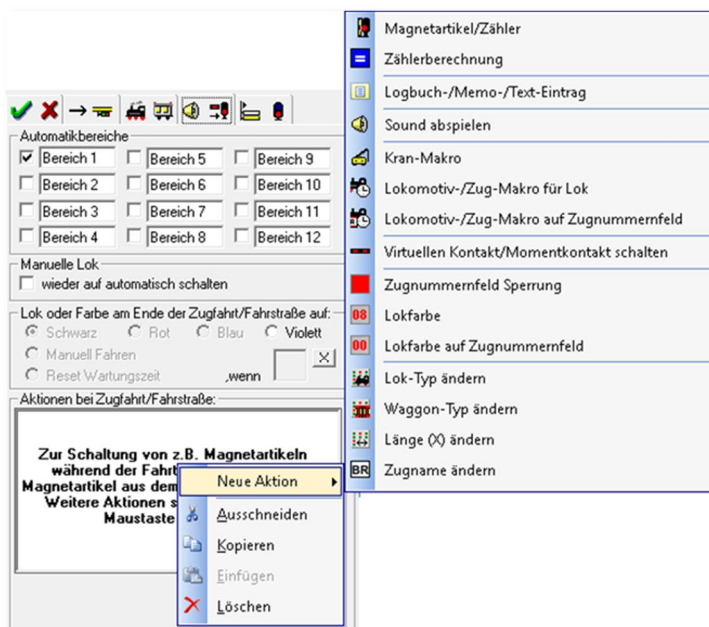














Fig. 9.70 The context menu with Actions on the index card "Options".

-  Switch solenoid device/counter
-  Counter calculation
-  Logbook/Memo/Text entry
-  Play sound
-  Execute crane macro
-  Execute Locomotive/train macro (with/without TND)
-  Switch virtual contact/moment contact
-  Block TND
-  Change loco color (with/without TND)
-  Change wagon type
-  Change matrix (with/without TND)
-  Change train name

Within the next sections we'll describe the functions which are available on this index card in detail.



9.18.1 Configuring automatic sections

In **Win-Digipet** can define up to 12 automatic sections for the tour automatic on the index card "Options" within the tour automatic editor.

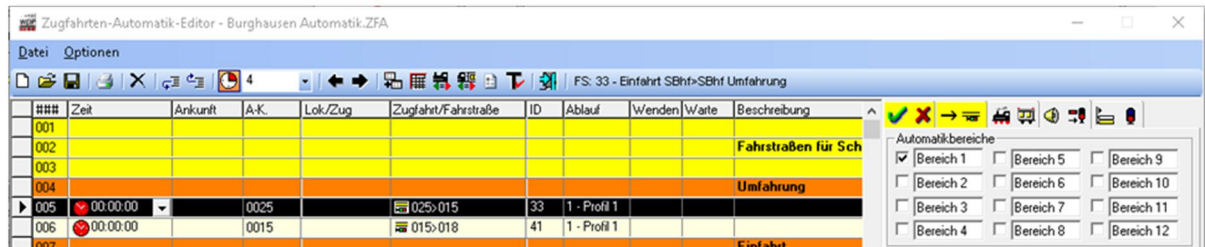


Fig. 9.71 The routes/tours registered in the tour automatic's rows can be assigned to one or more automatic section

The names of the automatic sections can be changed in the 12 input boxes. Thus, you can give the automatic sections meaningful names like e.g. "Hidden yard", "Main station" etc.

You can configure the automatic sections yourself and assign your routes/tours within the tour automatic to these automatic sections. In our example project all routes/tours have been assigned to the section "Normal". Within the demo project you could e.g. an own automatic section for the depot. In that case you would have to assign all routes and tours within this area to the automatic section "Depot".

If you now divide your automatic into such sections, then you can (de-)activate the several automatic sections while using the tour automatic. With this function for example you might deactivate the operation in your hidden yard, but all tour automatic lines concerning your main station will still be executed.

Each row containing a route or tour in the tour automatic editor has to be assigned to at least one automatic section. You can also assign routes/tours to more than one section.

9.18.2 Controlling automatic sections using solenoid devices

The defined automatic settings can also be activated/deactivated using solenoid devices within your track diagram. If you want to use this function you need within your track diagram for every solenoid device, you want to switch a two-aspect solenoid device with a virtual address.

The configuration dialog for this function can be opened in the tour automatic editor by clicking onto the button in the toolbar

Within the dialog you can see your automatic section names. You can now drag solenoid devices you want to use for controlling the automatic section activation into the according rectangular boxes in this dialog. By clicking within these boxes you can choose the solenoid device state which should activate the

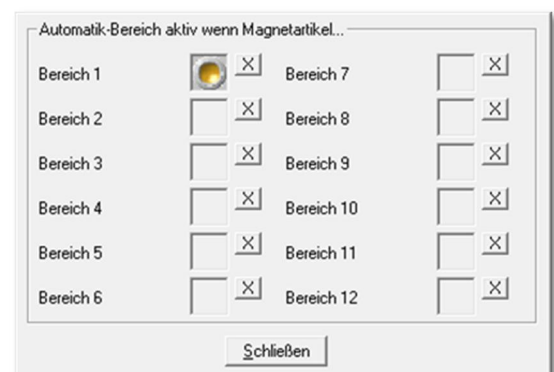


Fig. 9.72 This solenoid device switches an automatic section.



according automatic section. We suggest giving names to the solenoid devices to avoid mistakes.

9.18.3 Colour of loco number at the end of the tour/route

Here you can select whether you want the colour of the locomotive to be switched to BLACK, RED or BLUE or reset the maintenance flag at the end of the execution of the selected row. But this change of colour will only be performed if the registered solenoid device in this frame is switched to the desired state.

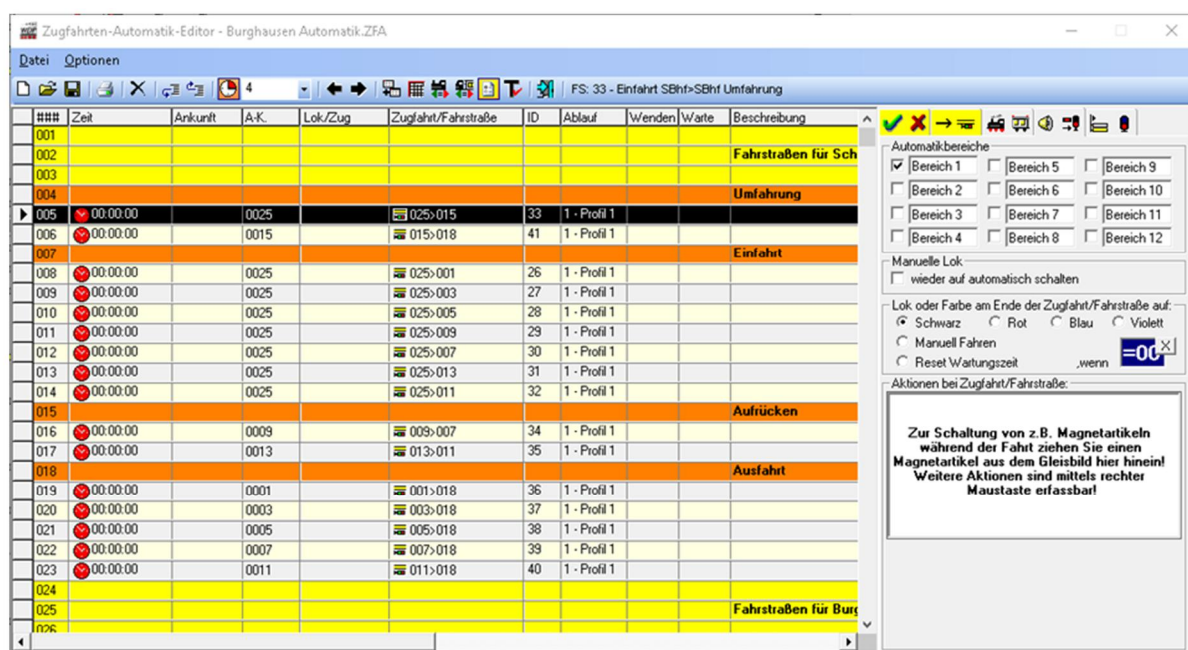


Fig. 9.73 These options are primary used for the automatic operation.

You can drag the solenoid device with pressed left mouse button from your track diagram to the picture box and release there the button ("drag & drop").

The button  will remove the solenoid device.

If you set the radio button "Drive manually" the locomotive will not be driven automatically anymore. But the routes or tours of the tour automatic will still be switched and then you have to drive the train/locomotive using a locomotive control, joystick, the smartphone app or your digital system.

If you check "Manually loco switch back to automatic" the "Manually driving" function will be deactivated again.

If you set the radio button "Reset maintenance timer", the maintenance time (operating hours) of the vehicles will be reset to zero at the end of the route/tour. This function can be used when leaving the charge station for model railroad cars with a route (maintenance timer used as charge indicator).

9.18.4 Solenoid device switching at tour/route

During the execution of a row in the automatic you can force the program to switch solenoid devices, without the need to include them into the used route or profile.

This is very useful to switch virtual switches, which have influence on indirect controls of your automatic operation and normally these settings only make sense within the automatic and not when switching the routes/tours manually.

You can drag the solenoid device with pressed left mouse button from your track diagram to the white box within the "SD/counter switching frame" and release there the button ("drag & drop"). Afterwards you select with the check and input boxes when the switching shall be performed. The switching can be performed when the route/tour is switched (checkbox unchecked + value 0), when a specific TND within the switched route/tour has been reached (checkbox unchecked + TND number as value) or when the execution of the route/tour ends (checkbox checked).

Using this function, you can construct dependencies between different rows of the tour automatic.



Fig. 9.74 Switching a solenoid device as option.

9.18.5 Counter change at of route/tour

You can change counter symbols within your track diagram not only manually, but also using the tour automatic similar to the solenoid devices switchings by the tour automatic as explained before.

Therefor drag the counter symbol with pressed left mouse button via "drag & drop" into the input box and select the desired count function with repeated mouse clicks. The action value (+1, -1 or

00 **+1 -1 00**) can be set by repeated mouse clicks on the counter symbol in the editor.

If you have chosen, the value "00" for setting the counter to a predefined value you can change this value by clicking with the right mouse button onto the counter symbol in the editor. A small window "Set target value" will open where you can set the destination value via keyboard or using the spin buttons. Possible values are 0 to 999. You know this function already from the add-on switching in routes.

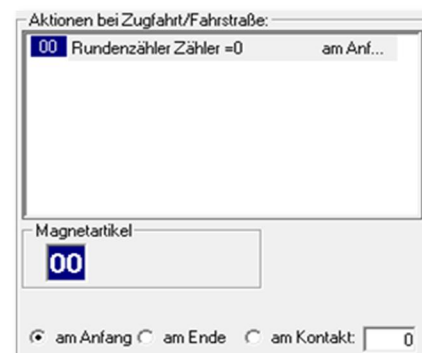


Fig. 9.75 Switching a counter as action:



The window "Set target value" can only be opened with the right mouse button, if the counter in the editor shows values from 00 to 999. It is **not** available for the actions +1 and -1.

After choosing the counter change action you need to configure when the counter shall be changed. Afterwards you select with the check and input boxes when the switching shall be performed. The switching can be performed when the route/tour is switched (checkbox unchecked + value 0), when a specific TND within the switched route/tour has been reached (checkbox unchecked + TND number as value) or when the execution of the route/tour ends (checkbox checked).







The counter will only be executed when the route/tour of the corresponding tour automatic line contains the selected TND. This prevents you from a counter change in the wrong moment (e.g. your tour has not yet switched the route containing this TND and another train occupies this TND, this will not lead to any counter change).

This applies also to the switching of solenoid devices under "Options".

9.18.6 Action "counter calculation" at tour/route

Using the action "counter calculation" you may change the value of a counter depending on another counter or on other criteria.

Here are the possible calculations:

-  The value of a counter is set to the value of another counter.
-  Subtract the value of a counter from the value of another counter.
-  Add the value of a counter to the value of another counter
-  Set the value of a counter to the number of vehicles on a specific TND.

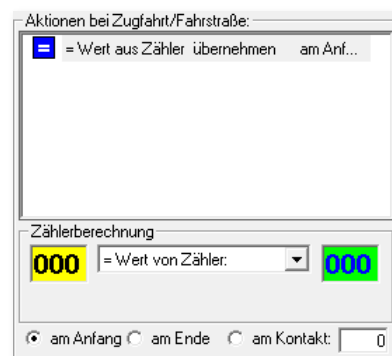


Fig. 9.76 The action counter calculation "set to the value of another counter".



- 🚂 Set the value of a counter to the value of the train length on a specific TND.
- 🚂 Set the value of a counter to the value of the position of a specific vehicle in the train TND.
- 🚂 Change the colour of a counter.
- 🚂 Set the value of a counter to the hour value of the central clock.
- 🚂 Set the value of a counter to the minute value of the central clock.
- 🚂 Set the value of a counter to the second value of the central clock.
- 🚂 Set the value of a counter to the day value of the central clock (Mo=0 to Su=6)

Drag one or two counters from the track diagram to the window shown in figures 9.76 to 9.78 and select the desired calculation from option list. Depending on the selected calculation the input of parameters is changed.

Additionally, you can define, whether the calculation takes place at the beginning, at the end, or at a specific TND of the route or tour.

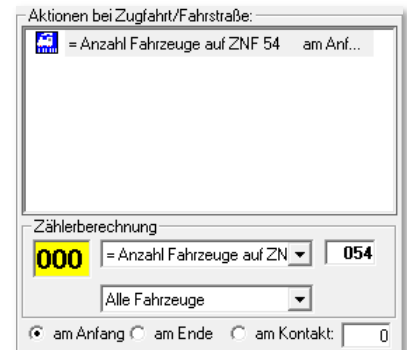


Fig. 9.77 The action counter calculation

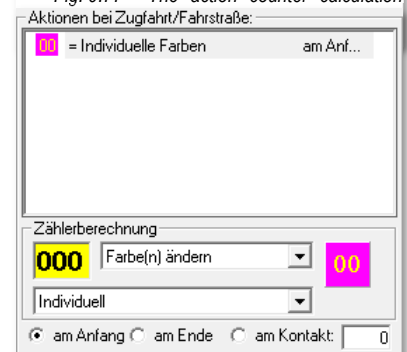


Fig. 9.78 The action counter calculation "change colour".

9.18.7 Action "logbook-/memo-/text-entry at tour/route

This action is to support the user. One may create entries at different places of the program, so one indicates certain conditions of the layout and improve the safety of operations.

Here are the possible entries:

- 🚂 Logbook message
The entry is completed with a time stamp of the operation protocol.
- 🚂 Memo-entry
A memo ("yellow sheet") is shown with the entered text.
- 🚂 Delete memo-entry
The entered memo text is deleted.
- 🚂 Text in track diagram
The text can be shown at certain

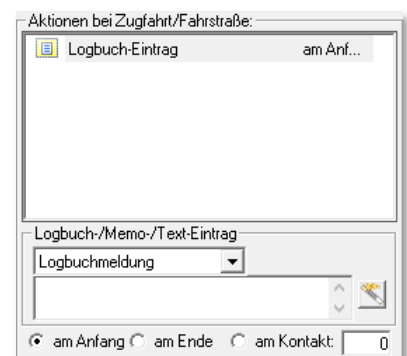


Fig. 9.79 The action "create logbook entry" die Aktion „Logbuch-Eintrag erzeugen“




coordinates in the track diagram. The text must have been entered already in the track diagram.



Select kind of text from the option list and enter the text. This dialogue offers also an extended text input with possible additional parameters.

Additionally, you can define, whether the calculation takes place at the beginning, at the end, or at a specific contact of the route or tour.

9.18.8 Sound at start of route/tour

Here you can register an individual sound that should be executed when starting the tour/route. It is also possible to play the locomotives sound registered in the vehicle database for every locomotive. This sound can be activated by checking "Sound from Loco-control".

If you choose "File" you can select the sound file by opening the file dialog via the button . Within this dialog you can select any .wav or .mp3 file from the subdirectory \SOUND within the **Win-Digipet** directory (or one of its subdirectories).

When using a **2.1**, **5.1** or **7.1**-sound system you can also select the speaker used for playback as well as the playback volume. Using the small button  you can playback the sound for testing purposes. Using the small button  the sound file is continuously repeated. If you click this button once more, you can define the number of repetitions.

The same options can be used when the check box "Loco-Sound" is checked for playback of the locomotives sound from the vehicle database.

Additionally, you can define, whether the sound is played at the beginning, at the end, or at a specific contact of the route or tour.

Sound playback at specific time

If you register in the tour schedule line a "Switch solenoid devices at specific time"-row, you can select for this row also a sound to play when executing this row. The settings can be made according to section 9.7.5 and then you can choose a sound on the index card "Options".

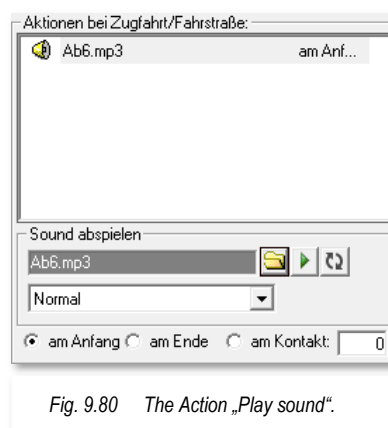


Fig. 9.80 The Action „Play sound“.



9.18.9 Action “Execute crane macro” at tour/route

Using this action you can execute an existing macro for a defined crane or function model.

The dialogue offers two option lists to select the crane and also the macro for the selected model. The crane and the function model, respectively, must have been defined in the vehicle database and the corresponding macros must have been recorded.

Additionally, you can define, whether the macro is executed at the beginning, at the end, or at a specific contact of the route or tour.

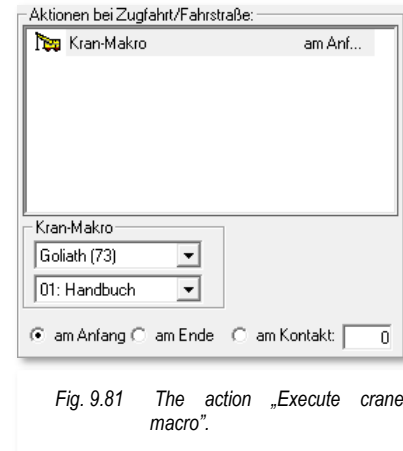



Fig. 9.81 The action „Execute crane macro”.

9.18.10 Action “Execute loco/train macro” at tour/route

Using this option, you can execute an existing macro for a specific locomotive.

In the dialogue you can enter the digital address of the locomotive. Alternatively, you can drag the loco picture from the loco-control or the loco- bar.

Select an existing macro from the appearing macro list with the button . The list shows only those macros that are valid for the addressed locomotive, i.e. specific and Loco-ID0 macros.

Additionally, you can define, whether the macro is executed at the beginning, at the end, or at a specific contact of the route or tour.

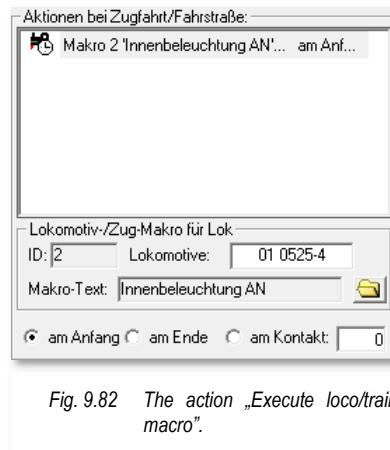



Fig. 9.82 The action „Execute loco/train macro”.

9.18.11 Action “Execute loco/train macro on TND” at tour/route

Using this action, you can execute an existing macro for a specific locomotive or train on a TND.

In the dialogue you can enter the contact number of the TND.

Select an existing macro from the appearing macro list with the button . Please mind that only those macros matching the vehicles can be executed.

Additionally, you can define, whether the macro is executed at the beginning, at the end, or at a specific contact of the route or tour.

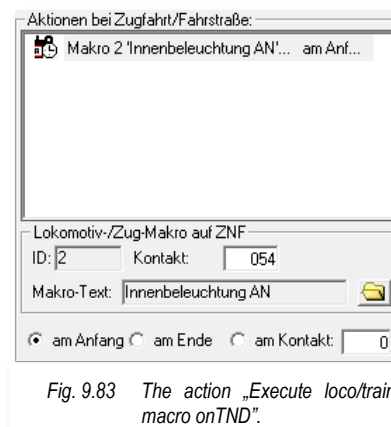


Fig. 9.83 The action „Execute loco/train macro onTND”.



9.18.12 Action “Switch virtual/momentary contact” at tour/route

Using this action, you can switch a virtual feedback contact. Such contacts are created with the editor for virtual contacts and pulse generators.

In the dialogue you can enter the number of a virtual or momentary contact and whether it should be switched on or off. The contract must be existing. Otherwise the contact number gets a red background and an error message appears.

Additionally, you can define, whether the action is executed at the beginning, at the end, or at a specific contact of the route or tour.

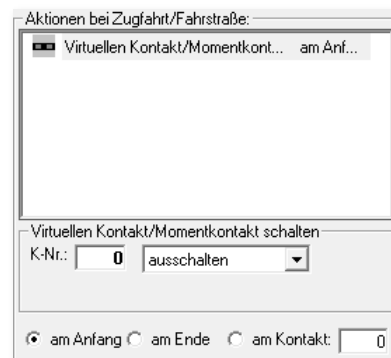


Fig. 9.84 The action „Switch virtual feedback contact”.

9.18.13 Action “Train number display blocking” at tour/route

Using this macro, you can block a train number display so that the traffic to this train number display is limited or prohibited. The following options are possible:

- block transit
- block destination
- unlock

In the dialogue, enter the contact number of the corresponding TND. Furthermore, you can define for which direction the blocking shall be effective. The directions are defined by the cardinal points. Please be aware that a blocking towards north or south makes no sense for a TND with horizontal orientation.

Additionally, you can define, whether the blocking becomes effective at the beginning, at the end, or at a specific contact of the route or tour.

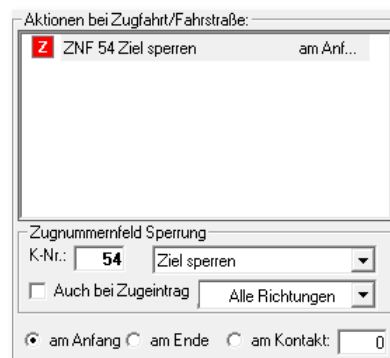


Fig. 9.85 The action „Train number display blocking”.

9.18.14 Action “Loco colour” at tour/route



Using the action "loco colour" you can change the colour of one or more locomotives on the train number displays. You can define the change for one locomotive, for which you have to enter the digital dress, but you can also define the following possibilities.

-  All locomotives
-  All black locomotives
-  All read locomotives
-  All blue locomotives
-  All violet locomotives
-  All green locomotives



Fig. 9.86 The action "Loco colour".

For choosing black, red, blue, or violet, you just may click on the corresponding button.

Additionally, you can define, whether the change of the colour becomes effective at the beginning, at the end, or at a specific contact of the route or tour.

9.18.15 Action "Loco colour on train number display" at tour/route

Using this action you can change the colour of one locomotives on one train number display.

For this purpose you enter the digital address of the locomotive or you drag its picture from the loco-control or loco-bar. If you enter "0", the colour of the specific locomotive, which is active in this line of the tour automatic, is changed.

For choosing black, red, blue, or violet you just can click on the corresponding button,

Additionally, you can define, whether the change of the colour becomes effective at the beginning, at the end, or at a specific contact of the route or tour.



Fig. 9.87 The action "Loco colour on TND".



9.18.16 Action "Change matrix types" at tour/route

Using this action, you can also change the three first matrix types of the used locomotive resp. train (Locomotive type, wagon type and Length(X)).

For this purpose, select the matrix change from the selection list valid for that locomotive belonging to specific contact of a TND. If you enter "0", the matrix change becomes effective for the specific locomotive, which is active in this line of the tour automatic.

Additionally, you can define, whether the matrix change becomes effective at the beginning, at the end, or at a specific contact of the route or tour.

The dialog box titled 'Aktionen bei Zugfahrt/Fahrstraße:' contains a list of three items: 'Lok-Typ: Schlepptender' with 'am Anf...', 'Wagen-Typ: IC/ICE' with 'am Anf...', and 'Länge (X): Einzelfahrzeug' with 'am Anf...'. Below this list is a section 'Lok-Typ ändern in:' with a dropdown menu set to 'Schlepptender', a 'K-Nr.: 0' field, and a note 'Kontakt-Nr. 0 = aktuelle Lok in FS/ZF'. At the bottom are three radio buttons: 'am Anfang' (selected), 'am Ende', and 'am Kontakt: 0'.

Fig. 9.88 The three options for "Change matrix types".

9.18.17 Action "Change train name" at tour/route

Using this action, you can also change the name of a train assigned for the entered tour/route.

For this purpose, enter the (new) name of the train assigned for a specific TND contact of the tour/route. If you enter "0", the name change becomes effective for the specific locomotive, which is active in this line of the tour automatic.


Additionally, you can define, whether the name change becomes effective at the beginning, at the end, or at a specific contact of the route or tour.

The dialog box titled 'Aktionen bei Zugfahrt/Fahrstraße:' shows a 'Zug' (train) entry with 'Zugname: ICE 1090' and 'am Anf...'. Below is a section 'Zugname' with a text field containing 'ICE 1090', a 'K-Nr.: 0' field, and a note 'Kontakt-Nr. 0 = aktuelle Lok in FS/ZF'. At the bottom are three radio buttons: 'am Anfang' (selected), 'am Ende', and 'am Kontakt: 0'.

Fig. 9.89 The action "Change Loco name".



9.19 The index card "Intermediate stops"

On the fifth index card  you can configure intermediate stops of a registered route/tour and its follow-up ways. Normally a train shall travel on these ways without stopping in between.

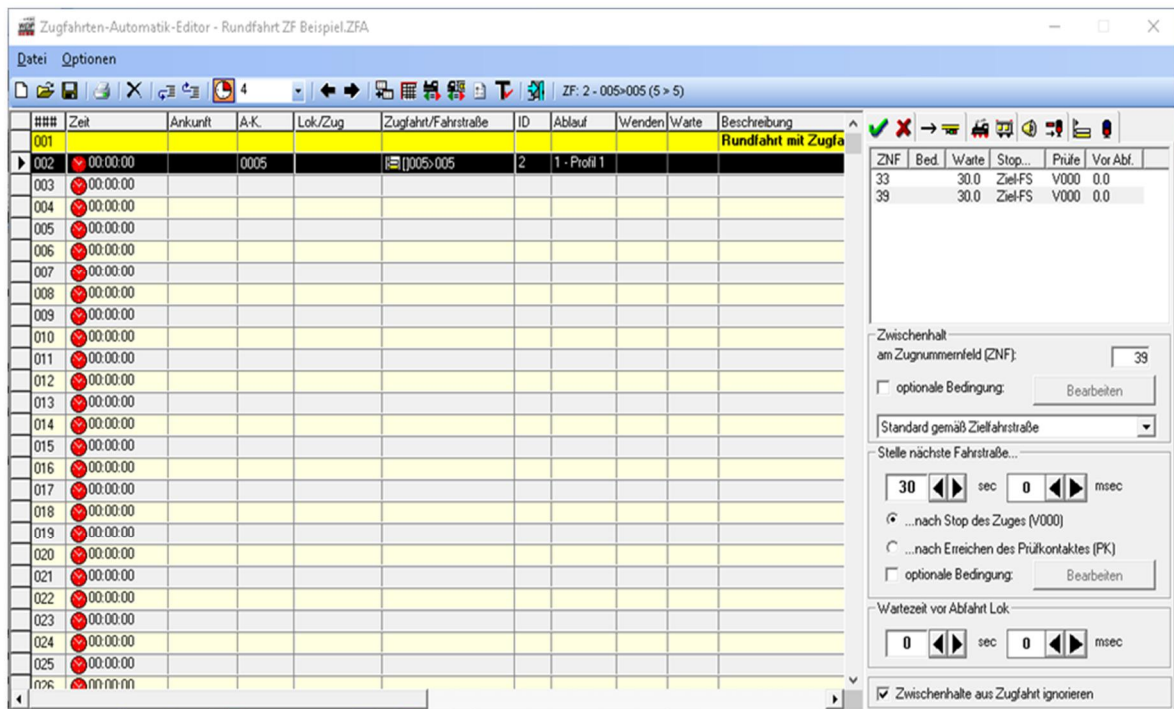


Fig. 9.90 For the selected tour we configured two intermediate stops.

Sometimes you might have the wish to stop a train in a station (e.g. for passenger exchange) and continue the interrupted trip after a short waiting time.

In our example we configured a train (from SBhf track 3 to SBhf track 3) and used it in the tour automatic as round trip. This tour passes the station Burghausen twice, first using track 4 and then track 6.

We want to configure now intermediate stops for 30 seconds at station Burghausen, regardless it uses track 4 or 6.

A new intermediate stop can be configured by clicking with the right mouse button into the large box on the index card. A context menu will appear and you can select "New intermediate stop".

You need to tell the program now at which feedback TND the tour shall be interrupted. In our example these are feedback TND 33 resp. 39 for the train number displays of track 4 and 6. The feedback TND numbers have to be registered using the keyboard or you can drag a track symbol with the needed TND number into the input box beside



Fig. 9.91 Context menu intermediate stops.



"at train number display (TND)". Of course, we need to configure two intermediate stops (one for track 4 and one for track 6).

You can also configure a stop position for each intermediate stop if you install the intermediate stop for an intelligent train number display.

Additionally, you can configure several conditions which have to be fulfilled before an intermediate stop will be performed. If they are not fulfilled the intermediate stop will be ignored.

These conditions could be virtual switches or the check if a train is occupying the nearby station track (for passenger transfer). For the conditions you can use a condition tree which you already know from the index card "Conditions".

You find the condition tree also in other parts of the program, i.e. in the tour editor and the dispatcher. The conditions are the same in all parts, but differ in respect to their specific purpose. The condition tree may be extended by using the expert mode.

In the box "Switch next route" you can configure how long the intermediate stop shall last and if this time span starts when the trains have been stopped (speed = 0 km/h) or when the check TND of the previous route has been reached.

Also here, you can combine "Switch next route" with certain conditions. For example, you have stopped a freight train, so that a passenger train can pass. Now, you could use the condition to check, whether the passenger has already passed.

Intermediate stopped tours will get indicated with a "blue" square in the tour event inspector.

After the selected time span is elapsed, the next route within the tour will be switched if possible (due to switch conditions etc.).

A further option is the "Waiting time before departure loco". This time span starts after the next route has been switch. The train will accelerate after the waiting time is over. A train stopped due to such a "Waiting time before departure loco" is indicated in the tour event inspector with an "orange" square.



The interruption is only possible at train number displays which are assigned to a destination TND of one of the routes used in the tours of the currently edited tour automatic row.

At the lower part of the index card you find the option "Ignore intermediate stops within tour". This hook can be set in rows with tours, for which intermediate stops have been entered. When the book is set, intermediate stops of the corresponding tour are ignored.

9.20 The index card "Timetable display"

The index card "timetable display" is only shown, if a departure time is defined in the row. Furthermore, the entry "timetable display" must be activated in the programme part "train director". In the entry train director you define the train number displays which belong to the station Burghausen.

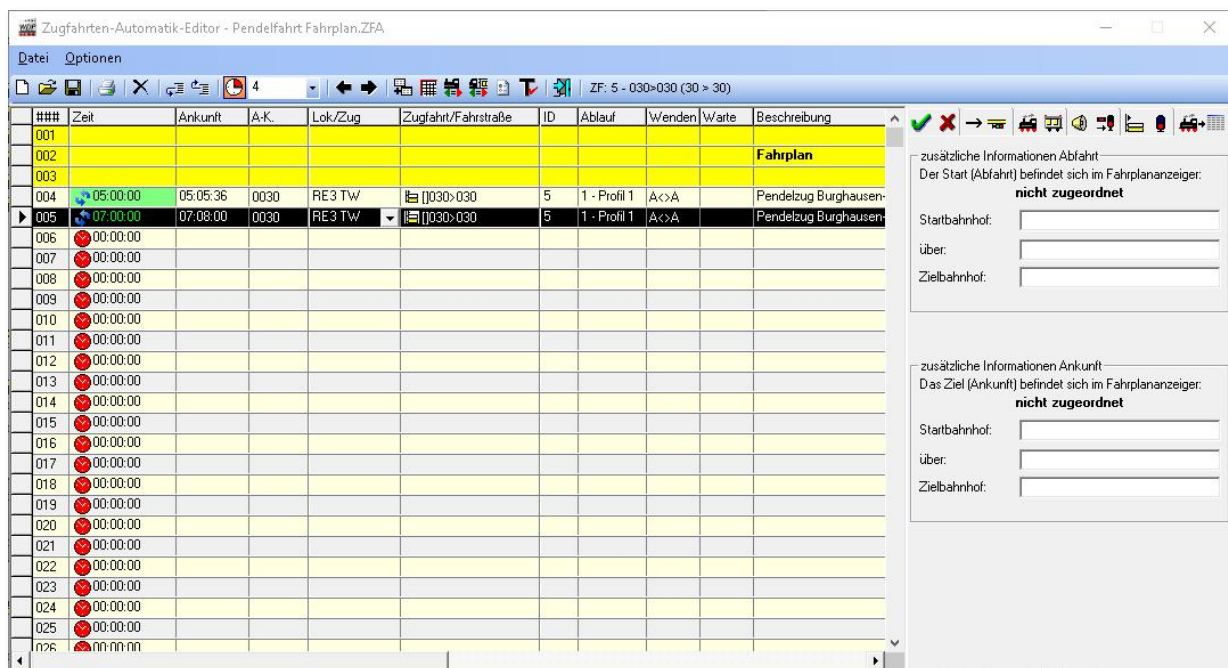


Fig. 9.92 The index card timetable display.

Define the departure and arrival informations for the trip. In this example, the trip starts and ends at track 1 of station Burghausen. The timetable displays for departure and arrival are separate.

9.21 Editing the tour automatic

9.21.1 Inserting, deleting and copying rows

For inserting or deleting rows select the according row in the automatic editor. The row will be highlighted and you can open a context menu using the right mouse button as shown with several commands. Select the command <Insert empty line(s)> for inserting rows and <Delete rows> to delete rows.

You can even cut and copy lines for later insertion at another place.

If you want to select more than one row, click with the left mouse button onto the **first** row of the desired selection. Now press the Shift-key and select the **last** row you want to select in the list. This will result in the selection of all rows within the selected section. If you select more than one row the index card on the right side will disappear temporarily.

The commands <Paste cut line(s)> resp. <Paste copied line(s)> will become available as soon as you have cut or copied other rows before. This function will not overwrite the current selection, but it will insert the rows from the clipboard after the selected row. All other rows behind will be shifted down.

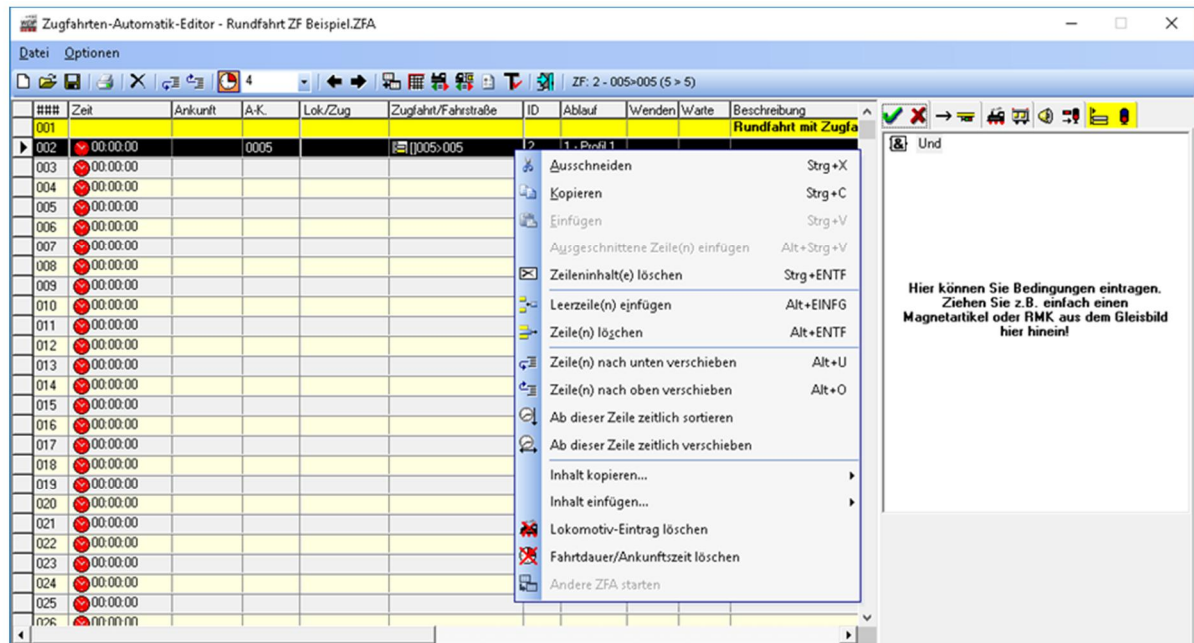


Fig. 9.93 Several operations can be applied to a selected row.

This does not apply to the command <Paste>, this command will overwrite the current selection with the content of the clipboard.

Using the commands <Copy content...> and <Insert content...> you can open the matrix and automatic section selections from one row to another row. In you repeat the insert process you can use this function to transfer these settings from one row to several other rows.


9.21.2 Warnings when inserting rows

As described before you can easily select, cut and copy rows containing parts of your automatic. Afterwards you can insert these rows at (nearly) any other row within the automatic.

When inserting rows e.g. via <Copy> and <Paste> a warning might occur and the action might be aborted if the maximum number of 1999 rows would be exceeded by this action. This would cause a loss of data.

A similar message will be shown if an insertion of rows on the index card "Follow-on tours" would shift existing rows over the "20 follow-on tours allowed" border.

9.21.3 Moving rows in the tour automatic editor

You can move rows within the tour automatic editor using the buttons  in the toolbar.



Select a row you want to move down and press one the left of the two buttons. With repeated clicks on this button you can move the row to the desired position. If you want to move a row up in the list, you can do this with the right button.

If you want to move more than one row at the same time, use the multi-row selection explained in section 9.21.1 and shift the marked area with one of the two buttons.



If you move multiple rows out of the visible list area, you need to adapt the scroll position in the editor yourself.

The editor will not scroll automatically while moving rows.

If you have selected multiple rows the movement is only allowed as long as the movement would not result in a shift before row 1 or behind row 1999.

If you move just **one** row up or down, the moved row will always be shown at the **top** of the list (exception: bottom of the list with visible row number 1999).

9.22 Handling tour automatic files

9.22.1 Saving a tour-automatic-file


After the registration of all data, it's a good idea to save your work.

Click on the symbol  in the toolbar of the tour automatic editor.

If you haven't assigned a file name yet you will be asked to enter a file name.

9.22.2 Opening a tour-automatic-file

When opening the tour schedule editor, the file **edited last** will be loaded and displayed automatically.

If you want to open another file (*.ZFA), select the menu command <File> <Open> or click on the symbol  in the toolbar of the editor.

Select a file and confirm your selection via '**OK**'. You can select the four recent accessed files also in the menu <File> without using the normal open-command

Within the file open dialog, you can also delete unused tour automatic files using the button '**Delete**'. But be careful. This function will delete these files without any security question.

9.22.3 Renaming a tour-automatic-file

You can rename a changed/unchanged file in the tour schedule-editor. Select the menu command <File> <Save as...> and assign a new file name.

9.22.4 Deleting a tour-automatic-file


Via the symbol  in the toolbar the actually **loaded** and **displayed** tour-automatic-file can be deleted from your hard disk.


The file will be deleted after a security query.




You can delete the tour-automatic-file also in the dialogue window "Open TA-file" (see section 9.22.2).


9.22.5 Creating a new tour-automatic-file

When opening the tour schedule editor via the symbol , the file **edited last** is loaded and displayed automatically.

If you want to create a completely new file, select the menu command <File> <New> or click on the symbol  in the toolbar. If you have not saved your previously edited file, you will be asked if you want to save this file or not.

After this the editor will create a new empty TA file. The empty file has the name ??*.ZFA. We suggest to call the save function via the button  in the toolbar immediately to assign a file name to your new TA file.

9.22.6 Appending a tour automatic file

If you want to append a tour automatic file to the currently opened one just press the button  in the toolbar or select the corresponding command in the menu <Options>.

A new window called " Insert tour automatic " appears. On the left you see the names of all tours created so far. Select the file you want to insert and confirm your selection with 'OK'.

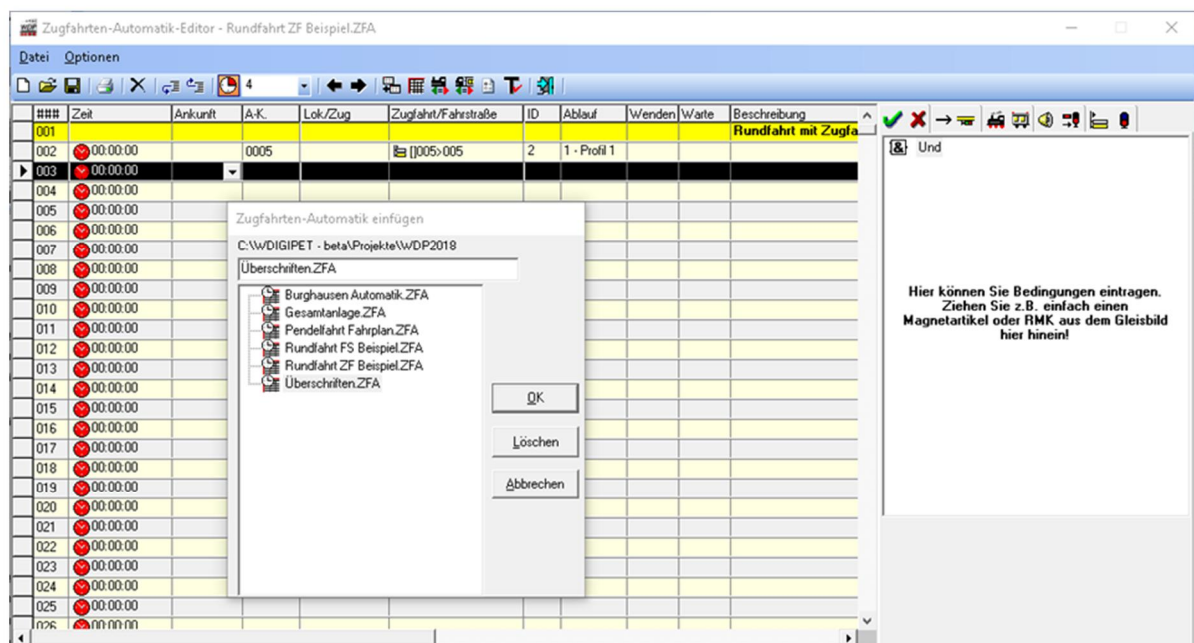



Fig. 9.94 Another TA file shall be inserted into the current TA file.

The data from the selected tour automatic will be appended to the last row of the current tour automatic file. Afterwards you should save the tour automatic as new file if necessary.



9.22.7 Printing a tour-automatic-file

You can also print the **displayed** tour automatic file. Click on the symbol  in the toolbar of the tour schedule editor, the window "Print tour scheduler..." will appear.

Here you can select if the conditions, the matrix, the options or the follow-on-tours shall be displayed and printed or not.

You can also save the printout as a file named "ZFA-Editor.rtf" by pressing the according button.




Fig. 9.95 Printout of a TA file.



Before printing a file, you have to save, because otherwise the last changes will not be printed.



9.23 Tour automatic list

The tour automatic list can be used to filter or search for rows in the tour automatic editor that match user-selectable criteria. The TA list can be opened using the button  in the toolbar of the tour automatic editor.


In dieser Liste sind alle eingetragenen Zeilen zu sehen, welche den Kriterien im unteren Teil des Fensters entsprechen.

For better usage you should arrange the list and editor window on the window in such a way, that they do not overlap.

Using the filter selection, you can easily select the data you want to see. Therefor select the according filter and the list will only show now the data matching the filter criteria.

When selecting a row in the tour automatic list the tour automatic editor will automatically show the according row in the editor view. The list in the tour automatic editor will automatically scroll for this.

Using the other search functions above the filter you can search for specific rows in the list.

The extended filter will be applied as soon as you enter the text/criteria you want to search and press the button  afterwards. The search criteria are well known from other program parts of **Win-Digipet**.

The filtered rows can also be saved to a new TA file or deleted if needed.

When saving into a new TA the well-known dialog "Save TA-file as..." will appear and you can enter a new name for the TA file.

If you select to delete the filtered rows from the open TA file, you will be asked if you really want to do this.

9.23.1 Editing in the tour automatic editor using the tour automatic list

If you want to edit a row which is currently selected in the tour automatic list just click into the tour automatic editor. The tour automatic editor shows always the row which is selected in the tour automatic list at the moment.

After making your changes you can change over to the other window again.

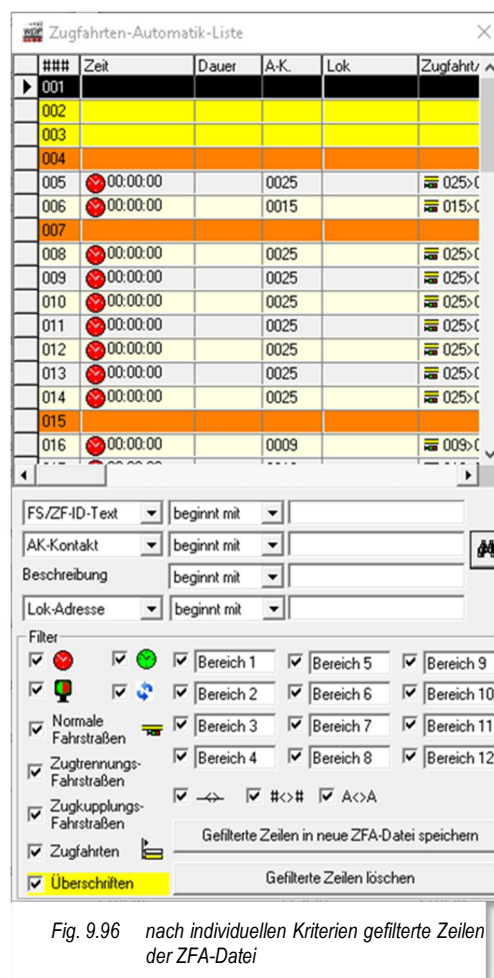



Fig. 9.96 nach individuellen Kriterien gefilterte Zeilen der ZFA-Datei



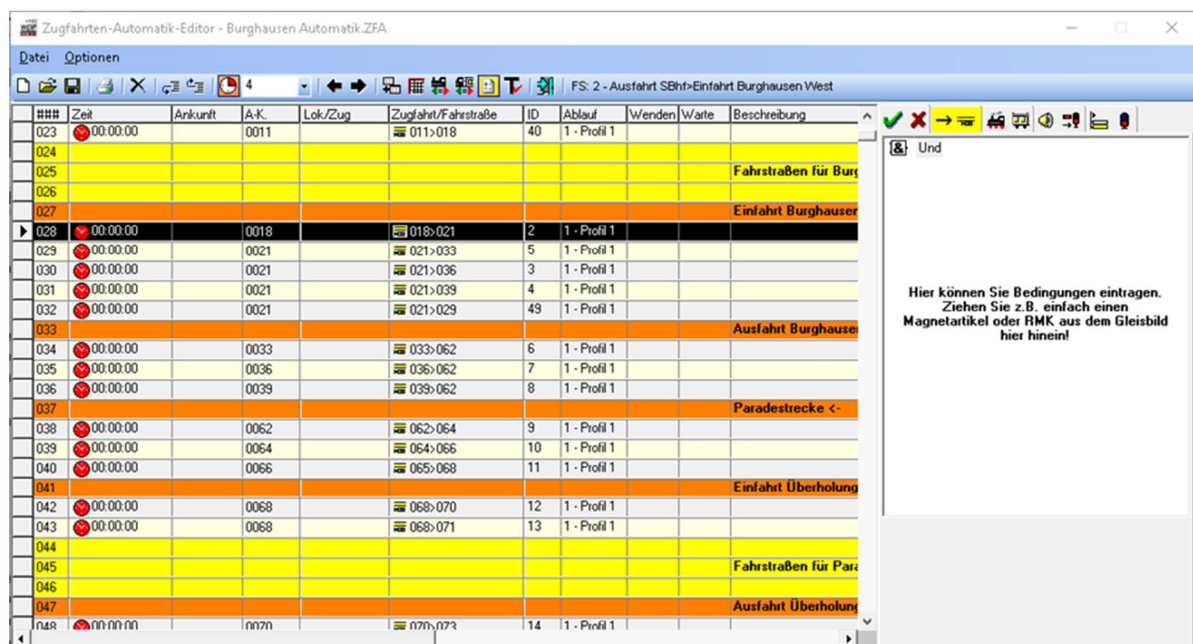
Please remember that each selection in the tour automatic list will cause the selection of the according row in the tour automatic editor.

If you select on the other hand another row in the tour automatic editor this will **not** result in a reselection in the tour automatic list.

If you have made changes in the tour automatic editor, you do not need to save these changes immediately. When closing the tour automatic editor, you will be asked later if you want to save your changes. But we suggest saving your changes manually from time to time.

The tour automatic list can be closed using the button . It will be closed automatically when leaving the tour automatic editor.

9.24 Influence of row order to the way of execution in the automatic



###	Zeit	Ankunft	A.K.	Lok/Zug	Zugfahrt/Fahrstraße	ID	Ablauf	Wenden	Warte	Beschreibung
023	00:00:00		0011		011>018	40	1 - Profil 1			
024										
025										Fahrstraßen für Burg
026										
027										Einfahrt Burghausen
028	00:00:00		0018		018>021	2	1 - Profil 1			
029	00:00:00		0021		021>033	5	1 - Profil 1			
030	00:00:00		0021		021>036	3	1 - Profil 1			
031	00:00:00		0021		021>039	4	1 - Profil 1			
032	00:00:00		0021		021>029	49	1 - Profil 1			
033										Ausfahrt Burghausen
034	00:00:00		0033		033>062	6	1 - Profil 1			
035	00:00:00		0036		036>062	7	1 - Profil 1			
036	00:00:00		0039		039>062	8	1 - Profil 1			
037										Paradestrecke <-
038	00:00:00		0062		062>064	9	1 - Profil 1			
039	00:00:00		0064		064>066	10	1 - Profil 1			
040	00:00:00		0066		066>068	11	1 - Profil 1			
041										Einfahrt Überholung
042	00:00:00		0068		068>070	12	1 - Profil 1			
043	00:00:00		0068		068>071	13	1 - Profil 1			
044										Fahrstraßen für Par
045										
046										Ausfahrt Überholung
047										
n48	nn:nn:nn		nnnn		nnn>nn7	14	1 - Profil 1			

Fig. 9.97 The order of registration is not necessarily the same as the order of execution.

By registering routes and tours in the tour automatic editor you can take influence how resp. in which these routes or tours will be executed resp. checked for execution.

An example:

Within the column "Tour/Route" you have registered routes according to Fig. 9.97. You have registered the routes in the order you intended to be executed during later operation. While using the program the order of execution does not to be identical to the order of registration because **Win-Digipet** uses an additional internal list to determine which row should be executed next.



The selected row in our examples contains route 018>021 ending at feedback TND 021. But this feedback TND 021 is the start TND of several routes in the next words. You can verify this using the tour automatic list by filtering with the Filter "Demand TND equals 21". You would see 4 routes.

When executing the tour automatic **Win-Digipet** creates such a list per demand TND internally itself.

When a train now reaches TND 021, **Win-Digipet** will check, if it can use the first registered route for this TND in the list. In our case this is route 021>033. If this route can be switched, the further routes (021>036, 021>039 and 021>029) will be ignored.

With this procedure it might happen that other routes will never be taken into account. This logic applies to all demand TND within the tour automatic.



Another possibility is the usage of conditions (like virtual solenoid devices, counters etc.) to give the second/third etc. routes a chance of execution.

9.25 Miscellaneous options

Via the menu <Options> you'll get access to the following functions.

Always display feedback TNDs

If you want the program to display all feedback TNDs in the track diagram **every time** you open the tour schedule editor, select this option.

Display solenoid devices addresses

If you want the program the program to display all solenoid device addresses registered in the track diagram, you can select this option. Sometimes the addresses can't be read, so you can enlarge the address by pressing the left mouse button over the address (Zoom-Function).

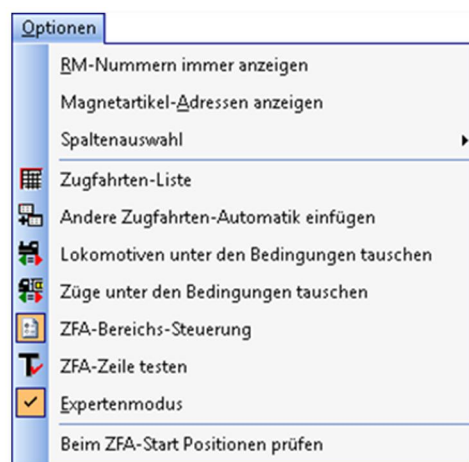



Fig. 9.98 The options menu in the TA editor.



9.25.1 Exchange locomotives in conditions and matrix

In some cases, it is useful to exchange one locomotive in a tour automatic by another. If you want to exchange locomotives, click on the switch  in the toolbar. Alternatively, you can use the corresponding command in the menu "options".

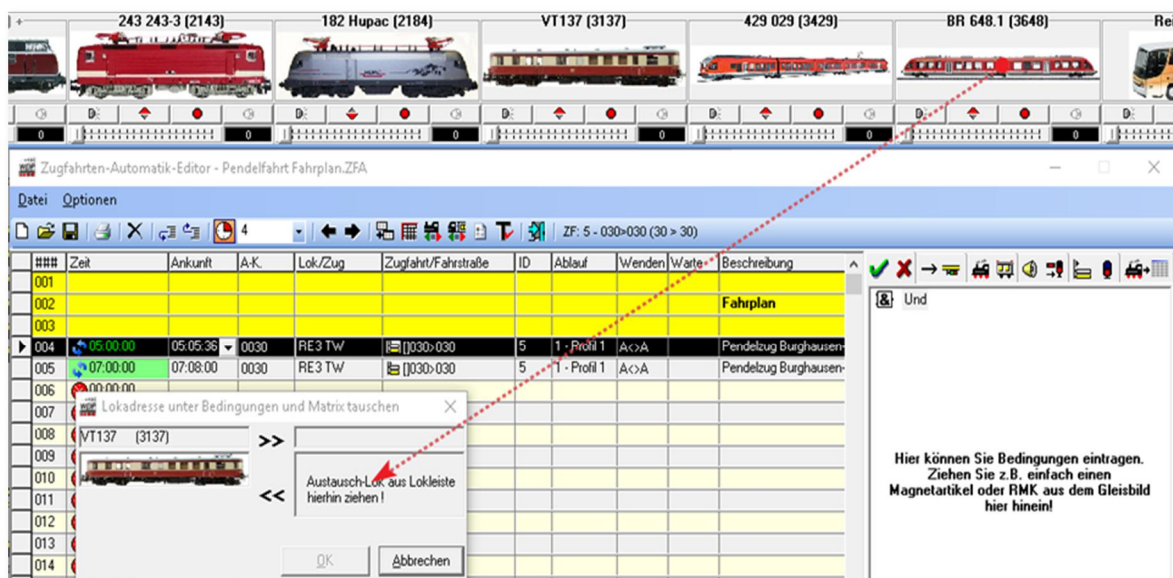


Fig. 9.99 Trainset VT137 shall be exchanged with trainset BR 648.1.

A window opens. The locomotive **shown on the left** is the one to be changed. Depending if the current row contains a locomotive or not the left box is filled or not. If no locomotive is shown in the left box, drag a locomotive to be changed from the locomotive selection bar, positioned by you at a screen edge, to the **left hand** picture field (see Fig. 9.99).

Afterwards drag the destination locomotive from the locomotive selection bar, positioned by you at a screen edge, to the **right hand** picture field. The left-hand side locomotive is changed to the right hand side locomotive throughout the entire tour automatic, if you click **'OK'**








This command can only be executed, if the row contains a fixed locomotive (entered in column loco). Otherwise, the dialogue window does not appear.



9.25.2 Column selection

Some users or some types of automatic usage will not need all available columns in the tour automatic editor. Thus you can (un)hide some of the columns using the menu <Options> <Column selection>.

You can hide the following columns:

-  Locomotive
-  Duration/arrival time
-  Demand TND
-  Turn command
- 

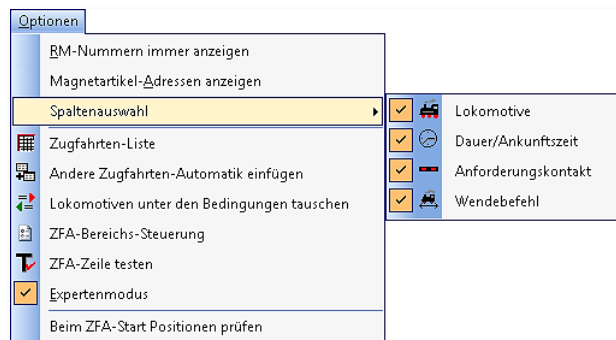




Fig. 9.100 The menu for column selection.

9.25.3 Expert mode

Like in most other editors you can select an expert mode with further functions; in this case extended actions and condition trees.

9.25.4 Check positions at TA start

Within the menu <Options> you can also activate the function <Check positions at TA start>. When starting the tour automatic, the following things will be checked:

-  The start TNDs (start positions)
-  The locomotive directions

In case of an error state, you can then correct the problem before continuing the automatic start. You can select an error message within the dialog window. The program will show you then the train number display with the expected locomotive position in the track diagram in "yellow" (see Fig. 9.101).

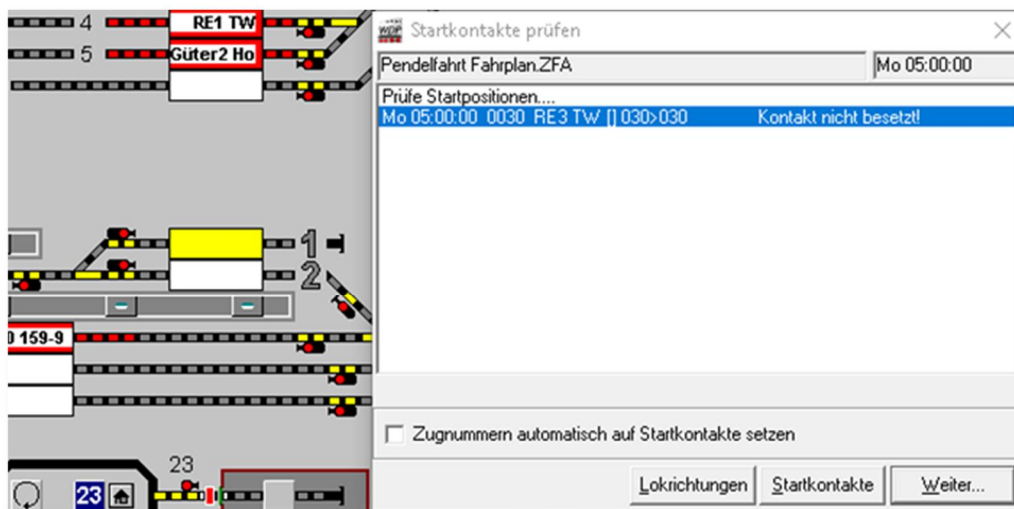


Fig. 9.101 The start position of RE3 is indicated as 'not correct'.

If everything is fine you can press '**Continue**' and proceed with the start of the tour automatic. This will be described later in this chapter.

9.26 Using automatic files from older versions of Win-Digipet

9.26.1 Load a timetable file

With version 2015 of **Win-Digipet Premium Edition** the timetable from former version has been integrated in the tour automatic.

If you have created timetable files in previous versions, you don't need to rewrite these files in the tour automatic. You can just import the old timetable files to the tour automatic.

You can open your old timetable in the tour automatic editor using the menu command <File>< Open timetable file >.

In the dialog you can select a timetable file (FPL) and confirm your selection with '**OK**'.

The complete timetable will now be loaded into the tour automatic editor.

You can now give a new name to the file and save it. The new file ending of your "old" timetable is now "ZFA".

This file can now be edited like any other TA-file and you can use all functionalities of the TA as well.

9.26.2 Converting DC-files to tour automatic files

If you have created your automatic operation with the old demand, TND automatic (not available any more since **Win-Digipet 2012 Premium Edition**) you can easily convert this old automatic to the tour automatic.

The converter can be reached via <File> <Convert DC automatic to tour automatic>.










In the converter window you can select a source DC file and convert it to a tour automatic file. It will be converted to a tour automatically with the extension ".ZFA". Afterwards you can open the converted file in the tour automatic editor as usual.



Fig. 9.102 The conversion of an old D.C. automatic file.

9.27 Practical tips for usage of the tour automatic

When configuring a tour automatic you should remember the following points:


-  As a rule, the start TND of the route/tour will also be the demand TND for the tour automatic.
-  When controlling your hidden station, the start TND of the route/tour should not be the demand TND for the route/tour, because otherwise the hidden station will empty itself. Here you could use a TND before the hidden station and a train arriving before the hidden station will demand a track to empty itself.
-  For realisation of the control of the hidden station you can also use virtual switches. For example, the train arriving before the hidden station, will switch it to "green". The "green" state is used as precondition for the execution of the tour/route for the leaving train and this leaving tour/route will also switch it back "red"..
-  You should also use the "Waiting time"-function, because otherwise your passengers will not have time to leave or enter your trains at the platforms.
-  When using repetitions for push-pull-trains on light railways this will cause a very interesting operation.
-  You can also use your profiles in the tour automatic, when selecting the corresponded event flow via the radio-buttons. Profiles make for example sense, if you want to play a platform information message/sound before the train will depart.
-  Using the matrix in the tour automatic editor you can add refine the settings of the matrix in the routes editor. When checking a row can be switched the program will test if the used locomotive/train is used in the route's matrix as well as in the one of the affected tour automatic



An additional hint!

Start with an easy automatic and extend it step by step. This is much easier than starting with a complicated project. The tour automatic offers thousands of possibilities for interesting operations. This manual can only give suggestions to you. With your own experiments you will find very interesting ways of automatic operations.


9.28 Leaving the tour automatic editor

For closing the tour schedule editor select the menu command <File> <Close> or click on the symbol  in the toolbar.

You will be asked if you want to save your changes (if you haven't done it before) and afterwards the editor will be closed.

9.29 Starting a tour automatic

In the previous sections of this chapter you learned how to create a tour automatic file in detail. In this section we will now explain how to start and control an existing tour automatic

For starting the tour automatic close the Tour Automatic editor and click on <File> - <Tour automatic> or on the switch  in the main toolbar of **Win-Digipet**.

A window will open showing all existing tour automatic files within your project.

Select the TA automatic file to open and confirm your selection with '**OK**'.

Within this window there is also a button for deleting existing tour automatic files. After pressing '**Delete**' and a security question the file will be removed from the project directory.

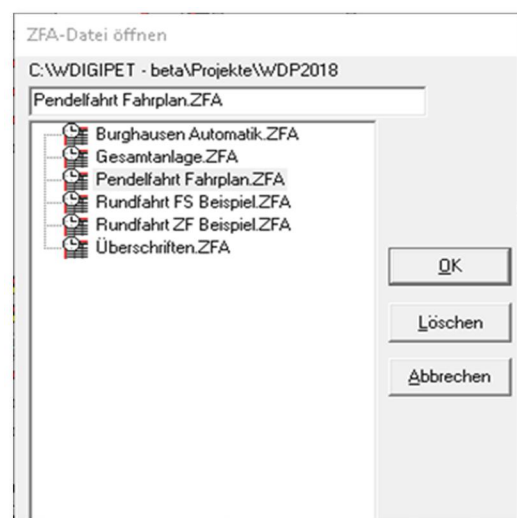


Fig. 9.103 The dialogue for selecting a TA file.









You should use the command for deleting tour automatic files with care. After deleting a tour automatic file, it can be only restored if you own an (actual) backup of your project.



9.29.1 Start times of a tour automatic

After the selection of TA file, a window called "Departure time for:...ZFA" will appear.

Here you can select between the following possibilities:

-  **Start at beginning of week**, e.g. if you have a layout for presentation and you want to present always the same automatic: Mo 00:00:00
-  **Start with time of central clock**
-  **Last saved time**
If you have interrupted the tour automatic and want to continue at the same time
-  **Start with first departure time within tour schedule**
the first departure (rows with green clock) will be used as start time for the TA. If you have only rows using "By arrival" it will be used the start of the week: Mo 00:00:00
-  **Individual start time**
you can choose a start time within this window
-  **Row**
the departure time of a selectable row will be used

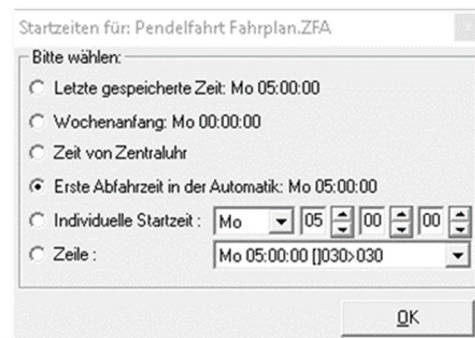


Fig. 9.104 The selection of the TA's start time.

The start time for a TA is only important when using time controlled rows within your tour automatic.



Please notice, that waiting times after arrival cannot be influenced by the start time.

Rows with a waiting time after arrival will not be executed before the defined time span since the last arrival is over.

Having made all selections, you confirm them with the button '**OK**'.

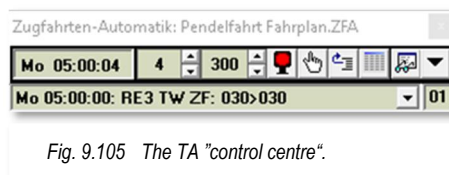
If you checked in the tour automatic editor the option "*Check positions at TA start*" (see section 9.25.4), this check will be performed now and after making possible changes you need to confirm with '**Next**'.



9.29.2 The control centre of the tour automatic

Afterwards the control centre of the tour automatic will appear immediately. The selected TA file is loaded (see window's caption) and the automatic is now ready to use.

This inactive state at the moment is indicated by the red symbol in the control centre. For activating the automatic click on this red signal and it will change to a green signal.












Here you can set several options concerning your tour automatic, we will explain them later.

On the left side of the window you can see the current time of the tour automatic. After starting the automatic the selected start time will appear here. During operation the TA automatic clock is clocked using a time factor. This means e.g. for a time factor of 4, that 1 minute in real time will result in 4 minutes in model railroad time. You can change this time factor between 1 and 360 using the spin buttons.


In the field in the middle you can see the interrogation time, you can select a value between 100 and 1000 msec. This interrogation time defines how often program checks for new tour automatic rows to execute.

The symbols on the right side have the following functions (left to right):

-  Start/Stop of the tour automatic
( =active,  =inactive,  = processing rest of buffer)
-  Switch routes/tours manually from the buffer
-  Delete routes/tours from buffer
-  Open timetable display
-  Open tour automatic inspector
-  Show or hide setup/options

In the comment panel below with the selection arrow the contents of the route/tour buffer are indicated. The buffer contains routes/tours that were not executed until now due to a delay. These delayed rows will be handled according to the setting in the system settings (see section 9.7.3).

9.29.3 The options in the tour automatic control centre

If you click on the button , the window will enlarge and offer additional for your tour automatic.

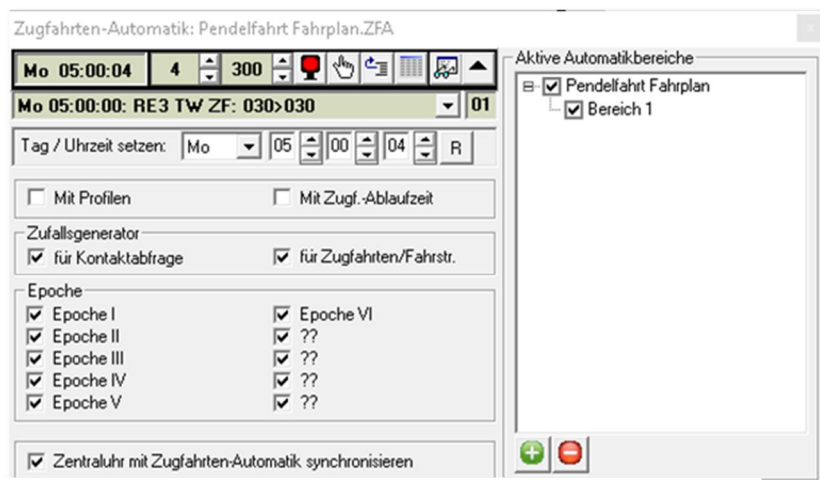




Fig. 9.106 Further options in the tour automatic control center.




The check box "With profiles" must be activated, if profiles shall be applied during the automatic operation. If this check box is not activated, the trains run according to the settings of the individual route. An exception are rows, for which contact events are defined in the tour automatic.

The check box "*With max. waiting time*" is very useful when using tours in your automatic with demand TNDs. This waiting time can be set in the system settings. Then tours that cannot continue due to a blocked situation etc. will be killed after the waiting time has expired. If you checked this option, a tour with exceeded waiting time will be treated as follows...

- 
 in the tour automatic with **unchecked** "*With max. waiting time*"....
 1. the tour will be stopped
 2. the tour will be marked "RED" in the tour event inspector
 3. the train number remains "GREEN"
 4. **no** audible or visible warning will appear
- 
 in the tour automatic with **checked** "*With max. waiting time*"... **without** alternative route/tour within the tour automatic...
 5. the tour will be stopped
 6. the train number will be switched from "GREEN" to "BLACK" resp. "WHITE"
 7. the tour will be marked "RED" in the tour event inspector with an hourglass
 8. a sound warning will be played and a message will appear for a short time, if not disabled in the system settings



9. you have to remove the blocked situation, afterwards select the tour in the tour event inspector and restart the tour with the button 

10. or you have to continue the train manually with a tour or route, then the tour will be deleted automatically from the inspector

 in the tour automatic with **checked** "*With max. waiting time*"...**with** alternative route/tour within the tour automatic...

11. the tour will be stopped

12. the train number will be switched from "GREEN" to "BLACK" resp. "WHITE"

13. the tour will be marked RED in the tour event inspector with an hourglass

14. a sound warning will be played and a message will appear for a short time, if not disabled in the system settings

15. the tour will remain in the tour event inspector until the train is continued by the tour automatic.

Via the two check boxes "Random generator" you will create a very varied tour automatic.

You can activate random generators for...

 Demand TNDs

 Routes/Tours.

If you just activate **demand TND**, the TNDs are demanded in random order. The routes at one TND are checked one after the other. The first, that can be switched, will be switched and all other routes will be left out.

If you check the **routes/tours**, the routes/tours are chosen randomly. If one route/tour couldn't be switched, the next one will be selected randomly

If you have registered many routes/tours, it can last rather **long** until a route/tour can be switched.

You can also activate **both** random generators at the same time and you will achieve a complete random operation.

Epochs will only be taken into account if you have activated the use of epochs in each tour automatic row.

If you want to sync the central clock with the tour automatic clock you activate this here. If you stop the tour automatic or it stops automatically the central clock will then be stopped too.

In the right part of the window you can see the available automatic sections for the loaded TA files. Only automatic sections used in one or more rows of the TA will be listed.


You can (de)activate the used automatic section at any time while operation the TA.



9.29.4 Load an additional tour automatic

In the window shown in Fig. 9.107 you can load and execute additional TA files.

You can load simultaneously up to 5 tour automatic files. In our example we want to add two TA named "Pendelfahrt Fahrplan" and „Burghausen Automatik“ .to the already load TA " Gesamtanlage"

Therefore, click on the button  . In the dialog "Open TA file" (see Fig. 9.103) you can select the file and confirm your selection with '**OK**'.

The second loaded automatic will be added to tree below the already loaded automatic. The automatic sections of the second automatic will appear also in the tree. In the example shown in the present figure one "Bereich 1" is marked red, since there is another section with the same name.

Using the check boxes, you can (de)activate single automatic sections for each automatic file or even a complete automatic file.

Up to 5 tour automatic files can be loaded which can be combined with up to 12 automatic sections per file, so that you can use up to 60 sections at the same time to configure very interesting operations for your layout.


Eine zusätzlich geladene ZFA können Sie mit dem Symbol  auch wieder entfernen. Beachten Sie, dass die **zuerst** geladene ZFA-Datei nicht mit diesem Symbol entfernt werden kann.





Fig. 9.107 An additional TA has been loaded.




All settings made for your tour automatic will automatically be saved when closing the tour automatic and reloading when opening the tour automatic again. The file name for this option file is <name_zfa>.dat.

You should not delete this file, because also the names of your automatic sections are stored here.

9.30 Ending the tour automatic

Before ending the tour automatic you need to set the automatic to inactive by pressing the button  . If there are still trains in the buffer, button is yellow: .

After all trains have reached their destination, you can close the automatic window by pressing the button .

WIN - DIGIPET

The control program

Version 2018 Premium Edition

Chapter 10



10. THE TRAIN DIRECTOR³⁴







10.1 General

The train director (TD) is a new, extended feature of **Win-Digipet 2018** to control the operation. The train director supervises layout sections which are defined by train number displays and controls the traffic in these sections. In this way the control of train operations is considerably simplified.

One aspect of its development was that even beginners of **Win-Digipet** need only a short time to handle it.

The train director applies six different sceneries or TD-types with dedicated functions. Each TD-entry can be assigned to one TD-type and defines which train number displays are to be supervised.

The different TD-type are:

-  Single rail track (SRT)
-  Train density measurement (TDM)
-  Driving activity (DA)
-  Pass by control (PBC)
-  Hidden yard control (HYC)
-  Timetable display (TTD)

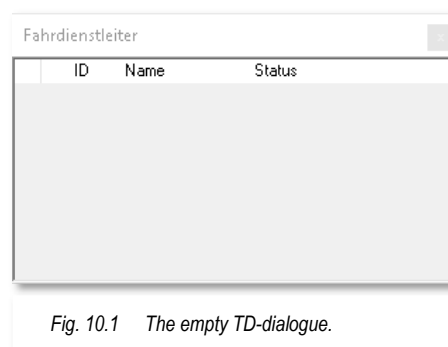



Fig. 10.1 The empty TD-dialogue.

³⁴ Parts of this chapter were taken over from the document „Der Fahrdienstleiter in **Win-Digipet 2018.0**“ written by Sven Spiegelhauer.



The train director is opened via the symbol  in the symbol bar "Editors" in the main program and an empty window appears. Alternatively, the train director is opened with the corresponding command in the menu <file><train director>.

By clicking the right mouse button into this window a short menu becomes visible.

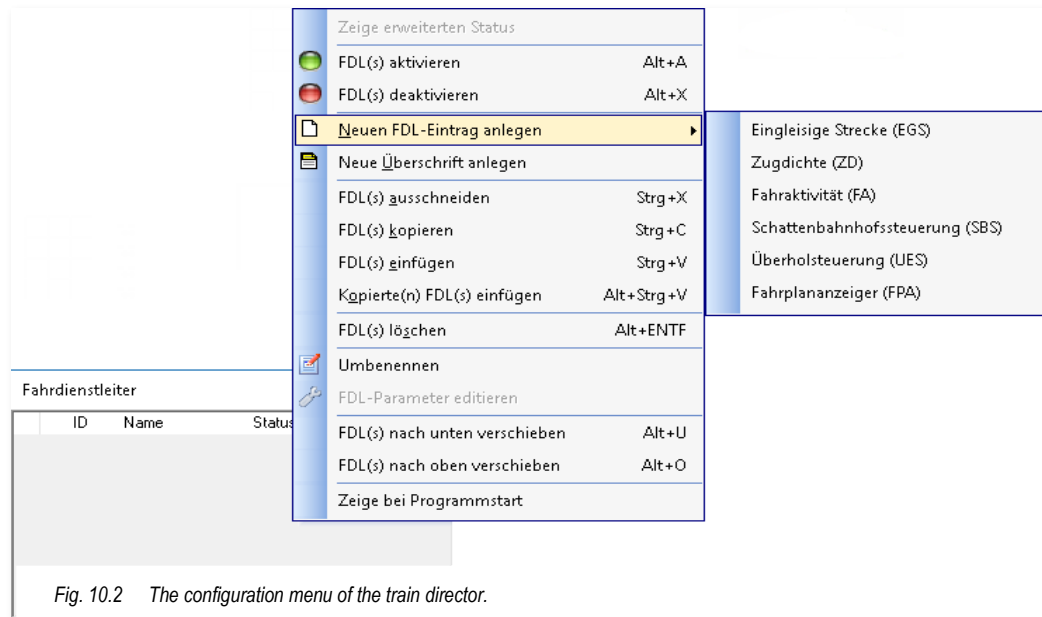


Fig. 10.2 The configuration menu of the train director.

All settings of the train director can be performed in this short menu.

To create a new TD-entry address the option "Create new TD record" and select an appropriate TD-type in the extended menu.

The further menu entries are similar to those in other parts of **Win-Digipet** or are self-explanatory. The defined TD-entries can be (temporarily) deactivated or activated with the two upper menu options. Alternatively, you may click on the TD-entry with the middle mouse button, so that the entry becomes activated (green) or deactivated (red).

Similar to the tour automatic editor or the dispatcher you can include titles between the entries so that you get a better overview. For this purpose, use the menu option "Create new heading".

10.2 Types of train director

10.2.1 Train director "Single rail track (SRT)"

With this type of train director you can supervise a single rail track in an easy way. This function is to avoid a blocking of two trains on such a track. In previous versions of **Win-Digipet** such tasks could be solved with direction arrows and checking of conditions - sometimes with great effort.



A corresponding situation is shown by the following figure as found in the demo project **WDP2018**.

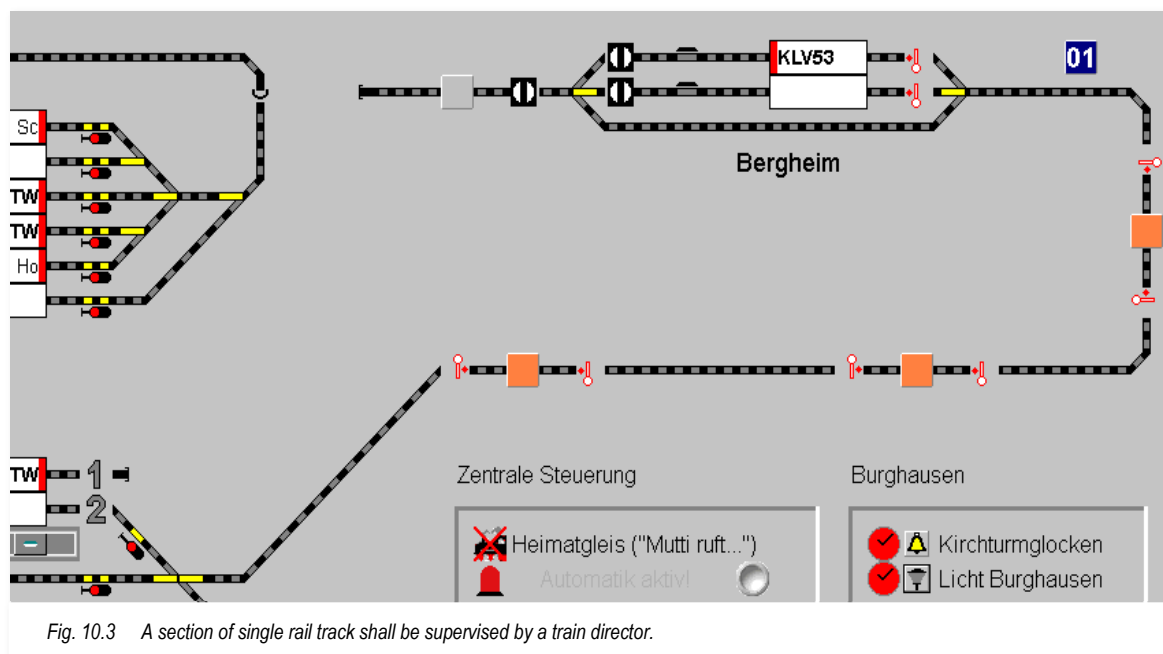


Fig. 10.3 A section of single rail track shall be supervised by a train director.

Fig. 10.4. shows the dialogue window for the TD-entries. In the left part you see a list of all TDs in the present project. Each entry corresponds to a specific task. If you have more than one single rail track on your layout, you must define a separate TD for each track. The same applies to hidden yards.

It is recommended to give appropriate names to single entries in the column "Name".

The green and red marks in the first column show the activated or deactivated status of a TD. You can (de)activate via the context menu of TD list or by clicking with the middle mouse button onto the green/red mark in the first column.

The column "status" shows several numbers and arrow symbols. They indicate the numbers of trains for this TD-entry. If there is a green background, the maximal possible number of training has not been reached. A red background shows that the maximal number of trains has been reached.

In the middle part of the dialogue all train number displays are defined which belong to the single rail track. The train number displays can be transferred by drag& drop from the track diagram.



In the right part of the dialogue you can enter, how much trains are allowed to run in one direction. Please pay attention that the station at the end of the single rail track has enough tracks for these trains.

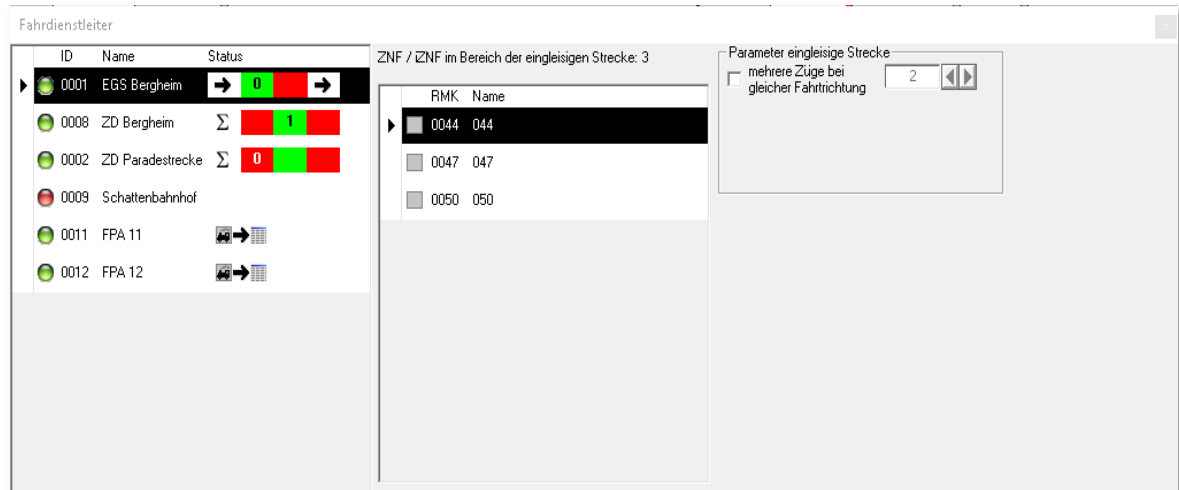


Fig. 10.4 The configuration dialogue for TD "single rail track (SRT)".

These are all configurations which are needed for this type of train director.



It is important that your routes have informations about the train direction as a prerequisite for the proper functioning of the TD.

Please be aware of one important point - especially when considering the new functions - that train number displays must only be recorded in horizontal or vertical track sections, but not in oblique ones.

10.2.2 Train director "Train density measurement(TDM)"

The train director "Train density measurement (TDM)" determines the number of all trains in a selected area of your layout and is able to control the entry into and the exit from this part by considering its minimal or maximal occupancy. By limiting the number of trains in

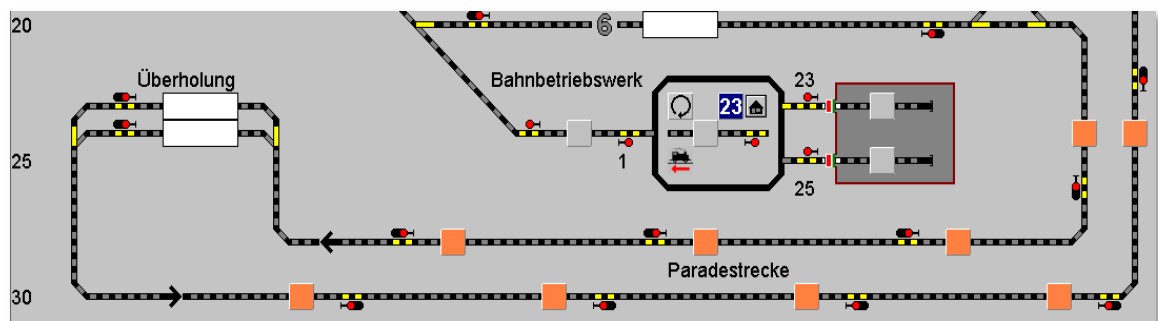


Fig. 10.5 The train density shall be defined for the presentation track.



an area one can avoid blockings, for example. Furthermore, one can avoid that too many or even all trains leave the area.

Also in the case of the TD-TDM all train number displays of the supervised area are recorded in the middle part of the configuration dialogue. Once again, the sequence of the train number displays plays no role.

In the right part of the dialogue the minimal and maximal occupancy of the defined train number displays are entered. The difference between the minimal occupancy and the



Fig. 10.6 The train director "train density measurement"

maximal number of occupied train number displays must be at least one.

Instead of numerical values you can also place counters from the track diagram into the value fields. In this way you may vary the train density in order to get a more dynamic automatic operation. For instance, the dispatcher might care for lower night than day traffic.

The status indicator of the marked line shows the number of trains.

In the left red field the number of trains is shown, as soon as the minimal number is reached or falls below.

The middle green field shows the number of trains, if its value is between the minimal and maximal occupancy.

The right red field shows the number of trains, as soon the maximum number is reached or exceeded.

10.2.3 Train director "Driving activity (DA)"

Using the train director "Driving activity" you can influence the number of trains, which are active in a route or tour, within a specific area.



Fig. 10.8 The window with the parameters for the TD "Driving activity".

As soon as the maximal number is reached, no further routes or tours will be started in the supervised train number displays. As an option you can decide, whether also those trains shall be affected, which leave the area or run in its direction.

The status indicator shows the number of active trains - in "green", if the maximal allowed number is not yet reached, and in "red", if the maximum number has been reached.

Another possibility is that the train director supervises the train operations in the visible part of the layout or even in the complete layout.

10.2.4 Train director "Pass by control (PBC)"

Using the train director "Pass by control" you can achieve that trains with higher priority pass by trains with lower priority. The priority is dependent on the categories of the matrix and the assigned priority in the system settings of **Win-Digipet**.

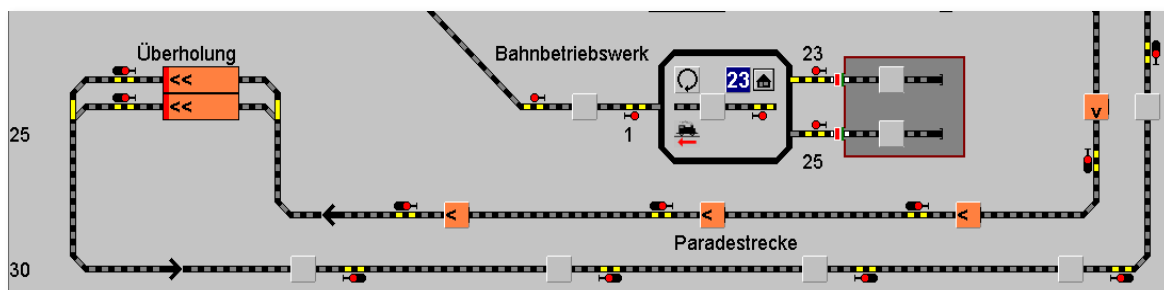


Fig. 10.9 The supervised train number displays for the „Pass by control“.



All train numbers to be used in a pass-by-area are entered in the first column of the list. The second column contains all train number displays before the pass-by-area at which the priority of the trains is to be evaluated. If a train is located on a train number display of the pass-by-area, the train director checks all trains on the preceding train number displays. If there is a train with a higher priority, the train in the pass-by-area waits, until the other train has passed.

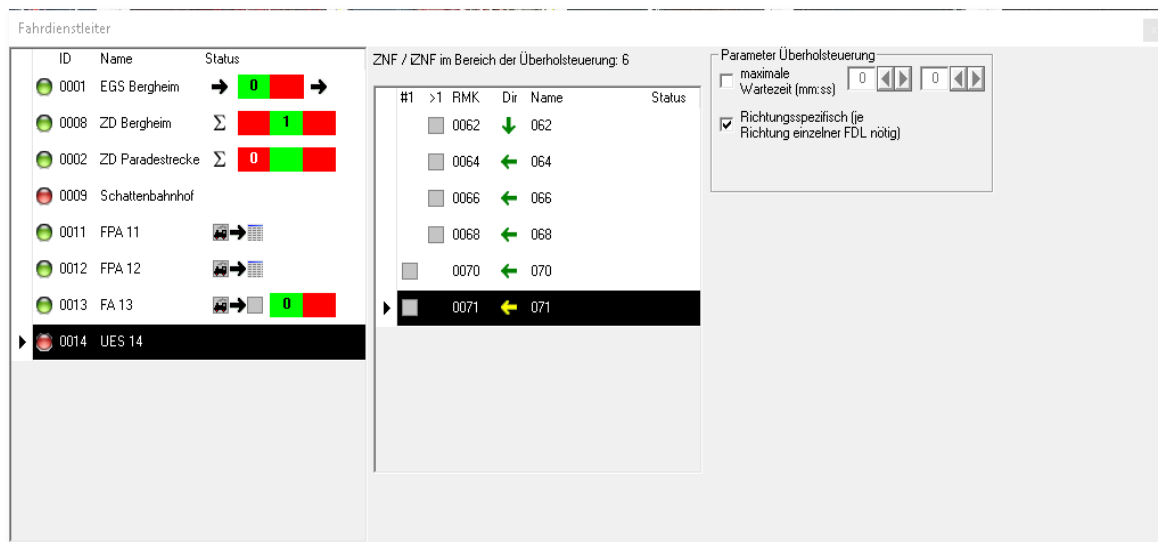


Fig. 10.10 The parameters of the TD-„Pass by control“.

To enter the train number displays in the column click with the right mouse button in the list of train number displays and choose from the short menu the entry "Change position in track".

If you want to establish a pass by control in two directions, you have to install a "TD-Pass by control" separately for each direction. The direction for each single train number display must be defined in the column "Dir". For this purpose, use the entry "Change driving direction" in the short menu.

Finally, you can define the waiting time for a train to let pass by trains with higher priority. After this time even trains with lower priority will continue their way regardless other high priority trains within the PBC.

10.2.5 Train director "Hidden yard control (HYC)"

Using the train director "Hidden yard control" you can control a complete hidden yard. In contrast to the other types of the train director you must use a tour automatic.



The settings of this train director allows different options for the single tracks:

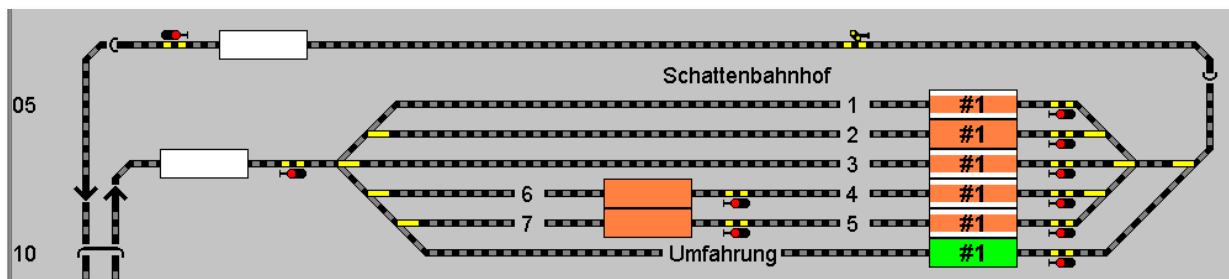


Fig. 10.11 The hidden yard to be controlled by the TD-“Hidden yard control “.

- 🚂 Normal tracks in one or two directions
- 🚂 Tracks with bumper
- 🚂 Several sequential storage tracks
- 🚂 Pass by track

Because of the complexity of this train director you have to consider several prerequisites in different parts of Win-Digipet:

- 🚂 Only intelligent train number displays can be used. The distance values of the feedback contacts must be defined and for the settings of the iTNDs the option “destination matrix” must be activated.
- 🚂 The length of all vehicles must be recorded in the vehicle database.
- 🚂 The train must be assembled in the same way as on the layout and the train matrix must be defined accordingly. If no train assembly is used the train length (locomotive and waggons) must be recorded in the vehicle database with the locomotive.
- 🚂 In the route editor no limitations for the matrix and the train lengths are allowed.



In the tour automatic no limitations for the matrix and the train lengths are allowed.

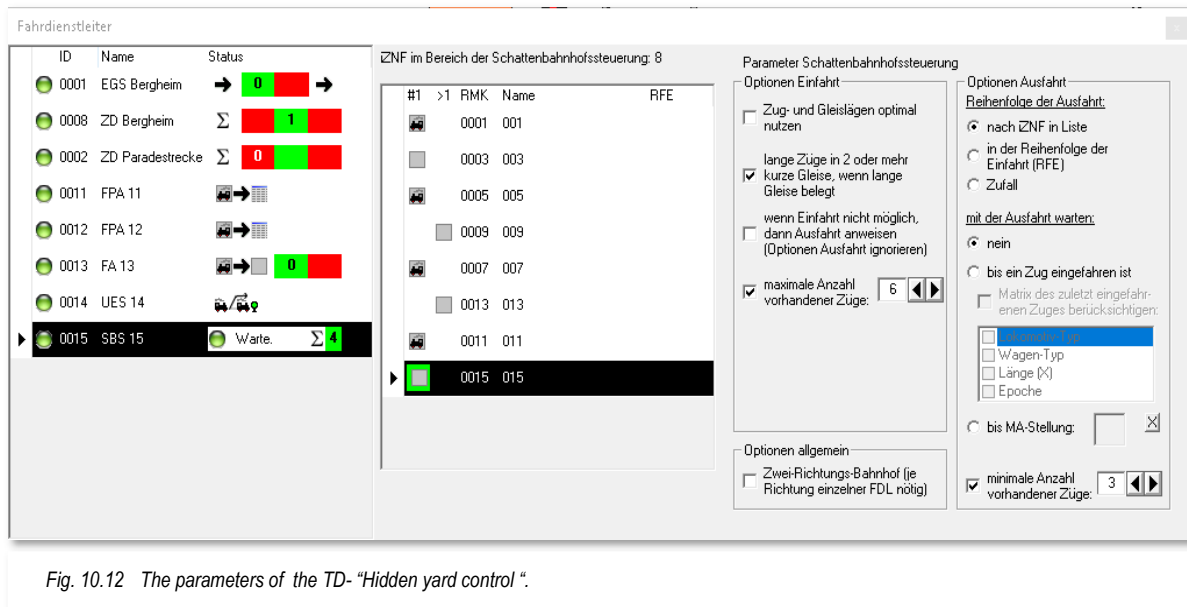


Fig. 10.12 The parameters of the TD- "Hidden yard control ".

For the two tracks with two sequential positions the backward train number display is shifted to the column >1. For this purpose, please use the known short menu.

Use the short menu also to select the pass by track. It will be indicated by a green frame.

The status indicator give the following informations:

	Red point left -> exit blocked
	Green point left -> exit enabled
	Yellow point left -> exit will be enabled as soon the minimal entering number is surpassed
	Red exclamation mark behind the point-> exit has been forced by an entering train
	Number right -> number of trains in hidden yard
	Red field right-> the number of trains is equal or lower the minimal train
	Green Field right -> the number of trains is greater than the minimal train occupation
	Middle text-> name of the intelligent train number display, from which the next train will leave



The right part of the parameter window includes the options for controlling the hidden yard. These can be divided into a general, an exit, and an entry part.

In the general part you have to define whether the hidden yard can be used in one or two directions. If you decide for two directions, you must define a TD-HYC for each direction.

The options for the entry are:



Use train and track length optimally

Taking into account the destination matrix of the single train number displays the shortest track will be searched for the entering train. Please mind not to define any lengths or matrix limitations for the routes.



Long trains into one or more sequential short tracks, if long tracks are occupied

In this case several sequential train number displays are assembled so that the track length is sufficient for a long train. The long train blocks the backward train number displays. As soon as a long train is registered on the frontal train number display, the backward train number displays are blocked, even if there is no feedback message.



If entry not possible assign exit (ignore option exit)

If no appropriate free track is found for the entry and a passing by of the hidden train is not possible, a train can be switched to leave the hidden yard even if the exit options are not yet fulfilled. In this case only the minimal train occupation is considered.

The options for the exit are



Sequence of exit - according to iTND in the list

The entered train number displays are processed from up to down. Free train number displays are not considered.



sequence of exit - in the sequence of entry

The sequence of exit is according to the column "OF". The entry with the smallest number can exit first, since this train remained in the hidden yard for the longest period. When this train exits, all other numbers are automatically decremented by 1.



Random sequence of exit

The exit from the hidden yard is executed randomly.



Wait for exit - no

Trains leave the hidden yard until a minimal number of remaining trains is reached. This option makes sense, if all trains are stored in hidden yard at



the end of operation. In this way trains can enter the layout without problem at the start of operation.



Wait for exit - until a train has entered

A train does not leave the hidden yard, until another train enters the yard and a minimal occupancy is surpassed. This option makes sense, if all trains are left on the layout at the end of operation. At the start of operation a train leaves the hidden yard only, when another train enters it. This option can be combined with a matrix check. In this case, the matrix is considered beside the sequence of exit.



Wait for exit - until solenoid device is switched

The exit of a train is dependent on the position of a solenoid device. Also, counters can be used so that the set number of trains is allowed exiting.



Minimal numbers of remaining trains

The minimal number of trains placed in the hidden yard.

10.2.6 Train director “Timetable display (TTD)”

Here, the train director offers no functions for train operations. This option is only used for defining areas of station tracks, the name for the station and its timetable displays. All other settings are done within the tour automatic editor. The display can be shown when the tour automatic is executing.

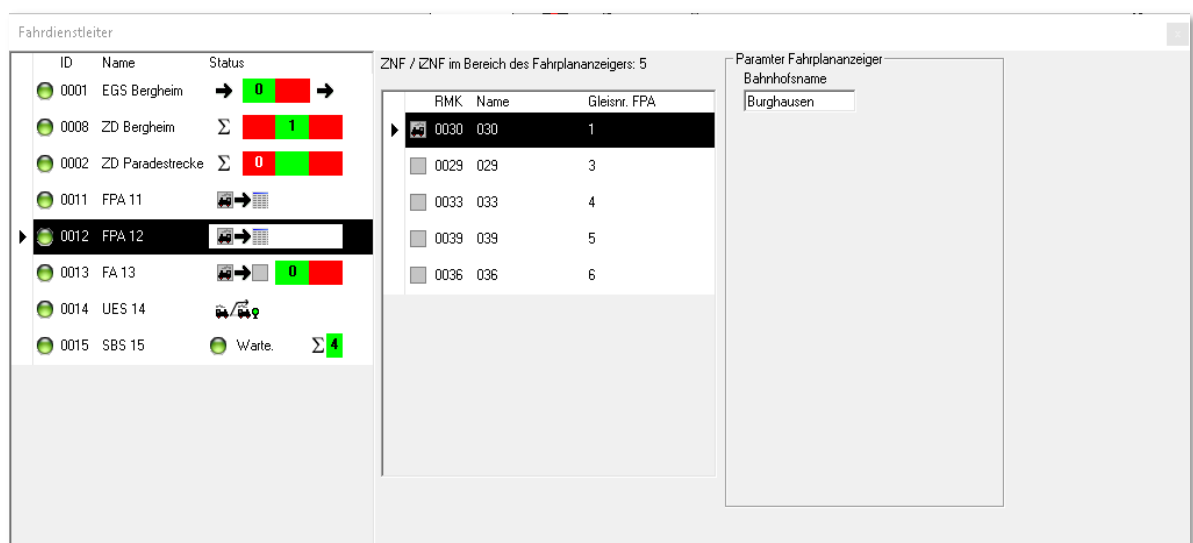


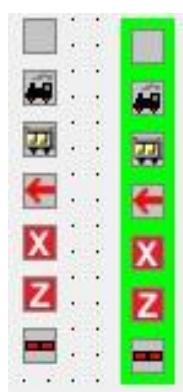
Fig. 10.13 The parameters of the TD-“ Timetable display”.



All train number displays of a station, which shall be shown in the timetable display, are entered in the TD-TTD. The only option is the naming of the station.

10.2.7 Summary of setting up and using the train director

- 🚂 TNDs/iTNDs, which shall be gathered in one group, can be transferred into the list by drag&drop. An explicit sequence is not really necessary, but may be helpful to get a good overview.
- 🚂 Each TND must be entered only once in a TD.
- 🚂 When using the TD-HYC an applied iTND may not be used in more than once in all TD-HYCs.
- 🚂 During the editor mode all TNDs of the TD shown in the track diagram are marked orange. If you click the left mouse button on a TND in the list field, it is framed in "red" for control.
- 🚂 The TD is ready for action after activation (indicated by a green point in the first column), also at the function "Switch + Drive". The TD-HYC is an exception. It is active only during executing a tour automatic. A red point means deactivated.
- 🚂 You may use TNDs and iTNDs. The TD-HYC is an exception. In this case, only iTNDs must be applied, so that all options such as track length and matrix can be used optimally.
- 🚂 The extended steps use indicator (column 1/2) can contain further graphical information - dependent on the TD-type











- 🚂 TND free (all TDs)
- 🚂 TND occupied with loco (all TDs)
- 🚂 End of train in front, extended in the TND (TD-HYC)
- 🚂 A train with opposite direction at a prior TND (TD-HYC)
- 🚂 TND track blocked (all TDs)
- 🚂 TND destination (germ. Ziel) blocked (all TDs)
- 🚂 only feed back contact of TND occupied, no train registered on this TND (all TDs)

- 🚂 The entries with the green frame indicate that the track is a pass by track.
- 🚂 Routes for coupling and decoupling are only considered in the TD-DA.
- 🚂 The TD-HYC is a special option among all TDs, because it has more selectable options and includes several TD types. Furthermore, one has



to consider some settings in the vehicle database, the tour automatic, the iTNDs, the routes, and the ZZS.

-  Limitations of the matrix are only allowed in the destination matrix of an iTND for TD-HYC.
-  Exact track lengths in the iTND are mandatory for TD-HYC.
-  Exact lengths of vehicles in vehicle database are mandatory for TD-HYC.
-  Limitations of train length in routes and tour automatic is not allowed TD-HYC
-  There is an additional column 'Dir' in some TDs and the appropriate directions must be entered.
-  There are two columns for TNDs in TD-HCY and TD-PBC. These are necessary for the registered tracks behind the exit train number displays for the TD-HCY resp. before the pass-by-area for the TD-PBC.
-  In all TDs, in which a number of trains can be entered, it is possible to use a counter symbol via drag&drop.
-  A TD does not switch a route or tour by itself, but it blocks the execution within an automatic. When using "Switch + Drive" the TD shows an error message if the conditions are not fulfilled.

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Chapter 11



11. THE DISPATCHER

11.1 General

The dispatcher is a very powerful, innovative program part of **Win-Digipet**.

The dispatcher is like a database where you place very many records. This database is initialized at the start of **Win-Digipet**, if the according option is activated. After the start of program, the dispatcher is immediately available and runs in background independent of the tour automatic.







The basic functionality of the dispatcher is to monitor states resp. conditions on your model railroad layout and to perform actions depending on changes of these states.

These switchings can be used, e.g. in the tour automatic to start trains in dependency of conditions.

All records of the dispatcher will be checked every 500 msec. **Win-Digipet** and in the case of changes in the condition states the according actions performed.

This might give you an idea, that the dispatcher is very powerful. Within this chapter we'll try to explain the dispatcher using some examples. All examples are part of the demo project and you can simulate them in this project.

The dispatcher is a very powerful tool, which solves different control task, for example:



-  Control of a level crossings
-  Opening and closing of shed doors
-  Control of distant signals independent of routes and automatics
-  Turntable or transfer table control
-  sound activation at specific time (e.g. church bells)
-  and many other control tasks

11.2 Opening the dispatcher

The dispatcher can be opened using the button  in the toolbar "editors" of **Win-Digipet**. You could also use the menu command <File><Dispatcher>.

Before opening the dispatcher, please check that the corresponding option in the menu <Operation><Dispatcher> is activated.

When opening the dispatcher for the first time you will see the dialog according to the following figure. The dialog can be split in three vertical main parts.

-  Conditions
-  Switchings and actions



Records

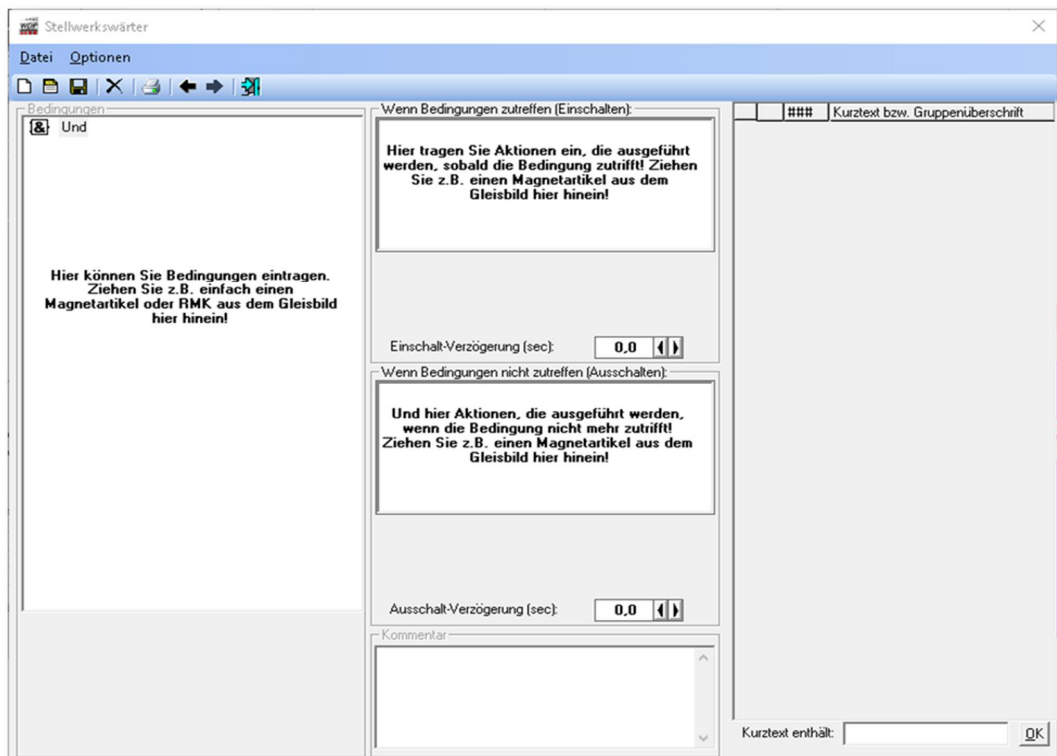



Fig. 11.1 The empty dispatcher window.

The conditions will be registered in a tree structure. Elements from the track diagram used for the conditions can be placed in tree using "drag & drop" like in other parts of the program. Solenoid device/counters which shall be switched by a dispatcher record have to be registered the same way.



11.3 Creating a new dispatcher record

Fig. 11.1 shows the complete database of the dispatcher.

To create a new dispatcher record, click on the symbol  in the toolbar. Now you will see a new empty record in the list. A new dispatcher record is always added at the end of record list.

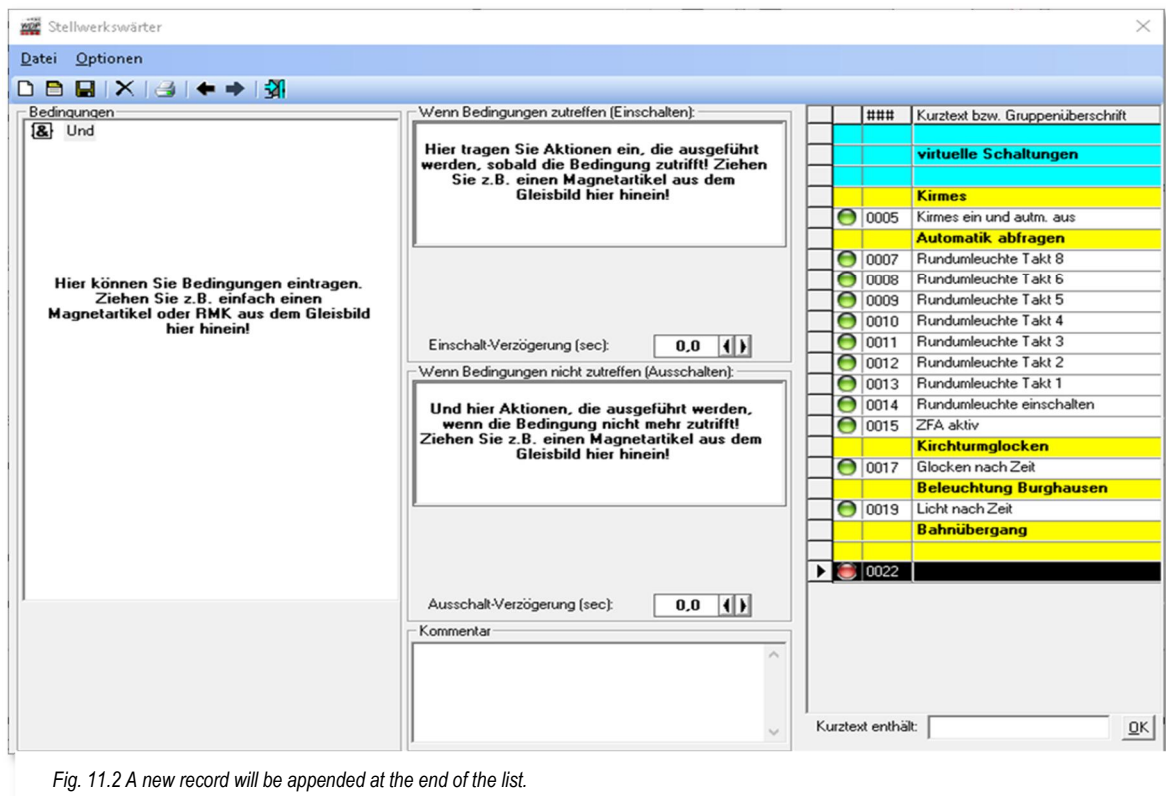


Fig. 11.2 A new record will be appended at the end of the list.


First of all, you should enter a name for your dispatcher task in the column "Short text/group heading" by clicking into this column and entering a text afterwards.

Another possibility to enter comments can be found at the lower bottom in the mid of the window. Here you can enter longer texts to describe the functionality realized in this dispatcher task. This functionality should be used extensively, because without comments it is often hard to understand what you have programmed months before.

11.3.1 Headings in the dispatcher

We suggest to group dispatcher records for similar tasks within the dispatcher record list. Additionally, you should assign to each of these groups a heading describing the meaning of the following records.



For creating a new heading in the list just press the button  in the toolbar.

Thereafter you can enter the text in the list by selecting the new heading record and clicking



Fig. 11.3 Selecting the colour of a group heading.

with the left mouse button in the last column until you get a blinking cursor indicating the edit mode.

You can also change the appearance of the heading in the list by changing its fore- and back colour. You can open the colour dialogues by clicking with the left (back colour) or right (fore colour) mouse button into the field "Heading" in the editor.

Afterwards save your changes by pressing the symbol  in the toolbar.

11.4 Conditions and condition-folders in the dispatcher

The basic functionality of the dispatcher is as follows:

As mentioned in the first section of this chapter the dispatcher is a worker in the background. This means, that the dispatcher monitors changes within your track diagram caused by driving trains or the switching of solenoid devices and so on.

Each dispatcher contains conditions on the one side and actions which shall be executed when these conditions change their state.

Possible actions by a dispatcher task are the switching of solenoid device or counters, the execution of crane macros or the switching of boosters.

The dispatcher cannot execute any function for trains, this task has to be done by the tour automatic. Exceptions are the switching of loco/train-macros and the stop or restart of locomotives.



You are already used the conditions in the tour automatic according to chapter 9. In the tour automatic the conditions were used to decide whether a tour automatic containing a tour or route should be executed or not depending on the conditions state.

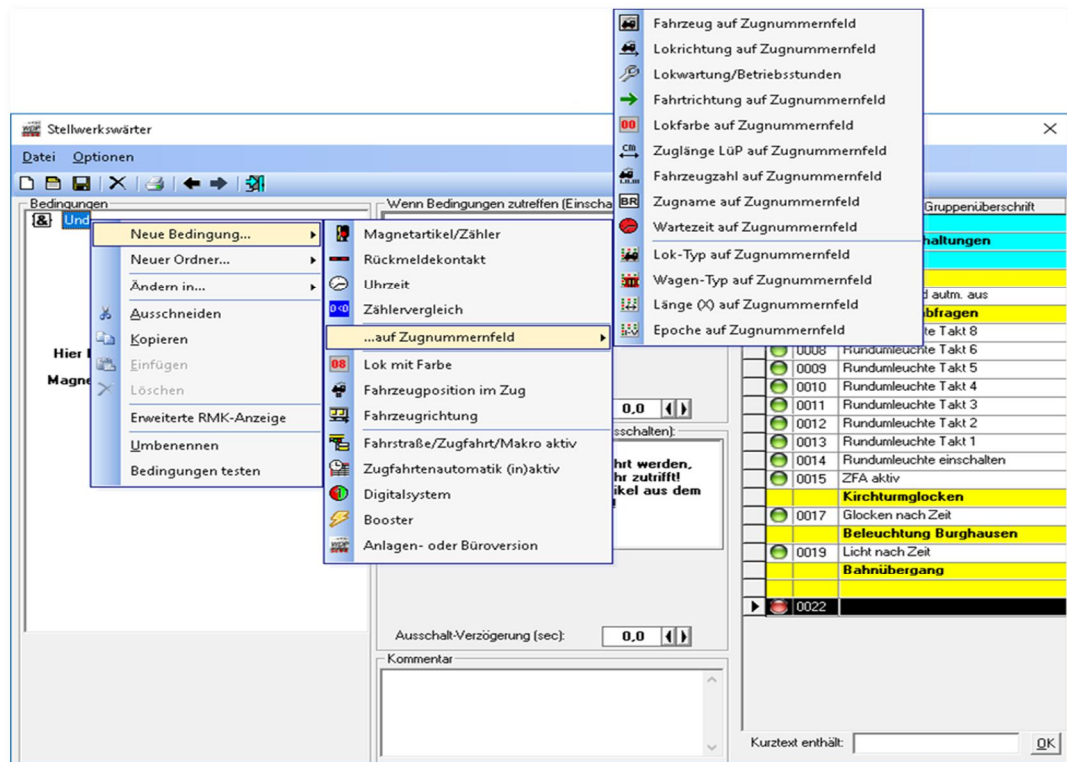


Fig. 11.4 The condition selection.

In contrast the dispatcher does not start routes or tours are started, but performs switchings or actions.

In the left part of the window we can register the conditions for a dispatcher task. After creating a new dispatcher task, we only see the condition tree root element "And". Click with the right mouse button on "And" and select a <new condition ><..> from the context menu.

All conditions available in the dispatcher are well known from the tour automatic have been described in chapter 9. The condition locomotive direction is not available, since the no driving operations are initiated here.

If you need further information regarding any of these conditions take a look at section 9.16 ff. and will not be described here again.

Also, the folders which are used to logically link several conditions are also known from the tour automatic editor.



11.4.1 *Activating the expert mode*

Some of the conditions are not visible by default. These conditions for users with more experience are available after activating the expert mode.

Using the menu <Options> and <Expert mode> you can activate the expert mode.



We would like to repeat that these functions need some experience and deeper knowledge in the use of **Win-Digipet**. Do not activate the expert mode before you used the program a long time and not until you are not sure about the program's functionality.

11.5 *Dispatcher switchings*

In the middle of the dispatcher window the actions/switchings performed by the dispatcher record according to the defined conditions have to be registered.

In the upper box the actions have to be registered which shall be performed as soon as the state of the condition of the dispatcher record changes from false to true (condition is fulfilled). All actions listed here will be performed.

In the box below all action which shall be executed as soon as the state of the condition of the dispatcher record changes from true to false (condition is fulfilled anymore). All actions listed here will be performed.

A good example is a level crossing where the barriers shall open again after the condition for the closed barriers are not fulfilled anymore.

If you would not register the action for reopening the barriers, these would stay closed forever. And of course they won't close again, because they are still close...

Of course, we can imagine many examples where we don't want to perform an action when the dispatcher's condition gets invalid. For example, a counter increasing every time a condition gets valid without automatic increases...

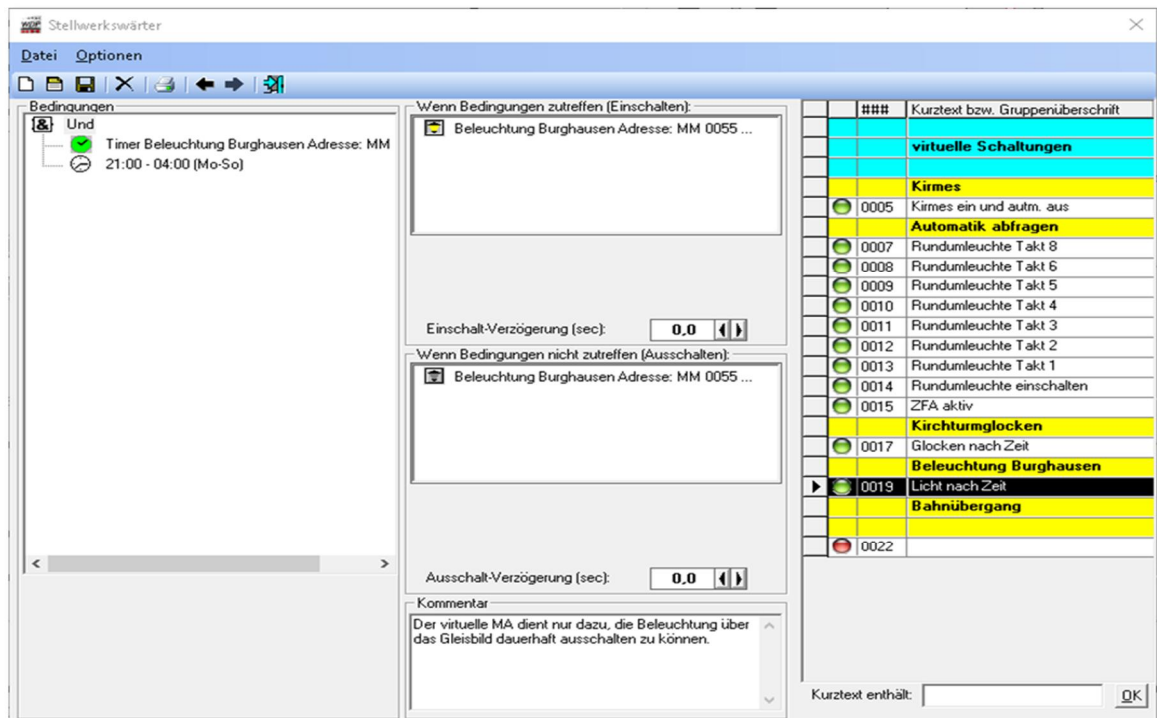


Fig. 11.5 The level crossing symbol has been registered for opening and closing the barriers

define 30 actions to be executed as soon as dispatcher task's condition becomes fulfilled and also 30 actions for the opposite case. Both action lists can be delayed from 0.5 sec to 30 sec (0.5 sec. steps), before they get executed. This delay applies to all actions in the according list.







Regarding delays please keep in mind that the condition must be fulfilled during the period of delay.











For example, if an occupied feedback contact is the condition for a switching with 5 sec delay, the contact must be occupied for at least 5 sec.

11.5.1 Further actions and switchings in the dispatcher

Beside the possibility to switch solenoid devices and counters the dispatcher can execute some other types of actions:

-  Switch solenoid device/counter
-  Counter calculation
-  Logbook/Memo/Text entry
-  Play sound



-  Execute crane macro
-  Execute Locomotive/train macro (with/without TND)
-  Switch booster on/off
-  Switch virtual contact/moment contact
-  Activate emergency stop
-  Stop/start locomotives
-  Block TND
-  Loco colour (with/without TND)
-  Change matrix types (loco, Waggon, length(X))
-  Change train name

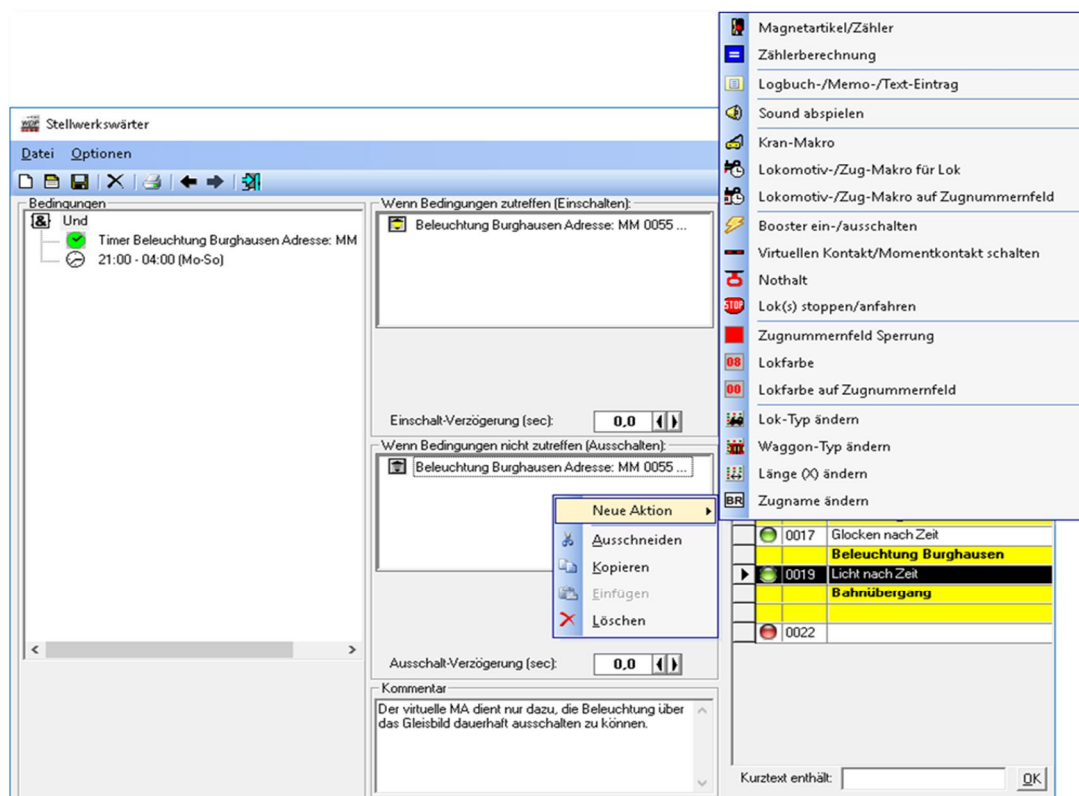


Fig. 11.6 Further actions in the dispatcher

To register these kind of actions press with the right mouse button in the desired action list box and select <New action> followed by the menu command for the desired function.

Except of the actions described in the following, all of these actions have been detailed in section 9.18 ff.



11.5.2 Action "Switching booster on /off"

With this action you can switch a single booster on or off if the condition get fulfilled or is not fulfilled anymore. To use this functionality, the booster management of **Win-Digipet** has to be configured before. The booster and the detailed action can be selected via combo boxes.

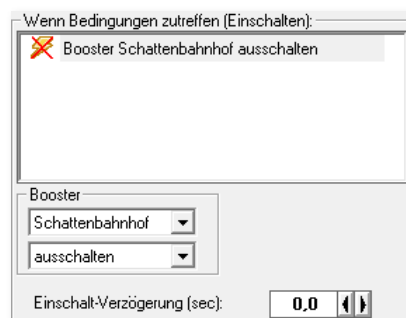


Fig. 11.7 The action "Switching booster".

11.5.3 Action "Activate emergency stop"

The emergency stop is activated if the defined conditions are fulfilled.



Please remove the situation fulfilling the condition, before you manually repeal the emergency stop.

11.5.4 Action "Stop/start locomotives"

If the defined conditions are fulfilled, you can stop or restart locomotives. In contrast to the action "Emergency stop", this action stops the operating locomotives only, whereas all further operations are maintained.

You can define whether a single or all locomotives are to be stopped or restarted, if the condition is no longer fulfilled. You can select the locomotives from a list.

For example, you can interrupt a wrong route of a locomotive caused by an erroneously switched turn out.

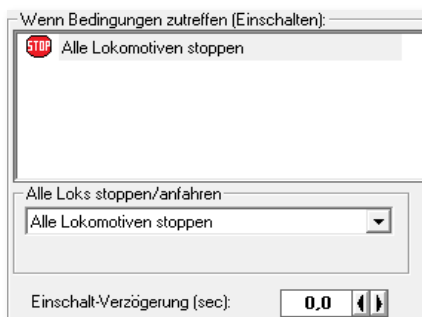


Fig. 11.8 The action "Stop/start locomotives".

11.5.5 Dispatcher for the Faller level crossing

If you use Faller "B-174" level crossing, you to check the according option and register an additional feedback contact to give feedback to the program if the level crossing is currently open or closed.

This is necessary to achieve a working configuration for this type of level crossing.

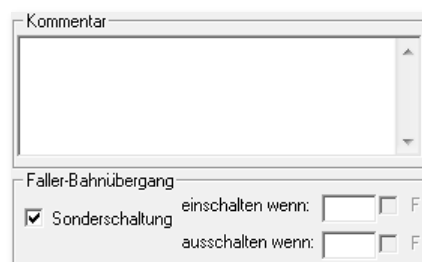


Fig. 11.9 Special settings are needed for the Faller level crossing

11.5.6 Special executions for the dispatcher

Commonly, the dispatcher records should be always executed according to the defined conditions. Sometimes this should happen only for a certain moment or situation.

Therefore, it is possible to limit the switchings or actions by the dispatcher to specific moments or situations.

For this purpose, activate the entry "Special executions" in the menu command "Options". At the bottom left a new selection field with the heading "Execution (only)..." appears.

The standard-setting is "always". You see the tree structure in Fig. 11.10. If you click on one of "+" boxes, new branches are shown which are details in the following:

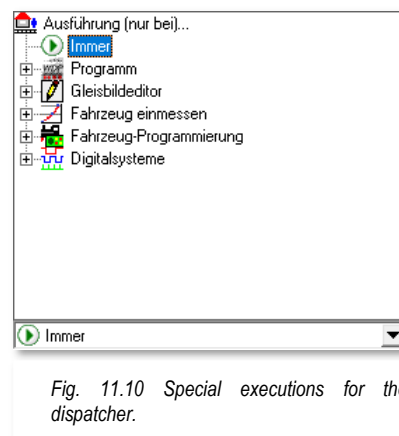


Fig. 11.10 Special executions for the dispatcher.



Program

Program start - the dispatcher (STW) is executed at the program start, if the conditions are fulfilled.

Program end - the STW is executed at the program end, if the conditions are fulfilled.



Track editor

Switching to the track editor - the STW is activated when switching to the track editor if the conditions are fulfilled.

Returning from the track editor - STW is activated when returning from the track editor to the main program, if the conditions are fulfilled.



Measure/calibrate vehicle

Opening the measurement window - STW is activated when opening the measurement dialogue, if the conditions are fulfilled.

Closing the measurement window - the STW is activated when leaving the measurement dialogue, if the conditions are fulfilled.



Vehicle programming

Opening the programming window - the STW is activated when opening the decoder programmer, if the conditions are fulfilled.

Closing the programming window - the STW is activated when leaving the decoder programmer, if the conditions are fulfilled.

Start of the programming (programming track) - the STW is activated when starting the programming using the programming track, if the conditions are fulfilled.

End of the programming (programming track) - the STW is activated when finishing the programming using the programming track, if the conditions are fulfilled.



Start of the programming (main track) - the STW is activated when starting the programming using the main track, if the conditions are fulfilled.

End of the programming (main track) - the STW is activated when finishing the programming using the main track, if the conditions are fulfilled



Digital systems

Interrupting the connection to digital systems- the STW is activated when the connection to one or all digital systems is interrupted, if the conditions are fulfilled

11.6 Editing helps in the dispatcher

The Dispatcher editor offers several editing helps for inserting, adding, changing and deleting if you open the context menu via right mouse button.

The conditions regarding the state of a feedback, solenoid devices and counters can easily be inserted by dragging the according symbols from the track diagram into the condition tree in the same way as in the tour automatic editor.

During this drag&drop operation the target position in the tree is (if possible) to the one where you release the mouse button.

In our example the new condition will be inserted between the second and third feedback contact condition. The **dotted line** shows you the target position while moving.

You can delete conditions via the context menu or by pressing the "Del"-key on your keyboard.



Fig. 11.11 Inserting conditions.

11.6.1 Moving conditions within a dispatcher

The conditions can be moved within the tree using the mouse. Therefore select the condition to move and drag the condition to new desired place. Release the mouse button after reaching the target position. The **dotted line** shows you the target position while moving.

11.6.2 Editing conditions/switchings in dispatcher

After selecting a condition in a dispatcher record you can cut, copy, paste or delete this condition by opening the context menu with the right mouse button.

A similar context menu is also available if you click on switchings in one of the two switching list with the right mouse button. Using this context menu, you can edit the register switchings.

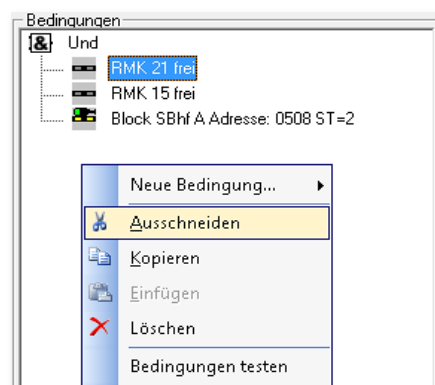


Fig. 11.12 Context menu for editing conditions.



Please take care to select the correct elements in the correct sub window, because the selected actions in the context menu will always apply to the selected elements in the selected sub window/list.

11.6.3 Changing a folder function in the dispatcher

The default root folder of the condition is an "And"-Folder. You can easily change the folder functionality to "Or".

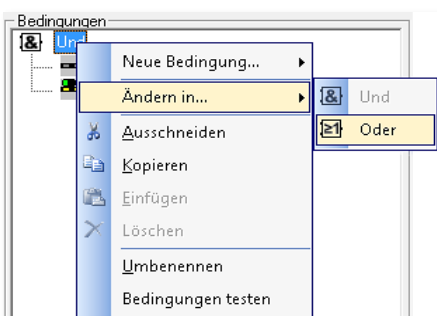


Fig. 11.13 Changing folder functionality.

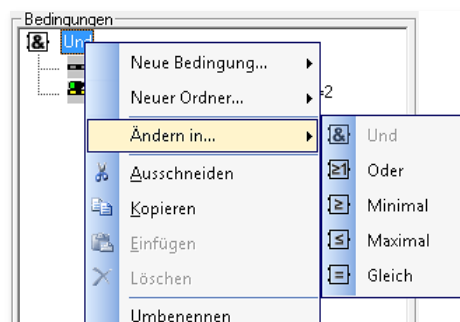


Fig. 11.14 Additional folder types with active expert mode.

Just select the folder you want to change and make a click with the right mouse button, afterwards select <Change to...><Or>.

The additional folders types shown in Fig. 11.14 are only visible if the expert mode is active (see section 11.4.1).



11.6.4 Renaming folders in the dispatcher

If you want to rename a folder select the folder and press the right mouse button afterwards. Now select <Rename>. The folder function name (And, Or, Not, Minimal, Maximal or Equal) is constant, but you can add additional text after a hyphen.

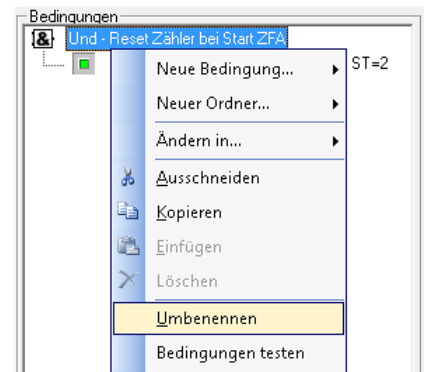


Fig. 11.15 Renaming a folder.

11.6.5 Testing conditions in the dispatcher

All conditions can be tested immediately if you open the context menu of the tree view with the right mouse button and select <Test condition>. This functionality has already been explained in scope of the Tour Automatic Editor.

After the activation of this function **Win-Digipet** tests repeating which elements of the condition tree are fulfilled at the moment and which not. The result is visible as green check mark or red before each element of the tree.

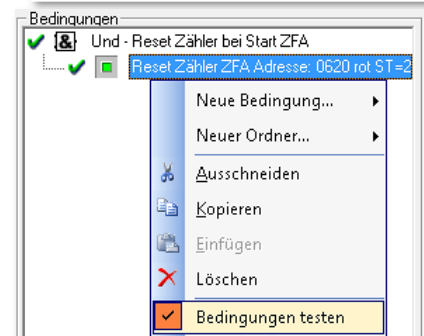


Fig. 11.16 Testing the conditions.

11.6.6 Extended FB display

As soon as a feedback contact is included in a condition or action of the dispatcher, it is indicated with its contact number and assigned name if this option is activated. The name of the feedback contact is assigned using the dialogue field "Properties feedback contact" in the track diagram of **Win-Digipet**.



11.6.7 Copying/Deleting dispatcher tasks

Existing dispatcher task can be copied as complete task to reuse them after adaptations and so on. For copying a dispatcher task/record select the source record in the dispatcher list and press the right mouse button and select <Copy>.

Now select the desired target line with the left mouse button.

Now open the context menu with the right mouse button again and select <Insert copied record(s)>. The copied dispatcher task will be inserted **before** the current row.

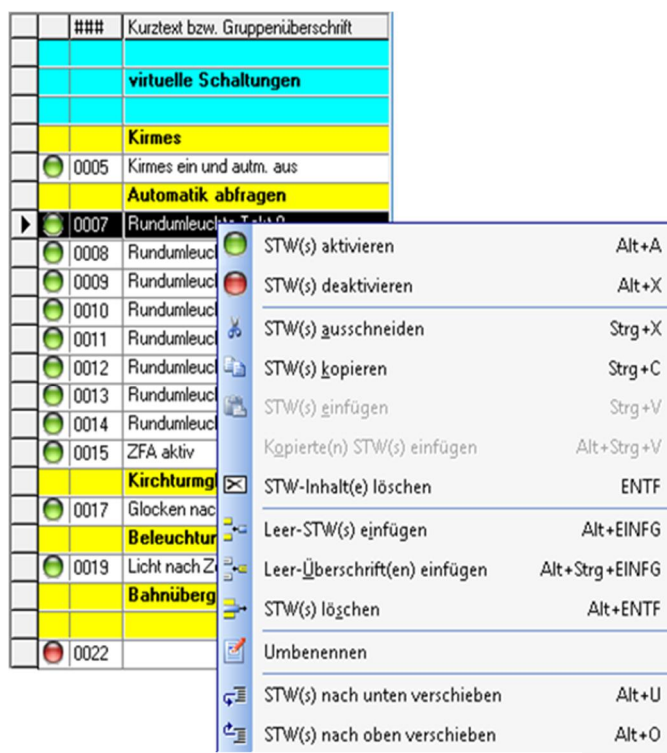


Fig. 11.17 Moving/copying etc. of complete dispatcher records.

11.6.8 Moving dispatcher tasks

Selected dispatcher tasks can be moved up and down in the list using the context menu which can be opened via the right mouse button (see Fig. 11.17).

You can also select more than one task at the same time by pressing Shift while selecting the tasks.

11.6.9 Activating/deactivation dispatcher tasks

At the beginning of this chapter we explained, that the dispatcher is always active in the background.

You might get into the situation, that you need to (de)activate single dispatcher tasks (temporarily).



Fig. 11.18 shows the according function within the context menu.

Select the dispatcher task(s) you want to (de)activate and press the right mouse button, afterwards select <Activate record(s)> resp. <Deactivate record(s)>.



Fig. 11.18 Activation and deactivation of dispatcher tasks.



Active records have green  LED in the list, while deactivated records have a red  LED in the list.

You can toggle activation and deactivation very fast by clicking the LED sign in the list with the middle mouse button.



New dispatcher records are always deactivated and have to be activated manually after they have been completely created.

11.7 Examples for the dispatcher

11.7.1 Controlling a level crossing

A good example for a dispatcher task is a level crossing. Within this section we'll explain how to control a level crossing using a dispatcher task.

Before starting with your registrations you should think about the conditions which shall control the level crossing.

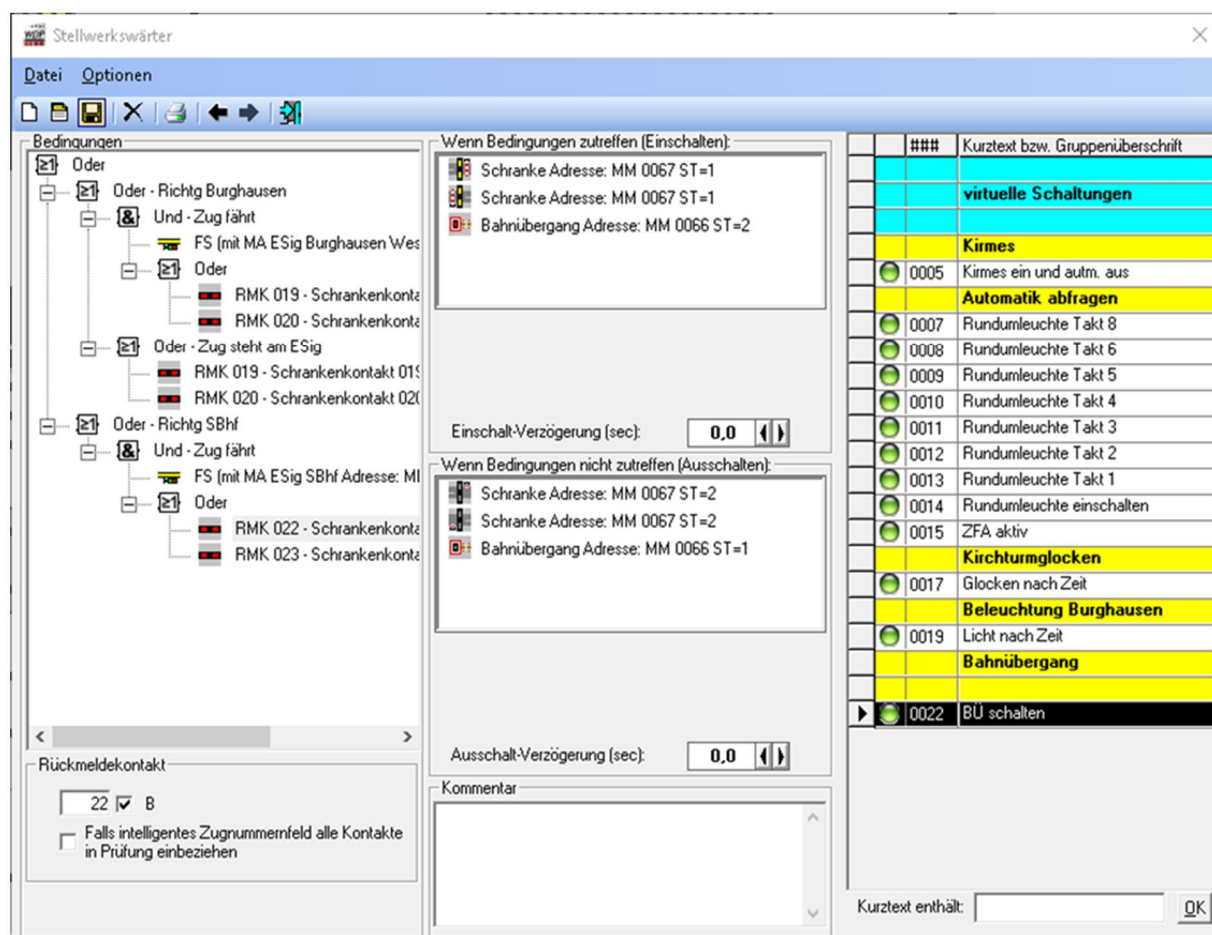




Fig. 11.19 This dispatcher record controls the barriers and the blinking light.



In our example we chose the following regulations:

-  close the levelling crossing if route or tour has been switched to the entrance signal Burghausen or hidden yard A.
-  delay the closing until the feedback contact before or behind the level crossing is occupied.

Our example solves this task with a single dispatcher record. Fig. 11.19 shows this dispatcher, which controls the barriers and the blinking light. This record has been integrated in the list on the right side below the heading "Level crossing".

Let's take a look at the switching conditions for this level crossing.

The conditions are a mixture of "AND" and "OR" conjunctions. The root folder of our condition is an "OR"-Folder. This is necessary because we want to close the level crossing if there is a train of the track in direction to Burghausen **or** if there if there is a train travelling in direction of hidden yard A.

The first branch deals with the conditions in direction to Burghausen. As soon as a route with the entry signal towards Burghausen becomes active "AND" one of the two RB (before (019) "OR" after (020)) are occupied, the barriers close and the blinking lights start.

However, It might happen that that the train stops at the entry signal and its waggons are still at the crossing. In this case the conditions defined above are not sufficient, since the route is no longer active with the train having reached the signal. Therefore, a further condition is introduced checking the occupation of feedback contact 019 "OR" 020.

For the opposite direction only the first branch described above must be adapted accordingly to the corresponding route and feedback contacts 022 and 023. The

The train travelling in either the first or the second direction can be detected by checking several conditions which have to be fulfilled at the same time and because of this they are combined in an "AND"-Folder (each "AND"-Folder has been named with the direction which is monitored by this folder).

Furthermore, the figure shows the folder names and the names of the feedback contacts.

As soon as the registered condition tree gets fulfilled, the light will start to blink and the barriers will be closed.

As soon as the condition is not fulfilled any more the barriers will reopen and the blink light will be turned off. It is advisable to configure a small of delay for reopening. This prevents problems with bad feedback contact messages.



For the operation of the crossing shown here there is no need for recording solenoid devices and follow-up switchings. To avoid an automatic recording of solenoid devices please place jump marks before and after the level crossing.



Important information regarding the used symbols!

You are nearly completely free in the choice of symbols used in your track diagram for the level crossing and so, because their placement in the track diagram is not related to a function.

The real function of the functions is set by yourself because you decide at which place in the program you use the symbol (e.g. in routes, profiles, the tour automatic, the dispatcher etc.).

11.7.2 Time controlled dispatcher task

Using the dispatcher, you can also realize time-controlled functions. In the next picture you can see a permission arrow which switched half the time to one direction and the other half to other direction to control the current direction of travel on a single rail track.

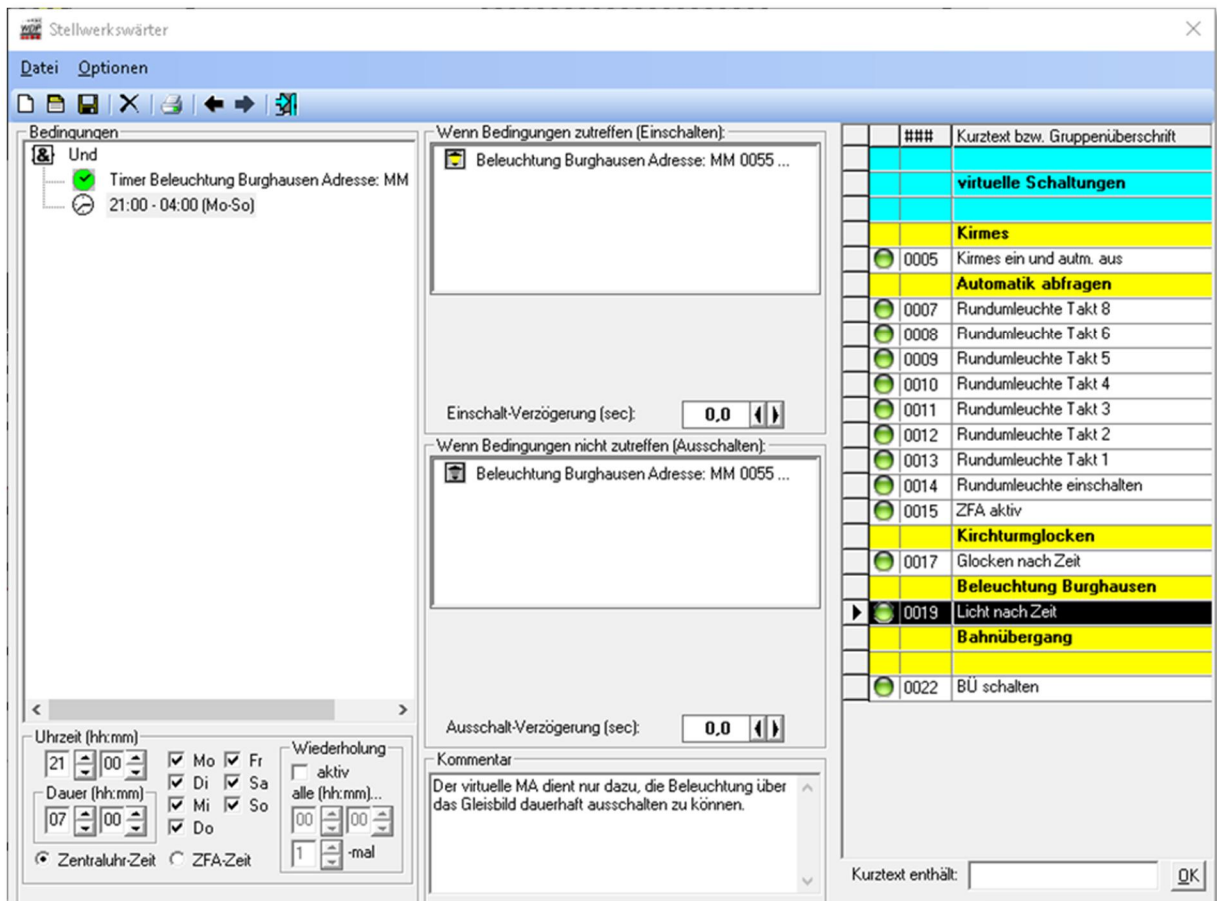


Fig. 11.20 A dispatcher task controlled by a clock.

The clock controlled condition can be added by pressing the right mouse button onto the folder "And" and selecting <New condition><Time>, afterwards select the time conditions



according to our picture. Now you can "drag & drop" the permission arrow to the two actions lists and after saving the dispatcher task is completely configured.

We configured the behaviour as follows: The permission arrow will be switched on the lights every day at 21:00 for 7 hours. In the case, the central clock is used as reference. You may also use the clock of the tour automatic (TA) as reference.



If you choose the clock of the tour automatic as reference, please be aware that the defined time conditions are only activated after the start of the tour automatic.

11.7.3 Dispatchers for amusement park and bands

In this section we want to give you another same example for using the dispatcher.

The screenshot shows the 'Stellwerkswärter' software interface. The main window is titled 'Stellwerkswärter' and has a menu bar with 'Datei' and 'Optionen'. Below the menu bar is a toolbar with various icons. The interface is divided into several sections:

- Bedingungen (Conditions):** A list of conditions on the left, including 'Und' (And) and 'Kirmes starten Adresse: MM 0602 ST=2'.
- Wenn Bedingungen zutreffen (Einschalten):** A list of actions to be performed when conditions are met, including 'Musikkapelle Adresse: MM 0603 rot ST=1', 'Riesenrad Adresse: MM 0053 ST=2', 'Wippe Adresse: MM 0054 ST=2', and 'Kirmes starten Adresse: MM 0602 ST=1'.
- Einschalt-Verzögerung (sec):** A field for the delay in seconds, currently set to '0,0'.
- Wenn Bedingungen nicht zutreffen (Ausschalten):** A list of actions to be performed when conditions are not met, including 'Kirmes starten Adresse: MM 0602 ST=1', 'Riesenrad Adresse: MM 0053 ST=1', and 'Wippe Adresse: MM 0054 ST=1'.
- Ausschalt-Verzögerung (sec):** A field for the delay in seconds, currently set to '19,5'.
- Kommentar:** A text area for comments, containing a detailed description of the dispatcher's function.
- Table:** A table on the right side of the interface, listing various switchings and automatic switching off actions. The table has two columns: '###' and 'Kurztext bzw. Gruppenüberschrift'.

The table contains the following data:

###	Kurztext bzw. Gruppenüberschrift
	virtuelle Schaltungen
	Kirmes
0005	Kirmes ein und autm. aus
	Automatik abfragen
0007	Rundumleuchte Takt 8
0008	Rundumleuchte Takt 6
0009	Rundumleuchte Takt 5
0010	Rundumleuchte Takt 4
0011	Rundumleuchte Takt 3
0012	Rundumleuchte Takt 2
0013	Rundumleuchte Takt 1
0014	Rundumleuchte einschalten
0015	ZFA aktiv
	Kirchturmglöcken
0017	Glocken nach Zeit
	Beleuchtung Burghausen
0019	Licht nach Zeit
	Bahnübergang
0022	BU schalten

At the bottom right of the interface, there is a field for 'Kurztext enthält:' and an 'OK' button.

Fig. 11.21 A dispatcher for different switchings and automatic switching off.



This dispatcher task is used to control an amusement park on your model railroad. As example we installed to solenoid devices for a swing and a Ferris wheel in our track diagram, as well as button to activate to brass band sound. These actions will be actions as soon as fourth button called "Start amusement park" has been set to green.

Immediately after pressing this button the swing, the Ferris wheel and the brass band will start and also the activation button will be set back.

Without further configuration this would also turn off the swing, the Ferris wheel and the brass band after 500 msec. But in our example we configured the off delay to 19.5°sec. Because of this the action will stay on for 20 sec.

For the brass band we need no off-action because this solenoid device symbol represents sound push-button which has been linked to a sound file in the track diagram. The sound file has itself a time limit of 20 sec.

11.7.4 Dispatcher indicating active automatic

Our next example could be used for a demonstration layout. We want a signalisation using a coloured text and a rotating light. The signalisation shall start as soon as the automatic has been started and should be active until the automatic has been deactivated.

Step 1:



For the realization we need ten dispatcher records. The dispatcher shown in Fig. 11.22 uses the condition "Any automatic active". This condition is valid as an automatic has been loaded and the small signal in the automatic control centre has been set to green.

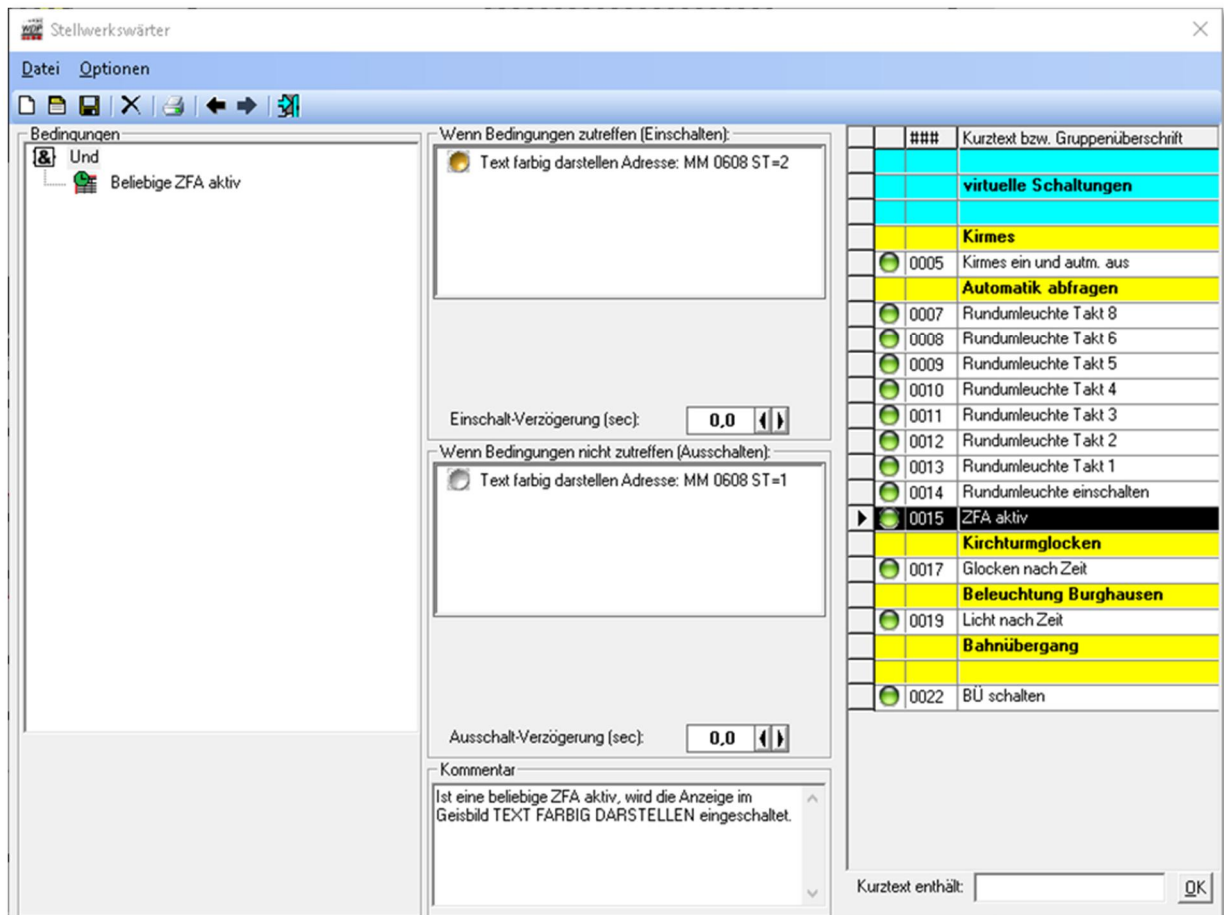


Fig. 11.22 This dispatcher checks if the automatic is active.

As soon as the condition has become true a virtual two aspect switch will be activated. The virtual switch can be used to activate a virtual feedback contact. This option has been activated for this switch within the track diagram editor.

In the track diagram you can see the text "Automatic active!". Normally this text is shown in grey and thus invisible. Within the track diagram editor, we configured, that this text shall appear in another colour as soon as a specified feedback contact gets occupied. You might remember this functionality. We explained this in the chapter regarding the track diagram.

The action chain is as follows: the virtual switch is activated threw the dispatcher as soon as the automatic gets active. As consequence the switch sets a feedback contact to occupied and the occupied feedback contact changes the text's colour to red.

Step 2:



In our next step the rotating light will be activated. This rotating light is also a virtual solenoid device with 8 aspects. Switching every 500 msec. (dispatcher cycle time) from one step to the other gives the look of a rotating light.

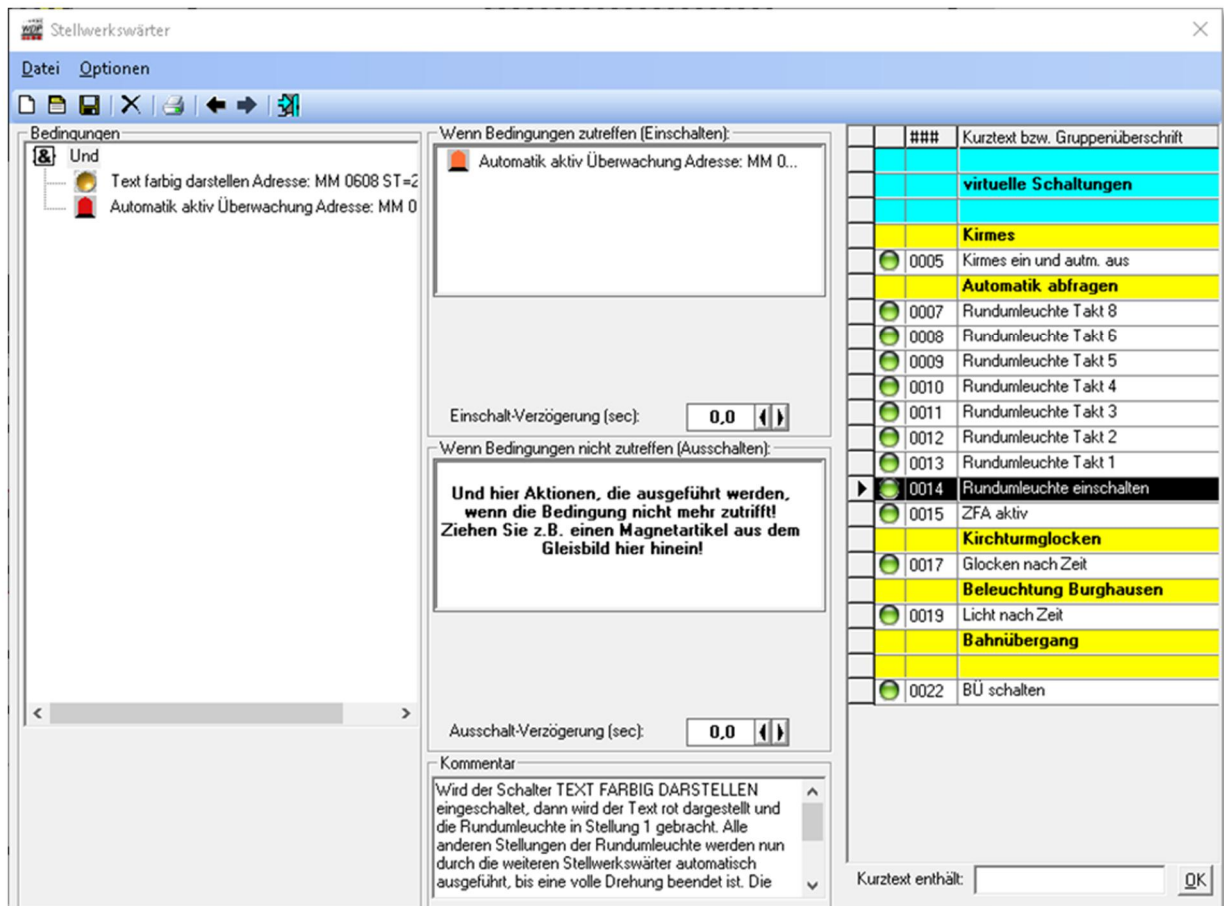


Fig. 11.23 This dispatcher activates the rotating light:

Within the conditions we installed two sub conditions. At first one condition checks if the virtual switch indicating an active automatic is switched on and the second one checks the current state of the rotating light. If both conditions are fulfilled the rotating light is set to the next step. As result the condition is not fulfilled any more.

Step 3:

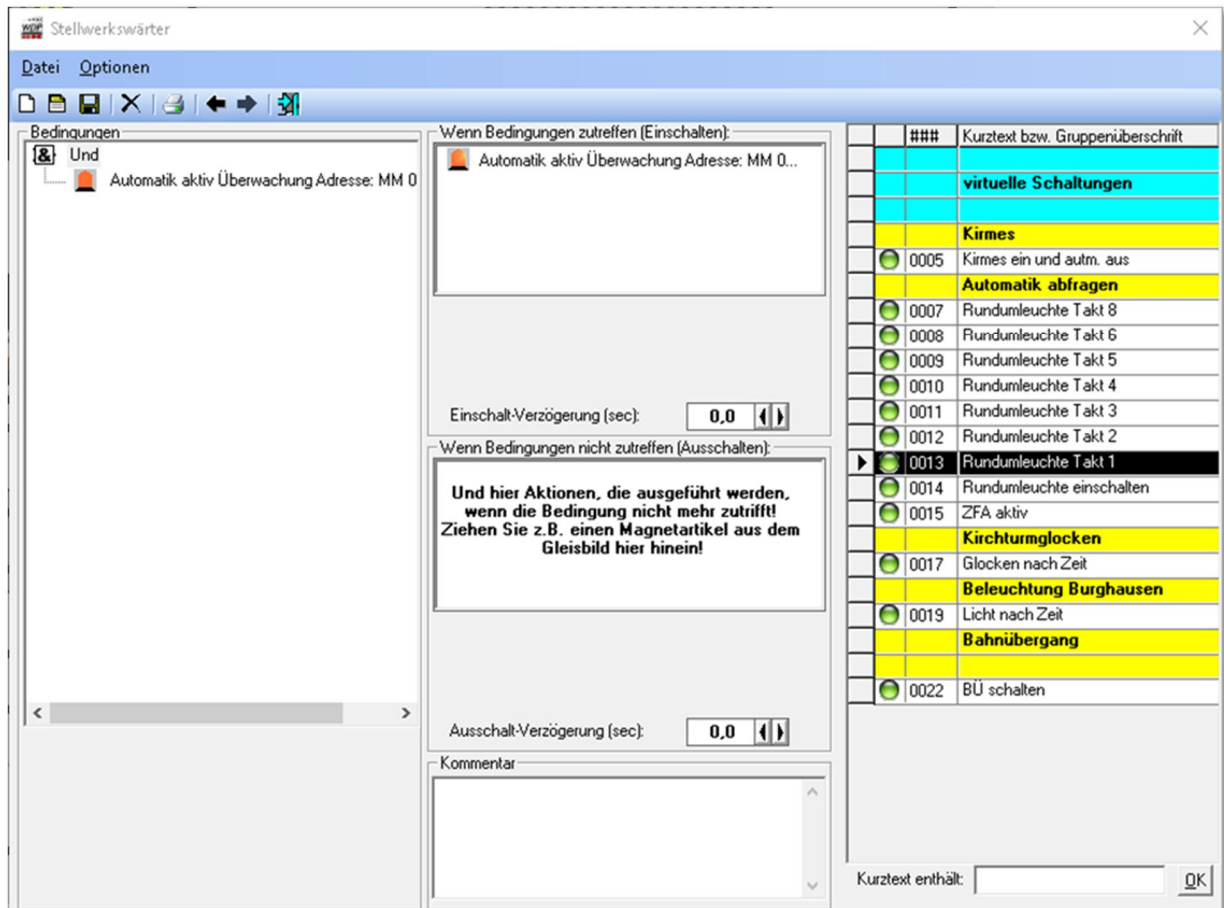


Fig. 11.24 The rotating light is switched by the steps of the dispatcher.

The condition of this step is only the current state of the rotating light, this step has been achieved by the dispatcher created in step 2. If this condition is fulfilled the rotating light will be switched to the next step.

We need this kind of dispatcher in total 7 times and every time we check the condition of the previous step and will switch one step further until we reach again the state checked in our step 2-dispatcher.






These dispatchers have been configured in that way, that after turning the automatic off the rotating will return to its initial state.

You might have recognized that we registered the dispatcher tasks for the single steps in reverse order. This is necessary because the dispatcher checks the records always in the registered order every 500 msec. Using the reverse order gives the result, that the rotating lamp state achieved e.g. in step 5 will be used to switch to step 6 after 500 msec. in the next dispatcher cycle and not immediately which would be the case if we registered step 6 behind step 5 and not before in the dispatcher list.



11.7.5 Other functions controlled by dispatcher records

The dispatcher offers a great variety of conditions for example...

-  occupied/free feedback contacts
-  states of solenoid devices/counters
-  clock conditions
-  the colour of specific locomotives (black, red, blue)
-  sometime completed by switch-on or –off delays

There are many further conditions available. Just make some experiments using these conditions. These conditions are in most cases to the conditions applied in the tour automatic.

11.8 Activating/deactivating the dispatcher globally



Fig. 11.25 The general activation of the dispatcher.

You can (de-)activate the complete dispatcher with all its task globally using the according option in the menu <Options> of the main program.

By default, the dispatcher is activated.



If you deactivate the dispatcher **all** dispatcher task are disabled and inactive!

If you want to disable single dispatchers just disable the single dispatcher record (see section 11.6.9).

WIN - DIGIPET

The control program

Version 2018 Premium Edition

Chapter 12



12. DIGITALE TURNTABLE & TRANSFER TABLE

12.1 Digital Turntable - General

In principle, you can program any turntable decoder using **Win-Digipet**, if it can be addressed with solenoid device addresses. For this purpose, place some switches in the track diagram and assign the necessary solenoid device addresses to these switches. The dialogue for programming the Märklin turntable decoder or other compatible, which is explained in the following, fulfils the same task. The necessary "solenoid device addresses" are tightly programmed in the switch fields of the dialogue.

Please consider the operating manual by Märklin, particularly the paragraphs on electrical connections for the turntable as well as on correcting mechanical and electrical problems.

Turntable control through **Win-Digipet** is not only comfortable, but also **saves** purchasing a Märklin keyboard for the turntable.

12.2 Digital Turntable – Märklin

This chapter explains how to control the turntable for Märklin Digital HO (ref. no. 7686 or 7286 with decoder 7687) using **Win-Digipet**. This control may not be used or is even not necessary for other types of turntables and power supply systems. Please consider the respective manufacturer manuals.

12.2.1 Keyboard address

Select the command <Extras><Turntable> in the menu bar of the main program.

A window will appear. In this window you will have to decide which digital system you want to use for your turntable setup.

After selecting the digital system and pressing '**OK**' a window with a blank turntable appears with 48 grey, unmarked track sections (spooked tracks), each having a grey circle in the middle. At the right hand side, you see 5 command buttons.

In total 48 track connections are possible. Counting of the track connections starts on the left above the horizontal point **00**, proceeds clockwise and ends with **48**.

Opposite **one** connected track there is always an **associated** connected **track**: either a second connected track or a dummy track. Individual connected tracks without opposite connected or dummy track do not exist.

Start by defining the **keyboard** address of your turntable in the upper right hand frame "Addr.". This



Fig. 12.1 Selecting the digital system for the turntable setup.

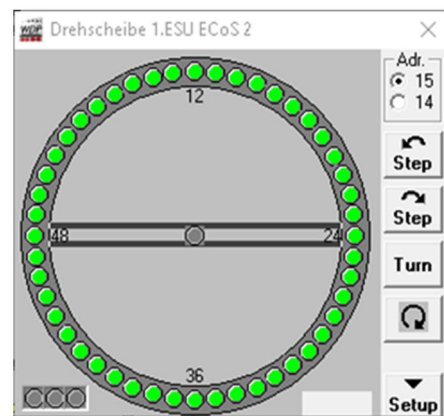


Fig. 12.2 the empty settings dialogue.



puts the Märklin turntable receiver "electronic 7687" to the correct function within your system.

Märklin supplies the turntable receivers with a fixed keyboard address no.15 i.e. you operate **one** turntable on your layout.

In this case you need not do anything in the right hand frame: the keyboard address 15 (for the first turntable) is pre-set and checked by the program.

The four command buttons below that frame are deactivated at the beginning. They will be activated after you have recorded and saved your track connections.


Should you, however intend to use **two** turntables, the receiver of the **second** turntable has to be set to keyboard address no.**14** **at the Märklin factory**.

First carry out **all** recordings for the first turntable 15 and click on address no. 14 in the upper right hand frame to record turntable 14.

A blank turntable reappears, and you can carry out the recordings for it. You can switch from one turntable to the other by a simple click on the addresses in the upper right hand frame, after both turntables are recorded.

12.2.2 Recording and deleting track connections

Before using the turntable for the first time and after you have modified, expanded or decreased connected tracks, the positions and numbers of track connections must be recorded.

Click on the switch  **Setup**, and the window is expanded for recording and programming. The title bar of the window reads now "Record track connections".

Click on '**Connections**' in the lower bar. Click on the grey circle within the first track connection you want to record: the circle will be coloured green. In this manner you record all track connections one after another. Dummy tracks may **not be recorded**.

Should you have made a mistake, or should you want to modify your recording, delete the relevant track connection through a click of the right mouse button.

Having terminated your recording, click on '**Save**'. Your recording will be saved immediately.

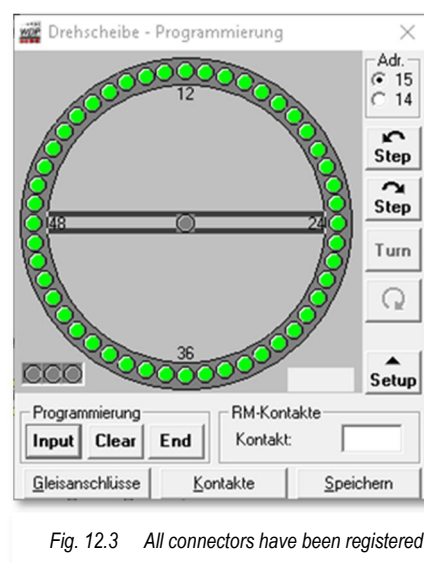



Fig. 12.3 All connectors have been registered.

12.2.3 Programming of the turntable decoder

Prior to the start of programming, **leave** the turntable dialog . It needs to be closed once for creating its file. Once more load the turntable with the command <Extras><Turntable> in the menu bar of the main program. Do not forget to select the correct digital system.



Now click on .

Programming the turntable is done, using the computer. Click on **'Input'**. The deck will be shown in the starting position (see Fig. 12.4).

Pull the Mains plug of your layout. **It is not sufficient**, to switch your layout off, using the red button ("stop") on a Märklin controller.

Insert the mains plug and click on **'Input'** within 5 seconds.

The deck will rotate to the starting position last saved and indicates this with a "beep".

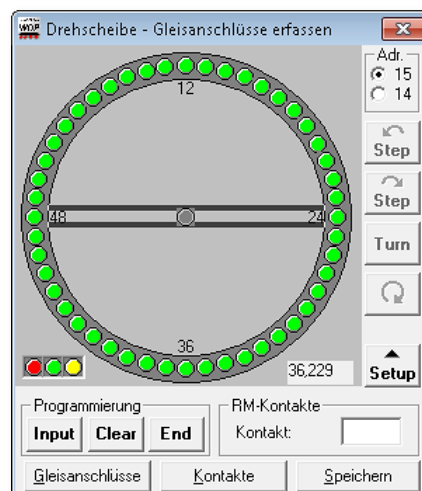




Fig. 12.4 Turntable in starting position.








Important notice for users with the old decoder with L-connector!

The initialisation of most digital systems (not 6021) lasts longer than the 5 seconds, which have to be used to switch the turntable to programming mode. In this case you shouldn't switch off all digital power but only disconnect and reconnect the yellow cable of the turntable decoder.


A more elegant way is to use a K84-Decoder to switch the turntable decoder on and off by a k84-symbol in the track diagram.

Click repeatedly at 'STEP right'  or 'STEP' left , until the starting position of the deck coincide with the starting position as defined on the screen. After each single step a small window appears. You are asked whether the deck has reached its correct starting position, i.e. the one shown on the screen, or not.

As soon as the starting positions of the deck and the turntable graph on the screen are identical, reply to the question by 'Yes', and click on , followed by . You have now fixed this position.

After that, precede clockwise  by  to each recorded track connection (up to max.24) and confirm with .

Opposite track connections are automatically included in this programming.

You terminate the programming by . The screen display jumps to the starting position, the deck of the turntable rotates to the programmed starting position, and a "beep" signals the end of the programming procedure.



At the same time the turntable is saved; you do not need to click on **'Save'**.


Finally, close the lower window part by a click on **'Setup'**. The turntable is now ready for operation.





12.2.4 Testing functions

You can now check the correct function of the turntable.

With  or  you may move to the right or to the left from one track connection to the next.

If you click on , the deck rotates 180 degrees according to the direction set.

Clicking once or twice respectively at the '**Sense of rotation button**'  you determine in which direction the deck will rotate with the turn command . This also applies to direct access to specific track connections.

Click on the circle of that track connection if the deck has to move without a stop to a specific track connection (track **pre-selection**).

12.3 Adding the turntable to your track layout diagram

If you want to add the turntable to your track diagram, you have to open the track diagram editor.

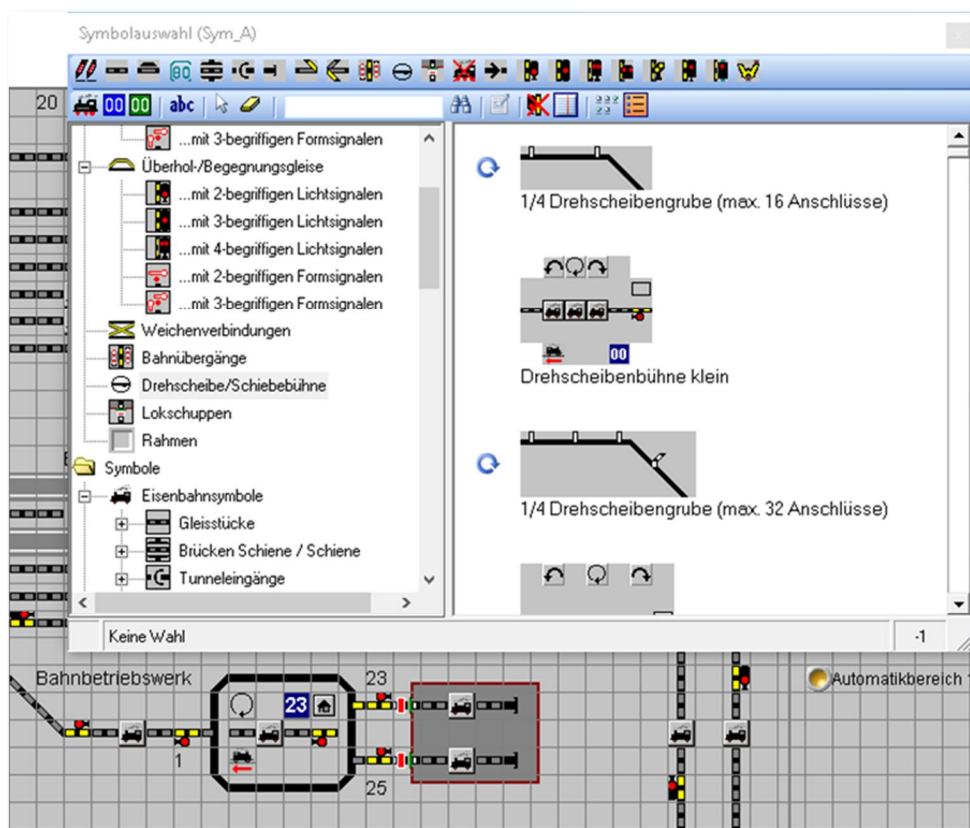


Fig. 12.5 Example of a turntable with a locomotive shed.



Select the type field "Turntable" in the symbol selection window. With these symbols you can draw the turntable into your track diagram; the picture shows an example³⁵. These symbols - part of them are scalable and turnable - allow a quick drawing of the turntable.

Please remember while placing the turntable in your track diagram to place buttons for single step left and right, rotation change and turn (if you like). Also, the three control outputs from a Märklin decoder can be presented as LED signs (Clear, Input and End) within the track diagram. The needed symbols might differ depending on the used type of turntable decoder.




12.4 Possible feedbacks of the Märklin turntable

Using feedback modules, interesting feedback at and around the turntable can be obtained. For this purpose, you have to do mechanical changes to your turntable in parts. These changes are described in two Workshops downloadable from the **Win-Digipet-Homepage** (Workshops #10, #21, #26, and #33). Please be aware that the workshops are possibly related to older versions of Win-Digipet and to specific hardware. In principle, these documents can be still applied, but must be adapted to the present situation if necessary.

You can display the real position of the turntable at each connected track via feedback contacts.

The circle of the relevant track connection lights up in **red** when the turntable is at this position, when the turntable is operated on the layout.

At the left-hand plug connections of the "**electronic 7687**" you will find three jacks:

-  **B** = track power (+)
-  **0** = ground (-) for the right hand rail of the track
-  **0** = ground (-) for the left hand rail.

You can utilise **one** of both **0**-jacks for feeding back the deck occupation, if you haven't modified your turntable as described in the workshops. Connect to one input jack of the feedback module s88. Click at the centre of the deck and enter the number of the aforesaid s88 input jack in the contact number panel next to "Deck". The centre of the deck will light up in **red** when a locomotive pass over it, when you selected the operation of the turntable on your layout

To achieve this, you must, however, remove the return contact springs at the deck and supply digital power to each connected track. (See workshop #10 on the **Win-Digipet Homepage**).

To monitor the functions of the turntable, the receiver "electronic 7687" is fitted with jacks i.e. red, green and yellow. You can use these jacks to connect monitoring lights. Connect those to the relevant input jack of your feedback module s88. Successively click on the

³⁵ This example can be found in corresponding demo project.



three grey LED circles at the lower left . Enter in the contact number panel at the lower right, the number of each relevant s88 input jack next to "LED...".

While operating the turntable on your layout, the three **LED circles** will light up in the appropriate colours.

12.4.1 Registration of the position feedbacks for the turntable in the track diagram

If you have modified your turntable as described in the workshops you can realise a real position feedback for your turntable.

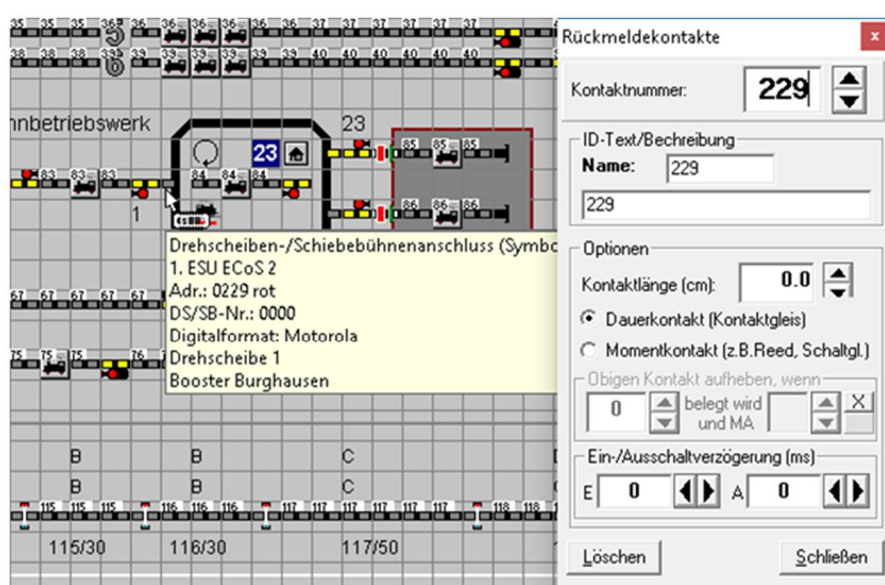


Fig. 12.6 Registering feedback contact numbers for a turntable connector.

The position feedback contacts for each track connector can be assigned in the track diagram editor in the same way as for normal track symbols.



Control lights of the turntable decoder can also be added to track diagram. Afterwards they have to be assigned to the feedback contact numbers connected to the according decoder outputs. In our example the table's track has only one feedback contact as well as one train number display.

12.4.2 Registration of feedback modules for the Märklin decoder



If you use the „Intelligent turntable“, you do not need to enter values. It is strongly suggested performing the configuration and installation of the turntable by using solenoid device symbols in the track diagram and the editor for the “intelligent turntable”.



Select in the track diagram editor the menu command <Recording> <Turntable> or click on the symbol  in the toolbar. Open the turntable setup with the button  and click on '**Contacts**'.

Click on an existing, activated track connection (green circle) which is fitted with a contact track. The green circle will be marked by a black triangle, and in the panel "FB Contacts" appears. Next to "Connection", the consecutive number of the track connection (clockwise, starting from left horizontal with "00").

In the contact number panel to the right the fictitious contact number **0** is pre-set. The correct number is keyed in here. In the same manner, record all other contacts at track connections of your turntable. Contact numbers can be modified by overwriting and deleting, entering the number **0**. Having entered all feedbacks of the turntable, click on '**Save**'.

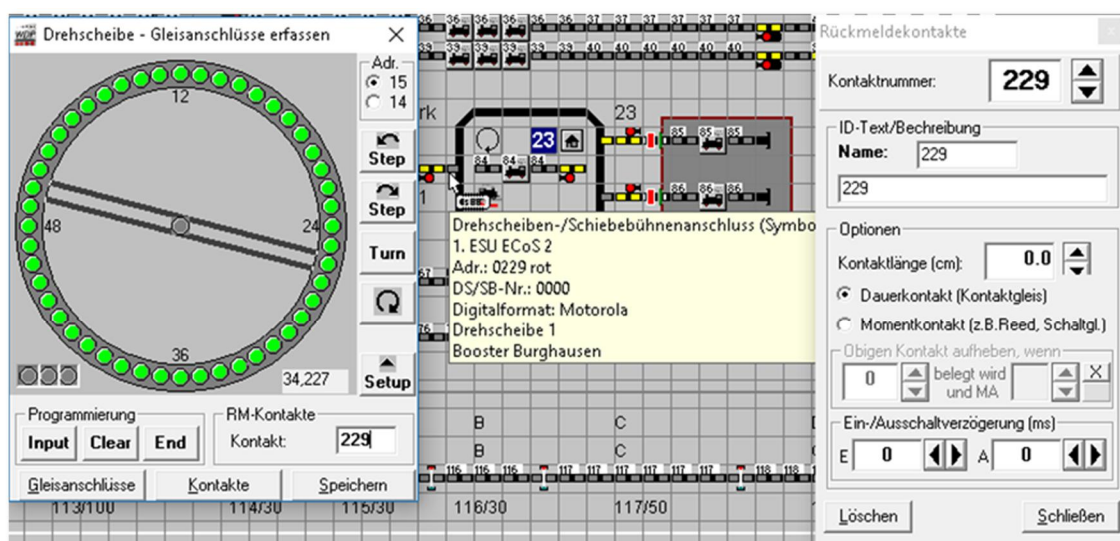


Fig. 12.7 Registration of feedback modules to the track connectionsssen

12.4.3 Addresses of track connections and command buttons

After drawing your turntable in your track diagram, register all track connections to the track connectors in the track diagram.








It is quite simple to get the needed addresses from the turntable-graphic that can be opened also opened in the track diagram editor via <Recording> <Turntable>.

Take care of the following points!



Every track connector acts as a command button: a click results into an action.



-  Your turntable should be programmed in the right way.
-  At the bottom in the right of the "Turntable" window, you will see a small display "33,xxx" or "34,xxx" if you move over a connection track or if you click on a command button 33.227 ; "33" means "green", "34" means "red" and the three-digit numbers "xxx" means the addresses.
-  The data is derived from Märklin Keyboard No. 15 address range 225-240 resp. Märklin-Keyboard No. 14 address range 209-224.
-  The addresses of the track connectors "xxx" have to be registered as first decoder address.
-  If the prefix of the address is "34" check "**RED**" and if the prefix is "33" select "**GREEN**".
-  The addresses for the five command buttons are **fixed**:
- 

'STEP LEFT'	= 33.227 (227 GREEN),
'STEP RIGHT'	= 34.227 (227 RED),
'TURN'	= 33.226 (226 GREEN),
'DIRECTION RIGHT'	= 34.228 (228 RED),
'DIRECTION LEFT'	= 33.228 (228 GREEN).

For the registration of the command button, you have you just to enter the address, "**RED**" or "**GREEN**" is preassigned; You have just to click on '**Transfer**'.

For trouble handling of your turntable you may also create three push buttons for "Input" (225 green), for "Clear" (226 red) and "End" (225 red). The symbols 0094 and 0095 may be the right choice for this task. You should not forget giving these buttons a useful description text so that you can remember their functions later on.

For registering the addresses click in the track diagram editor on the track diagram editor in the same way as if you want to assign normal solenoid device addresses. A window titled "TT-CONNECTION" appears. Register the address of the selected track connector and select "**RED**" (34) or "**GREEN**" (33) depending on your settings in the turntable window. With '**Transfer**' you can save this data.

If you have a position feedback for your turntable connectors register also the according feedback contact number in the Switch Position monitoring.



The registered feedback contact is not activated by a vehicle as for normal track occupation detection, but by the turntable. Using this feedback information, you can monitor the current position of the turntable.

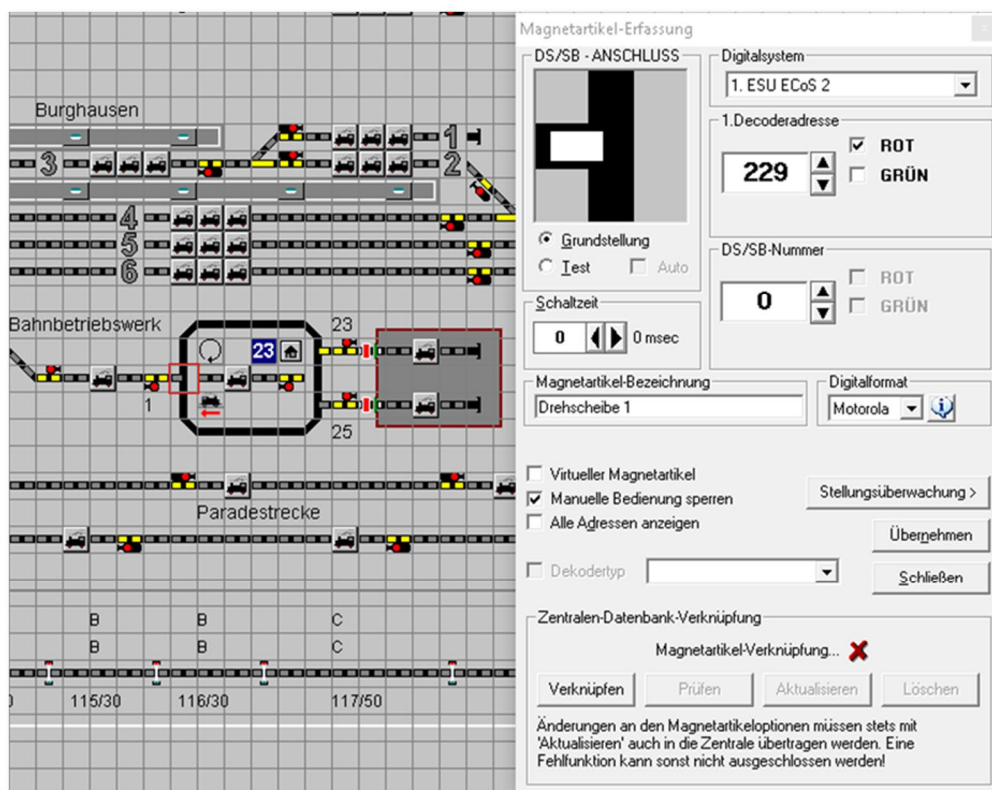


Fig. 12.8 Registration of the track connection and the feedback contact.

Check always "Display all digital addresses" ". This will help to see which addresses have already been registered.

The message "Digital address already exists..." can be ignored starting from the 24th connector.

Please enter a good description in the according input box e.g. "Turntable 1".



If you have more than one turntable or transfer table in your track diagram you have to assign each of them an **own number** to avoid two-way influences.





From the second turntable or transfer table on, increase "TT-Number" from "0" to the according number (e.g. "1" for the second turntable).

All connectors and command buttons of one turn- or transfer table should get the same number.



12.4.4 Operating the turntable



You can open the turntable window via....

-  Menu command <View> <Turntable>
-  or via right mouse button and the menu entry <Turntable>
-  or via a click on the symbol  in the toolbar.

Operating the turntable is the same as described above in section 12.2.4.

Alternatively, the turntable can be controlled directly in the track diagram.

This requires:

-  You have to draw the turntable into your track diagram as described in section 12.3 and
-  You've made all registrations according to section 12.4 and 12.4.3.

The signals shown in Fig. 12.8 have not to be physically installed on your turntable; they are just used for locking of routes!





A click on a turntable connector will guide the turntable to this track connector and the selected connector will be marked yellow. This shows you the currently selected track connector.

12.5 Turntable in Selectrix system

The control of Märklin-turntable described in the sections before you can also use for the Selectrix system with some additions and limitations (some users use Selectrix decoders for Fleischmann as well as for Märklin or Roco turntables).

12.5.1 Turntable decoder/module of MÜT Digirail

In **Win-Digipet** you can register and control the turntable decoder/module of MÜT easily. You should do the following:

-  Select the according digital system
-  Check SX-TT-decoder
-  Select SLX 815/819 or MÜT
-  Register the TT-connector and its according address



When registering the solenoid device addresses remember, that MÜT counts its connectors from 0 – 63 while **Win-Digipet** counts 1 - 64. As factory default the MÜT system is configured for a 48 port connector turntable with the following numbering:



-  1st semicircle from 1 - 24
-  2nd semicircle from 33 - 56

Fig. 12.9 The settings for a Rautenhaus SLX 815/819.

12.5.2 Turntable decoder SLX815/819 of Rautenhaus

When using the comfortable turntable decoder SLX815/819 of Rautenhaus, you can register the turntable connector number very comfortable in the solenoid device recording window (see Fig. 12.9).

The used digital system, decoder address and turntable number have to be registered as usually.









12.5.3 Send SX-Value

With a push button and the checked option "Send SX-Value" (at the bottom of Fig. 12.9) you can easily send a predefined SX-Value to an address of your Selectrix digital system. Please select the used digital system, decoder address and the desired target value.



12.6 The intelligent turn table



With the intelligent turntable control of **Win-Digipet** you can control very comfortably your turntable. This control is usable with the following turntable decoders amongst others:

-  Märklin 7686 or 7286 with decoder 7687
-  Sven Brandt turntable decoder
-  TT-DEC of Littfinski Datentechnik
-  Rautenhaus SLX 815 Decoder
-  Turntable decoder of MÜT
-  DSM PIC of Stärz
-  DinaSys Turntable Controller
-  ...

This list may be enlarged, since **Win-Digipet** allows including less known or even self-made turntable decoders in the dialogue "Intelligent turntable". In general, these decoders allow to address the track connections directly by push buttons. Some decoders apply the shortest distance, whereas other decoders need to know the direction of rotation.

For this purpose, you may use the entry "Other turntable decoder type" in the selection list for the turntable decoder.

Please consider the following hints to ensure the proper function with **Win-Digipet**:

-  All track connections can be addressed by pushbuttons (i.e. not only half of them as applicable with the Märklin protocol).
-  Furthermore, opposite connections must be addressed, even if there is no track connection (for example: for a turntable with connections 1-3 used out of 48 connections also the connections 25-27 must be addressed.) Only in this way can handle commands for the opposite position of the turntable.

Furthermore, pushbuttons may be entered in the dialogue field to predetermine the direction of rotation. This is only necessary, if the turntable decoder does not apply the shortest rotation by itself.

Before you use the "Intelligent turntable", the turntable must be drawn in the track diagram and the turntable decoder must be programmed according to section 12.1 and to the manufacturer manual, respectively.

Before using the smart turntable, you have to draw the turntable into your track layout and program it according to the previous sections resp. the manufacturer's manual.

For registering the data, click on the button  in your toolbar or use the menu command <File><Editor of smart turntable>

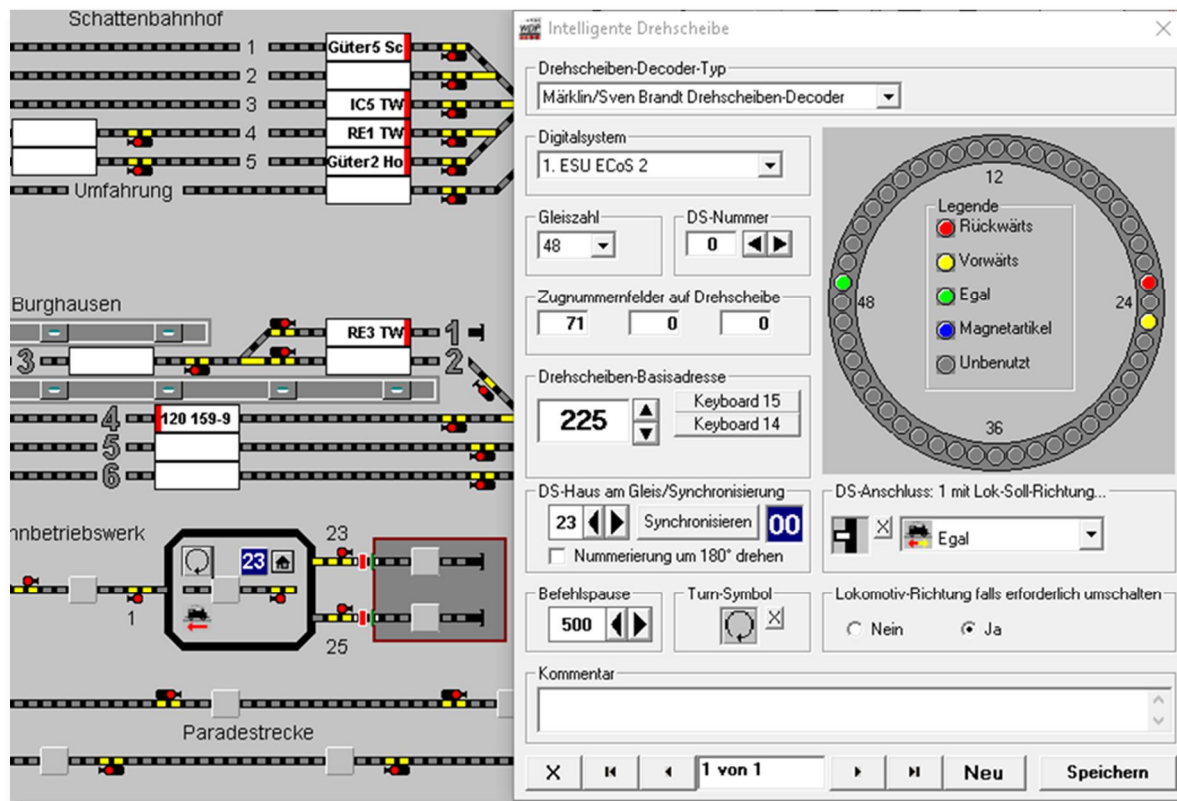


Fig. 12.10 The configuration dialogue for the "Intelligent turntable".

Start to register a new intelligent turntable by pressing '**New**'. In the comment section you can enter text you want to remember.

First of all, you have to select the decoder type, the used digital system, the number of turntable connections, the feedback contact numbers of the train number displays on your turntable (Minimum 1) etc. Afterwards you can start to register your turntable connections.

We suggest activating the symbol info/tool tips within the track diagram via the menu <Options>. Using this function, you can find the track connectors easily.

First of all, select with a click the turntable connection you want to register (e.g. connector 1).

Afterwards use "drag & drop" to register the according turntable connection from your track diagram into the small picture box below "TT-connection..." (see Fig. 12.10).

Now select the direction which shall be used for the locomotive sent to this connection. The direction is the direction the locomotive should use when leaving the turntable to the track.

Using this function, you can easily configure, that e.g. a steam locomotive should always drive backwards into the shed.

Beside the entries "forwards", "backwards", and "any" the selection offers "By solenoid device". The direction of locomotive when leaving the turntable can be determined



individually by the position of a solenoid device. Please be aware that the solenoid device must offer three positions (forwards, backwards, any). In the example project the symbol °769 is applied for this purpose.

Please activate also the radio button for changing the locomotive direction, if **Win-Digipet** shall care for this. If all track connections are included, the track diagram should look like indicated in Fig. 12.11.

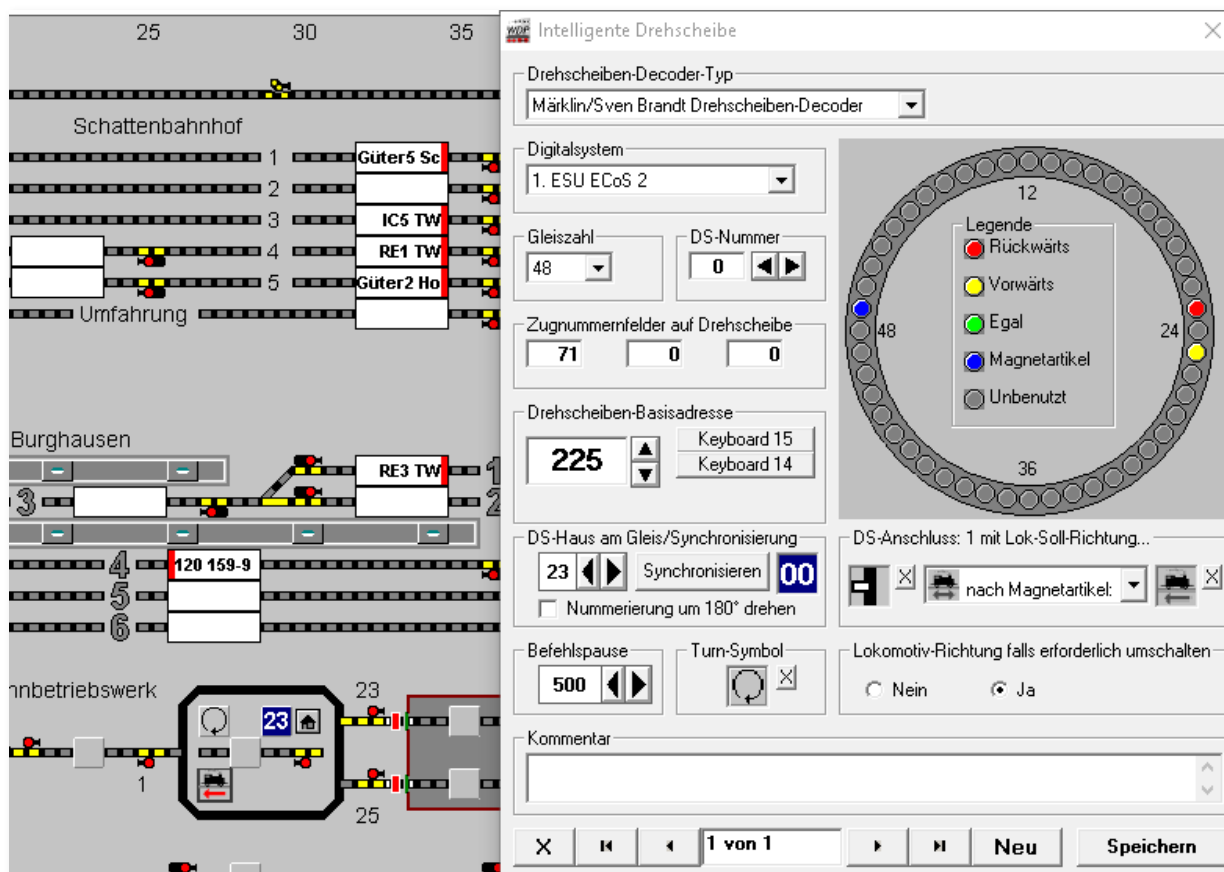


Fig. 12.11 The start direction of the locomotive is determined by the position of the solenoid device.

In the area of the turntable you can see a counter which shows the number of the turntable position. You can include this counter in the conditions or actions of your tour automatic and dispatcher, respectively

Please select also if the locomotive's direction should be turned automatically if necessary.



A minimum of one train number display has to be registered to use the intelligent turntable control.

Nowadays, using more than one train number display is no longer necessary. The fields for assigning several train number displays are



offered to warrant a down compatibility, so that those who partition their layout can utilise the advantages of the intelligent turntable.

Internally, **Win-Digipet** identifies the direction of the turntable and in this way the sequence of the feedback contacts.

12.6.1 *The intelligent turn table – short description*

When using the intelligent turntable, you have to remember the following...



Requirements

The turn table decoder has to be programmed according to the manufacturer's manual and all track connectors have to be controllable from the track diagram of **Win-Digipet**.



Setup for the intelligent turntable

1. Create a new data record in the editor
2. Select the type of decoder
3. Select the digital system
4. Select the number of turntable connectors, the button '**PRG**' can be used for reprogramming the number of connectors when using the Rautenhaus decoders. The number of tracks connection can be chosen between 4 and 64.
5. Select the turntable number, this **has to be** identical with the turntable number registered for the turntable connections within your track layout
6. You have to register a minimum of one train number display, because otherwise the program cannot decide whether a loco is standing on the turntable or not.
7. Register the decoder default address (for Märklin/Sven Brandt first used address e.g. address 225 for keyboard 15, for SX decoders only SX Bus and SX Address). If you use the Sven Brandt Decoder with only 24 connectors (e.g. for scale TT) which means, that only 12 connectors are addressable directly, you can select if only the red or green buttons from the keyboard shall be used for track selection.
8. Now take a look at your layout and select the current position in the editor (TT-House at track...) and press afterwards '**Synchronize**'.
9. Now you can select for Märklin/Sven Brandt a pause between the direction and move command for the turntable.



10. Now select with a click the turntable connection in the graphic the connection to register. Afterwards use "drag & drop" to register the according turntable connection from your track diagram into the small picture box below "TT-connection...". Then select the direction which shall be used for the locomotive sent to this connection, by this option you can decide if you want the turntable to turn the locomotive in such a way, that e.g. a locomotive will always be sent with direction "Forward" to this connection.

At last you can decide if the program shall send the turn command to the locomotive decoder if necessary or not. Normally select "Yes".

The intelligent turntable can be used with all functions within the tour automatic.

12.6.2 Using the turntable within routes

The turntable can be used within routes using its track connectors. The track connectors can be used in add-on switchings as well as in route recordings. The usage in the route recording should be preferred because combined with a position feedback this would delay the start of the locomotive until the turntable has reached its final position.

You can also use track connectors in contact event lines of the tour automatic or profiles.



Important hint!

No tours and follow-up ways or add-on routes, respectively, **must** include the turntable or transfer table

12.6.3 Logic of the intelligent turntable

Using previous versions of **Win-Digipet** (before 2015.2) it could happen, that the direction of locomotive was no longer correct in case of a manual operation of a configured intelligent turntable. For instance, if the turntable has just been rotated from track 1 to track 10 and should be rotated further to another track (with the locomotive remaining on the turntable). When the other track is addressed, the turntable rotates in the opposite direction, because **Win-Digipet** assumes, that the locomotive has entered the turntable from this track position; therefore, the program has set the direction appropriate for leaving the turntable - and not the direction appropriate for entering the turntable.

Now, the logic of the intelligent turntable (iTT) supervises permanently, which locomotive is present on the turntable. This means, the program stores at each movement, which locomotive is registered at the train number display and which direction the locomotive has after the rotation.

If the same locomotive is registered at the trade number display of the turntable, when the second rotation command is given, the program knows that this locomotive has not left the turntable and the iTT-logic is aware of the actual direction of the locomotive. Thus, the turntable rotates in the right way.



However, if the train number display of the turntable is no longer occupied and the locomotive has changed its direction or a different locomotive is registered on the turntable, respectively, things are changed compared to previous program versions.

12.7 Digital transfer table - General

This chapter explains how to control the transfer table for Märklin Digital HO (ref. no. 7686 and 7294) through **Win-Digipet**. This control cannot be used with other types of transfer tables and power supply systems.

Please read carefully the manual provided by Märklin, especially the sections concerning the electrical connections of the transfer table and the removal of mechanical and electrical failures.


The transfer table operation with **Win-Digipet** is comfortable **and** makes it possible to drive the table directly to any track connector.

The transfer table is controlled by two switching decoders and one feedback module. The connections to the decoders are described in workshop #17 on the **Win-Digipet** homepage; this workshop also describes necessary mechanical and electrical changes.



The following sections are in most parts identical to the manual of **Win-Digipet** Versions 2012 and 2015.

12.7.1 Adding the transfer table to your track layout diagram

If you want add the transfer table to your track diagram, you have to open the track diagram editor via the menu command <File> <Track Diagram Editor> or with a click on the symbol  in the toolbar.

Select the type field "Turntable" in the symbol selection window. With these symbols you can draw the transfer table into your track diagram; the Fig. 12.12 shows you an example³⁶.

³⁶ This example is not part of the demo project.

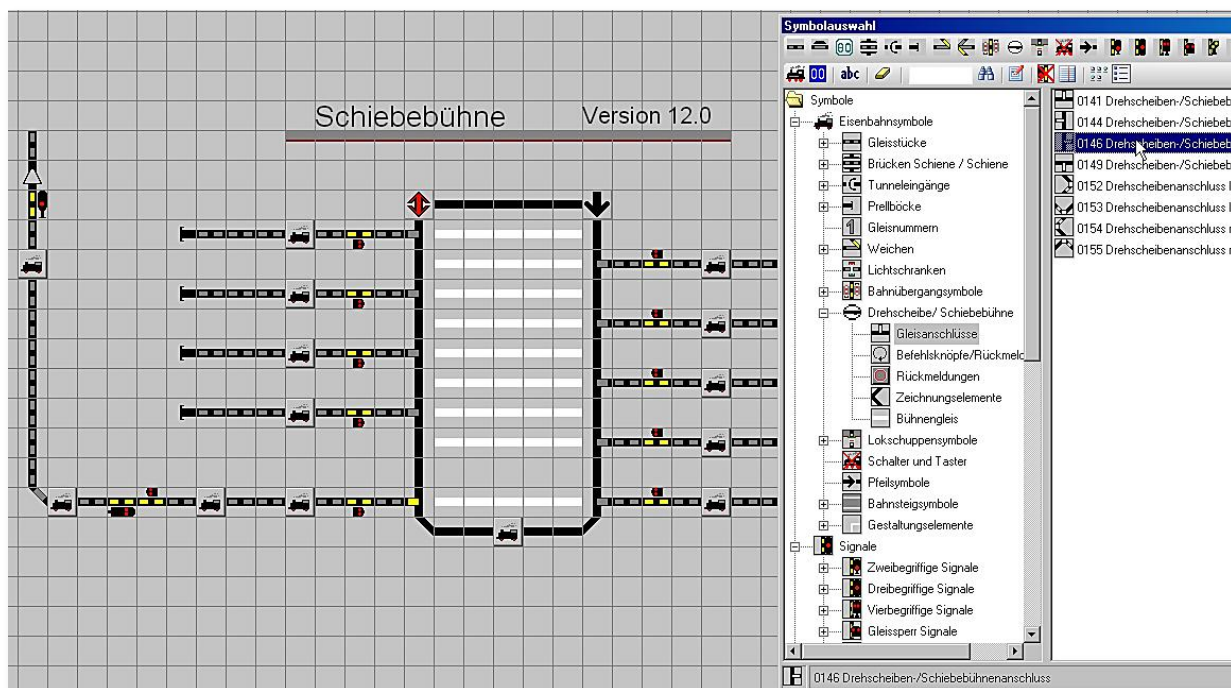







Fig. 12.12 Example of a transfer table within the track diagram.

In the symbol selection you can even find symbols for drawing a locomotive shed with sheds-gates and so on.

12.7.2 Registration of the transfer table including addresses in the track diagram

After drawing the transfer table into your track diagram you can now register the addresses and feedback module for the track connectors.

Please take care of the following points:

-  First of all, select the used digital system.
-  Every track connector acts as a command button: a click on it results into an action.
-  The addresses of the two k84-decoders and of the 9 feedback contacts (cabling according to workshop #17) have to be known.
-  At first you register the solenoid device addresses of the two k84-plugs (in this example the k84-plug for controlling the direction has the address 16).
-  Afterwards the 9 track connectors have to be assigned to solenoid device addresses 901 to 909 in the track diagram editor counted from the straight-through-track (901). The addresses 901-909 are prefixed by the program and **can't** be changed.

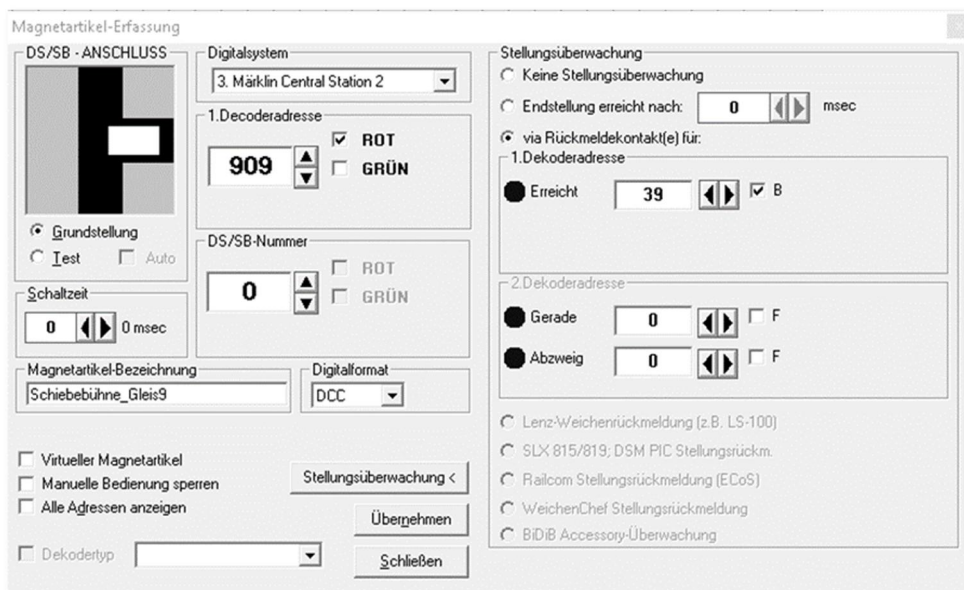






Fig. 12.13 Registering the control addresses and the switch monitor position monitoring contact.

-  When assigning these addresses to track connectors you may not check "Virtual solenoid device". To keep track of registered addresses you should check "Red" for the left connectors and "Green" for the right track connectors.
-  You should also check "Display all solenoid device addresses".
-  Register also the position feedback contact to the position monitoring option of the track connectors. Using this function and the track connector within a route recording, the locomotive won't start to move over the connector until the turntable has reached this position.
-  The message "Digital address already exists..." could be ignored starting from the second opposite connector.



You should also assign all 10 possible track connector symbols to the feedback contacts for transfer table position.

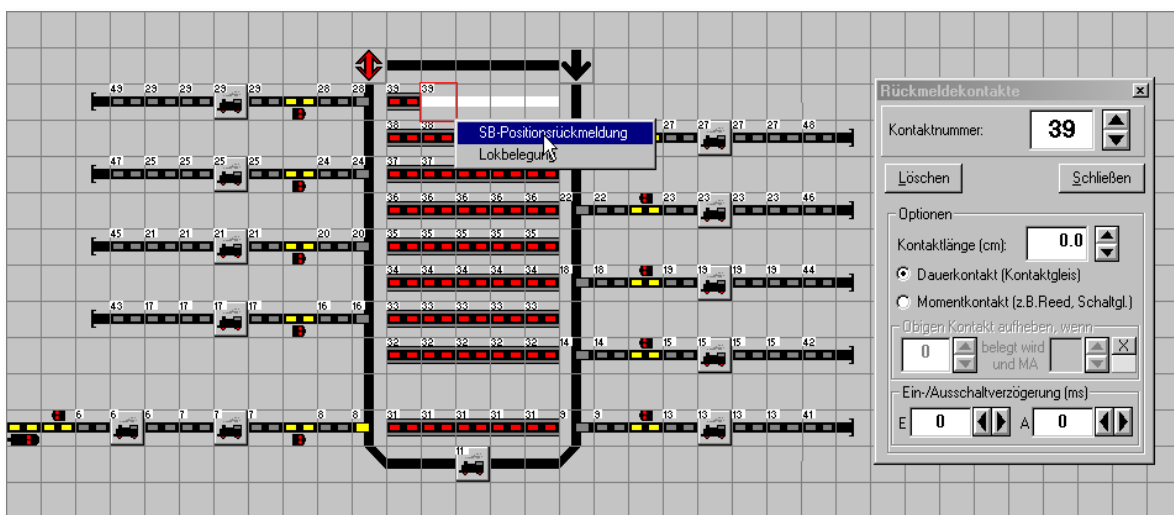


Fig. 12.14 When assigning the contacts a selection menu is shown (from version 2012)



When moving the mouse of the several transfer table symbols, a tool tip shows you all your registered data.



Afterwards the feedback contacts have to assign to the 9 possible transfer table positions in your track diagram. This feature offers you the possibility to see the current transfer table position in your track diagram. In the example, feedback contact numbers 31 to 39 have been assigned to the transfer table tracks. In the small selection menu, that appears when you assign feedback numbers to the transfer table track symbols, you have to select <Transfer table position indicator>.




Now you have to assign also for all 9 transfer table position tracks, the feedback numbers indicating locomotive occupation. In the small selection menu, that appears when you assign feedback numbers to the transfer table track symbols, you have to select <Loco assignment>.



Please register also the length of the contacts on the table if you want to use the intelligent train number display later.

12.7.3 Data saving

By clicking on the symbol  in the toolbar of the track diagram editor, the track diagram editor will be closed.

Now the position of the turntable should be visible in the track diagram as shown in the following example.

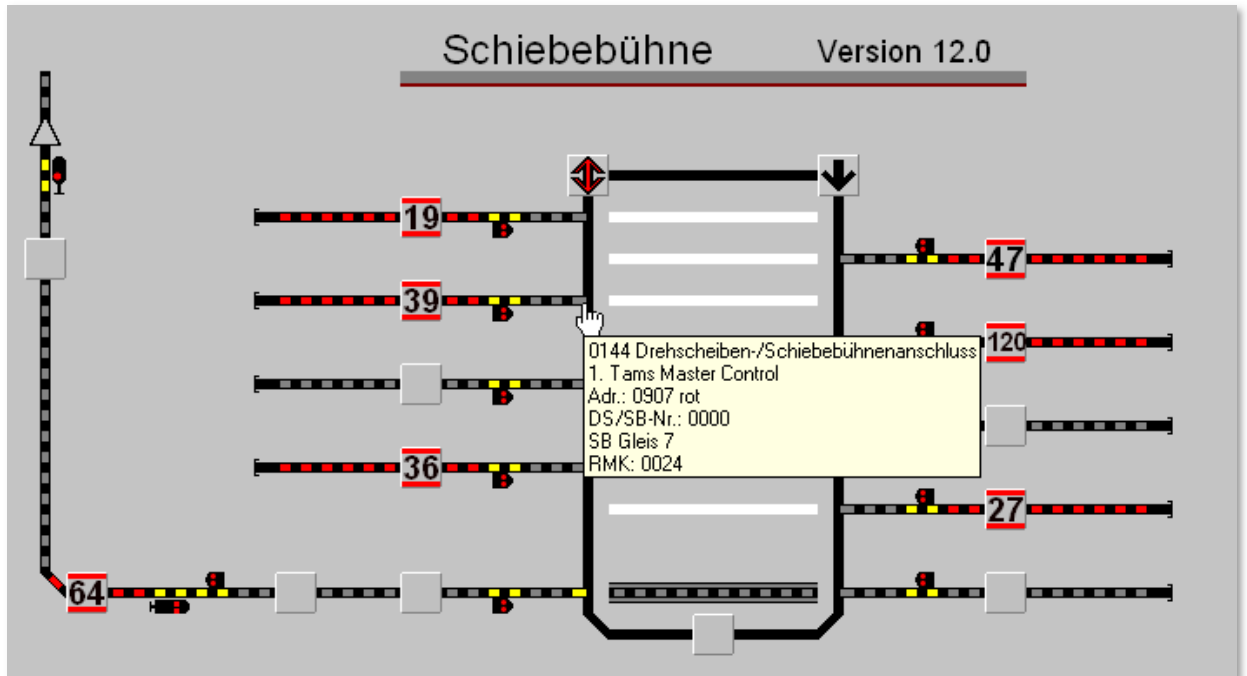



Fig. 12.15 the yellow mark at the transfer table connector shows ist current position (at the moment at the drive-thru-track)



12.7.4 Transfer table setup

The transfer table setup requires that you have assigned all position feedback contacts and solenoid devices correctly to the track symbols in the track diagram editor.

Afterwards you can open the transfer table setup with a click on the symbol  in the toolbar.

A window called "Setup / Test Märklin transfer table" will be opened.

In the setup/test window you can assign the solenoid device addresses of the two k84-decoders as in the track diagram editor and also the 9 position feedback contacts.

Afterwards you'll also have to activate the transfer table setup with "Activate". Confirm your registrations afterwards with '**Save**'.

At this time this window should already display the actual transfer table position.

Now press one of the 9 push-buttons and the transfer table will move to the selected track connector.

If the transfer table moves in the wrong direction when making your first tests, you have to reverse the connectors of the direction-k84.

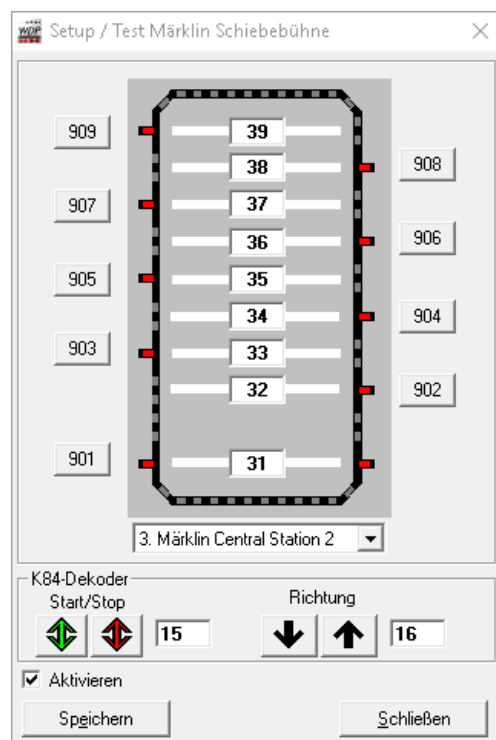


Fig. 12.16 Setup dialogue of the transfer table.



After every change in your track diagram, the transfer table setup has to be reopened and resaved once.

12.7.5 Testing the transfer table

After leaving the transfer table setup via '**Close**' the transfer table can be moved to all track connectors with a simple click on one of the track connector symbols.

12.7.6 Using the transfer table within routes

The transfer table can be used within routes using its track connectors. The track connectors can be used in add-on switchings as well as in route recordings. The usage in the route recording should be preferred because combined with a position feedback this would delay the start of the locomotive until the transfer table has reached its final position.

You can also use track connectors in contact event lines of the tour automatic or profiles.



Important hint!

No tours and follow-up ways or add-on routes, respectively, **must** include the turntable or transfer table

12.7.7 Tips concerning transfer table operation

If you have configured your transfer table according to the manual of **Win-Digipet** Version 2009, the transfer table will only be usable, if you remove the check at "*Virtual solenoid device*" in the configurations of the track connectors (opposite to chapter 15.3 in the manual of version 2009).

Configuring the position monitoring combined with the usage of the track connectors within a route recording will delay the start of the locomotive until the transfer table has reached its final position.

You should create routes from each connection track to the transfer table (using the source track connector within the route recording) and routes from the transfer table track to each track outside the transfer table (using the destination track connector within the route recording). The first route will then move the table to the current position of the locomotive and will delay the start of the locomotive until the table has reached the position. The second route will move the table to the destination track and will delay the start of the locomotive until the table has reached the position.

Please remember that you might have to change the driving direction depending of the used connectors.

If you equipped the transfer table with 3 feedback contacts, then you should use the middle contact as intelligent train number display contact.

WIN - DIGIPET

The control program

Version 2018 Premium Edition







Chapter 13



13. CRANE-, FUNCTION-MODELL-CONTROL & INFRACAR

13.1 General

With **Win-Digipet** you can control the cranes of Roco, Märklin, Trix and other manufacturers:

-  **Roco**
Portale-Crane, Portale-Crane (Control variant 2) und Crane-Wagon
-  **Märklin**
Goliath, Crane 7651 and 76515, Portale-Crane 76500 and 76501, Coaling Station, Train Crane 46715, 46716 or 46717, Tower Motor Car and Torpedo ladle wagon.
-  **Uhlenbrock** Gantry crane
-  **Lux** Vacuum cleaner, Track sander, Catenary sander
-  **Trix** Portale-Crane 66105 (nearly identical to Märklin 76500)
-  **Heljan** Container terminal

The cranes of Märklin use the Motorola-protocol only and the cranes of Roco and other manufacturers use either Motorola or DCC decoders. If you own a crane with a digital-decoder (or even up to five digital cranes at the same time), this is a very nice feature for your model railroad.



All crane and function model types available in **Win-Digipet** are stored in a file called `KranControl.wdp`. This file is hosted in the root folder of your **Win-Digipet** installation.

In case of the implementation of new types of models in **Win-Digipet** this file will be updated by the update functionality in the **Win-Digipet** Startcenter.

Even for people, who don't own a crane this chapter is interesting, because also macros for locomotives can be recorded. These macros could be executed manually, by the tour automatic, by profiles or the dispatcher.

The advantage of macros is that you have no limits because of routes and start/stop-commands.

When controlling locomotives by macros you can realise really nice shunting actions and you have even the possibility to use one destination contact for more than one locomotive. This is normally impossible.


You can even combine locomotive-train-macros in profiles with crane macros to achieve very interesting operations on your model railroad layout. In the following example we'll describe the usage of a Märklin Goliath. The operation of other cranes is similar.



13.2 Registering a crane in the vehicle database

The first thing you have to do is to register the crane in the vehicle database. Suitable pictures can be found in the Internet or can be created using a digital camera or smartphone.

Download this picture to the subfolder \EIGENE in the program folder of **Win-Digipet**. After downloading these pictures, they can be used in the vehicle database via "Custom pictures".

In the vehicle database cranes have to be registered as vehicle/train. For creating such a vehicle click on the button  in the toolbar of the vehicle database or choose the menu entry <file><Register new wagon/train>..

The index card "Basic data" contains a selection box "Vehicle/Crane" with all implemented

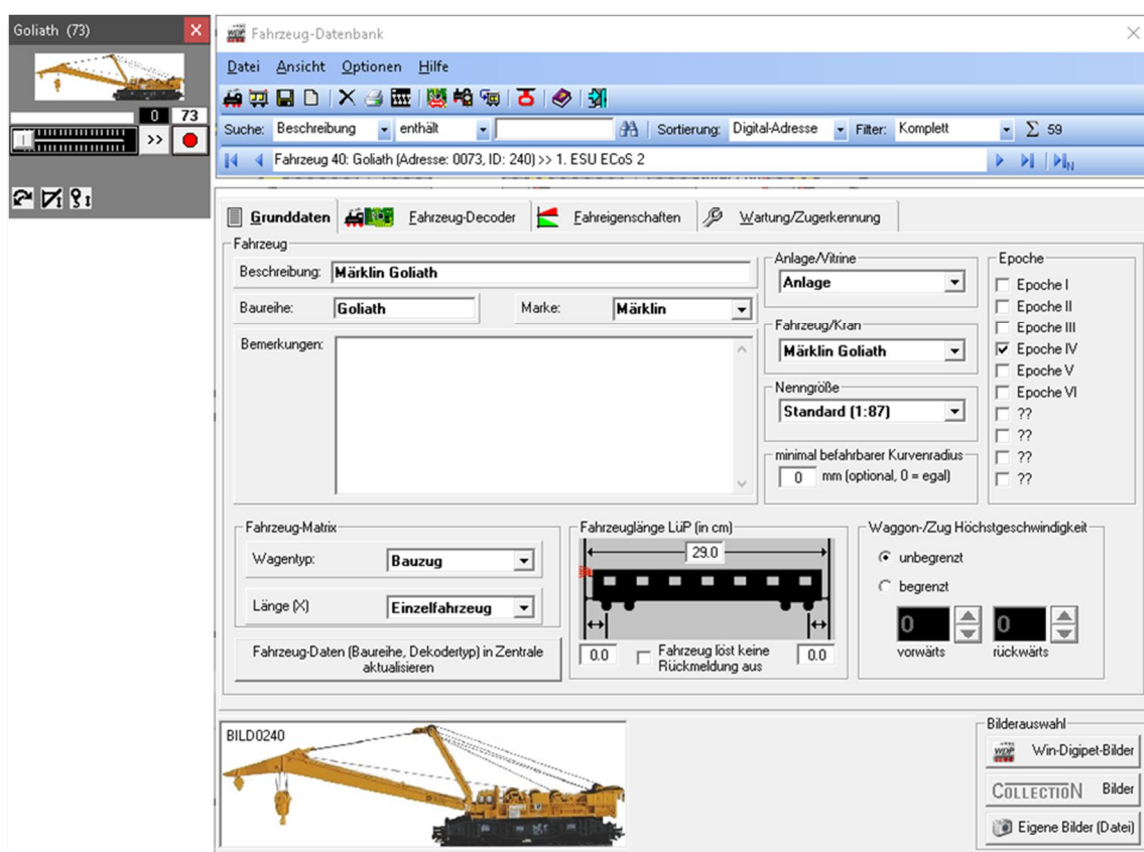


Fig. 13.1 In the selection box all implemented crane types can be found.

crane resp. function models. Please select your crane from that list.



13.2.1 Registering a crane – Index card "Vehicle-database – Vehicle-Decoder"

First you should enter the digital address on the Index card "Vehicle decoder".

The Märklin Goliath in our example uses the fix address 73.

Afterwards you should select the correct decoder type and digital system from the combo box lists.

Beschreibung	##	Schaltmodus	Sounddatei/Makro	Verst.	Std.
Drehen	f01	Schalter			
Kranarm	f02	Schalter			
Kranhaken	f03	Schalter			

Fig. 13.2 The registrations for the decoder on the index card "Vehicle decoder".

Finally, you should enter the special functions of the decoder in the same way as for new locomotives. Therefore press the button '**New special function**'. The crane in our example uses the special function f01 to f03 (see Fig. 13.2).




For many digital systems the registration of the cranes special function is not necessary within the vehicle database, but to be sure your digital system will receive all commands you should enter the special function here anyway.

All functions of the crane types which are available in **Win-Digipet** are defined in the file KranControl.wdp. You should **never** change this file.

13.2.2 Opening a crane control

For opening a crane control you have to open waggon monitor.

This program part can be opened by clicking on the symbol  in the toolbar of **Win-Digipet**.

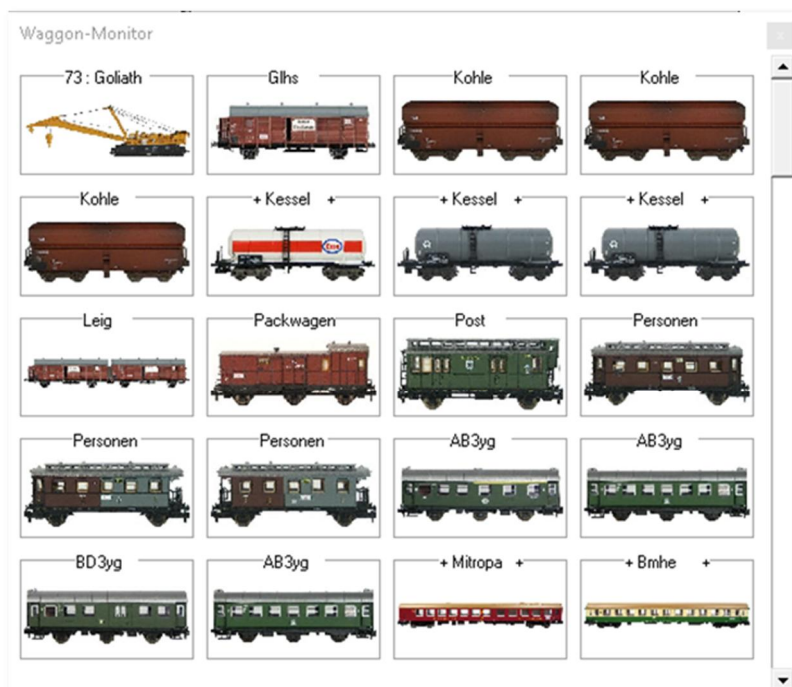


Fig. 13.3 The waggon monitor shows waggons and cranes.

After a click the waggon monitor will open showing all registered waggons, waggon groups and cranes. Fig. 13.3 shows an example.

Select the crane from the list (in our example the Goliath) and click onto its picture, the crane control will open: Fig. 13.4.

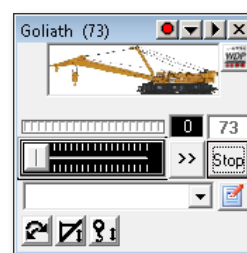


Fig. 13.4 The crane control.

Using the crane control the model can be controlled similar to a locomotive. Depending on the type of your crane more or less buttons and sliders might appear.

The crane can be controlled by the buttons and the slider within the control. Depending on your crane type the activation of one button results in the deactivation of a second button (because two functions are not possible at the same time for this type of crane). Using the button '**Stop**' any movement can be stopped immediately.



You should use small speeds with your crane.

The arrows on the direction button change the orientation depending on the selected function between left/right and up/down.

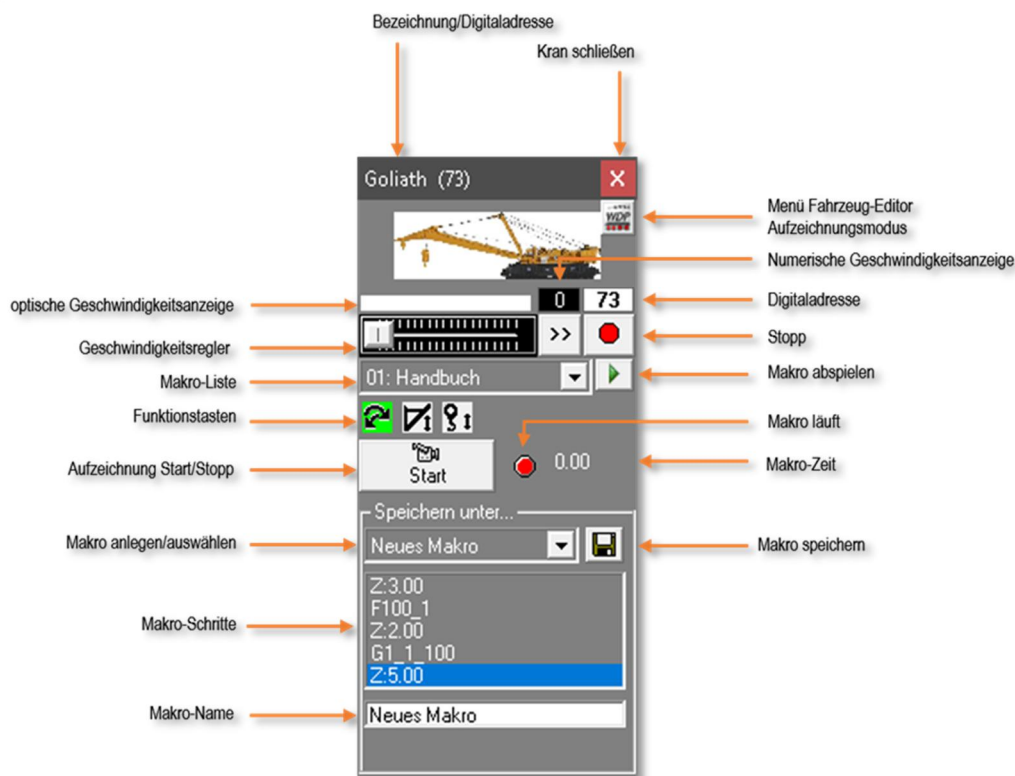


Fig. 13.5 The functions within a crane control.

13.2.3 Crane control

Depending on your crane you will see different controls and buttons. Using the right arrow in the windows caption you can open the settings part of the window. Depending on the type of crane you make here several additional settings.

This applies especially to some Roco cranes:

It might be necessary to adjust the '*Function-Switching-Pause*', which is needed for the crane to switch through the different functions in sequence. Unfortunately, this is design intended for Roco cranes with Motorola decoders.

During our several test sessions we recognised that Roco cranes react in very different ways. Therefore, vary the waiting time, to find the optimal settings. Do not set the delay times too short, because then it might happen that **Win-Digipet** sends the commands too fast and the crane "slips" some of them. If the values are too high, it could possibly happen that some of the commands will be processed in the opposite direction. A value of about **600ms** has been proven successful.

Below you find the area for synchronisation (*Display default setting after emergency stop*). This means after every switch-off-on of your model railroad or after an *emergency stop* (always after power was switched off) is this the default function which the crane will start with (it will forget anything).



Using '**Show basic setting (after emergency stop)**' you can switch the control to this basic setting.

13.3 Testing the cranes

After these settings you can test the crane.

All crane data will be saved in the **Win-Digipet** vehicle database.





Press the button for basic settings after emergency Stop to synchronize the functions and moving directions between your crane and the crane control (only for some Roco cranes).

13.4 Information regarding Märklin cranes 46715, 46716 and 46717

If you use one of these cranes with an Intellibox or Tams Master Control you have to make some special settings.

In the Intellibox you have to set the special options:

-  902 from 12 (default) to 16
-  914 from 18 (default) to 40.


In the Tams master Control, you to set the MM-Signal-Pause from short to long (4,025ms).

As decoder type you have to select Motorola 2 (14) in your vehicle database.

A **change** of the digital address is possible with all cranes supporting the Motorola format.


13.5 Recording crane macros

With a click on the symbol top right (Fig. 13.5, under the close symbol) you enter the macro recording section.


With '**Start**' () the recording begins (then the text of the switch-button will change to '**Stop**').

Please proceed with all required moves manually. All corresponding commands and times will be indicated in the status window and will be recorded.



To change the direction, you have to push the '**Stop**'-button before. Be sure not to mess up the '**Stop**' and '**Record-Stop-Button**' by mistake.

Via '**Record-Stop-Button**' () you finish the recording.

Using the text-panel in the bottom you may enter an individual name for this macro.

By pushing the disk symbol button  you save the crane-macro. The macro selection should now contain the name of your macro. The leading number e.g. "01" has been assigned internally and cannot be changed.



Via  you are able to test the recorded macro directly as long as the recording window is still open and the command chain is still visible in the status window. If you are satisfied with your record, close this section via  and the macro will be available in the list of the recorded macros and may be activated at any time you want manually or by the automatic operations





A conversion of macros from older versions (2009.5 and earlier) of **Win-Digipet** is **not** possible, because the new macro routines are much more powerful and do not understand the old recordings.

In this case the macros have to be rerecorded.

This does **not** apply to macros recorded with versions 2012 and 2015.

13.5.1 Editing and deleting crane macros

After selecting a crane macro from the list the crane control, press the shift-key and the button  will change to the button . After a click on the changed button the editor window will open (in our example macro 01: Manual).

In the crane macro editor, you can edit all macro steps line by line. You can even add or delete single lines.

Select the line you want to change and below the list window depending on the type of line more or less options for editing will appear.

In all macro rows containing waiting times the times can be adjusted.

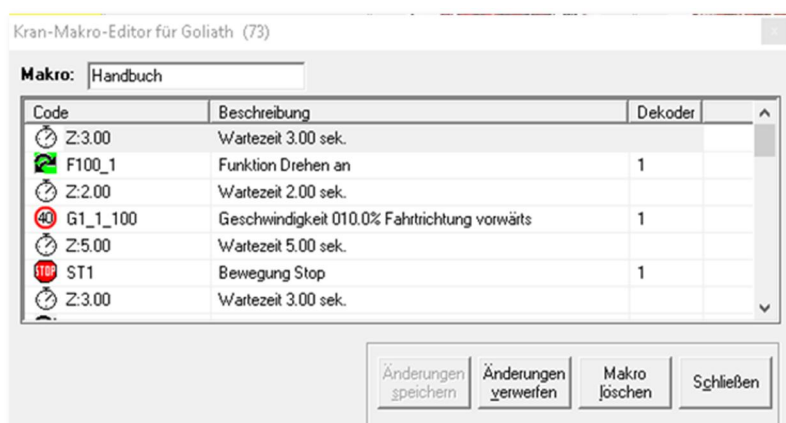


Fig. 13.6 Within the crane macro editor you can edit recorded crane macros.

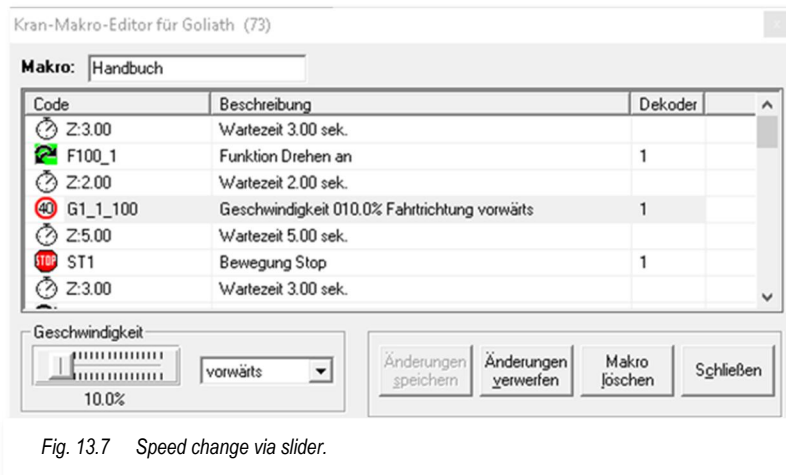


Fig. 13.7 Speed change via slider.

In the example shown in Fig. 13.6 a row with a waiting time is marked. The time (sec and msec) can be changed with arrow keys.

In all speed rows the speed value and the direction can be changed (Fig. 13.7).

Every click onto the slider changes the speeds in steps of 5%, finer changes can be made with the left and right keys of your keyboard (0,1% changes).

If you click with right mouse button on the selected line a context menu will appear with additional edit functions.

Beside the possibility of moving lines up and down you can also add further actions into your crane macro.

In addition to the functions of the model itself you can also add dependencies to feedback contacts. This means the following lines will be delayed until a predefined value of a feedback contact (free or occupied) occurred.

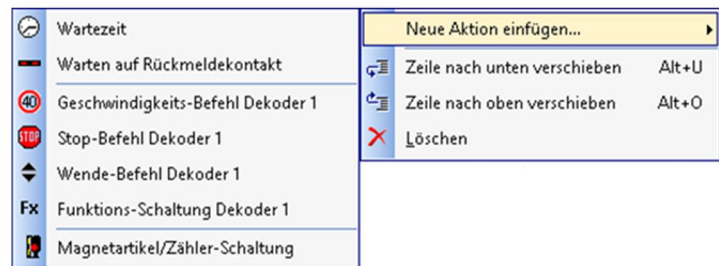


Fig. 13.8 the context menu of the crane macro editor

Also, solenoid devices and counters can be controlled by a macro step. Using this you can create links to functions e.g. in the tour automatic.

Afterwards you should press the button '**Save changes**'.

If you made mistakes during the editing process you can also select '**Discard changes**'. The window will then close and no changes will be made.







The current macro can be deleted with the button '**Delete macro**' and a click onto '**Close**' closes the editor.

13.6 Tips concerning crane-macros

Ex-factory most cranes can't give any feedback to the PC. Because of this do not make records which need to be precise in millimetres, because this can't be realised by most cranes and digital systems.

You should remember some points when creating macros:






-  Before you start to record a macro, move the crane ALWAYS to a defined and fix position! Example: Default function setting as it is when you switch on power, direction 180 degrees to the tracks, hook up, boom down (or whatever you'd prefer), because the macro will always process like you have recorded it – in relation to the current position and setting.
-  In case your macro starts first to raise the hook for 10 seconds, but the hook was already at the highest position at the beginning of the macro, then there will be no feedback and WDP starts to process to raise the hook again.
-  It would make sense when a macro ends in the same setting and direction as it started, to e.g. replay a macro several times. Alternatively, the first macro ends in a position which is the starting position for another macro to build a kind of macro-chain.
-  Don't try to record too *precise* macros (precise by millimetre)! The cranes do not send any feedback about their current status or condition back to **Win-Digipet**, this means everything is controlled by time. But also in this stage we are far away from any "Suisse-Precision", because the crane-motors don't stop immediately, so that after multiple replay of the same macro the crane will get more and more out of range and the result will be that the crane puts its load right beside a lorry.
-  During operation of a macro all other command-buttons of this crane control are disabled except the stop-button. By means of the "shining LED" of the crane-control you may notice that a macro is still in progress. If you want to stop a macro for any reason just push the stop-button. Please keep in mind, if you then want to restart a macro, this macro will start from scratch, **but at the current position!!!** Therefore, you must bring the crane into its default position before and you have to reset the switching to its default setting as well which is given for any new start!
-  Please always pay attention to the security regulation of the manufacturers, to avoid that conductive or flammable parts are able to fall onto the tracks!

13.7 Using crane macros in Win-Digipet

It is very comfortable and easy to implement macros in **Win-Digipet**! You can call macros in conjunction with contact events, similar to event-controlled switching of solenoid devices. Certainly you can also implement the powerful timer-control to start macros e.g. with an adjusted delay.

You can use the crane macros as follows:






-  Manually using the crane control
-  Automatically in profiles.
-  Automatically in the tour automatic (in event driven lines)



-  Automatically in the dispatcher.

13.8 *Infracar-system in Win-Digipet - General*

The model car from the Faller Car System or from Mader could be already controlled with **Win-Digipet**. However, now the InfraCar system by Karsten Hildebrandt is implemented. The known systems of Faller and Mader know e. g. only two speeds "stop" or "full speed". The InfraCar system sends the following commands via infrared light...

-  Acceleration / braking
-  automatic stoplight
-  variable speed regulation
-  and up to 6 switch functions (e. g. Light, indicator, blue light)
-  if a suitable decoder is installed in the car/truck.

With these similar operations as for a normal model railroad are possible. Therefore, the functions which you know from the model road control can be used with the InfraCar system.

13.9 *Settings for the InfraCar system*

You have to register the InfraCar system as digital system in system settings on the index card "Hardware – Digital systems".

13.9.1 *Registering cars in the vehicle database*

Next you are going to register your cars like locomotives in the vehicle database. There you also find a decoder type for the InfraCar system.



You carry out the entries analogously to the locomotives according to the procedure for locomotives.

Of course you can use addresses which you already use for locomotives, because **Win-Digipet** "notifies" that it concerns not locomotives, but cars. Besides you can use up to 6 special functions (if available).

13.9.2 *Functions for the InfraCar system*

If you have installed and configured the InfraCar system, all functions known for locomotives and automatics are also available. The "street" must be drawn similar to "rail tracks" in the track diagram.

Hierzu können Sie die folgenden Symboltabellen nutzen:

- | | | |
|---|--------------------------|----------------------|
|  | Street and track symbols | Sym_Auto_Bahn |
|  | Track and street symbols | Sym_Bahn_Auto |



User symbols **Sym_U**

You can select the desired symbol table in the system settings of **Win-Digipet**.

Version 2018
Premium Edition

Chapter 14



14. MODEL RAILROAD OPERATION with WIN-DIGIPET

14.1 General

By now you have recorded all individual data of your Digital model railroad, created the track diagram, determined the routes, profiles and tours and made the recordings for the operation according to using the tour automatic.

Thus, the prerequisites are satisfied and you can comfortably and efficiently control your layout through **Win-Digipet**.

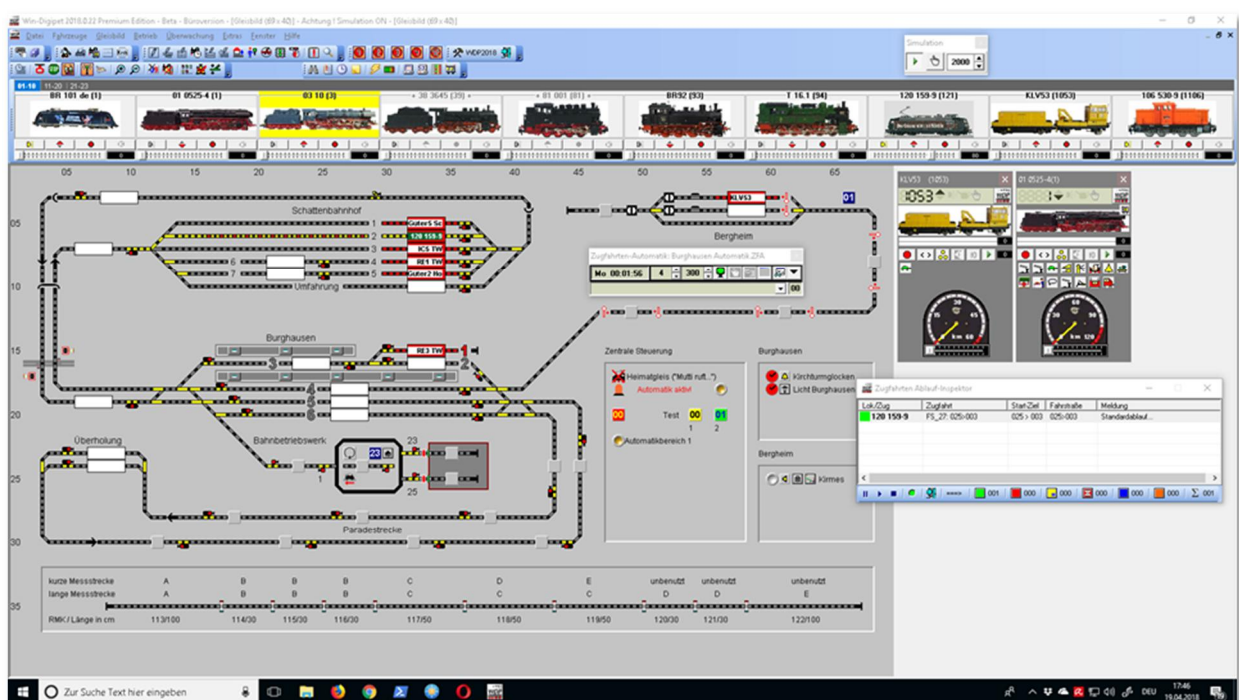






Fig. 14.1 The **Win-Digipet** track diagram during operation.

In the **WIN-DIGIPET** track diagram, your easy-to-handle command centre, you switch and control your model railroad.

In this chapter all control functions and their handling in the model railroad operation are presented. When you start **WIN-DIGIPET** your track diagram is loaded automatically, and you are in the main program.

You see everything as you left it after your previous session

-  the size of the track diagram
-  the track diagram displayed using the selected symbol table
-  the zoom factor
-  the locomotive controls




and the position of the loco bar.



If you get the experience, that during your operation with **Win-Digipet** windows of editor do not appear in the visible area of the screen after they have been opened, this might a result of moving them out of the visible area. You can correct this problem by pressing '**Reset window positions**' in the system settings resp. the **Win-Digipet** Startcenter.

14.1.1 System settings

Using the button  in the toolbar you can open the system settings; this program part is described in chapter 3 of this manual. The system settings can be accessed also via menu command <File>< System settings>.



While you control your model railroad, you should not make changes to the basic system settings.

14.2 Solenoid devices

14.2.1 Switching individual solenoid devices

Point the mouse pointer in the track diagram at the solenoid device you want to switch: the mouse pointer changes to a hand. If you have activated one of the following options in the menu of the program, you will see additional short info (tooltips) while pointing to a solenoid device in the track diagram.



<Options>< Display info about symbol below Mouse pointer >



<Options><Show all symbol-info below Mouse-pointer>

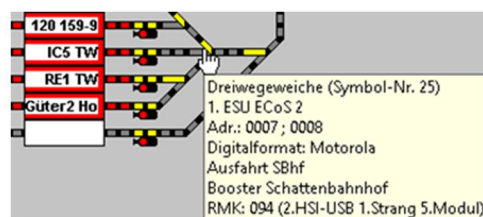


Fig. 14.2 The toolti of a turnout.

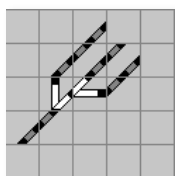
Press the left mouse button as often as necessary until the desired position of the solenoid device is reached.

Three-way and double- slip turnouts may require three or four clicks. You can switch an unlimited number of solenoid devices successively.



When switching signals with three or four aspects, you can open a context menu with the right mouse button and select the desired state directly.

The switching position of solenoid devices with the same addresses – for example: Two signals at the same decoder input –will automatically be synchronised at the track layout.



If you have represented three-way turnouts in inclined position in the track diagram by one vertical and one horizontal normal turnout, each with its own address, you should ensure that both turnouts are switched to "straight" prior to any "branch" switching.

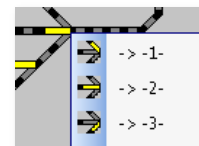


Fig. 14.3 Context menu.

Counters within the track diagram can be switched via routes, profiles and tour automatic as well as manually. If you want to change the value of a counter, click on the counter in the track diagram. A new window called "Set counter" will appear. Within this window you can chose with the mouse or the keyboard the new value. After the selection of a new value you can confirm the new value using the button 'OK'.


For an SX-display  the same procedure can be used for changing its value.




Fig. 14.4 Set counter.

14.2.2 Basic settings of the solenoid devices

Using the via menu command <Operation><Starting basic settings> all solenoid devices are switched to their basic settings. The basic setting for each solenoid device has been configured in the solenoid device settings in the track diagram editor.

Solenoid device with activated "Exclude from basic setting" option in the solenoid device settings in the track diagram editor are not switched.


Via the symbol  or the corresponding command <Operation> <Execute current switching> all solenoid devices are switched to the positions shown on the screen.

These functions are always useful if you want to switch your solenoid device into a determined state for example after manual intervention.

14.2.3 Switch active route again

The menu command <Operation><Switch active route again> may be executed in the case of emergency to warrant the correct positions of the solenoid devices.

14.2.4 Function test for solenoid devices

The button  in the toolbar of the main program or the menu command <Operation><Solenoid devices function test> leads to a dialogue for testing the solenoid



devices. This function opens the chance to you, to "shake up" all solenoid devices on your model railroad after a long operations break (or before operations) and "wake" them up again, so that they are switchable again. This is especially useful for mechanical components in contrast to light signals. You can freely adjust the number of switchings (2 – 10) and the break between two switching (100 msec. – 5 sec).

The number of switchings can be adjusted in steps of 2. This means every solenoid device will switch as minimum one time in the first and afterwards back to the second position.

In the window you can select which solenoid devices shall be tested. You will find options for inserting just turnouts or all solenoid devices into the list. You can remove single solenoid devices from the list by selecting them (multiple selections Windows typical using Shift/Ctrl) and pressing the button **'Delete selection'** afterwards.

You can even drag single solenoid from the track diagram into the list window. This makes of course only sense when you just want to test a smaller number of solenoid devices.

After you have made your selecting, press **'Start'** and the test switching process will start. **'Stop'** will end the test.

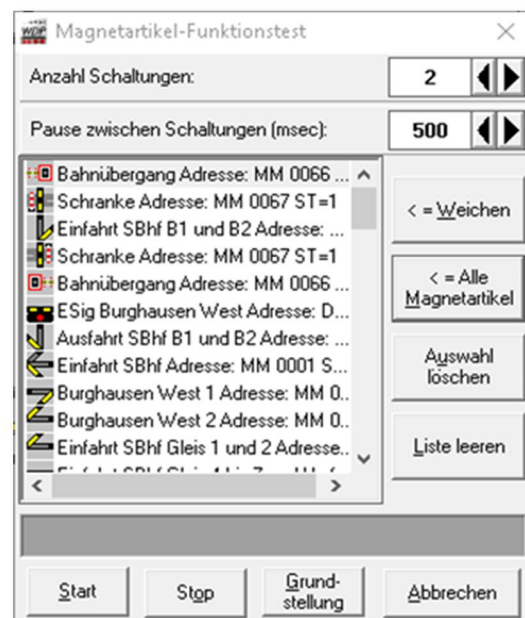



Fig. 14.5 Solenoid device function test.



However, a three-way-turnout will always be switched six times fix, to guarantee to show the correct setting at your track layout after switching.

14.3 Check and support functions – the error check

The central check function is able finding and indicating erroneous configurations in your project. In former versions of **Win-Digipet** individual check functions were available in most editors. There are centralised. Only in the track diagram editor the check function is still directly available.

You can open this comprised check routine using the button with the red exclamation mark  or the menu command <File><Check of errors>.



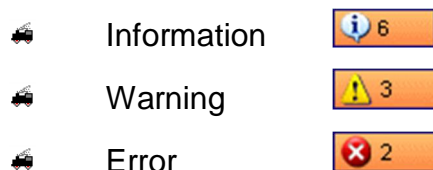
After pressing this button, the check window will open. In this window, the check routines of all other editors have been bundled. This means you can quickly see in which program parts/editors you have errors/warnings regarding your data and eliminate them afterwards.



Fig. 14.6 The check function covers all relevant program parts.

14.3.1 Check categories

In the upper part of the dialog window you three groups of buttons/symbols. The left group contains these three category buttons:



The messages with the information icon are just hints. These messages are **no** errors, but you might get problems during operation. For example, if due to the selected stop position the check contact cannot be reached within an intelligent train number display.

All messages with yellow warning sign are warnings. Also, these are no errors in the trust sense of the word. If you register e.g. for a route a feedback contact, that does not belong to the route recording, this might be wanted by yourself. But **Win-Digipet** cannot know if you did this deliberately or by mistake. Thus, you will see this warning message, which should be checked by yourself.



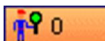



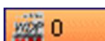
All messages with the white cross on red background are real errors, this means you must correct the listed issues to achieve a proper program operation. For example, if you forget to register a contact event for a start contact within a profile, the train will never start its journey.

This numbers right of the symbols shows you the number of messages for each message category. The same applies to the second group of buttons in the toolbar. When pressing the buttons in these two categories you can filter the list, so that it just shows the message with message types fitting to the pressed buttons.



14.3.2 Checks of the different program parts/editors

The following symbols represent the different editors of **Win-Digipet** which are covered by the check routine. In detail:

	Track diagram editor	
	Vehicle database	
	Routes editor	
	Tour editor	
	Profile editor	
	Locomotive/train macro editor	
	Dispatcher	
	Train director	
	Tour automatic editor	
	Intelligent turntable	
	Booster management	
	Further program parts	


All of these symbols representing messages of the several editors can be pressed to filter the list, so that just messages of the selected editors are shown. In the background the check routines check of course all editors. The buttons just cause a hiding of the unselected message types. This filtering is of course useful for working with larger message lists. After reopening the check window all categories are activated again.




When leaving the track diagram, you should always agree with the program's suggestion to automatically check the track diagram. This check will also correct in most cases broken links to the track diagram within routes and other program parts due to changes of your track diagram. If you regret to open the check routine after leaving the track diagram editor, it is your responsibility to correct the errors by yourself later.


14.3.3 Further functions for error check

In the check dialog four additional functions are available using the according symbols in the toolbar.

The button  will result in a repetition of the check routine e.g. if you made corrections while the check window was open.



The symbol  leads to a short menu, where you can choose further optional settings.

Using the function "Select TA file" which can be activated using the button  you can exclude/include single TA files from the check routine. This is for example necessary if you have assemble, but not finalised new TA files. When opening the check function the first time all TA-files are checked.

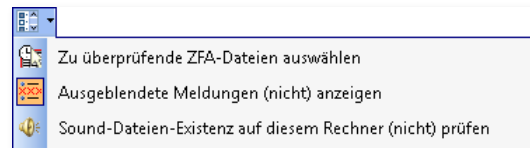




Fig. 14.7 Optional settings for the error check.

By default, all TA files are checked by the program. If you exclude here files from the check the program will save this excluded file list for the next usage of the program/check routine.

Certain messages regarding the track diagram editor can be marked so that they do appear in the check list. These ignorable messages are messages concern the track diagram and the used symbols. In the chapter regarding the track diagram editor we informed you about symbols and coordinates. For the case, that a symbol has not continuation to one or more direction this will result in error message. But in some cases you might have drawn these symbols willingly (e.g. for virtual control switches) to the track diagram and thus you might want to ignore these messages (see Fig. 14.6) using the check box in the list. Using the second option shown in Fig. 14.7 you can fade in or out the ignored error messages

The buttons Print  and Close  are self-explanatory resp. have been covered in the previous chapters and will not be explained here again.

14.3.4 The check result list

The list of check results is the main item within this messages window. It is divided into 7 columns per message.

The first column indicates the symbol of the program part causing these messages. Here you might find messages of all program parts mentioned above.

The second column contains the ID of the route, tour, profile, macro or the row number of the TA file etc.

In the third column you can read the name of the route, profile etc.

Column number four contains the message category.

The fifth column is an addition for column two. Here you can see for example the name of the TA file if the message is caused by the program part tour automatic editor.

The most important column is the message column. Here you can read the info, warning or error in detail. We can of course not explain all messages in detail. There more than 100 different kinds of messages.


The last column offers for some kinds of messages (from the track diagram editor) the possibility to ignore them. They will not reappear in the list the next time (see sub-chapter before).









Using a double-click onto one message in the check list the program will lead you directly to relevant dataset in the affected editor. Using this you can quickly solve the message's reason.

Exceptions are the message caused by the track diagram editor. These **must** be corrected in the track diagram editor. Within the track diagram editor, you can open the check window as well to see all messages affecting the track diagram editor.

14.4 Check and support functions – the search function

Using the symbol  in the toolbar "Editors" of the main program or via the menu command <File><Search> you can access the general search function of **Win-Digipet**.

You can search for the following items in all program parts:

-  Solenoid devices / counters
-  Feedback contacts
-  Vehicles / trains
-  Routes
-  Tours
-  Loco / train macros

For example, you can explore, in which program part a solenoid device is used. The dialogue window of the search function is similar to that of the error check.

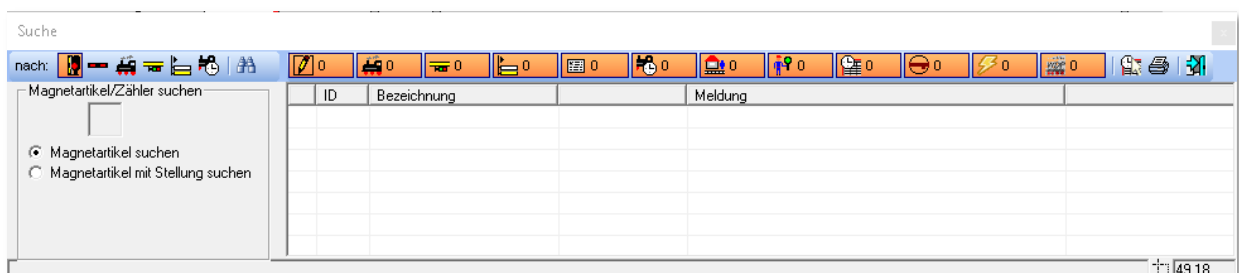


Fig. 14.8 The dialogue window of the search function.

There are two areas in the window. In the left area you find symbols corresponding to the items listed above. The right part contains the result list. The results can be filtered in the same way as it has been described for the arrow check (compare section 14.3.2).



14.4.1 Search for solenoid devices / counters

To search for a certain solenoid device or counter please click on the symbol solenoid device and drag & drop the symbol of the solenoid device from the track diagram to the field below. Furthermore, you may search for the solenoid device being in a specific position or not.

14.4.2 Search for feedback contacts

To search for a certain feedback contact please click on the track symbol and drag & drop the corresponding track symbol from the track diagram to the field below. Alternatively, you can enter the contact number.

Furthermore, you may search for the feedback contact being in a specific position (free or occupied) or not.

14.4.3 Search for vehicles / trains

To search for a certain locomotive, waggon or train please click on the loco symbol and drag & drop the corresponding vehicle picture from the loco bar, the loco control or the waggon monitor to the field below.

With this method you can look for waggons with in a train. Of course, the waggons must be registered as a vehicle in the vehicle database and in the train composition of a train.

In addition, you can decide whether you look for a certain vehicle or for a train name. The train name can be entered with the keyboard as well.

14.4.4 Search for routes

To search for entries of a certain route enter the route using the start/destination function in the search window.

When clicking on the field "Transfer to search window" the selected route is transferred to the search dialogue.

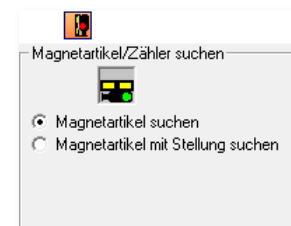


Fig. 14.9 The search for solenoid devices / counters.

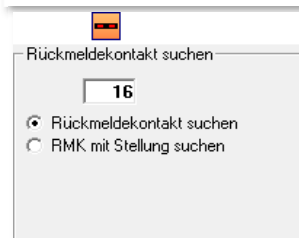


Fig. 14.10 The search for feedback contacts.



Fig. 14.11 The search for vehicles /trains.

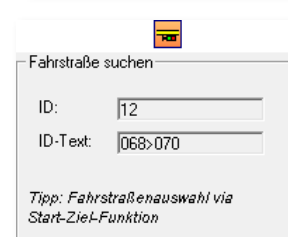


Fig. 14.12 The search for routes.



14.4.5 Search for tours

To search for entries of a certain tour enter the tour using the start/destination function in the search window.

When clicking on the field "Transfer to search window" the selected tour is transferred to the search dialogue.

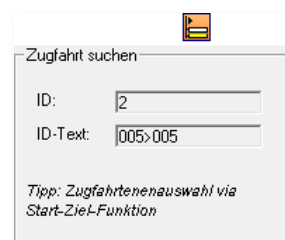


Fig. 14.13 The search for tours.

14.4.6 Search for loco / train macros

To search for a loco/train macro click on the field "Select macro" and select the corresponding entry in the appearing list.

With a double-click on the macro name the selected macro is transferred to the search dialogue

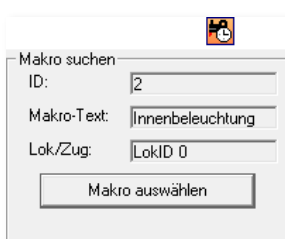



Fig. 14.14 The Search for a loco / train macros

14.4.7 Executing the search

To execute the search click on the symbol  in the symbol bar of the search dialogue. **Win-Digipet** searches for the object in all program parts. For example, a solenoid device may be found in the route recordings, as follow-up switching or as a condition or switching action

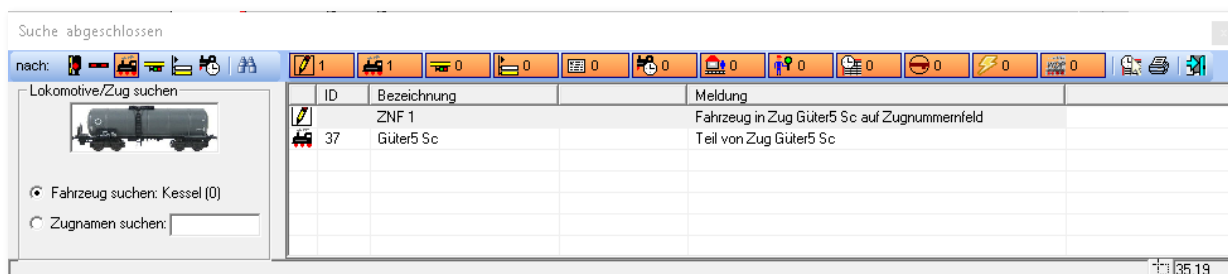




Fig. 14.15 The search for a certain waggon.

in the dispatcher.

Fig. 14.15 demonstrates the search of a certain waggon (tank). The picture of the vehicle was transferred from the waggon monitor. The result list shows to entries:

-  The vehicle is in train at TND 1
-  The vehicle is it part of the train

As soon as you mark the first line of the result list, the train number display in the track diagram is marked red.



For example, a double-click on the result entry with a found solenoid device opens the corresponding entry in the route editor. In this way, you can perform changes very quickly.



14.5 Check and support functions - the Logbook

The logbook in **Win-Digipet** collects many events and messages that occur during the operation of **Win-Digipet** in a message. It is some kind of operation protocol.

The recordings to the logbooks have to be activated in the system settings. After the activation the logbook is running in background every time you start **Win-Digipet**, even if the logbook window is not visible on the screen.

The logbook can be opened using the button  in the toolbar "Monitor" or via the menu command <Monitor><Logbook>.

The logbook window lists messages and events. It contains all messages and events since the current start of **Win-Digipet**. All messages have a time stamp. The stamp is set in real time and not model railroad time. In events where the model railroad time is relevant (e.g. when executing routes in an automatic) the model railroad time will be added.

The types of messages are classified by an icon. Using the icon, you can distinguish different types of messages easily.

The figure shows an extraction of the logbook protocol shortly after the start of **Win-Digipet**. You can see that some common information (e.g. date, program version and the project name) has been recorded at the beginning.

Afterwards the digital systems should have been initialized.

This example shows, that the office version of **Win-Digipet** has been started, so that no digital systems are connected to the program.

Afterwards all vehicles were initialized. The completion of the start-up process is indicated by the message "**Win-Digipet** ready" (not shown here).

All other will messages will cover the normal operation. Also, error messages will be recorded in this window. You should trace such error message and try to eliminate the sources of the errors.

Also system messages which do appear on the screen just for a short while, you can be found later in the logbook.

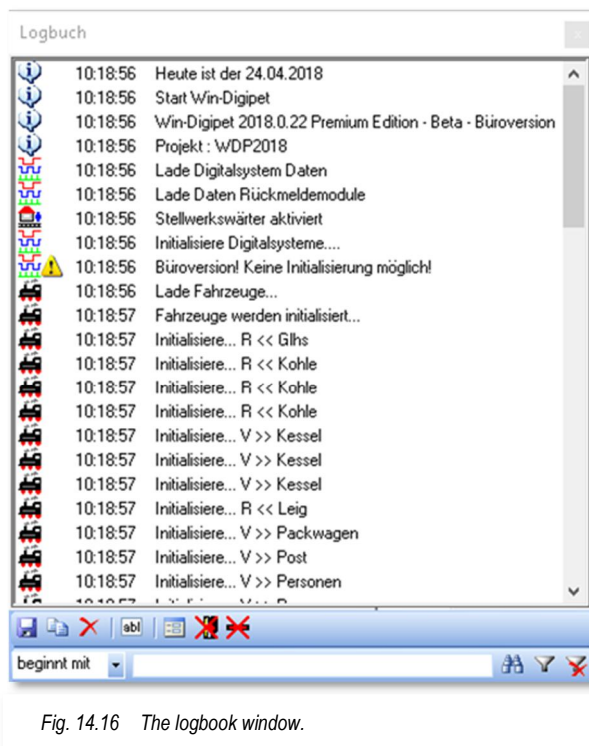
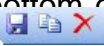






Fig. 14.16 The logbook window.



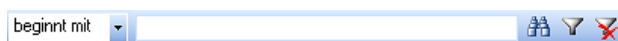
At the bottom of the logbook window you can find further commands. The first group of buttons  is self-explanatory. Using these buttons, you can save your messages to a text file or copy the message to the Windows clipboard for further process within a text editor etc. The third symbol removes all messages from the window.

Using the symbol  you may insert short notes in the protocol, so that you can more easily retrieve parts of the logbook, when you want to study the saved logbook later.

The symbol  will force the window to fade out after some seconds. The window is still active and similar to the one of the central clock. The window will get in-transparent again when hovering with the mouse over it.

Using the symbols   you force the logbook to log all solenoid device switchings including the command sources and contact actions in the logbook. We suggest using this function only when errors occur and to turn it off during normal operation.

At the lower bottom of the window you can see some commands for filtering/searching messages.



Here you can search for strings within the protocol or you can force the program just to show messages fitting to a specified filter setting.

If you just want to see e.g. all messages regarding route 006>015 you need to set the filter to "contains 006>015". All other messages will be hidden as long as the filter is active.

Most messages in the logbook are self-explanatory. Please take a look at error messages and search for the reasons of them.


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14.6 Check and support functions – the memo-window

The memo window of Win-Digipet represents an electronic version of a small memo label, as you may often use it to remember things.

The memo window is, however, much more powerful than a paper memo label. The memo window can be written, attached and also deleted manually as well as automatically by different program parts of **Win-Digipet**.



The window can be opened by clicking on the symbol  in the symbol bar one tour or wire the menu command <Monitor><Memo>.

First, an empty yellow label appears on the screen. A click on the right mouse button opens a short menu. Here you can enter text manually. Optionally a line for settings of the window becomes visible. Fig. 14.17 shows the memo window including this line.

The last two symbols make the window fade in at the program start and fade out an empty memo window, respectively.

As described in the beginning, the entries can be made manually. It is, however, much more important that the memos can be entered by the switch actions in the routes editor, the tour automatic editor and the dispatcher.

Using the extended text editor in these program parts you can assemble interactive texts which are to indicate specific situations in your layout. The usage of the switch actions and the extended text editor, respectively, have already been described in the chapter on the routes.

The example shows an automatic memo entry by the dispatcher. When a solenoid device is switched, it is checked and recorded, which train name is registered at the train number display. As soon as the solenoid device is switched off, the entry in the memo window is deleted. You find this example in the demo project.

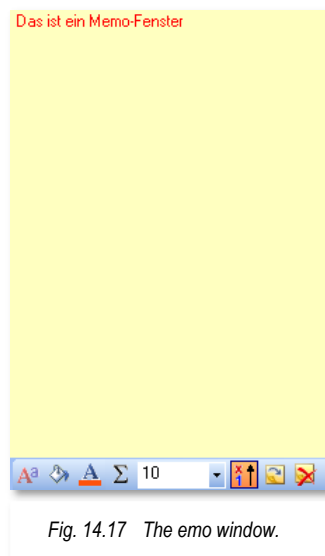


Fig. 14.17 The memo window.

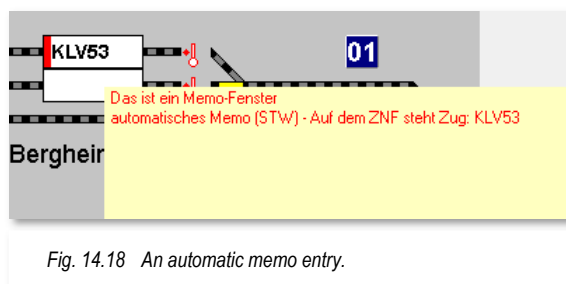


Fig. 14.18 An automatic memo entry.

14.7 Switching of routes/tours

In **WIN-DIGIPET** routes can be switched manually or automatically. The tour automatic will only switch routes, if all switching conditions are fulfilled. Within this sub-chapter we will explain how to switch routes or tours manually.

14.7.1 Using Start/Destination function

If you want to start a route or tour manually you have two possibilities.

The first possibility is using the context menu of the track diagram, first click on the start train number display with the right mouse button and select <Set start> from the context menu and afterwards click on the destination train number display with the right mouse button and select <Set destination>.



The second possibility is easier; you click with middle mouse button on the starting point of the desired route and again (within 10 sec) with the middle mouse button on the destination point (starting contact, destination contact).

If you get the message "Not route/tour found!" you might have not defined a route/tour for this start-destination combination before.

You can now create and store route resp. tour for this start/destination combination. But you can also use the route navigator to create a temporary route and drive your train to the destination using this. This temporary route can be reused until you restart the program. Temporary routes created with the route navigator can also be saved permanent. But you should use this function with care, because later you might have a large number of routes you used just once.

The window "Selecting start/destination" appears if the program found some routes or tours for the selected combination. All routes and tours that the system found are displayed in a list, with their ID text and their internal ID number. The routes marked in the list is shown yellow (Fig. 14.19).

In the example figure the route will be executed with " Profile ID0" operation flow, because a profile valid for all locomotives has been created for this route.

The two messages rows in the dialog window can inform you about different issues regarding the selected route in the current situation. Especially red messages inform you about problems. Some examples:

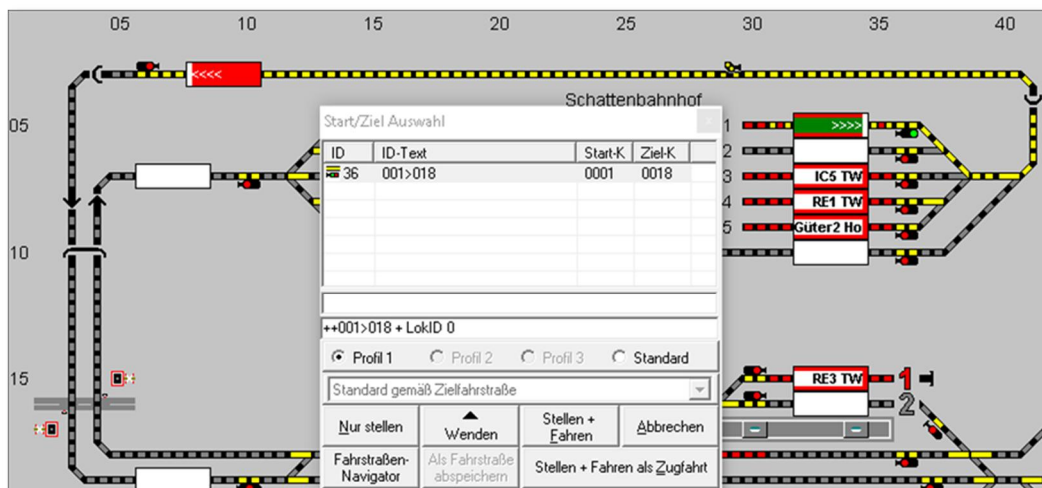


Fig. 14.19 The dialogue of the start/destination function lists one route for the selected combination.



Keine Fahrstraße/Zugfahrt gefunden!



Nicht erfüllte Stellbedingungen: K17=0
++005>018 + LokID 0

No route/tour found!", if the desired itinerary is not registered as route

The route is not free, caused by an occupied contact



Keine Lok auf Start-Zugnummernfeld



Fahrzeug auf Ziel -
++001>018 + LokID 0

FS kreuzt 007>018 - (39)
Fahrzeug auf Ziel -



Lok auf Zugnummernfeld innerhalb Fahrstraße
Standardablauf



Standardablauf

No locomotive is registered on the train number display.

Here the route is not yet free, since a locomotive still occupies the destination contact.

Warning regarding a crossing route with display of ID text and ID-No. of the crossing route.





In this window two message. You can see the three dots at the end of the message. This indicates that further messages are available. Just navigate the mouse cursor over the dots to see all messages in a tooltip box.

The route is not free caused by a train number display within the route that is occupied by a locomotive number

This message says, that everything is OK.

Now select the desired route or tour from the list; the route appears in yellow and blinking, this means "Ready for switch". The button '**Switch + Drive**' will be enabled automatically, if a locomotive number is registered on the start contact. If you select a route in the list start/destination window will be extended with the button '**Switch + Drive as tour**'.

You can choose between different options:

-  Click on '**Switch only**'; the route will be switched and is marked yellow. You can drive **manually** along the route with a train/locomotive. For this purpose you can control the locomotive with the control panel of your digital system or with a **WIN-DIGIPET** locomotive control.
-  If the button '**Switch + Drive**' is enabled, because of a registered train number on the start contact, you can choose between several driving options now.
-  You choose "**Standard**". The values for the starting speed and the further driving behaviour will be taken from the vehicle and route database.
As soon as the locomotive has reached the destination contact, the locomotive will be **stopped automatically**.
-  You choose "**Profile 1**".



Then the locomotive will start running **automatically** by clicking on "Switch + Drive". The values for the starting speed and the further driving behaviour will be taken from profile 1 registered for this locomotive/route-combination within the profile database. The same applies to the other profiles.

The selection of a profile using one of the radio buttons is not possible before profiles have been created for this route in the profile database.

As soon as the locomotive has reached the destination contact, the locomotive will be **stopped automatically**.



In both operation modes warning messages will be displayed, if the selected route is not allowed for the locomotive-/waggon-type/length of the train registered on the start train number display.

But you can force to use routes even if this message is displayed by clicking on 'Switch + Drive'. But be careful with this, because an un-allowed train is now using this route. This journey is then in your complete own responsibility.

If you want the loco to change its direction before executing the route/tour press 'Turn loco'. If you configured the direction information in the route database (default for new routes) you will see a warning message if the train/locomotive's direction on the start, contact does not fit the direction settings in the route.

According to your setting on the index card "Program settings – Locomotives" in the system settings, the click on 'Switch + Drive' will also cause the control of the locomotive from the start contact to be

opened automatically and closed automatically when reaching the destination contact.

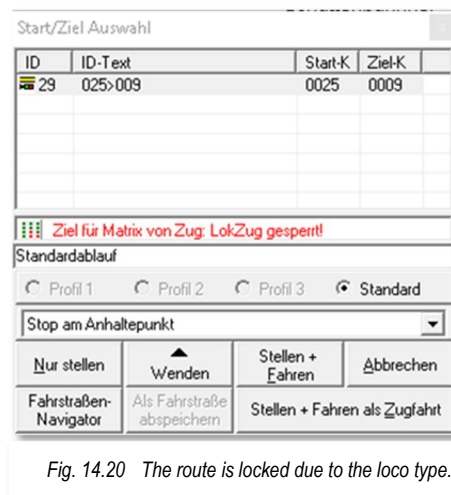


Fig. 14.20 The route is locked due to the loco type.



14.7.2 Using Start/Destination function, Switch + Drive as tour

The manual start/destination select for routes will be extended with the button **'Switch + Drive as tour'** if you select a route in the list. With this window you can pre-

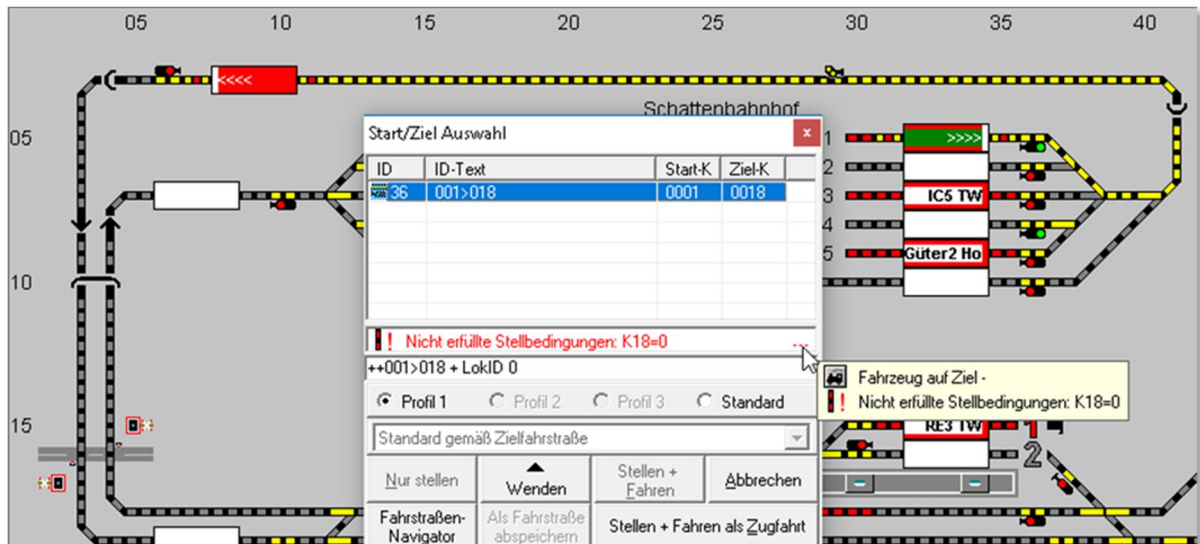


Fig. 14.21 The destination of a route is blocked by a vehicle.

select a route that cannot be executed at the moment due to switching conditions or crossing routes.

The route will be executed as soon as all conditions for switching are fulfilled. This is the same as if you would create tours containing only one route and executing them with start/destination-function for tours.

After pressing the button **'Switch + Drive as tour'** the route will appear in the tour event inspector and executed as soon as possible. The train number colour will directly be changed to green indicating "Locomotive/Train in tour".

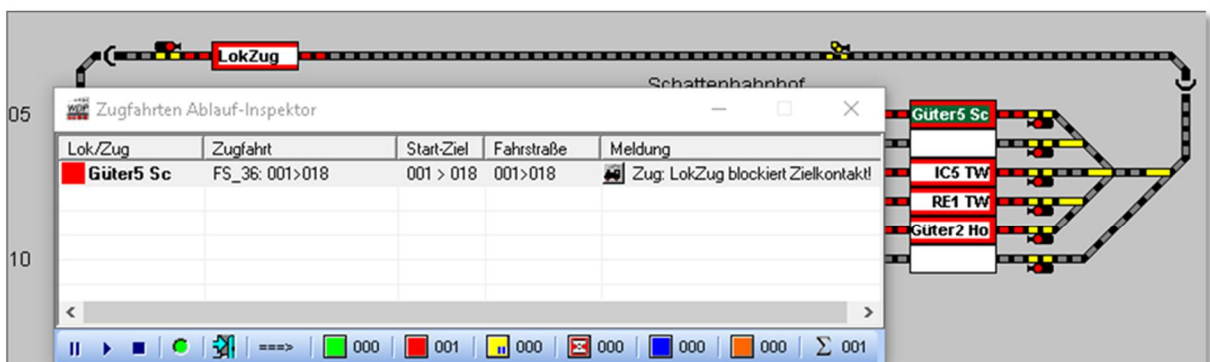


Fig. 14.22 The tour event inspector shows the "waiting" route with a red square.



The example shows that the route's destination is occupied by another train and thus it cannot be executed at the moment. This route is shown in the tour event inspector with a red square. In the row "Message" you find the corresponding text message.


As soon as the train "Lokzug" has left the destination contact and the switching conditions of the route are fulfilled, the square in the tour event inspector will change its colour to green. After the route has ended the tour event inspector will close (if no other tours are active at the moment).



You can select '**Switch + Drive as tour**' only for locomotives, that are actually not part of a route or tour. This means you cannot pre-select the route for a moving locomotive.

14.7.3 Using the virtual keyboard for switching routes

The most frequently used **32** routes can be switched extremely fast; the preparations are described in the chapter "Routes database" (see section 6.14).

Click on the button  in the toolbar "Extras" to open the virtual keyboard with its route assignments.

Point to the command key with the ID number of the route you want to switch: Its description is displayed in the bottom display line.

Click on the command key. The route is switched, if all the switching conditions are met and checked. If not, a message will be displayed.

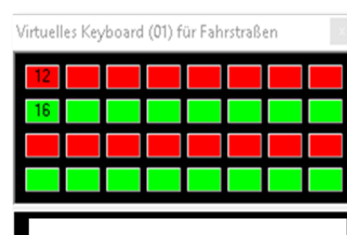


Fig. 14.23 The virtual keyboard.



Important!

You have to control the locomotive manually in this mode. It will not be driven by the program like when using '**Switch+Drive**'.

14.7.4 Occupied/used train number display within route

Because of problems with sometimes bad and unreliable feedback information especially for two rail users the safety of routes has been enhanced.

In **Win-Digipet** it is now impossible to start a route covering a train number display showing another train number/class. If you want to start by mistake a route where a train number display within this route is occupied by another train/locomotive, you will see the message "Loco on train number panel within route" and in automatic operations this route will never be switched.





14.7.5 Using the start/ destination -function for tours

A tour can be started manually using the same way as for routes. You can use the start/destination-function as explained before (see section 14.7.1).

If the program has found (a) tour(s) according to your selection, the window "Select start/destination" will appear. This window displays the found tours with its ID-Number, ID-

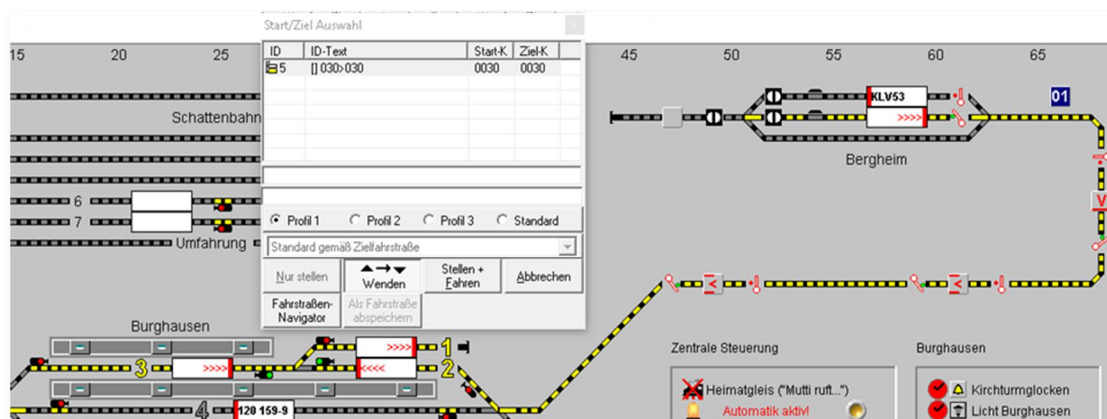


Fig. 14.24 The start/destination function has found two tours for the selected start/destination combination.

text, start- and destination contact. Select now the desired tour, it will be marked yellow in the track diagram (not blinking); this means "Ready for switching".

The button '**Switch + Drive**' will be enabled automatically, if a locomotive number is registered on the start contact.

Now select the way of execution ("Standard", "Profile 1" to "Profile 3") for the tour. As default given is the way of execution selected in the system settings on the index card "Program settings – Profiles". If you want the loco to change its direction before executing the tour press '**Turn loco**'. If the direction of the locomotive/train is wrong, the locomotive/train will be turned automatically, except the automatic turning is suppressed in the tour editor for this tour.

After selecting all options, the tour will be activated via '**Switch + Drive**' and the locomotive will start running as soon as the switching conditions for the first route of the tour is fulfilled.

The route will be marked yellow, the train number colour changes to "GREEN" and the window "Tour event inspector" will appear. This window informs you about the actual state of the tour.





As soon as the train reaches the check contact (**Check next tour at contact:**) of the tour, the switching conditions of the next route will be checked and the route will be switched, if the switching conditions are fulfilled. This process will repeat until the train has reached the tour's destination or the tour cannot be continued any more. The tour event inspector will list this tour then red and message will explain the interruption.




In the system settings it is possible to register a maximum waiting time for tours. If the tour is blocked longer than the waiting time and the next route can't be switched, the program reacts as follows:



Fig. 14.25 This tour has an extended waiting time.

-  the tour is stopped
-  the tour is marked with a red hour glass in the tour event inspector
-  the train number is still "GREEN"
-  an acoustical or textual warning will appear/played.

You have to fix the reason for the "blocked" tour and afterwards you can force the tour to be reactivated or killed with the buttons  . You can also kill the tour using the train inspector (see section 14.8).

14.7.6 Starting tours manually only with the start train number display

If you have created many tours you may have forgotten, which tours starting at a specific train number display will lead to which destination train number display.

To get a list of all tours starting a specific train number display just click **twice** with the middle mouse button on the desired start train number display. If the program has found (a) tour(s) according to your selection, the window "Tour selection" will appear. This window displays the found tours with its ID-Number, ZF-text, start- and destination contact.

Select now the desired tour, it will be marked yellow in the track diagram (not blinking), this means "Ready for switching". The button '**Switch + Drive**' will be enabled automatically, if a locomotive number is registered on the start contact.

Now select the way of execution ("Standard", "Profile 1" to "Profile 3") for the tour. If you want to change the driving direction of the locomotive **before the start**, click on '**Turn loco**'. After selecting all options, the tour will be activated via '**Switch + Drive**' and the locomotive will start running as soon as the switching conditions for the first route of the tour is fulfilled.

14.7.7 Tour locked for locomotive type

When trying to switch a tour manually you might get the message "Tour cannot be used because of matrix or train length!" This message will be displayed if this tour cannot be driven end-to-end for the locomotive-/wagon-type/length of the train registered on the start train number display.








14.8 Train inspector, Inspecting/Resetting/Cancelling active routes or tours

All routes and tours which are active at the moment are listed in the Train inspector. The representation of the routes/tours uses a tree view. Each single step of the route/tour is shown as one node in tree. Already processed steps will disappear from the tree view. Also, the operation flow of locomotive/train macros can be monitored in the train inspector.

The train inspector informs you about most details of the route/tour execution and can be a great help when search errors/problems in your operations.

The train inspector can also be used to cancel active routes and tours.

The train inspector can be opened via:

-  the button  in the main toolbar
-  or with the function key **F7** of on your keyboard
-  or the menu <Monitor> <Train inspector>
-  the context menu track diagram, which can be opened via the right mouse button, selection: <Train inspector>.

The window "Train inspector" with all currently executed routes/tours will appear.

The functions of the buttons can be seen in graphic in Fig. 14.27.

If the button for the "automatic refresh" is

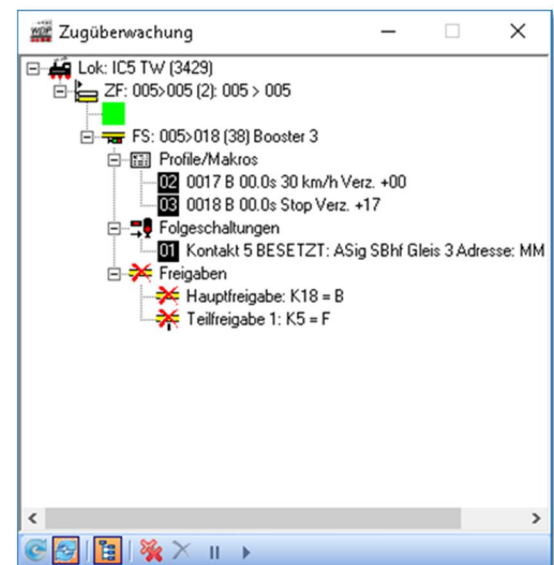


Fig. 14.26 The window of the train inspector with active routes/tours.

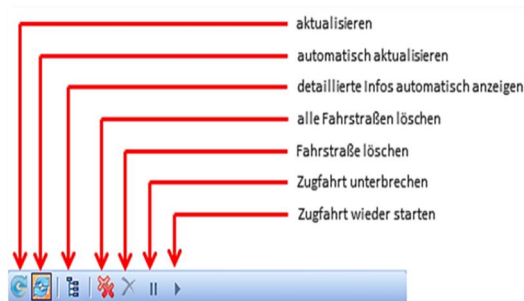


Fig. 14.27 The buttons in the train inspector.

disabled, you will just see the state of the moment you opened the train inspector.

A refresh can then only be achieved by pressing the button "refresh". It is recommended to let the "automatic refresh" switch on.

Using the buttons "+/-" you can enlarge/reduce single branches within the tree.

The example in Fig. 14.26 shows the execution of tour 005>005. At the moment route 005>018 is active. The check contact of the route has not yet been reached, so that the next route 018>021 of the tour has not yet been switched.



14.8.1 Cancellation of routes

If you want to cancel a route which is active at the moment, you need to select the route first within the train inspector. Now cancel the execution of the selected route by pressing . This function used for routes cancels all parts of the selected routes including locked solenoid devices, driving command, profiles, release conditions and add-on switching etc.

If you want to cancel all active routes you click on the button . Now all active routes will be cancelled.



Tours which are active at this moment have to be cancelled manually one by one.

14.8.2 Cancellation of tours

If you want to cancel a route which is active at the moment, you need to select the tour first within the train inspector. Now cancel the execution of the selected tour by pressing .

After the click you will be answered if you really want to cancel the selected tour. After pressing '**Yes**' the tour will be removed from the tour event inspector.

Within the train inspector the tour is still visible and you will be asked if you want to cancel also the active route of the killed tour. We suggest to answer with '**Yes**'.

After the confirmation with '**Yes**' the complete tour with all already switched tours will be cancelled and removed from the track diagram and the train inspector. This cancels all parts of the affected routes including locked solenoid devices, driving command, profiles, release conditions and add-on switching etc.



The train inspector can be used very well for controlling the driving commands, profiles and tours.

If a tour/route/profile has been executed properly no remaining parts of them shall resist in the train inspector. Exceptions could only be add-on switchings with the condition "*FREE*" (free after occupied)

14.9 Blocking of tracks or destination contacts

In **Win-Digipet** you have the possibility to block complete tracks or single destination contacts.

14.9.1 Blocking of tracks

In this example track 6 of station Burghausen shall be locked for any trains passing this track. Click with the right mouse button on the train number display with the feedback number 39 to open the context menu (see Fig. 14.28).

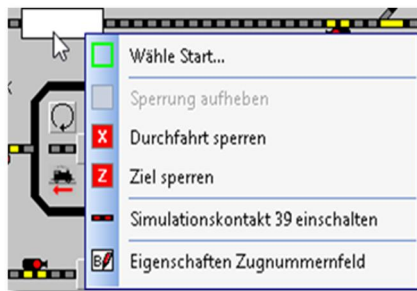


Fig. 14.28 The context menu of a TND.

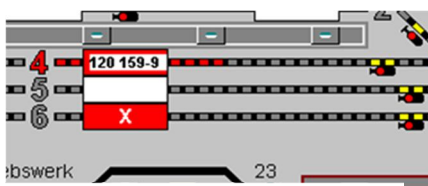


Fig. 14.29 In the track diagram the block will be shown with an "X".

Within the context menu 5 commands are available. Select the command <Block transit> with the left mouse button. Immediately a white "X" with red background will appear in the train number display.

If you try to start a route containing this train number display you will get the message "Track blocked (X) !".

The track blocking can be direction dependent. For this purpose, click with pressed **shift-key** in a blocked TND. Dependent on the blocking direction the "X" changes to "X>" or "<X". The direction can be adapted by repeated clicking with the **shift-key** pressed.



The train number display has to be empty, because, otherwise, the train number would be deleted.

14.9.2 Blocking routes/destination contacts *Fehler! Textmarke nicht definiert.*

In this example track 6 of station Burghausen shall be blocked for any trains having this station as destination. Click with the right mouse button on the train number display with the feedback number 39 to open the context menu (see Fig. 14.28). Within the context menu 5 commands are available. Select the command <Block destination>. Immediately a white "Z" with red background will appear in the train number display.

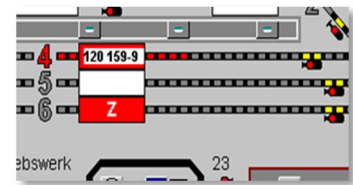


Fig. 14.30 In the track diagram the block will be shown with a "Z".

If you try to start a route to the blocked train number display you will see the message "Destination contact blocked (Z)!".

If you want a dependent destination blocking, click on the "Z" to change it to "Z>" or "<Z".

This "blocking" will be considered in the manual operation as well as in the automatic operation using the tour automatic.



In manual operation you can knowingly ignore this error message and start the route in any way by pressing '**Switch + Drive**'.

In this case the route would be switched and the train started; but if you use '**Switch + Drive as tour**' the route wouldn't be started/switched.



14.9.3 Releasing the block of tracks or destination contact

If you want to release the block of the train number displayed blocked by "X" or "Z" click with the right mouse button on the train number display and select <Unlock> within the context menu (see Fig. 14.28).

14.10 Changing the appearance of the track diagram






If your track diagram exceeds the size of your screen, you can move the track diagram within the window using the scrollbars at the bottom and right border of the track diagram window.

A more comfortable way is to press with the middle mouse button into a free part of your track diagram. While holding down the middle mouse button, moving the mouse will also scroll the track diagram.

You might like to change the appearance of the track diagram according to your own wishes. Therefor **WIN-DIGIPET** offers several opportunities.

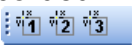
14.10.1 Changing zoom settings

You change the zoom setting of the track diagram by:

-  by the menu <View> <Zoom +> or <Zoom ->
-  or by the right mouse button and the context menu <Zoom +> or <Zoom ->
-  or by clicking on the symbols   in the toolbar.

You get access to all zoom settings directly by the using the combo box showing you the current zoom setting in the toolbar of the program.

14.10.2 Selecting parts (screen partitions) of the track diagram

Sections of the track diagram, recorded in the track diagram editor, can be selected by clicking on the according symbol  in the toolbar or via the context menu which can be opened with the right mouse button within an unused region of the track diagram.

This function is very helpful if you have a big track diagram and by this function you directly jump to different parts of your track diagram. Up to 9 different screen partitions can be defined in the track diagram editor.



14.10.3 Select multiplans

Internally there is only one track diagram, the so-called masterplan, in **WinDigipet**. Additionally, so-called sub-track-diagrams are possible which are called multiplans. These are rectangular sections of the masterplan, which are shown in separate windows and are freely placeable. Such Windows are especially interesting for users with two or more screens. One project can have up to 20 multiplans. In this way the survey on your track diagram is really improved. Depending how the multiplans are created you need not show the masterplan during the running operation.

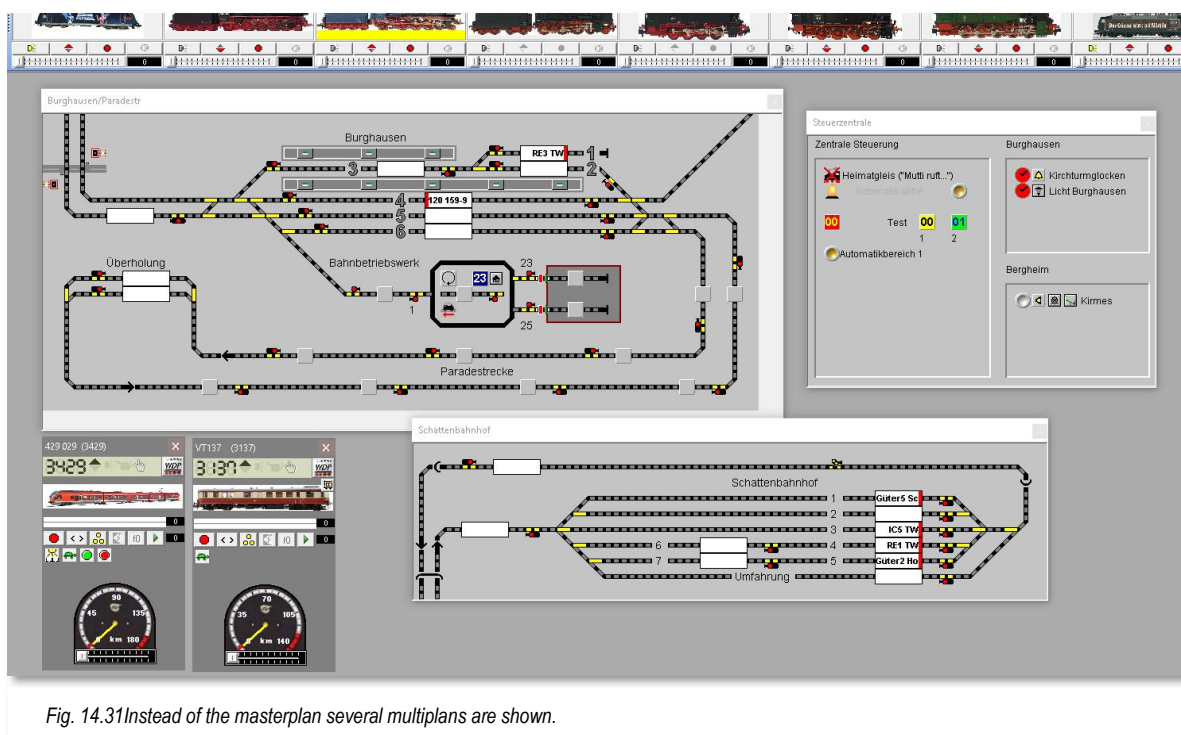


Fig. 14.31 Instead of the masterplan several multiplans are shown.

The configuration of multiplans has all ready been described in the chapter of the track editor (see section 5.5.17).

The individual multiplans can be called with the toolbar "Multiplans". Possibly, this toolbar is not visible. In this case, click with the right mouse button in a free area of the toolbars and choose "Multiplans" from the short menu. Alternatively, you may call the multiplans via the commands menu <Track diagram><Multiplans>.

An example taken from the demo project WDP2018 shows multiplans. The masterplan is not shown (closed) and the track diagram is divided in several windows (see Fig. 14.31).

The presentation of symbols, e.g. concerning the switching of actions or routes, is totally synchronous in the masterplan and the multiplans.

The masterplan can be shown again, by choosing the entry "Show masterplan" from the menu "Track diagram". Multiplans can be faded out with this symbol



14.10.4 Changing the symbol table

In **WIN-DIGIPET** you have the possibility to change the colours and the symbol in the symbol tables according to your own wishes/ideas. **Win-Digipet** offers 20 different symbol tables. You can select the desired symbol table in the system settings (see chapter 3.13 ff.).



You should **never** open the system settings while trains are running on your layout.

14.11 Change toolbars in the main program

Win-Digipet has 13 different default toolbars. These are in detail:

Main toolbar



Toolbar for selecting screen partitions



Toolbar for controlling the locomotive controls



Toolbar for changing the appearance of the locobar



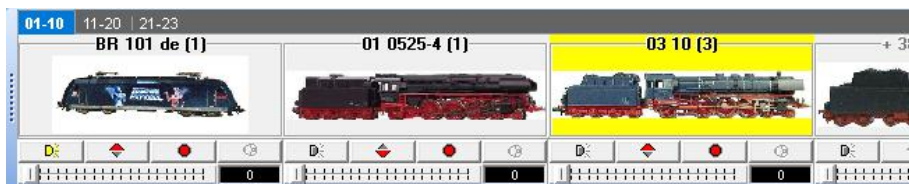
Toolbar for external hardware



Toolbar for digital system status



Loco bar



Toolbar for multiplans



Toolbar for the editors





Toolbar for vehicles



Toolbar for operation



Toolbar for monitoring



Toolbar for project/end



Further you can define – user customizable – own toolbars.

Depending on your settings toolbar can be visible or hidden resp. they can fade out after some time. They can also be used on the screen in a "docked" and in an "undocked" mode.



Docked toolbar

A toolbar is "docked" if it is placed one of the borders of the programs window.

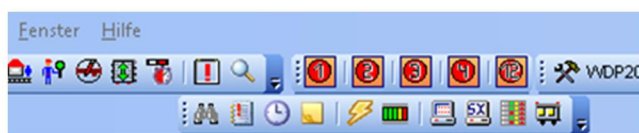


Fig. 14.33 Example of a "docked" toolbar.



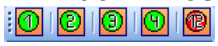
Undocked toolbar

A toolbar is "undocked" if you can move it to any place within the applications main window.



Fig. 14.32 Example of an "undocked" toolbar.

14.11.1 How to convert a docked into an undocked toolbar

A docked toolbar can be moved from the toolbar region to any place within the applications main window. Position the mouse pointer at the outer left border of a toolbar (here e.g.  the dotted left line) and drag the toolbar from the docked position to the desired position.

14.11.2 Moving an undocked toolbar




Position the mouse pointer on the title bar of the toolbar window. Drag the toolbar window to the desired position. If you drag the icons window to a border of the application window, it is docked there automatically as a toolbar.



14.11.3 Transparency of undocked toolbars

All undocked toolbar get transparent after they aren't used for a while. They will get visible again when hovering with the mouse over them.

You can change this behaviour as follows:

-  Click within the menu bar or toolbar with the right mouse button.
-  Click on '**Customize toolbars**'. A new window appears.
-  Select the tab "Options". There you can change the fading time. You can see the default values in the figure below.

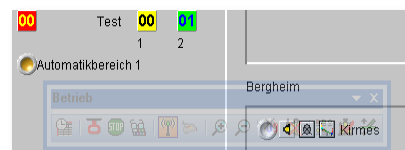


Fig. 14.34 A transparent toolbar.

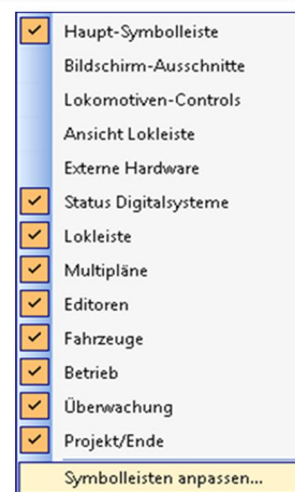


Fig. 14.35 Toolbar menu

14.11.4 Making toolbars (un-)visible

If you do not need some of the toolbars available in **Win-Digipet** you can hide them within the application's window. Click within the menu bar or toolbar with the right mouse button to open the toolbar menu (Fig. 14.35).

Uncheck the toolbars which should be hidden. The selected toolbar will disappear from the screen.

Hidden toolbars can be made visible again by checking this option again.

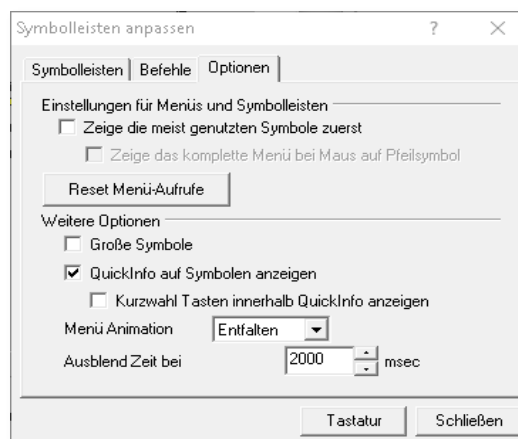


Fig. 14.36 The options for presenting the toolbars.



Every toolbar you set visible again is displayed either at its normal position or the position, where it has been moved last.

14.11.5 Customizing toolbars

You can customize toolbars by removing not required icons by dragging with the mouse or adding a new icon or a new command.



- Click within the menu bar or toolbar with the right mouse button to open the toolbar menu (Fig. 14.35).
- Click on 'Customize toolbars'. A new window appears.
- Click on the tab "Commands".
- Drag the icon, which you want to remove, out of a toolbar with the mouse or
- Drag from the tab "Commands" another icon in the toolbar which you would like to add.

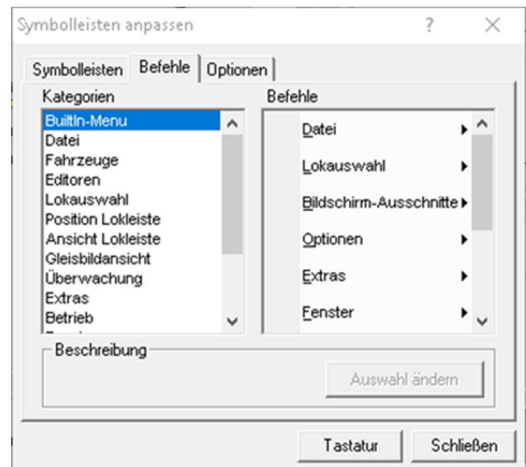


Fig. 14.37 Customizing a toolbar.

14.11.6 Creating user-defined toolbars

- Click within the menu bar or toolbar with the right mouse button to open the toolbar menu (Fig. 14.35).
- Click on 'Customize toolbars'. A new window appears.
- Click on the tab "Toolbars" on 'New'.
- Assign a name for this toolbar and click on 'OK'.
- Drag from the tab "Commands" the desired icons in the new toolbar.

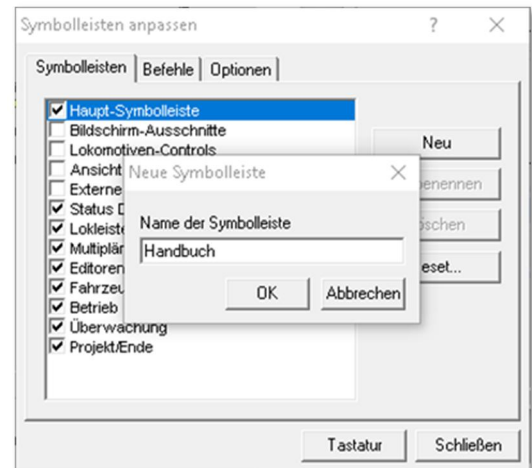


Fig. 14.38 Creating your own toolbar.






Only the user-defined toolbars can be deleted or renamed.

14.11.7 Resetting all toolbars

- Click within the menu bar or toolbar with the right mouse button to open the toolbar menu (Fig. 14.35).



-  Select the tab "Toolbars" and click the button '**Reset**' or
-  Click within any toolbar with the left mouse button on the small down-arrow and drag the mouse a little bit to the bottom to open a context menu
-  Select there 'Reset Toolbar'.

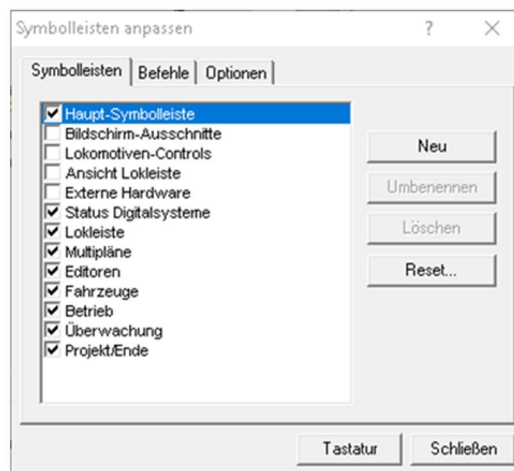


Fig. 14.39 Resetting the toolbars.



A toolbar reset will reset **all** toolbars to their default view and also all user customized toolbars will be deleted.

Within **Win-Digipet** you can move all toolbars to any place on your screen (even the locobar). This function is very useful especially when operating your layout with two screens.

When leaving **WIN-DIGIPET** all toolbars with their position, size and the dock state are saved.

14.11.8 Important information concerning toolbars



During operation of your train layout you should not modify the toolbars otherwise **all** trains and operations will be stopped. The toolbars "Screen partitions" and "Status digital systems" cannot be customized due to their special functionality. They can only be hidden.

14.12 Train number display

You can just control locomotives/trains with **Win-Digipet** on your model railroad if you have installed train number displays within your track diagram and if you have assigned feedback contact numbers to these train number displays. The program's routes will move the trains from train number display to train number display.

14.12.1 General

Prerequisites for the train numbers display are as follows:

-  You have placed train numbers symbols within the track diagram.
-  You have entered a feedback contact number into each of these symbol panels.
If "0" has been entered as feedback contact number to a train number



display, a loco address cannot be entered via drag and drop. A feedback contact number (greater than "0") has to be assigned to a train number display (mandatory).



You have entered in the routes editor, per route, one feedback contact number as a number of the starting contact, and another feedback contact number as a number of the destination contact.

The train numbers display works correctly if trains/locomotives run through **routes** switching, i.e. with the route switched by the start-and-destination function or the tour automatic.

On the other hand, if you set a train/locomotive in motion after you had set the solenoid device of its itinerary by individual switching; the train number display would not work properly or not work at all.

If you quit the vehicle database, the train numbers at the train number panels will be updated automatically, even if you have changed the sorting within the loco database or you have moved some locomotives to the "Display case".

A peculiarity is the display of train numbers with **four digits** in small train number displays. Due to the fact that four digits do not match to the train number display (or the size of the types would be too small / not visible), the first digit of the address will be characterised with a colour code, equal to the international colour code for resistors:

1 Brown	4 Yellow	7 Violet
2 Red	5 Green	8 Dark grey
3 Orange	6 Blue	9 White

If – for example – the loco address is 4234, the number 234 will be displayed at the train number panel, with the colour code yellow as background colour of the panel. Locomotive addresses up to 999 will appear with normal track back colour.

If you place 3 train number displays horizontally or vertically side by side in your track diagram and assign the same feedback contact number to all of them, you will get a bigger train number display showing the class of the locomotive or the train name instead of its digital address.



You can assign the same feedback contact number to two different train number displays of your track layout.

Train numbers which you enter in one display will also be shown in the other display; they also will be deleted both, if one of both displays receives the deleting command.

This could be advantageous for certain operations situation, for example:



Train number displays of hidden yard sections, which are not visible at the usual screen range of the track layout, can be placed in addition as a



"duplicate" train number panel in the visible range. You can then notice if a train has reached its destination in a not visible section.



If you combine big and small train number displays, you can also see the name of digital address of the locomotives separately. Using the example in the figure below you get a quick view where a locomotive is settled on your layout. In this example we added also some virtual block symbols for additional functionalities in the automatic.



Fig. 14.40 Example combination of train number displays.

14.12.2 Train number display without feedback contacts

Ensure that 'Jump from start to destination without feedback contacts' is selected on the index card >General> in the system settings.

Select in the loco selection the locomotive you want to control. Click with the right mouse button on the locomotive's picture, keep the right mouse button pressed, drag the mouse pointer to the relevant train number symbol and release the right mouse button. The digital address of the locomotive- which is also the train number- appears at once in the train number panel.

If **this** train number is already available at your track layout, you will get a message "*train number already exists*" and the position will be marked **red** at your track layout. This eases the finding of an already existing entry of a train number.

Put the train/locomotive onto the train number panel that is also the starting contact of the desired route.

If you have ticked '*Display picture autom. when mouse moves over train label*' in the basic system settings, the picture of the locomotive appears at once when you point to the train numbers panel with the mouse pointer, otherwise the digital address or the class of the loco will be shown as a tool tip.

If you click on a train number symbol with a train number assigned the loco control of this loco appears.

Click now with the middle mouse button on the start train number display and afterwards with the middle mouse button on the destination train number display. Select the route you want to use within the list of the Start/Destination dialog and by pressing '**Switch + Drive**' the route will be switched. After the command '**Switch + Drive**' the train number jumps **directly** from the starting contact panel to the destination contact panel of this route. The same applies for the usage of the tour automatic.



This setting is the default setting; we suggest using this setting, because you can directly see the locomotive's destination after the route has been switched. If you cancel the route before it has ended you can see directly where the locomotive should have arrived.

14.12.3 Train number display with feedback contacts

Ensure that *'Blank, if start contact is free, display, if destination contact is occupied'* is selected on the index card >General> in the system settings.

Select in the loco selection the locomotive you want to control. Click with the right mouse button on the locomotive's picture, keep the right mouse button pressed, drag the mouse pointer to the relevant train number symbol and release the right mouse button. The digital address of the locomotive- which is also the train number- appears at once in the train number panel.

If **this** train number is already available at your track layout, you will get a message *"train number already exists"* and the position will be marked **red** at your track layout. This eases the finding of an already existing entry of a train number.

Put the train/locomotive onto the train number panel that is also the starting contact of the desired route.

Click now with the middle mouse button on the start train number display and afterwards with the middle mouse button on the destination train number display. Select the route you want to use within the list of the Start/Destination dialog and by pressing **'Switch + Drive'** the route will be switched. The train number will be masked in the starting train numbers panel the moment the train leaves it. It will be **displayed** in the destination train numbers panel the moment the train reaches the destination contact. The same happens automatically in the tour automatic.

14.12.4 Train number tracking

In **WIN-DIGIPET** you can use train number tracking symbols on long distances of your track diagram for tracing the way of your train in longer routes. They cannot to be seen in the track diagram, because they look like a quite normal rail piece. When you move the mouse over them, a tool tip will appear.

If a train occupies the feedback contact assigned to the train number tracking symbol and if this symbol is part of a **switched** route the train number appears in the track diagram and disappears when the feedback contact is free again.

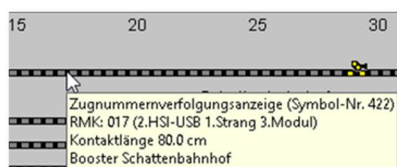


Fig. 14.41 Train number display not occupied.



Fig. 14.42 Train number display occupied.



You must draw the train number tracking symbols in the track diagram's editor and assign them to a feedback contact number. You can draw small (1 symbol - showing train number) or large (3 symbols – showing train's name/locomotive's class) train number tracking displays.

14.12.5 Train number detection with Littfinski transponder TD-88

In **Win-Digipet** you can use the TrainDetect TD-88 of Littfinski Daten Technik (LDT).

As a prerequisite you have to install transponders type TRANS-1 or -2 in your locomotives. These are small electronically etiquettes.

Further information can be found at <http://www.ldt-infocenter.com>.

In the vehicle database you have to select which train detection system shall be used for one of your locomotives and you have to learn there the transponder data.

Within the vehicle database navigate to the index card "Maintenance/Detection" - "Train

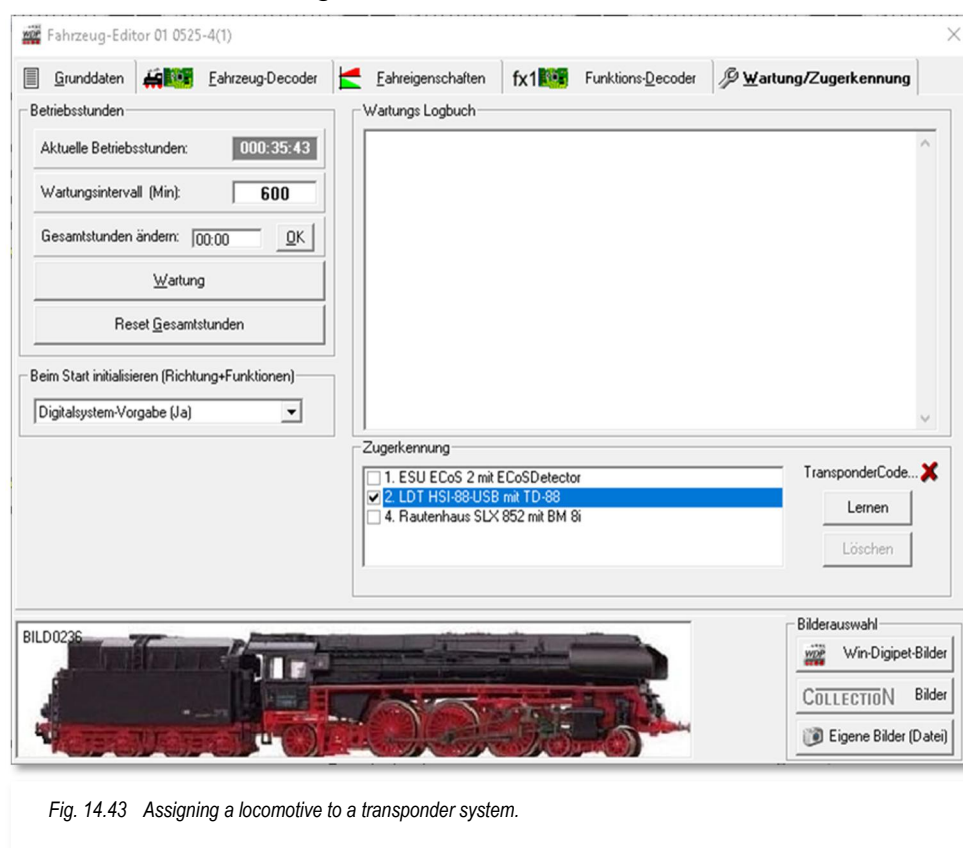


Fig. 14.43 Assigning a locomotive to a transponder system.

number recognition". After selecting the TD88 system of the index card "Maintenance" in the vehicle database two buttons will appear. The button '**Delete**' will not be enabled before you have learned transponder data. To learn which transponder is installed in the locomotive press '**Learn**' and move your locomotive over one of the previously installed detectors. After one detector recognizes the transponder the red cross will change to a green checkmark and this transponder is now linked to your locomotive.



After you have assigned etiquettes to all equipped locomotive you need to assign the train number detection readers to you train number displays. Click with the right mouse button onto the desired train number display in the track diagram and select within the context menu <Properties train number display>. On the index card "Delay & Detection" you can make the selections for the reading device.

Intelligent train number displays can handle more than one feedback contact per train number display. Due to different stop positions within the intelligent train number display the train might stop on one the "sub-contacts" of the train number display and recognition would not lead to a train number recognition for the main contact. For this situation you can configure for these contacts to pass their recognition to the train number display. Fig. 14.45 shows the according registration.

On your model railroad layout, you need to connect the Transponder reading device (COL-10) with the TrainDetect-88 (TD-88). These transponder reading devices (COL-10) you be mounted at places where you have installed train number displays within your track diagram.



Fig. 14.44 The configuration of a reading device for a train number display.

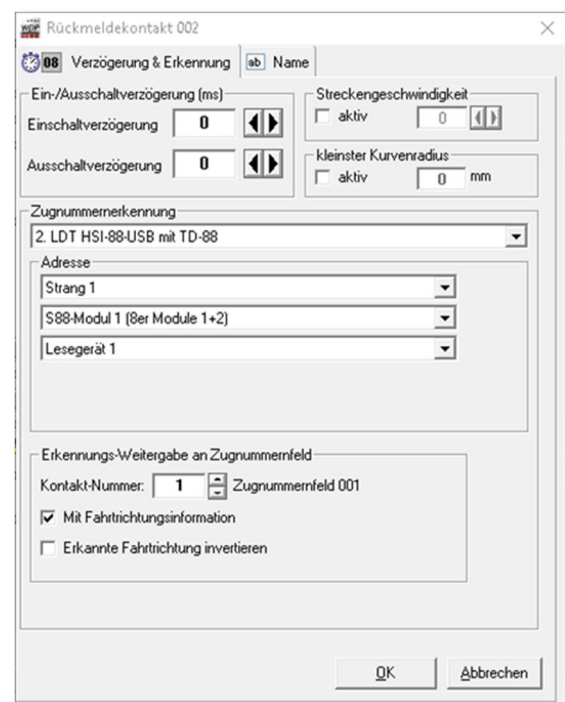


Fig. 14.45 The configuration of a reading device for an additional feedback contact.

After the selection of the train number detection system you need to make for further settings according to your installation of the system.

After pressing 'OK' you can quit the dialog and proceed with the next detectors.



14.12.6 Train number detection with Helmo Inter-10

In **Win-Digipet** you can use the Inter-10 of Helmo. First of all, you have to register this system as a separate digital system.

The learning of the transponder in the locomotives and the assignment of the reading devices is similar to the one of TD-88 described before.

The System Inter-10 supports 99 detector devices.

14.12.7 Train number detection with MÜT BM 8i

In **Win-Digipet** you can use the train number detection enabled occupancy detectors BM8i of Müt.

A prerequisite is that you have installed Selectrix decoders in your locomotives which support this kind of train number detection. Further information can be found at www.muettig-rail.de.

In the vehicle database you have to select which train detection system shall be used for one of your locomotives (see Fig. 14.43).

Within the vehicle database navigate to the index card "Maintenance/Detection" - "Train number recognition". After selecting the system with the BM 8i devices you don't need to make any other selections here.

After you have assigned etiquettes to all equipped locomotive you need to assign the train number detection readers to you train number displays. Click with the right mouse button onto the desired train number display in the track diagram and select within the context menu <Properties train number display>. On the index card "Delay & Detection" you can make the selections for the reading device.

After the selection of the train number detection system you need to make for further settings according to your installation of the system (SX address of BM 8i).

After pressing 'OK' you can quit the dialog and proceed with the next detectors.

Intelligent train number displays can handle more than one feedback contact per train number display. Due to different stop positions within the intelligent train number display



Fig. 14.46 Train number detection with MÜT BM 8i.



the train might stop on one the "sub-contacts" of the train number display and recognition would not lead to a train number recognition for the main contact.

For this situation you can configure for these contacts to pass their recognition to the train number display. The example in Fig. 14.45 can be used with slight changes also for this system.

14.12.8 Train number detection with Tams RC-Link Interface

In **Win-Digipet** you can use the Tams RC-Link Interface. First of all, have to register this system as separate digital system.

A prerequisite is that you have installed DCC decoders in your locomotives which include RailCom. Further information for this system can be found at <http://www.tams-online.de>.

In the vehicle database you have to select which train detection system shall be used for one of your locomotives (see Fig. 14.43).

Within the vehicle database navigate to the index card "Maintenance/Detection" - "*Train number recognition*". After selecting the Tams RC-link system you don't need to make any other selections here.

You can connect up to 24 local detectors to the Tams RC-Link interface. If a locomotive enters the section monitored by such a sensor the digital address of the decoder will be transmitted to **Win-Digipet**. Thus you can use the Tams RC-Link interface for train number tracking.

After you have assigned etiquettes to all equipped locomotive you need to assign the train number detection readers to you train number displays. Click with the right mouse button onto the desired train number display in the track diagram and select within the context menu <Properties train number display>. On the index card "Delay & Detection" you can make the selections for the reading device (see Fig. 14.44 and Fig. 14.45).

Intelligent train number displays can handle more than one feedback contact per train number display. Due to different stop positions within the intelligent train number display the train might stop on one the "sub-contacts" of the train number display and recognition would not lead to a train number recognition for the main contact.

For this situation you can configure for these contacts to pass their recognition to the train number display. The example in Fig. 14.45 can be used with slight changes also for this system.



Please make sure you have activated RailCom in your decoder.

Please read the decoder manual how to activate RailCom. For some older decoders the manufacturers offer firmware update to install RailCom in the decoders. The programming (but not the firmware update) can be made with the **Win-Digipet** Decoder programming.



14.12.9 Train number detection with ESU-Detector

In **Win-Digipet** you can use the ESU-Detectors. A prerequisite is that you have installed DCC decoders in your locomotives which include RailCom. Further information for this system can be found at <http://www.esu.eu/>

The explanations for the configuration in the vehicle database are the same as for the Tams RC-Link explained in chapter 14.12.8.

The configuration and explanation for the detector itself are also similar as explained in chapter 14.12.8. You just need to make the proper address selection of the detector device.

14.12.10 Train number detection with BiDiB

In **Win-Digipet** you can use the RailCom detector modules in the BiDiB system. A prerequisite is that you have installed DCC decoders in your locomotives which include RailCom. Further information for this system can be found at <http://www.bidib.org/>

The explanations for the configuration in the vehicle database are the same as for the Tams RC-Link explained in chapter 14.12.8.

The configuration and explanation for the detector itself are also similar as explained in chapter 14.12.8. You just need to make the proper address selection of the detector device.

14.12.11 Train number detection Fehler! Textmarke nicht definiert. with Blücher GBM 16XN

In **Win-Digipet** you can use the Blücher GBM16XN. A prerequisite is that you have installed DCC decoders in your locomotives which include RailCom. Further information for this system can be found at <http://www.bluecher-elektronik.de/>

The explanations for the configuration in the vehicle database are the same as for the Tams RC-Link explained in chapter 14.12.8.

The configuration and explanation for the detector itself are also similar as explained in chapter 14.12.8. You just need to make the proper address selection of the detector device.

14.12.12 Train number detection with Uhlenbrock Lissy

In **Win-Digipet** you can use the Uhlenbrock Lissy system. A prerequisite is that you have installed Lissy transmitters in your locomotives. Further information for this system can be found at <http://www.uhlenbrock.de/>

The explanations for the configuration in the vehicle database are the same as for the Tams RC-Link explained in chapter 14.12.8.

The configuration and explanation for the detector itself are also similar as explained in chapter 14.12.8. You just need to make the proper address selection of the detector device.

14.12.13 Train number detection with Uhlenbrock Marco

In **Win-Digipet** you can use the Uhlenbrock Marco detectors. A prerequisite is that you have installed DCC decoders in your locomotives which include RailCom. Further information for this system can be found at <http://www.uhlenbrock.de/>



The explanations for the configuration in the vehicle database are the same as for the Tams RC-Link explained in chapter 14.12.8.



The configuration and explanation for the detector itself are also similar as explained in chapter 14.12.8. You just need to make the proper address selection of the detector device.

14.12.14 New locomotive with RailCom enabled decoder detected

If a **new** locomotive which a RailCom enabled decoder has been detected by a RailCom detector on your layout and this decoder is unknown to your locomotive database, the **Win-Digipet** Vehicle wizard will pop up.

The wizard tells you which detector has been detected with which decoder address.

You can now choose between two options:




-  If the locomotive containing the detected decoder is already listed in the vehicle database, you can establish a link between the detected decoder and the locomotive dataset.
-  And if the locomotive is not already listed in the locomotive database you can create a new dataset using this decoder.

This topic is part of the vehicle database.

14.13 Locomotive control

Locomotives can be controlled manually as well as automatically. In the automatic operation (Tour automatic) or when switch a route or tour manually using the start destination function the locomotives will be driven automatically. They will also brake and stop when the settings in the routes and profiles have been made properly. The according settings can be made in the vehicle, route and profile database.

For the manual control of locomotives, you can use:

-  the loco bar
-  the locomotive control ("Maxi" or "Mini")
-  your digital station/command throttle

You can also use locomotive monitor to get a quick summary of the state of all of your locomotives.



14.13.1 Loco bar

All locomotives recorded in the vehicle database with the category "On layout" are displayed in the "Loco selection". This is a bar at the lower/upper/left/right screen edge with pictures of your locomotives list. It can be moved to the mentioned positions.

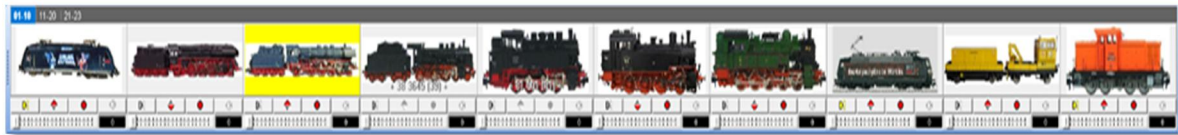


Fig. 14.47 The Win-Digipet loco bar.


Max. **10** locomotives are displayed – similar to an index card- for faster access. At the menu <Vehicles><Loco bar> there is selection list to change the number of locomotives per index card between 10 and 20.

The index card is automatically updated when new locomotives are added/deleted or they are temporarily put into 'Display case'. A click on the index card, above the picture, displays the locomotives for your selection.

You can (de-)activate the loco selection (see section 14.11.4). You can change the bar's position at the menu <Vehicles><Loco bar><Position> where you can select the desired position somewhere at the screen border or anywhere on the screen.

The quick loco bar (with its 4 buttons and slider below the locomotive's picture) can **only** be shown in the horizontal positions at the top or bottom of the screen.

The appearance of the loco bar can be changed at the menu <Vehicles><Loco bar><View> and selection of a menu item afterwards.

It is possible that the loco bar becomes very small, if you are using a higher screen resolution. You can adjust the height of the loco bar with the symbol  in the toolbar.

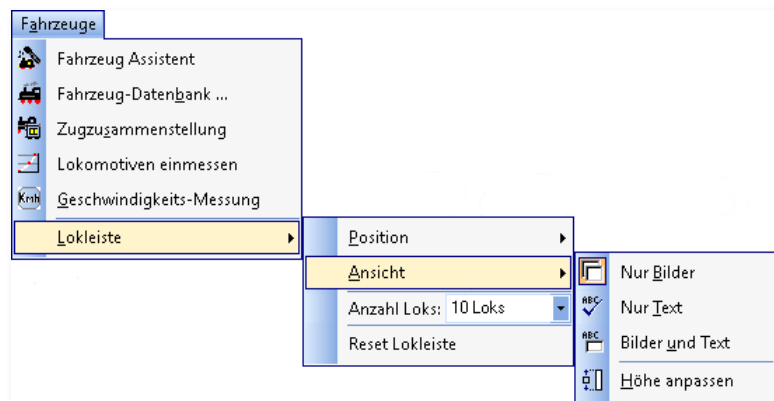


Fig. 14.48 The menu for the appearance of the loco bar.

Locomotives needing a maintenance cycle are framed with a yellow border in the toolbar. And all locomotives switch to manual mode have a red border.

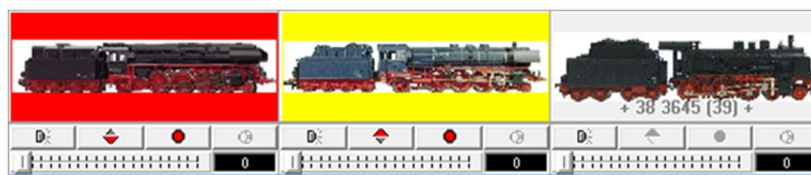


Fig. 14.49 Examples for coloured indications in the loco bar.

14.13.2 Usage of the quick loco bar

The quick loco bar is normally controlled with the mouse.

Therefor just click on the according function buttons (function(f0), change direction, stop and sound). To set the rated speed, click on the relevant speed step on the graduated slide scale, or drag –with the left mouse button depressed- the slide button from zero to the desired speed (see Fig. 14.49).

Special functions, functions decoders and a display for desired and current speed are not available.

If you change the locomotive's state using the quick loco bar you can monitor the changes in a locomotive control. This is function works in both directions.





Also multi-tractions can be controlled using the quick loco bar. For linked traction locomotives the button for "STOP" and "TURN" are disabled (grey). Only the buttons for "LIGHT" and "SOUND" can be used for locomotives in traction.



If you move the speed slider very slow it might jump to its old position. Because of this drag the slider to the desired value and release the mouse button immediately. The new speed will not be set before you release the mouse button.

If you make single clicks on the left or right side of the slider you can decrease/increase the speed in steps.

After the **first** click on the quick loco bar of a locomotive, the speed of the locomotive can also be controlled by keyboard.


	Arrow → and Arrow ↑	=	increase speed
	Arrow ← and Arrow ↓	=	decrease speed
	Key END	=	accelerate to V_{\max}^{37}
	Key HOME	=	Stop







³⁷ V_{\max} = Maximum speed






14.13.3 Locomotive-Controls ("Maxi" or "Mini")

The size of the locomotive controls depends on your choices on the index card "Program settings – Locomotives" in the system settings. You will always get the small locomotive control if you have checked "*Open always with small loco controls from loco bar*". In the other case you will get the big locomotive control.

Position and size of these panels can be modified via the buttons  in the toolbar "Loco controls". Please be aware, that these symbols could have been faded out. The following commands are available:


-  Symbol 
All control panels displayed in the track diagram are shifted to the upper edge of the screen and reduced. The same is achieved with the function key **F2** on your computer.
-  Symbol 
All control panels displayed in the track diagram are reduced to "Small loco controls". The same is achieved with the function key **F3** on your computer.
-  Symbol 
All control panels are masked and closed. The same is achieved with the function key **F4** on your computer.

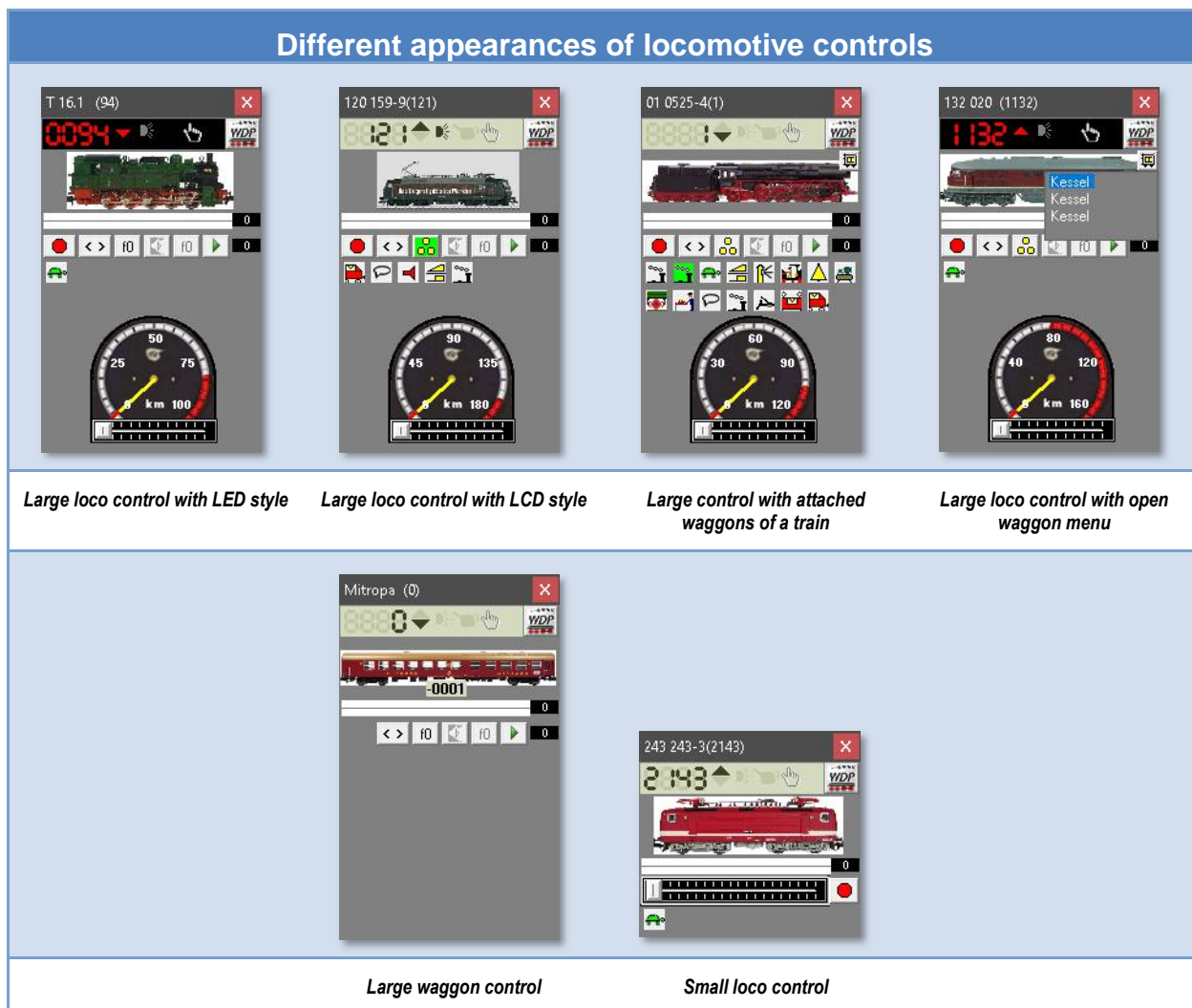
You can open the locomotive controls by clicking on the following elements with the left mouse button:

-  The locomotive's picture in the loco bar
-  A used train number display showing the digital address or class of a locomotive
-  The digital address of a locomotive in the locomotive monitor

The locomotive control of the selected locomotive will appear immediately showing the saved data. These data are the digital address and the pictograms for the functions and special functions that have been registered for the locomotive in the vehicle database.

You can move the locomotive controls by dragging them to any position on your screen. This can be done by clicking with the left mouse button onto the title bar of the locomotive control and dragging with pressed left mouse button to the desired position on the screen.


You reduce the size of the large locomotive control by pressing the button  in the title/caption bar of the locomotive control and then selecting "Small locomotive control" in the appearing short menu. The so called small "Mini" locomotive control bar needs less space on the screen.



The basic appearance of the locomotive control (LCD resp. LED) can be chosen on the index card "Program settings – View" in the system settings.

Further configuration settings for the locomotive controls can be found on the index card "Program settings – Locomotives" in the system settings.

14.13.4 Changing locomotive data out of a locomotive control

By clicking on the symbol  in the locomotive control you can open a context menu offering several editing options for a locomotive. For these functions it is not necessary to open the vehicle database.

The context menu contains these items:



Edit vehicle

This function calls all index cards of this vehicle within the vehicle database. You can edit the vehicle in the same way as is the vehicle database. The only difference is, that you can navigate to another data record and you cannot set vehicles to the Display case.



Fig. 14.50 The context menu can be opened via the **WDP** button.



Program vehicle's decoder

This function opens the program part for loco decoder programming of **Win-Digipet**. All settings of the locomotive's decoder can be set, changed, programmed and saved here.



Program vehicle's function decoder

This function opens the program part for loco decoder programming of **Win-Digipet**. All settings of the locomotive's function decoder can be set, changed, programmed and saved here.



Measure/calibrate vehicle


This menu item opens the dialog "Measure speed profile" which you do already know from the vehicle database chapter (see section 4.7).



Edit train

This menu item opens the train composition window. The program will automatically load the dataset of the train to which the current vehicle belongs. Using the train composition locomotives and waggons can be combined to trains. This topic will be explained later in this chapter.

The context menu in Fig. 14.50 can also be called within the waggon control or monitor. It can also be called at many places in the program (e.g. a train number display or the locomotive monitor) where the locomotive's class, picture or digital address appears. If you open this menu for a waggon the menu's for programming the function decoder and measuring the vehicle will be hidden of course.

When you open a vehicle for editing from the locomotive control, the locomotive is in edit mode. This edit mode is indicated by a small flashing pencil which replaces the  in the locomotive control while the edit mode is active. Similar symbols are shown while a locomotive is being programmed.






Please remember that a locomotive in edit cannot be operated in automatic operations or by routes. You can just control the locomotive manually for testing. All other locomotives are fully operate-able.

A driving locomotive will be stopped as soon as the edit mode is getting activated for this locomotive.

14.13.5 Description of the Locomotive-Controls ("Maxi", "Mini" or "Micro")

WIN-DIGIPET offers three different sizes for the locomotive controls:

-  Big locomotive control "Maxi",
-  Small locomotive control "Mini"
-  The Locomotive-Monitor ("Micro") that needs very little space on the screen and is therefore a good alternative to arranging several locomotive controls.

14.13.6 Big locomotive control ("Maxi")

The visible pictograms in the large locomotive control depend on your settings in the vehicle database; they are not at static positions (unused function numbers are skipped). At large locomotive control can contain up to 28 special function buttons.

The desired speed value can be set using the slider or via click onto the desired value at the border of the tachograph. The desired speed is indicated as red line. The current speed is indicated by the yellow needle.

The figure below shows you all elements of a large locomotive control with a short description.

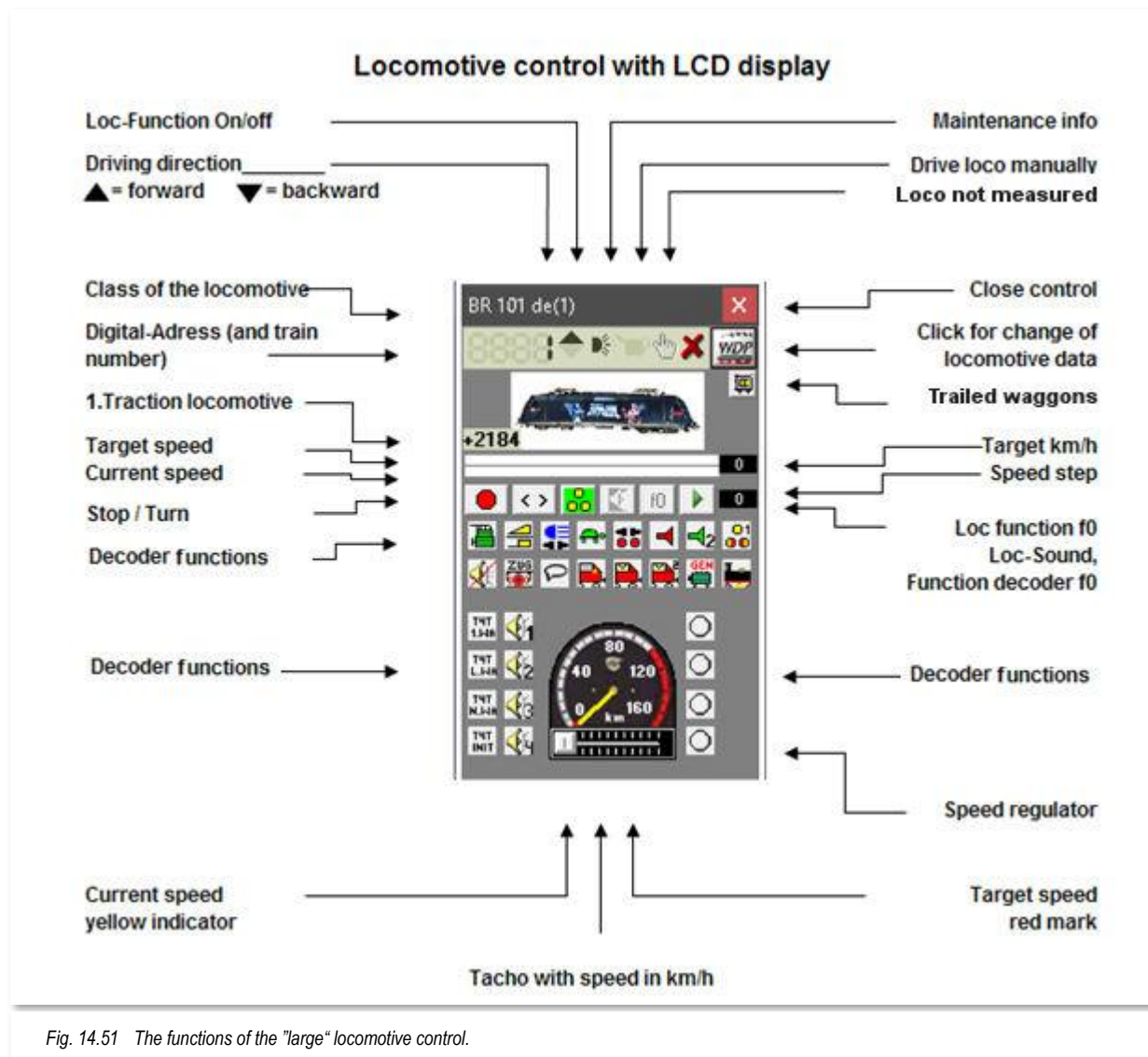


Fig. 14.51 The functions of the "large" locomotive control.

14.13.7 Small locomotive control ("Mini")

In the small locomotive control, the icons of the possibly built-in function-decoder are **not** displayed.

The desired speed value can be set using the slider; other functions can be switched using the buttons/symbols.

Furthremorehe elements of a small locomotive control are similar to those of the large locomotive control.

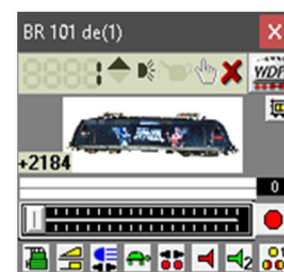



Fig. 14.52 The functions of the "small" locomotive control.



14.13.8 Locomotive-Monitor ("Micro")

The locomotive monitor can be opened from the toolbar symbol  or via the menu command <monitor>..

It is a very useful tool to get an overview over all locomotive's actual state. You can see immediately if locomotive is driving, braking, stopping, needing maintenance or that its train number is "RED", "GREEN" or "BLACK".

When clicking on the train number in the locomotive monitor, the corresponding loco control is shown so that you can directly control the locomotive.

If you float with the mouse over the locomotive monitor, the pictures of the corresponded locomotive is displayed if you have enabled this function. By a click on the speed indicator (loco stopped, accelerates, drives and brakes) of one locomotive in the locomotive monitor you can stop the locomotive. And by clicking on the direction arrow and the small lamp you can turn the locomotive resp. turn its function f0 on/off.

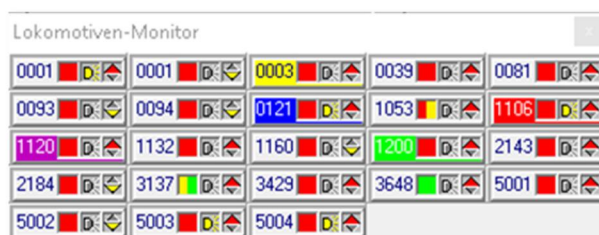






Fig. 14.53 The locomotive monitor ("Micro")

For further control of the locomotive click on the digital number of the locomotive in the monitor to open the locomotive control.

Immediate stop, the driving direction and the loco function (e.g. head light on/off) can be controlled directly from the monitor.

The coloured squares indicate the current status of the locomotives:

-  Red – Loco stands still
-  Green – Loco drives
-  Yellow-green – Loco accelerates
-  Red-yellow – Loco breaks

When clicking into a free space of the locomotive monitor with your right mouse button a context menu (Fig. 14.54








Fig. 14.54 The context menu of the locomotive monitor

The context menu of the locomotive

You can choose if you want to see all locomotives in the locomotive monitor or if you want to see just the locomotives which are at the moment on your layout or in the tour automatic active.



Further options in this menu:

-  Show locomotive monitor at program start
-  Show locomotive picture
-  Show locomotive picture always or just while hovering over monitor
-  Show class when hovering with the mouse over monitor
-  Number of columns (1-16) for the monitor

The 1-column view is ideal for the vertical at one side of the screen.

The locomotive monitor as well as the small locomotive picture can be moved to any place on your screen. The window will be reopened at this place when opening it again.

When using the locomotive monitor and the tour automatic, you may consider hiding the locomotive bar.

You can also drag&drop locomotives from the locomotive monitor to train number displays in your track diagram.

Single locomotives can be deleted from the locomotive monitor via Shift-Taste combined with the right mouse button.



If the locomotive reappears automatically every time you start the program, but you closed it the last time you used the program, you need to uncheck the automatic start of the monitor in the context menu shown in Fig. 14.54.

14.13.9 Usage of the locomotive controls

The illustrations explain all functions. All commands are issued with mouse clicks. To set the rated speed, click on the relevant speed step on the graduated dial/ slide scale, or drag –with the left mouse button depressed- the dial pointer/ the slide button from zero to the desired speed.




After a double left mouse click into the field target speed of the loco control you can enter the speed using the keyboard.

Furthermore, you can also send commands via the keyboard of your computer, for the following functions, if the locomotive control is selected:

Key	Function
Arrow → and Arrow ↑	Increase speed
Arrow ← and Arrow ↓	Decrease speed
Key END	accelerate to V_{\max}
Key HOME and SPACE	Stop
Key "D" and Key "R"	Change driving direction
Key "F"	Loco-function on/off

14.13.10 Dragging/deleting train numbers into/from train number display

You can drag a train number while holding down the right mouse button:

-  from a picture in the locomotive,
-  from a picture in a locomotive control or
-  from a train number in the locomotive monitor

...into a train number display.

There will appear the locomotive's digital address (small 1-symbol train number display) or its class (large 3-symbol train number displays in horizontal or vertical orientation). This is now the train number for controlling the train with **Win-Digipet**.

If your locomotive is part of train and a name has been assigned to the train, the train's name will appear in the large train number displays instead of the locomotive's class.

If the train number display contains already a locomotive, you will be asked if you really want to replace the existing registration with the new one.

If you want to delete a train number from its display, click with the right mouse button onto the train number display and select the delete command from the menu.

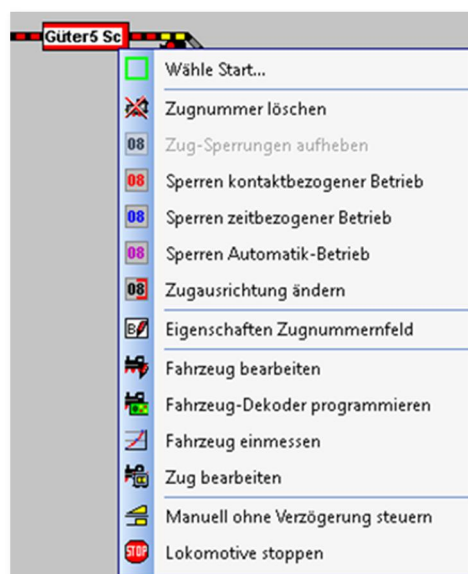



Fig. 14.55 The context menu of iTNDs.



14.13.11 Activate/Deactivate/Delete all locomotives from train number displays

Click on the symbol , a new window "Lock/activate locomotives" appears. In this window you can change the colours of all locomotive which are placed on a train number display at the moment. Alternatively, can access the window via the menu command <Operation><Locs activate/deactivate...>.




The buttons are self-explanatory. Using the upper three buttons the colour of the locomotives in **all** train number displays will be changed.

The button '**Delete all train labels**' will remove the train numbers from all train number displays in your track diagram.



Fig. 14.56 Selecting the TND colour.

We want to recall here the meaning of the colours during **Win-Digipet** operation:

		BLACK/WHITE,
		the train may use any tour automatic lines
		RED
		the train may not use any tour automatic lines with the red symbol  - for "By Arrival". It is locked for contact-depend automatic operation.
		BLUE
		the train may not use any tour automatic lines with the green symbol  - for "Departure time" or the arrow symbol  . It is locked for time-depend automatic operation.
		VIOLET
		the train is blocked for all tour automatic lines

14.13.12 Activate/Deactivate/Delete single locomotives on train number displays





You can activate/deactivate/delete single locomotives on train number displays. If you want to do this, click with the right mouse button onto the train number display and select the according command from the menu (see Fig. 14.55).



The available context menu items depend on the current state of the locomotive/train. Of course a red train number cannot be set to red a second time.

You can do this also via keyboard/mouse operations.

Move your mouse cursor over the train number display to change between:

-  RED **03** and **BLACK 03** ALT-key + right mouse button
-  **BLUE 03** and **BLACK 03** ALT- and Shift-key + right mouse button
-  **VIOLET 03** und **SCHWARZ 03** STRG + ALT- and Shift-key + right mouse button
-  For deleting a train number Shift-key + right mouse button

You **have to** hold the key down while pressing the mouse button.

With the key-button-combinations described above you can switch between the colour in both directions (e.g. RED->BLACK; BLACK->RED).

The basic settings to choose between the normal train number colours BLACK and WHITE can be chosen in the system settings.



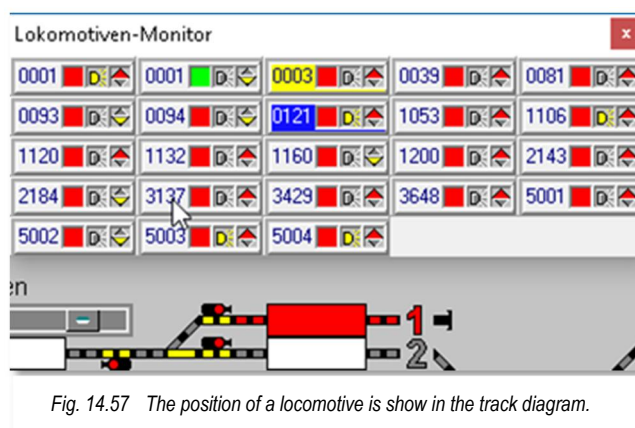
Important tip!

Deleting a **single** train number will **not** cause a security request.

14.13.13 Showing a single locomotive within the track diagram

If you have a big track diagram and many locomotives it is often difficult to find a single locomotive within the track diagram. Therefore, click with the middle mouse button on the picture of a locomotive in the loco bar or on a locomotive control. The same effect can be used with the middle mouse button and a digital address in the locomotive monitor.

As you can see in the picture, the train number display containing the locomotive becomes red as long as you hold down the mouse button.



If you don't see any red train number display when using this function, press the Shift-button while clicking with the middle mouse button. This will force the track diagram to scroll if the red train number display is outside the visible window.





14.13.14 Controlling locomotives with control panels of the digital system

You can always control your locomotives with control panels of your digital system.

For many newer digital systems such as Intellibox, Tams Master Control, ESU ECoS, and Märklin Central Station you can open the locomotive in **Win-Digipet** as well as in the digital system at the same time.

When using the Lenz-System you will receive an error message "Locomotive already under control", if you want to control a locomotive with a locomotive control and the locomotive is already activated on one of your manual control panels.

If you control your locomotives using a Märklin Control Unit 6020/6021, you transfer the control from **Win-Digipet** to the digital system as follows:

-  Transfer loco control from loco control to digital system: Enter the digital address at the digital system and drive it using the digital system; close the, Loco-Control ("Maxi" or "Mini").
-  Transfer loco control from digital system to **Win-Digipet**: Open the Loco-Control ("Maxi" or "Mini")', enter any other not used address at the digital system, drive using the ,Loco-Control ("Maxi" or "Mini").




Important for the Märklin-Digital-System (6021/6020):

The locomotives address **68** may never be used because it is reserved for internal program usage.

14.13.15 Driving locomotives manually

If you have activated the according option manual controlling in the system settings <Program settings><Locomotives>, you will see an additional button on your locomotive controls.



With a click on the button  (grey before activated) **Win-Digipet** will be forced to deactivate all automatic driving control by the program, the locomotive already be used in routes/tours and automatic operation, but you have to activate all driving commands manually by locomotive control, digital system, smartphone or joystick. The program just switches the routes/ tours.

Locomotives in manual mode are indicated in the locomotive bar with a red border (a yellow maintenance indicator will be covered). Locomotives in manual mode will get a black background in the locomotive monitor. See figure above.

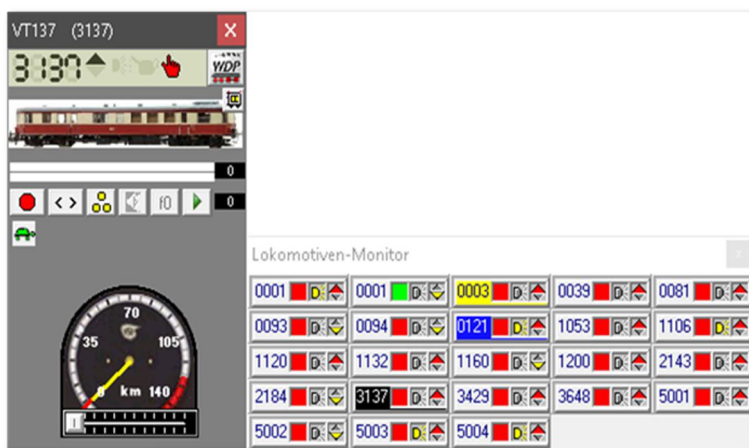




Fig. 14.58 A locomotive is controlled manually.

14.13.16 Refresh function of all locomotives

When clicking on the symbol  in the toolbar "Operation" or using the corresponding menu command all function states on/off for all locomotives on the layout will be sent again to the digital system.

14.13.17 Switch sounds off for all locomotives

When clicking on the symbol  in the main toolbar of **Win-Digipet** the sound functions of all locomotives/waggon will be turned off.

All function symbol representing sound functions (e.g. engine sound) have a special attribute in the function symbol file indicating, that this function is a sound function. All functions with this attribute will be turned off when using this function. When creating function symbols using the function symbol editor please remember to check whether your new function symbol represents a sound function or not.

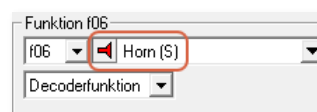


Fig. 14.59 Soundfunction.



14.14 Train composition

In **Win-Digipet** you can compose complete trains consisting of (multiple) locomotives and waggons (single waggons or complete groups of waggons) and control them completely.




14.14.1 Multi-tractions

First of all, we like to describe shortly what is meant by multi-traction. In **Win-Digipet** you combine up to 5 locomotives to a multi-traction. You might think this is not realistic? Even in real life such "Locomotive trains" exist. And if we take a look to the United States or Canada trains with 5 locomotives can be seen quite frequently.

In real life operation the locomotive directly before the train is the main/leading locomotive of the train. Every further locomotive at the front of the train is a called "prefix engine" or "double/multi-heading engine".

An additional locomotive at the end of the train is called "helper engine".

We will use the same terms in our descriptions. As general term for "prefix engines" and "helper engines" we will use "traction locomotives". Here some examples:

-  Double-heading:
 - 2. Loco = Main Loco, 1. Loco = Traction loco,
-  Three-heading:
 - 3. Loco = Main loco,
 - 2. Loco and 1. Loco = Traction locos,
-  Train with Helper engine:
 - Helper engine = Traction loco,
 - 1. Loco = Main loco.

The main locomotive is always the locomotive who's train number will appear in small train number displays and this locomotive is the starting point for the whole train (of course you can choose any locomotive in the train as main locomotive).

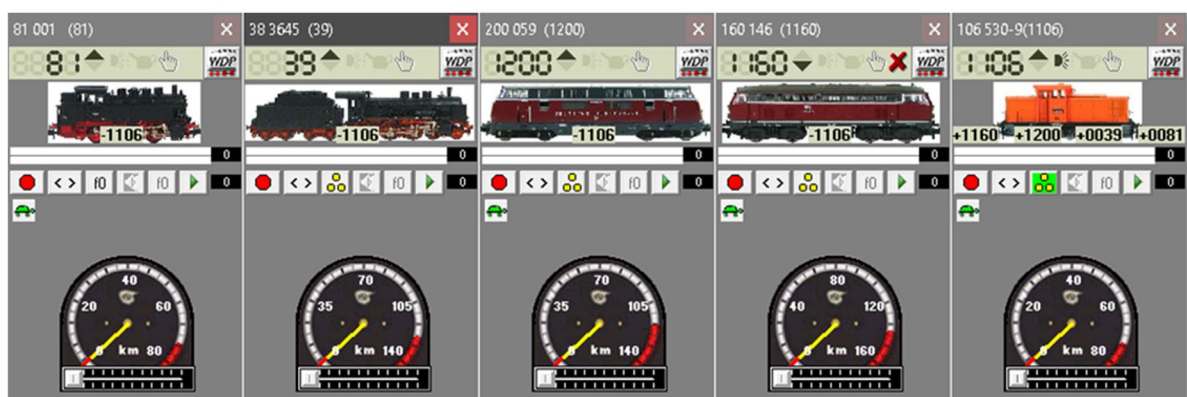


Fig. 14.60 A multi-traction consisting of five locomotives.



Here in our example you see a multi-traction with 106 530-9 as main locomotive. The locomotives 160 146, 200 059, 38 3645 and 81 001 are used as traction locomotives. The main locomotive is 106 530-9. Because this you can just this locomotive to a train number display.

The figure shows the representation of the multi-traction on a train number display. The multi-traction has been named "LokZug". This train name appears now instead of the main locomotives name in the train number display.

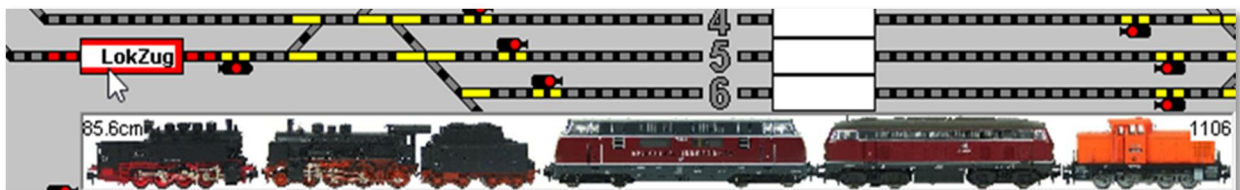


Fig. 14.61 The multi-traction on a train number display; when moving the mouse over the train number display, the complete train will appear

When moving the mouse over the train number display, you can see a graphical representation of the train. The illustrated orientation of the train should be now identical with the real situation on your layout. Beside the vehicle's pictures you can also see the digital address of the main locomotive as well as the calculated total length (LoB=length over buffer) of the train. The exact representation depends on your settings in the system settings Index card "General".

Every traction locomotive will be disabled in the locomotive bar. The locomotive class is now written in grey and two "+" have been added as prefix and suffix to indicate a traction operation.

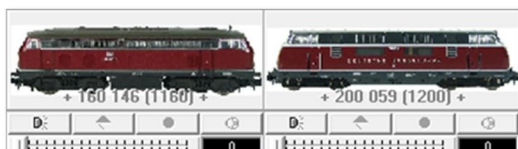


Fig. 14.62 Traction locomotives in the loco bar.

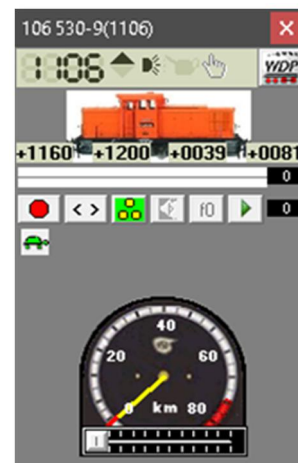



Fig. 14.63 The loco control of the main loco.

The digital locomotive addresses of the s traction appear in **red** resp. **black** (depending on the setting LED or LCD for the control) at the bottom of the locomotive's picture in the main locomotive's control.



We recommend using locomotives with a 15-point measurement for traction. This will help you achieving a good driving behaviour.

A traction can only be released using the  train composition. The train composition window can be opened using the button in the toolbar of **Win-Digipet** or with corresponding menu command in the Menu <Vehicles>.

You can also open the train composition by clicking with the right mouse button on the digital number of a traction loco or in the loco control on the picture of a traction loco.

14.14.2 The train composition editor

The multi-traction from the previous example does also appear in the train composition editor. Multi-tractions are treated in **Win-Digipet** as trains and will appear side by side with trains in the train composition editor.

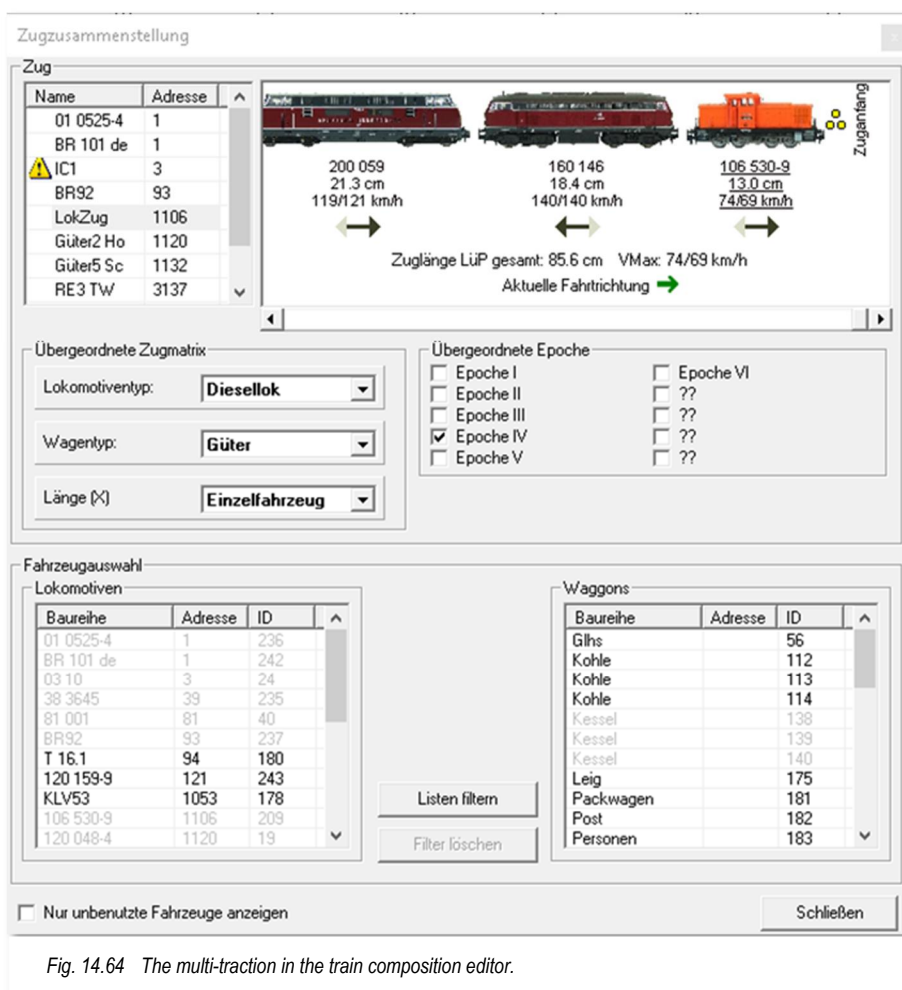


Fig. 14.64 The multi-traction in the train composition editor.



You see in the line with grey background in Fig. 14.64, that the multi-traction has been called "LokZug".

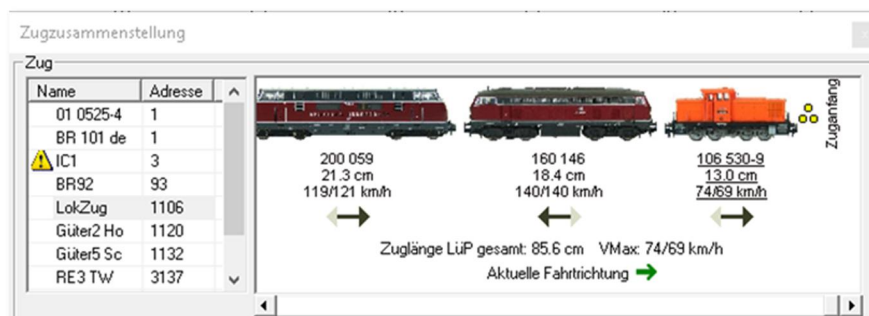


Fig. 14.65 The train composition editor shows the order of locomotives in detail.


In the upper part of the editor window you will find a list with all trains composed in your **Win-Digipet** project. The trains in the example are part of the **Win-Digipet** demo project.

You see, that the train IC1 has a little warning sign at its list item. This means, that one of the vehicles of this train has reached its maintenance time.

The train name will be shown in the list. Beside the train name the digital address of the main/leading loco appears in the second column. In our example the leading locomotive is the first locomotive in the train. But this is not mandatory.

The graphical representation of the train in the editor shows the train with some detailed information.

Below the pictures of the vehicles you can see the vehicle's class, the length and also the maximum speed forward and backward of the vehicle. The orientation of the vehicle's picture depends on the real driving direction relative to the rest of the train. The information of the leading vehicle of the train is underlined.



Please take care of the correct orientation of the vehicles when putting them on the rails and when composing the train.

If you haven't done yet, you should browse through all datasets of your locomotive database to check, if all pictures are displayed with the correct driving direction. Otherwise, please correct.

This is very important for the usage of the driving direction in many parts of the program.

The black arrow below every vehicle shows the orientation of the vehicle relative to the train. The green arrow at the bottom of the graphic (Fig. 14.64) shows the driving direction of the complete train. The driving direction of the train is taken from the leading vehicle.



Beside this green arrow can also see the total length of the train and the maximum speed for both driving directions. This maximum speed is dependent on the slowest vehicle in the train.

You might recognize that locomotive 160 146 is orientated backwards in the train composition. Thus, the real driving direction of this locomotive is also backwards.

The head and the end of the train are indicated with yellow resp. red dots (lights). In our example the driving direction of the train is forwards. If you change now the driving direction of the main locomotive, you will not see a change for the black arrows because the orientation of each vehicle to another in the train remains the same. But the green arrow will change because the train's direction is set by the leading locomotive. The green arrow will now indicate "backwards" and thus the leading locomotive is now at the end and not any more at the front of the train.

14.14.3 Composing a new train

For composing a new train select the main locomotive for the train in the locomotive list at lower left part of the window (Fig. 14.64). Now open the context menu of this list with the right mouse button and choose the command <Compose new train with this loco>. After a left mouse click a new train with this locomotive will be created.

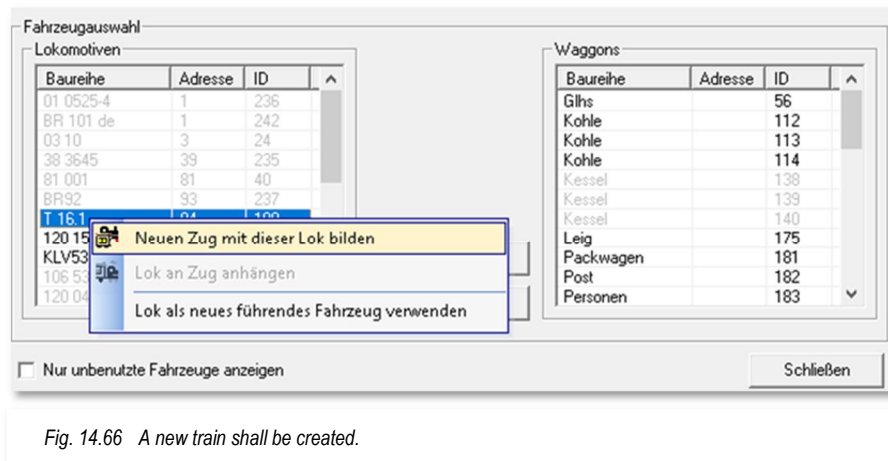


Fig. 14.66 A new train shall be created.

We want to add the waggon "Leig" to the previously selected main locomotive die Lok T 16.1. Therefore, we choose in the waggon list in the lower right part of the window the waggon "Leig". Now, open the context menu of this list with the right mouse button and choose the command <Add waggon to train>. The waggon group will be appended to the train right after the locomotive

After adding the waggon your train should be composed as shown in Fig. 14.68.

In this example the leading locomotive is orientated backwards compared to the train. The current driving of the locomotive is backwards. Thus, it will pull the train forwards.

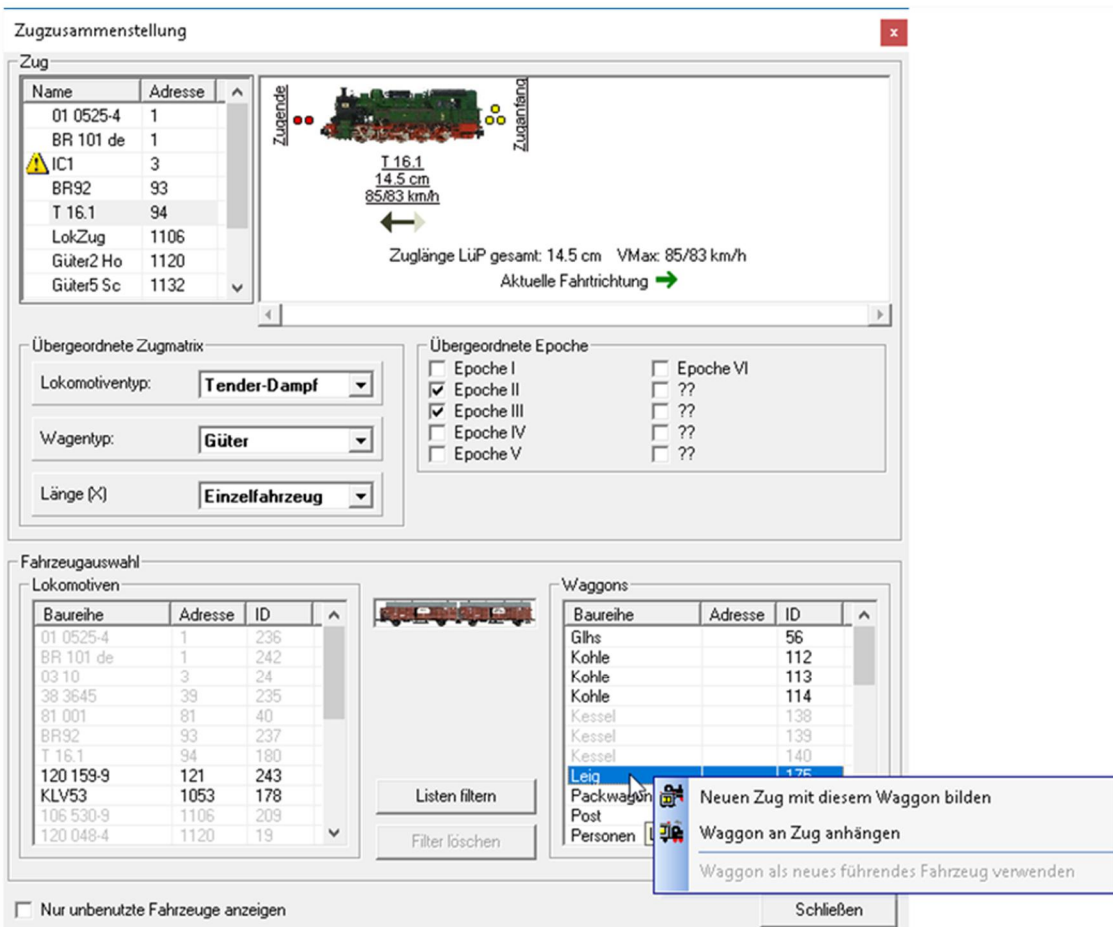


Fig. 14.68 A waggon is added to the train.

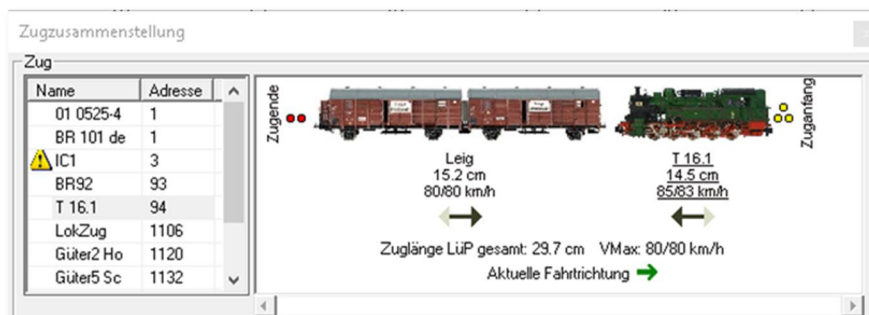


Fig. 14.67 The complete new train.



The locomotives and wagons can also be added to train via drag & drop from one the list to the train composition picture at the open. With drag & drop you can also change the order of vehicles in the train. Using the small arrows below the picture you can change the direction of each vehicle within the train relatively to the complete train.

A push-pull train with a control cab coach can be of course also created with the control cab coach at the front of the train and the locomotive at the end of the train. Of course, need to take care of the vehicle's driving directions and their orientation to the train.

14.14.4 Editing the new train

As initial train name always the name of the leading/main locomotive will be used. In our example this would be „T 16.1“. But you can also use the name „Leig“ of the waggon by clicking with the right mouse button onto the control cab coach's picture in the train composition and selecting <Use name as train name> from the appearing context menu. You can even assign a custom name to the train by clicking with the right mouse button onto the train's old name in the train list at the left and selecting <Rename> from the appearing context menu. In this case, the name of the train is kept, even if the locomotive is changed.

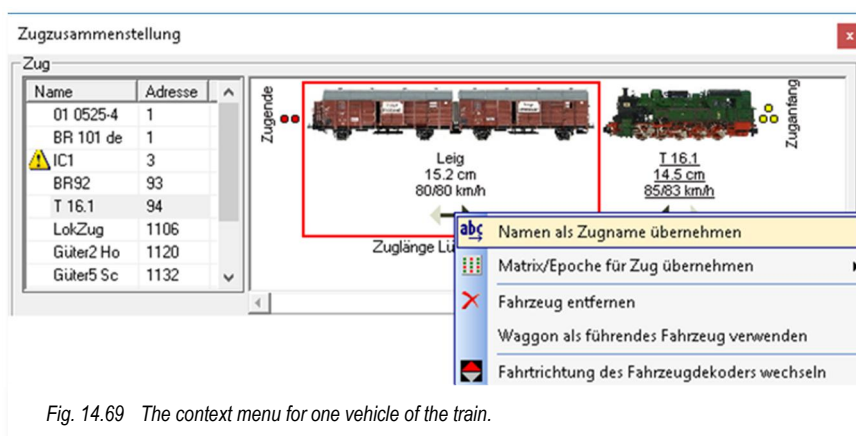


Fig. 14.69 The context menu for one vehicle of the train.

With drag & drop you can also change the order of vehicles in the train. You can remove vehicles from your train by clicking with the right mouse button onto the vehicle's picture in the train composition and selecting <Delete> from the appearing context menu. Matrix changes due to new situations in the train have been made by yourself. The editor also calculates the actual complete train length over buffer LoB and displays the value in the train composition picture.

If you delete the main/leading vehicle from the train, you will be asked to define a new leading vehicle. If you remove the last locomotive from a train you can even choose a waggon as leading vehicle. Thus you can drag such a "waggon train" also onto a train number display. This train will then appear with the waggons digital address (if not set 00) resp. the train's name on large train number display. As soon as you add a locomotive to a "waggon train" this locomotive will automatically be set as leading vehicle.

You can also transfer parts of the vehicle's/locomotive's type using the context menu of the train composition.



14.14.5 Saving/recalling a train template

A train composition can be saved as template by clicking with the right mouse button onto the trains name in the train list at the left and selecting <Save as template> from the appearing context menu.

A previously saved train composition can also be used with a new main locomotive.

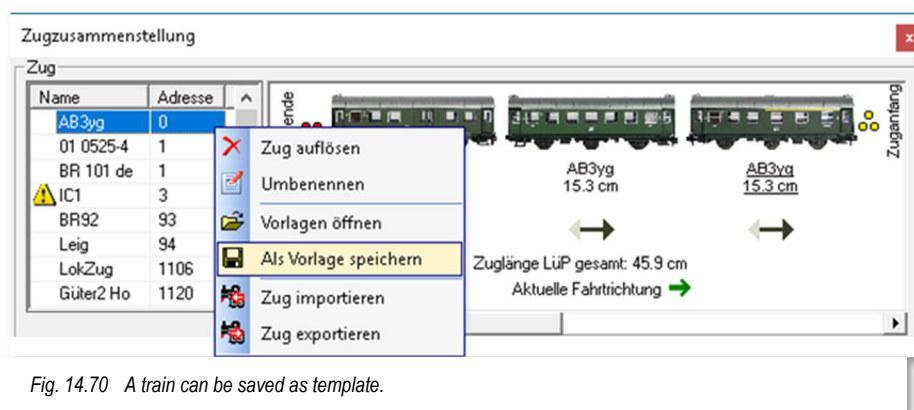


Fig. 14.70 A train can be saved as template.

Therefore create a new train with the desired main locomotive and select it in the train list. Now click with the right mouse button onto the trains name in the train list at the left and select <Open template> from the appearing context menu.

In the new appearing window all previously saved train compositions will be listed. Select the template in the list and press the button '**Add template without....**'.



You will be asked if you want to use the train name and matrix from the template. In most cases you will answer with '**Yes**'. But you should always check the settings in the matrix afterwards (e.g. you used the train when saving with an electro engine and you use now a steam engine).

Please do also check the train's name and do not use train name's twice. **Win-Digipet** can handle double used names, but it is difficult for you to distinguish different trains with the same name.

The new train composition might epoch- or matrix-settings, that do not correspond to your routes and automatic settings.

Please keep in mind that for locomotives which are part of train, the train matrix will be taken into account and not the locomotives matrix. Single vehicles might have completely different values.

During operation of trains **Win-Digipet** does always use the train matrix as superior matrix. This means the matrix of the vehicles within the train will not be taken into account. The same can be said for the epoch settings.

The created train compositions can also be loaded completely changed a saved as new template resp. also deleted.



14.14.6 Train length LoB total

Every time you change your train composition you will recognize, that **Win-Digipet** automatically recalculates the train's total length over buffers. The train length from the train's matrix "Length (X)" has to be set manually because the options from the according list are not bounded to fix lengths in cm.

If you use the "Length (X)" from the matrix in routes and automatics, you need to make the changes of the train matrix here.

You should consider just using the real lengths in cm instead of the matrix column "Length (X)". You can use the real length in the automatic and routes.

14.14.7 Extended locomotive control for train compositions

In the main locomotive's control all locomotives and waggons of a train are indicated. All wagons of train are represented by a small wagon symbol in the upper right corner of locomotive picture in the main locomotive's control. When clicking the button all wagons, that are part of the train appear in a list.

By clicking onto one wagon in the list the wagon's control will open and you will be able to switch special functions of an eventually installed decoder in the wagon.

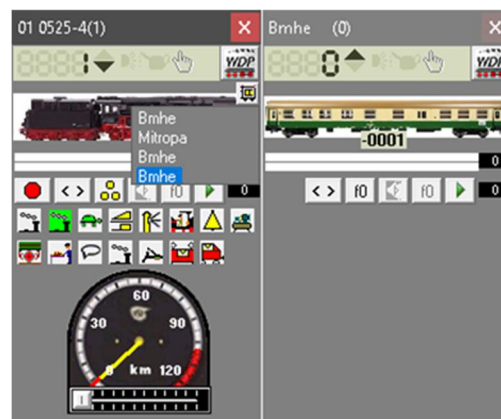



Fig. 14.71 Extended loco control with waggon menu.

14.15 Emergency stop

Sometime dangerous situations of the train layout may occur, so that you want to stop your trains as fast as possible. In these situations, an emergency stop might be a good idea.

14.15.1 Emergency stop via F9, menu or toolbar

At any point of the program you can perform an emergency stop by pressing the function key **F9** of your computer. You can reach the emergency stop also via <Operation> - <Emergency stop> or the switch  in the toolbar.



An "emergency stop" window will open. The text in the window will inform you about the reason for the emergency stop (keyboard, digital system, emergency stop button).

You have got three options to continue after an emergency stop:



Start slowly to last stored speed

All locomotives will be adjusted to their last stored speed with their registered acceleration delay.



Stop all locomotives

If you click at **"OK"**, all locomotives will be stopped and you have to control their speed manually again.



Start slowly to last stored speed and restart automatic mode

All locomotives will be adjusted to their last stored speed with their registered acceleration delay and the automatic will be restarted.

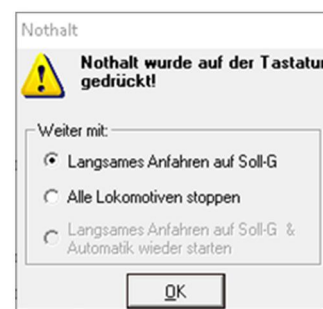


Fig. 14.72 "Emergency stop"

After an accident, you can adjust the speed of all involved locomotives to zero at the Loco-Control-Bar or with the loco controls, before you click at **'OK'**. However, all operation of solenoid devices is closed, until the "emergency stop" window is closed again.

The third option is only enabled if an automatic was a running at the moment of the emergency stop.



These **Options** can also be selected **directly** with the **keys 1, 2 or 3**.

This much faster than a click within the mouse on the option and afterwards on the button **'OK'**.

14.15.2 External emergency stop by dispatcher

An automatic emergency stop can be achieved with an entry in the program part "Dispatcher". If specific conditions or states occur, an emergency stop can be activated.

A possible situation might be an accident caused by wrongly switched turnouts. For more details about the "Dispatcher" please see Chapter 11.



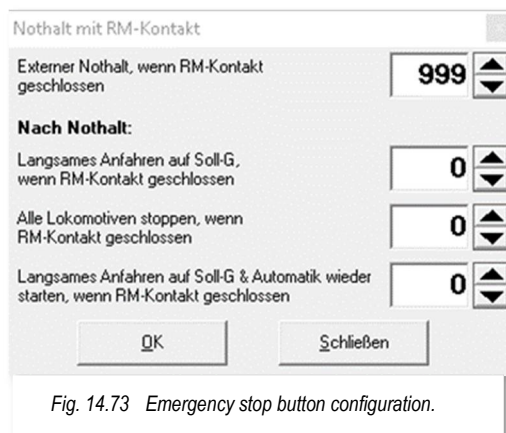
14.15.3 External emergency stop by feedback contact (key)

The menu entry <Extras> <External emergency stop by feedback contact> allows the use of pushbuttons which can activate an emergency stop via a switching decoder. After selecting this menu entry you see the configuration dialogue shown in Fig. 14.73



Here, you can register the feedback number for the emergency stop key and confirm your selection with '**OK**'.



You can install a key-button for the external emergency stop at any place you like on your model railroad. This key-button will cause the emergency stop by a designated contact to your PC. In case of emergency this will save long ways.

Furthermore, you can define contacts to deactivate the emergency stop according to the 3 options described in section 14.15.1.



14.15.4 Stop/Go all locomotives



Using the button  in the main toolbar you can stop all locomotives. Your layout is not switched off, contrary to the emergency stop, but all locomotives will be set to speed 0 (STOP symbol then RED ).

After solving the problem, you can press the now red button  in the toolbar again the locomotives will be accelerated to the last used speed (STOP symbol then GREEN ). Before this a confirmation query will be displayed.

If you answer the security question with '**No**' all speed of the locomotives will be set permanently to zero. If you want to accelerate the locomotive's later on you have to do this for each locomotive manually using the locomotive control or your digital system if the route is still active.

At any point of the program you can initiate this function by pressing the function key **F8** on your computer.



If you experience the situation, that you can't drive your locomotive, but you can still switch your turnouts, then you should check the state of the Stop sign. It has to be green  and **not**  red.



With a red stop symbol Win-Digipet is not able to send speed commands to any locomotive!

14.15.5 Alle Lokomotiven stoppen/anfahren über Stellwerkswärte

An automatic stop and restart, respectively, can be achieved with an entry in the program part dispatcher. If specific conditions or states occur, these automatic actions can be initiated.

Also here, a possible situation might be an accident caused by wrongly switched turnouts. For more details about the dispatcher please see chapter 11.



14.16 Tour automatic operation

This term is described in section 9.29 ff. in detail. Also, the registration of a tour automatic using the tour automatic editor has been described there.



TIPP Automatic start!

An existing tour automatic can be automatically called every time you start **Win-Digipet** if you check in the Startcenter of **Win-Digipet** on the index card "Start project" the according option and select a suitable tour automatic file.

For starting the tour automatic click on  <Operation> <Tour automatic> or on the symbol  in the main toolbar "Operation" of **Win-Digipet**.

A window will open showing all existing tour automatic files within your project.

Select the TA automatic file to open and confirm your selection with '**OK**'.

Within this window there is also a button for deleting existing tour automatic files. After pressing '**Delete**' and a security question the file will be removed from the project directory.

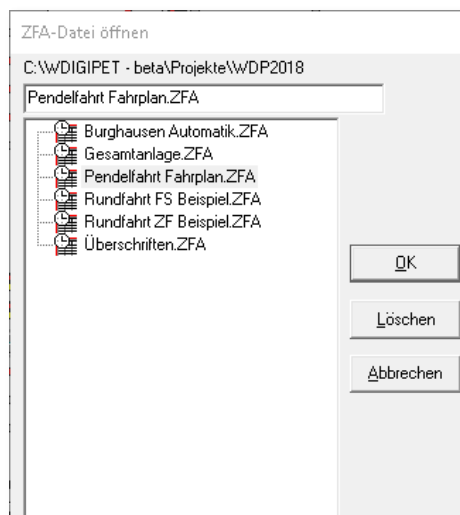


Fig. 14.74 The dialogue for selecting a TA file.



You should use the command for deleting tour automatic files with care.
After deleting a tour automatic file, it can be only restored if you own an (actual) backup of your project.

14.16.1 Start times of a tour automatic

After the selection of TA file, a window called "Departure time for:...ZFA" will appear.

Here you can select between the following possibilities:



Start at beginning of week, e.g. if you have a layout for presentation and you want to present always the same automatic: Mo 00:00:00



Start with time of central clock



Last saved time

If you have interrupted the tour automatic and want to continue at the same time



Start with first departure time within tour schedule

the first departure (rows with green clock) will be used as start time for the TA. If you have only rows using "By arrival" it will be used the start of the week: Mo 00:00:00



Individual start time

you can choose a start time within this window



Row

the departure time of a selectable row will be used

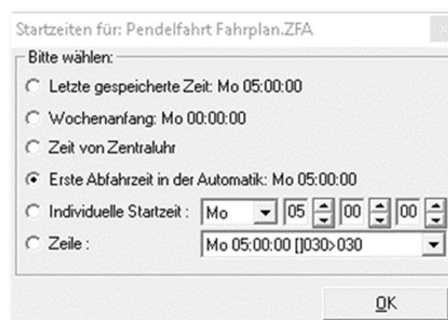


Fig. 14.75 the selection of the TA's start time

The start time for a TA is only important when using time controlled rows within your tour automatic.



Please notice, that waiting times after arrival cannot be influenced by the start time.

Rows with a waiting time after arrival will not be executed before the defined time span since the last arrival is over.

Having made all selections, you confirm them with the button '**OK**'.

If you checked in the tour automatic editor the option "*Check positions at TA start*" (see section 9.25.4), this check will be performed now and after making possible changes you need to confirm with '**Next**'.



14.16.2 Checks before starting

Checks carried out by the program before you start the timetable ensure that you have placed each locomotive concerned in its specified starting position, i.e. on its correct starting contact. This is only important for rows with specified departure times and a fixed locomotive selection. You might now this function from the timetable in previous versions of the program.

This check will be performed if you checked the according option in the tour automatic editor and you start the automatic afterwards (see section 9.25.4).

If all locomotives are on the correct contact, you will see the message "All OK".

If single start contacts are not occupied by a locomotive, the number of the start contact, the locomotive number and the description of the route will be shown with the message "Contact not occupied". In the dialog window you can select if you want to place the train's numbers automatically to the start contact.

All locomotive addresses are **automatically** transferred into the train number display fields of the starting contacts, by clicking '**Continue**' and if the switch "Set train numbers automatically on starting contacts" is activated (checked) You do not have to concentrate on the correct occupation of the train number display fields.

Furthermore, the program already checks at this stage, if all tran number panels for the start of this timetable are covered by the correct train numbers.

Depending on the result of this check, you can change some locomotives manually to their correct position.

After moving all trains to the correct position, click again on '**Starting contacts**'. As a result of this check the message "All OK" is displayed.

Using the buttons '**Directions**' you can check if all locomotives have the correct direction before starting the automatic.

Using the button '**Continue**' you will close this window and the control centre of the tour automatic will appear.

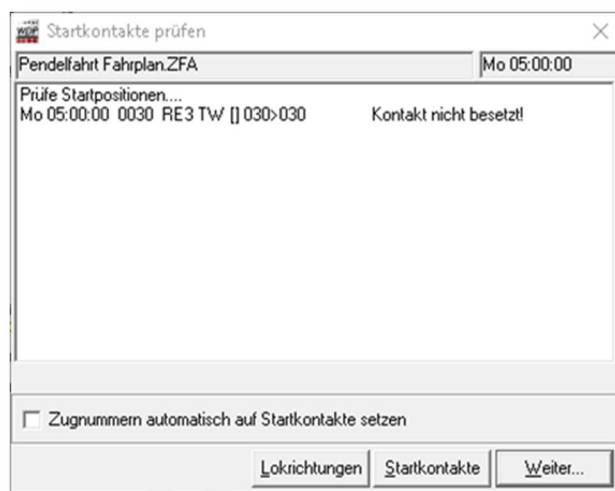


Fig. 14.76 The start contacts are checked.

14.16.3 The control centre of the tour automatic

Without the previous check option, the control centre of the tour automatic will appear immediately. The selected TA file is loaded (see window's caption) and the automatic is now ready to use.












This inactive state at the moment is indicated by the red symbol in the control centre. For activating the automatic click on this red signal and it will change to a green signal.

Here you can set several options concerning your tour automatic, we will explain them later.

On the left side of the window you can see the current time of the tour automatic. After starting the automatic the selected start time will appear here. During operation the TA automatic clock is clocked using a time factor. This means e.g. for a time factor of 4, that 1 minute in real time will result in 4 minutes in model railroad time. You can change this time factor between 1 and 360 using the spin buttons.

In the field in the middle you can see the interrogation time, you can select a value between 100 and 1000 msec. This interrogation time defines how often program checks for new tour automatic rows to execute.

The symbols on the right side have the following functions (left to right):

-  Start/Stop of the tour automatic
( =active,  =inactive,  = processing rest of buffer)
-  Switch routes/tours manually from the buffer
-  Delete routes/tours from buffer
-  Start timetable display³⁸
-  Open tour automatic inspector
-  Show or hide setup/options

In the comment panel below with the selection arrow the contents of the route/tour buffer are indicated. The buffer contains routes/tours that were not executed until now due to a delay. These delayed rows will be handled according to the setting in the system settings (see section 9.7.3). The number at the bottom right shows how many rows are in the buffer at the moment.

Right of this list you can see the number of rows stored in the buffer. If the tour automatic is active and you switch the signal back from green to red, the signal will be set to yellow if there are still row waiting for execution in the buffer. Only the buffer will then be executed. A further click will switch the signal rot red.

After all rows within the buffer have been processed the signal will automatically switch from yellow to red.

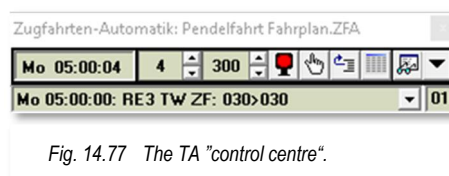



Fig. 14.77 The TA "control centre".

³⁸ The timetable display is loaded at the start of the TA-file.



14.16.4 The options in the tour automatic control centre

If you click on the button , the window will enlarge and offer additional settings for your tour automatic.

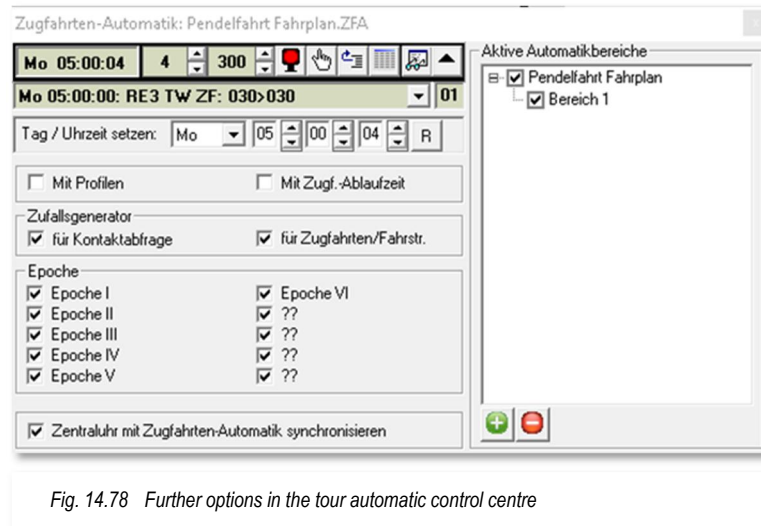


Fig. 14.78 Further options in the tour automatic control centre

Day and time can be reset to Monday 00:00:00 with the button '**R**'. If you change the time all routes/tours within the buffer will be removed.

All settings described in the next rows can be changed during the operation.



If you have created profiles for your locomotives/routes you can also de-/activate them with the check box "*With profiles*". If (de)activated the trains will (not) use profiles.


An exception are rows using the option contact events. These will be executed anyway.


The check box "*With max. waiting time*" is very useful when using tours in your automatic with demand contacts. This waiting time can be set in the system settings. Then tours that cannot continue due to a blocked situation etc. will be killed after the waiting time has expired. If you checked this option, a tour with exceeded waiting time will be treated as follows...


 in the tour automatic with **unchecked** "*With max. waiting time*"....

1. the tour will be stopped
2. the tour will be marked "RED" in the tour event inspector
3. the train number remains "GREEN"
4. **no** audible or visible warning will appear





 in the tour automatic with **checked** "*With max. waiting time*"... **without** alternative route/tour within the tour automatic...

1. the tour will be stopped
2. the train number will be switched from "GREEN" to "BLACK" resp. "WHITE"
3. the tour will be marked "RED" in the tour event inspector with an hourglass
4. a sound warning will be played and a message will appear for a short time, if not disabled in the system settings
5. you have to remove the blocked situation, afterwards select the tour in the tour event inspector and restart the tour with the button 
6. or you have to continue the train manually with a tour or route, then the tour will be deleted automatically from the inspector

 in the tour automatic with **checked** "*With max. waiting time*"...**with** alternative route/tour within the tour automatic...

1. the tour will be stopped
2. the train number will be switched from "GREEN" to "BLACK" resp. "WHITE"
3. the tour will be marked RED in the tour event inspector with an hourglass
4. a sound warning will be played and a message will appear for a short time, if not disabled in the system settings
5. the tour will remain in the tour event inspector until the train is continued by the tour automatic.

Via the two check boxes "Random generator" you will create a very varied tour automatic. You can activate random generators for...

-  Demand contacts
-  Routes/Tours.

If you just activate **demand contact**, the contacts are demanded in random order. The routes at one contact are checked one after the other. The first, that can be switched, will be switched and all other routes will be left out.

If you check the **routes**, the routes are chosen randomly. If one route couldn't be switched, the next one will be selected randomly.

If you have registered many routes/tours, it can last rather **long** until a route/tour can be switched.

You can also activate both random generators at the same time and you will achieve a complete random operation.



Epochs will only be taken into account if you have activated the use of epochs in each tour automatic row.

If you want to sync the central clock with the tour automatic clock you activate this here. If you stop the tour automatic or it stops automatically the central clock will then be stopped too.


In the right part of the window you can see the available automatic sections for the loaded TA files. Only automatic sections used in one or more rows of the TA will be listed.

You can (de)activate the used automatic section at any time while operation the TA.

14.16.5 Load an additional tour automatic

In the window shown in Fig. 14.79 you can load and execute additional TA files.

You can load simultaneously up to 5 tour automatic files. In our example we want to add to the already load TA "beispiel kontakt_zfa" an additional TA named "beispiel fahrplan_zfa".

Therefore, click on the symbol . In the dialog "Open TA file" (see Fig. 9.103) you can select the file and confirm your selection with 'OK'.


The second loaded automatic will be added to the tree below the already loaded automatic. The automatic sections of the second automatic will appear also in the tree. In the example shown here the name "Bereich 1" is marked red, because it occurstwic.

Using the check boxes, you can (de)activate single automatic sections for each automatic file or even a complete automatic file.

Using the file possible automatic files at the same combined with up to 12 automatic sections per file you can use up to 60 sections at the same time to configure very interesting operations for your layout.



Fig. 14.79 An additional TA has been loaded.



Eine zusätzlich geladene ZFA können Sie mit dem Symbol  auch wieder entfernen. Beachten Sie, dass die **zuerst** geladene ZFA-Datei nicht mit diesem Symbol entfernt werden kann.



All settings made for your tour automatic will automatically be saved when closing the tour automatic and reloading when opening the tour automatic again. The file name for this option file is <name_zfa>.dat.

You should not delete this file, because also the names of your automatic sections are stored here.

14.16.6 Ending the tour automatic


Before ending the tour automatic you need to set the automatic to inactive by pressing the button . If there are still routes in the buffer, the indicator changes to yellow: .





Never drive a train of an **active** tour manually or delete the train number in the track diagram, before you have killed or paused this tour.

14.16.8 The "Inspector" for automatic




The Inspector supports you to check the order of events and to find bugs. The Inspector should just be used for fault detecting. It is not recommended to use the Inspector during a correct and smooth operation. Due to additional messages and queries timely delays would affect automatic operations.

Click at the button . The "Inspector" window will open then.

You can **close** the Inspector by clicking at the **same symbol** or by ending the automatic operations.

The Inspector provides you with important messages in case of irregular operations within a tour automatic. He just provides you with messages, during active automatic operation ( - green signal), the queries and messages will stop immediately, if you stop the automatic ( - red signal).

The Inspector is very useful for fault detecting. You can also divert the content of the inspector to a text file. With this, you have the possibility to check this file in detail later on. This protocol can be evaluated later using a normal text editor.

For the mentioned functions you can use the buttons    at the bottom of the inspector window. The red cross can be used to remove all messages from the window.

At the bottom you find an input box for filtering the messages.



Using the filter, you can search/filter the protocol for freely selectable strings. When searching the protocol just jumps to the next occurrence of the entire strings. When filtering the protocol just lists messages containing this string.

If you want to see for example just messages caused by tour automatic row 24 enter "contains Row 24". All other message will disappear until you remove the filter again.




Fig. 14.81 The automatic inspector.



The messages in the inspector are self-explanatory. These messages are a great help for search errors/problems within in your Tour automatic configuration.





14.16.9 Manual control of a locomotive during automatic operation

If you have activated the corresponding option in system settings on the index card "Locomotives" an additional command button will be visible within the locomotive controls. A click on the button  deactivates all automatic driving control of the locomotive by the program, whereas the other tour automatic is still active, i.e. all tours are controlled by the program. You have to activate all driving commands manually by locomotive control, digital system or joystick.

This is similar to a locomotive driver, the PC controls routes, signals etc., but you have to drive the locomotive yourself.


Locomotives in manual mode are indicated in the locomotive bar with a red border (a yellow maintenance indicator will be covered).

In the same way as you can switch locomotives to red/blue or black within the tour automatic you can also switch it to manual operation. You have two options for doing this.


-  The first option is to create a normal tour automatic and you deactivate the automatic section you want to control manually within the control centre. Then you need to control the locomotives manually using the Switch + Drive function.
-  Using the second option you define a tour automatic for the complete layout and within a specific section the routes/tours will be switched automatically, but the locomotives have to be driven manually.

The according settings have to be made in the tour automatic editor on the index card "Options" (see section 9.18.2).



14.16.10 Accidents, end of operations, delays


If an **accident** occurs, e.g. a derailment or a collision you might want to close the tour automatic even if routes/tours are still active. The tour automatic operation can be closed at any time by a click on the symbol , in the right top corner.

If you have still active tours at this moment, a security query will appear. If you click then on 'Yes' these tours will be killed, the tour automatic ends and trains just drive to the destination of their active routes and then the operations on your model railroad layout will come to an end.


If you want to stop the tour automatic temporarily click on the button  (the button will change to red).



The system fills all routes/tours which, due to **train delays** and other **operating troubles**, could not be switched as per specification at the given time, in the routes/tours buffer.

The buffer display tells you how many routes and which ones are therein. But only tours/routes with "Departure time" and the symbols  or  in the column "C" will appear in the buffer. This buffer is treated similar to the timetable operations.

Tours/routes with selected "By arrival" and the symbol  will not appear in the buffer.





Through  you can carry out or begin the actions for emptying the buffer. It is your decision, how the tour automatic should continue

Routes/Tours which are switched manually out of the buffer () will be deleted, if they have achieved their release conditions. Follow-on-switching will also be carried out. If you want to **delete** routes/tours out of the buffer, you can use the button . Via the combo box displaying the buffer, you can select which buffer rows to switch or delete.

If there are any active tours at the program end, they can be interrupted and continued at the next program start. Also, an active tour automatic can be continued in this way.

In the case of an active tour/tour automatic you will be asked at the program end, whether the tour/tour automatic shall be interrupted and saved, stopped, or whether you want to wait until all active routes or tours have been executed.



After a new start of **WinDigipet** you are asked, whether the saved tours shall be continued. If you say “No” the saved tours are deleted. Otherwise, they will be continued.

	<p>As long as there are intermediately saved tours, you should not restore data from a previous backup in the Startcenter. Also the start of the track diagram editor is blocked in the meantime.</p> <p>If you have problems/irregular situations etc. during tour automatic operation, you should use the train inspector.</p> <p>The train inspector can be opened using the button  in the main toolbar (see section 14.8).</p> <p>Routes/tours that are still active can be deactivated with in the train inspector.</p>
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14.17 Virtual contacts & pulse generators

The conditions and switching actions which have been described earlier may be used by the tour automatic and the dispatcher to allow most interesting operations on your layout.

The present section describes two further options to automate the operations:

-  The pulse generators
-  The virtual feedback contacts

14.17.1 Pulse generators

The pulse generator delivers pulses with on and off durations between 100 msec and 30000 msec with steps of 100 msec controlled by the small arrow keys shown in .



The configuration dialogue can be opened with the symbol° in the toolbar "Editors" or with the menu command <File><Virtual contacts & pulse generators>.

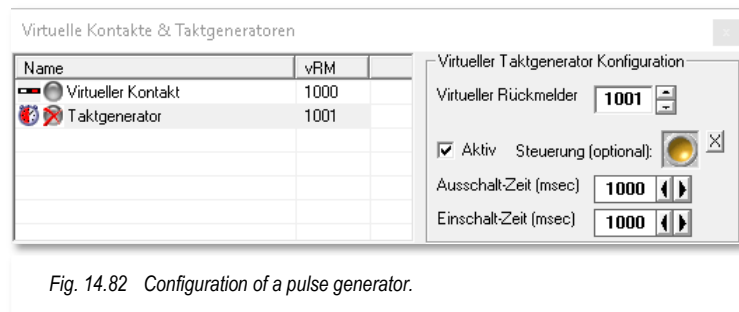


Fig. 14.82 Configuration of a pulse generator.

A right mouse click on the marked line opens a short menu with additional parameters to be defined.

In total you can create 10 pulse generators, each with its own pulse sequence. The pulses control a virtual feedback contact. Its number must be entered in the dialogue field.

As soon as you have checked the box "Active" the pulses operate in the background. Optionally, you can drag&drop a solenoid device from the track diagram into the field "Control (optional)", in order to switch on/off the pulse generator.

The example in Fig. 14.82 shows a pulse generator from the demo project WDP2018. The virtual feedback contact 1001 changes between "Free" or "Occupied" every second. The contact is linked to a writing, so that a red flashing hint appears every two seconds on the screen, The pulse generator is switched on by a two-aspect solenoid device.

14.17.2 Virtual contacts

Using the same dialogue you can enter the contact numbers of virtual contacts. In principle, they operate in the same way as real contacts. They can be "Free" or "Occupied".

Virtual contexts must not be assigned to a digital system. It is recommended to use numbers beyond the physically used numbers.

Because the virtual contact cannot directly be switched by vehicle, it must be controlled otherwise.

A virtual contact can be assigned to a track symbol via the short menu in the dialogue or directly with the right mouse button in the track diagram.

You can switch virtual contacts also with two-aspect solenoid devices or by an automatic switching action. These switching actions can be applied in the routes editor, the tour automatic editor, or the dispatcher.

The configuration dialogue can be opened with the symbol° in the tool bar "Editors" or with the menu command <File>< Virtual contacts & pulse generators>.

A right mouse click on the marked line opens a short menu with additional parameters to be defined.



In the configuration dialogue you just enter the contact number. Optionally you can enter a solenoid device for controlling the state of the virtual contact.

It is emphasised to use descriptive names with a context meaning.

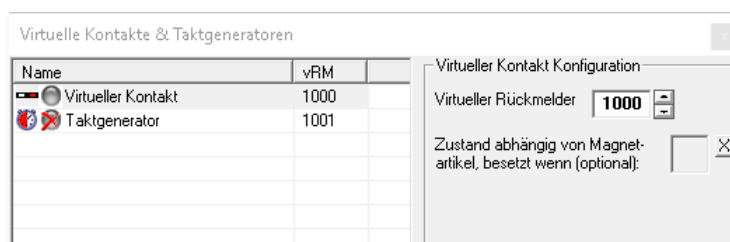


Fig. 14.83 Configuration of a virtual feedback contact.

14.18 Screen outputs in Win-Digipet

14.18.1 Saving and recalling screen size for two monitors

If you use **Win-Digipet** with 2 monitors, you can save and recall the monitor size settings. Here you can find the menu items <Window> <Save screen size for 2. Monitor> and <Window> <Set screen size for 2. Monitor>.

Using the second command you can recall the saved window saved after a restart of **Win-Digipet** easily with one click.

14.18.2 Display info about symbol below mouse pointer

If you want to see info about symbols in the track diagram check <Track diagram> <Display info about symbol below mouse pointer> or <Display all info about symbol below mouse pointer>. By this you can also select the amount of displayed information.

If you have activated this function a tool tip will show you the type of symbol, feedback contact numbers, solenoid device addresses etc. when moving your mouse over a symbol in your track diagram.



Fig. 14.84 The symbol informations for an intelligent train number display:

14.18.3 Solenoid device state indicators

When moving the mouse cursor over a solenoid device several states will be indicated by the mouse cursor and the tooltip:

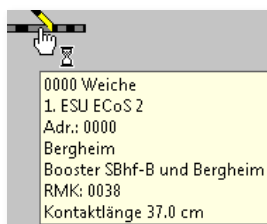


Fig. 14.85



the solenoid device has no address until now and you will see a sandglass right of the cursor.

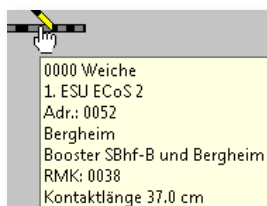


Fig. 14.86



the solenoid device is ready to be switched, you will see only the switching hand.

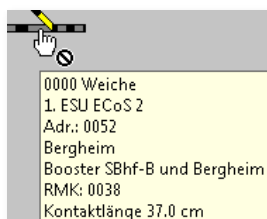


Fig. 14.87



the solenoid device is part of a route and locked for switching at the moment, you will see a small prohibition sign.

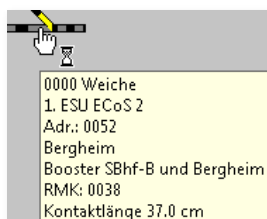


Fig. 14.88



the solenoid has been switched, but has not reached its final position, you will see a sandglass right of the cursor.

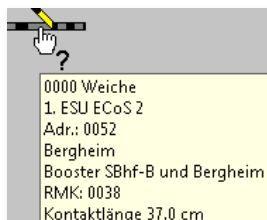


Fig. 14.89



the solenoid has been switched within a route, but the position monitoring has not reported the desired state until now, you will see a question mark right of the cursor. Because of this the train will not start travelling through the route until the position monitoring has reported the reaching of the desired state.



14.18.4 Opening the feedback monitor

Under the menu <Monitor> – as well as by the toolbar symbol – you can open the FB-Monitor. Using the feedback monitor you can easily see which feedback contacts are occupied at the moment. The occupied feedback contacts have a red background in the monitor.

The monitor is very helpful for seeking errors e.g. if several contacts do not cause occupations during the operation and you get errors due to this while operating your layout.

In the feedback monitor the feedback contacts are combined to groups of eight contacts, numbered ascending. All groups assigned to digital systems in the system settings are labelled according to these settings.

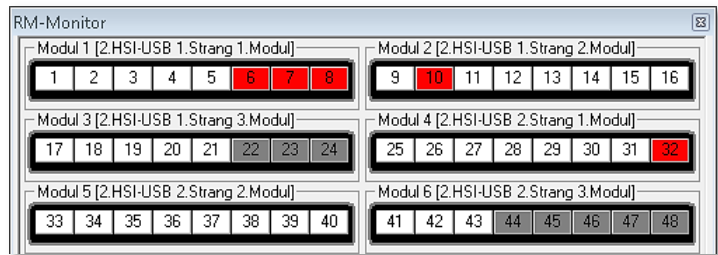


Fig. 14.90 the feedback monitor

The feedback contacts can have four different states in the feedback monitor, these states are indicated by the contact labels background colours.

	white	the contact is not occupied
	red	the contact is occupied
	white/red	the contact is configured as momentary contact resp. in the simulation it is shown as simulation contact
	grey	the contact is not used in the track diagram until now

14.18.5 Display all feedback contact numbers

Under the menu <Track Diagram> <Display all feedback contacts> you can display all feedback contacts.

Sometimes, depending on your track layout diagram, the numbers are not readable. As soon as point to a number, click the left mouse button. The number is enlarged (Zoom function).

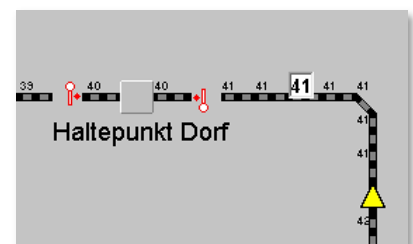


Fig. 14.91 the feedback number enlarged




If you have switched this function on prior to switching a route with the start/destination function or starting a tour automatic, **WIN-DIGIPET** will switch the FB display automatically off.

14.18.6 Status displays

In the toolbar you find two commands to inquire the



Status Digital systems


A new window displays the system status of your digital system including version number, etc. You can open the window using the menu or pressing the button  ⁴⁰ of the according digital system. The amount of information in this window depends on the used digital system.

Using the combo box in the lower left corner of the window you can switch between the different digital systems.

Using the button '**Reset System**' you can restart the digital system for some system **without** the need to quit **Win-Digipet** before.



Print project status

Using the button  you can print the state of your project. Similar to the print function in other program parts also an export to the RTF⁴¹-format is possible. In addition, also an export to an HTML⁴² file is possible. This type of file can have opened using a web browser.



Print track diagram

This function can be initiated via the menu command <File><Print track diagram> in the main program. All options are self-explaining and correspond to the print functions of other program parts.

In contrast to the printing of the track diagram in the track diagram editor, this function prints the current state of the track diagram including the

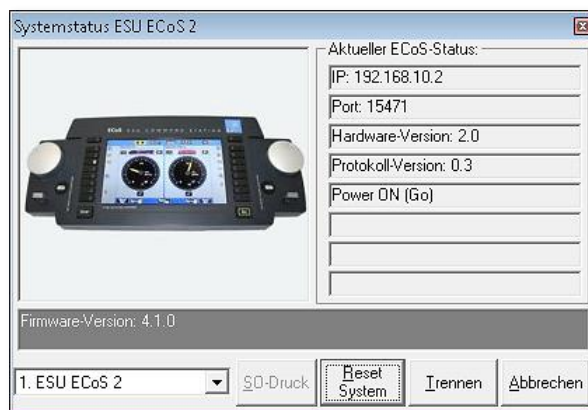


Fig. 14.92 The status of a digital system.

⁴⁰ Depending on the number of digital systems several of these buttons are available

⁴¹ RTF – Rich Text Format

⁴² HTML – Hypertext Markup Language



current positions of solenoid devices, counters and the occupation states of TNDs.

14.18.7 Digital system state in the toolbar

In this section of the toolbar **Win-Digipet** indicates, if a digital system is activated or not.

If you click on one these buttons, you can immediately open the status window for the digital system. By pressing '**Init System**' you can re-establish a connection between your digital system and **Win-Digipet**.

Using the button '**Terminate**' you quit the connection to your digital system.



Fig. 14.93 States of digital systems.

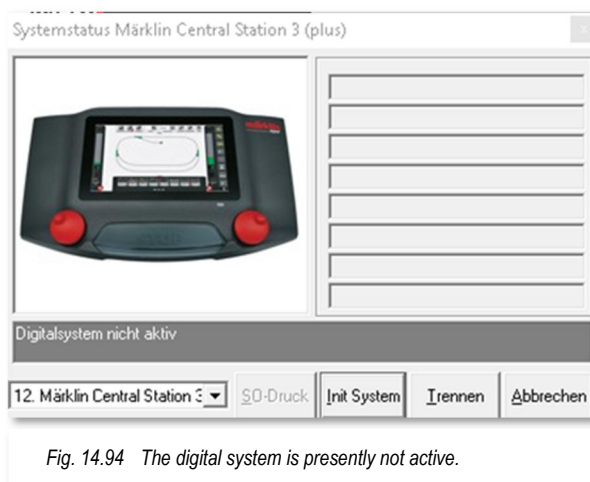


Fig. 14.94 The digital system is presently not active.

can

14.19 Hardware - Booster-Management

Using the booster management, you can configure your setup in such a way, that an operation interruption due to a shortcut in on booster section will not result in a complete operation break-down for your entire layout.

Newer Boosters and digital systems offer the possibility to disable single booster sections in a shortcut or overload situation and to keep the other sections online.

Due to security aspects you should use the booster management only for boosters, which turn off automatically themselves in case of a shortcut. They should not rely on the interaction with the digital system to turn off in case of a shortcut.



You have to ensure, that boosters will turn off safe every time a shortcut or overload occurs in this booster section!




Examples of boosters usable with the booster management:

Littfinski DB-4		www.ldt-infocenter.com
bmbtechnik – G. Boll 3/5A	new version	www.bmbtechnik.de
Uhlenbrock Power 4		www.uhlenbrock.de
Tams B4		www.tams-online.de
Lenz LV 102		www.digital-plus.de
CAN Digitalbahn Modulbooster		www.can-digital-bahn.com
OpenDCC Booster 2		www.opendcc.de
MÜT Booster		www.muet-digirail.de
Stärz Power Pack		www.firma-staerz.de
BiDiB Booster		www.bidib.org
...		

The setup of the booster management has to be configured in the main program and for the track assignments in the track diagram editor.



14.19.1 Setup of the booster management

The setup of the booster management in **Win-Digipet** can be called using the symbol "Booster management"  or via the corresponding command in the menu "Extras" of the main program.

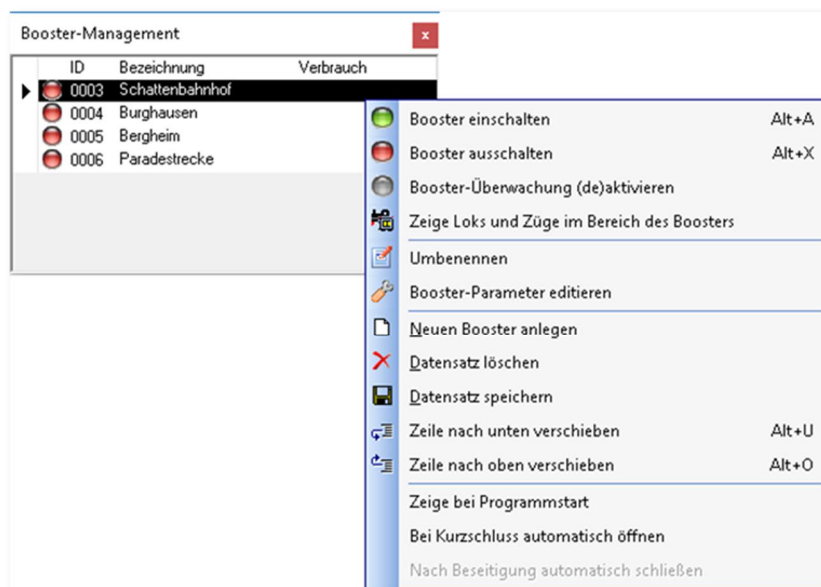


Fig. 14.95 The configuration dialogue and the context menu of the booster management.

When you open the booster management for the first time an empty dialog will be shown. When opening the context menu of the booster management using the right mouse button you can find many options for the setup of the booster management. The well-known features from other program parts like "Save data record" and so on will not be explained again. Only the booster management specific functions will be explained in the following subchapters.

14.19.2 Creating and removing boosters

The first step within the booster management is the creation of a booster using "Create new booster".

In the list a new record will appear with an automatically created name and ID. A click into the column "Description" gives you the possibility to change the booster's name.

In the same way additional boosters can be created and renamed.

Every record can be saved using the menu. If you create a booster by mistake you can delete the booster using "Delete data record".



14.19.3 Assignment of boosters

After creating the booster record in the booster management of the main program, you can assign feedback contacts and solenoid devices to the several boosters. These assignments can be done in the track diagram editor.

14.19.4 Highlighting booster assignments

You can ask the program to highlight all feedback contacts and solenoid devices which have been assigned to a specific booster.

You can activate this function by pressing the shift button while selecting the according booster data record in the list.

14.19.5 Booster parameter setup

As shown in figure the booster setup offers different parameters for controlling and monitoring the boosters. When selecting "Edit booster parameters" in the context menu the booster management window enlarges and offers the following options. The figure has been manipulated in such a way, that several combo boxes are opened at the same time.

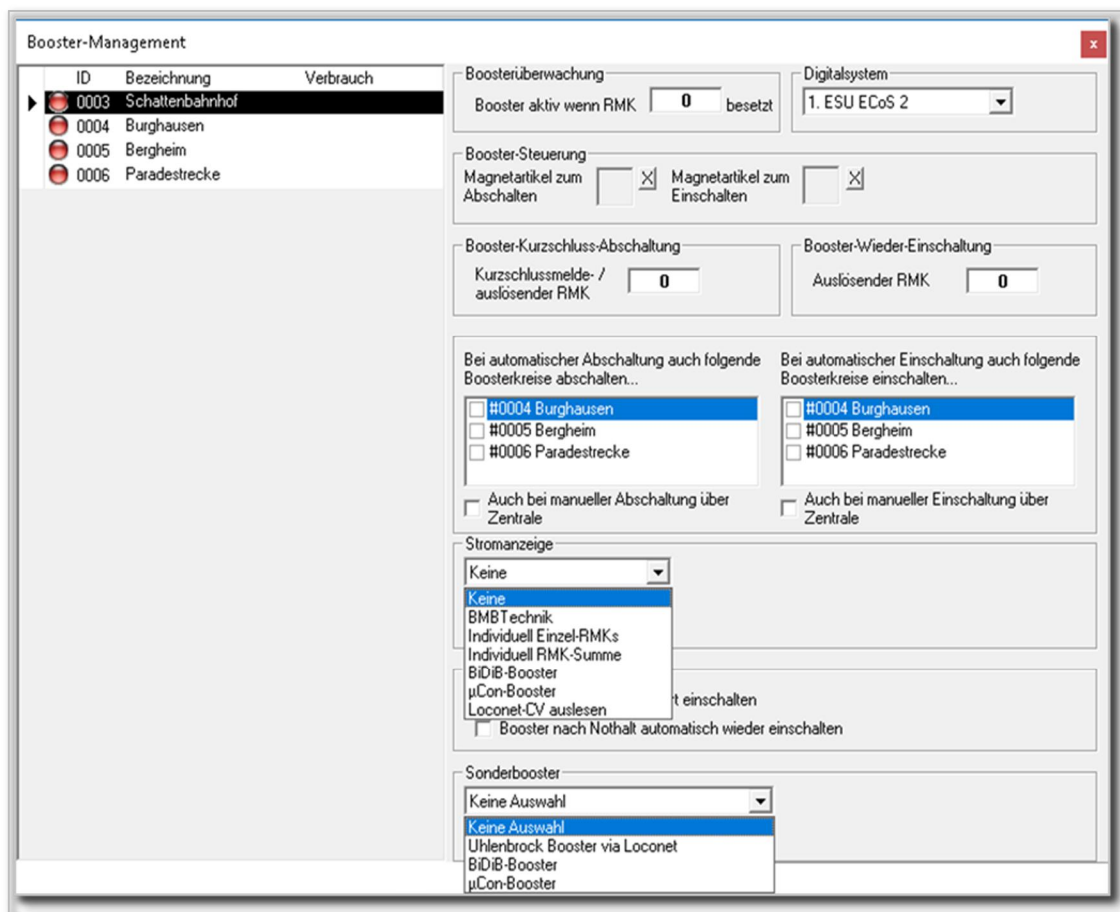








Fig. 14.96 Changing the booster parameters(montage)

-  Registration of feedback contacts which monitor shortcut signals or signals or re-start of the booster
-  Registration of solenoid devices (e.g. K84) for turning the booster on or off.
-  Configuration of special boosters like BiDiB-Booster or Loconet booster by Uhlenbrock
-  Setup of nearby booster areas which shall be turned on/off when turning a specific booster on/off.
-  Restart booster after emergency off or program start
-  Integration of power/current displays (e.g. by bmbtechnik) showing the power consumption of a booster area.



14.19.6 Turn boosters on/off

Using the context menu described in the previous sub-chapters you can also turn on or off single boosters. The booster state is indicated in the list by a red or green lamp symbol. These actions are also recorded in the logbook.

14.19.7 (De)activate booster monitoring

Using "(De)activate booster monitoring" from the context menu can exclude single boosters from the monitoring temporarily.

For reactivation of the booster areas you have to select the menu entry again.

14.19.8 Showing vehicles within a booster area

Selecting "Show locos and trains in the booster area" from the context menu shows you all locomotives and train within the selected booster area. Of this course this function is only available after assigning the feedback contacts to the several boosters using the track diagram editor. In the figure all locomotives within the booster area "Hidden yard" with name and digital address.

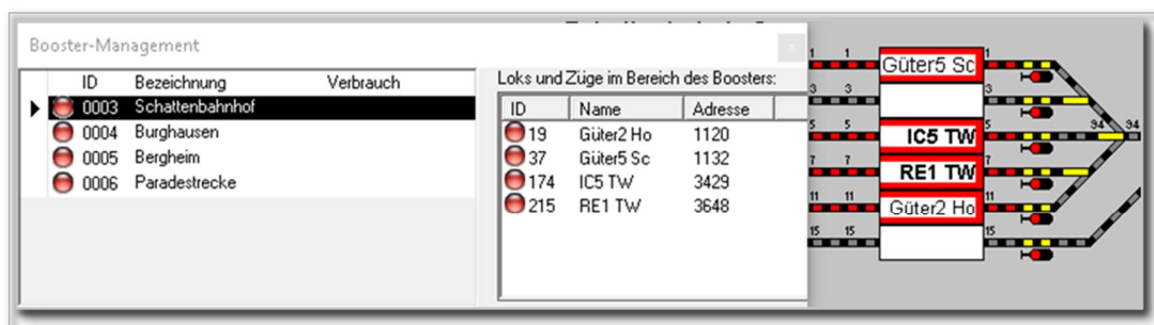


Fig. 14.97 Showing all locomotives and train within a booster area.

14.19.9 Benefits of the booster management for other program parts

Routes, which contain contacts or solenoid devices (as far as connected to a booster), that are assigned to a booster which is in state "OFF" will not be executed by **Win-Digipet**. The "Switch+Drive" dialog or the tour event inspector will show corresponding messages.

14.19.10 Current displays

If you own some of the current displays distributed by the Beta-Tester Gerd Boll (www.bmbtechnik.de), you make these displays also visible on your computer screen.

Click on the symbol  in the toolbar. The window "Current display" will appear.

After a click on '**Setup**' you can make all required settings.



At first you have to select how many current displays you are using by the arrow button in the top left corner of the window. Afterwards you have click on '**Show**'.

The text fields are used to enter a description of the monitored electric circuits.

Right of the current bar graph indicators you can enter the first feedback-contact address of the used feedback module. The field right of this shows you the feedback contact numbers, that are automatically also used by this display.


Of course the feedback contacts have to be connected to the current displays, because otherwise no current will be indicated.

At the top of the window you see a check box "*Show at start of program*". You have to check this box if you want **Win-Digipet** to display the current indicators at every start of the program.

With these indicators you are able to monitor the power/current consumption of your electric circuits. You can also configure for more such simple and even more complicated power measurement circuits the settings in the booster management.

14.20 Hardware - Watch-Dog

If you use the Watch-Dog of the Beta-Tester Gerd Boll (www.bmbtechnik.de) you can integrate it in **WIN-DIGIPET** to make the operations of your model railroad layout safer.

Via a click on the symbol  in the toolbar the window "Watch-Dog decoder address" will opened. In the window all digital systems which are able to switch solenoid devices will be list, thus e.g. not the HSI-88.



Here you can enter the basic address of the solenoid device decoder for each digital system separate. This address has to be always the first of the four decoder addresses. The other decoder addresses can be used for an additional solenoid device.

When checking "*Watch-Dog ON*" and pressing afterwards the button '**OK**' the Watch-Dog will be activated.





From this moment on **Win-Digipet** sends every second the solenoid device command "Green" and the Watch-Dog monitors this. If this command is not registered by the Watch-Dog for more than 5 seconds, the Watch-Dog switches all boosters off and stops the trains by this.

For a maximum of security, you shouldn't use the build-in booster of your central unit, because the watchdog can't monitor this electrical circuit. But a break-down of the central unit (not the built-in booster) will also be monitored and the booster will be switched off.

But you should connect all your solenoid devices to the built-in booster of the central unit, because the Watch-Dog will switch off also when performing the following actions longer than 5 seconds:

-  "Starting basic settings..."
-  At an "Emergency stop"




-  When opening the "System settings"
-  When opening the "Track diagram editor",
-  When opening the "Vehicle database"
-  "Solenoid devices function test".

After closing the affected program parts, the Watch-Dog will switch again the boosters automatically on.

When leaving **Win-Digipet**, the solenoid device command "Red" will be sent, because otherwise you won't be able to use your model railroad layout without your computer.

14.21 Hardware - Helmo Train Number-Identifying-System Inter-1(S)

You can get to the Helmo-System via menu <Extras> <HELMO Train Detection System> or by switching the button  of the toolbar. The system is active, as soon as you have marked "active" at the Helmo-System in the system settings.

To use the Helmo-System, you have to activate it at the menu bar (loading). To have a better overview, you can minimise the Helmo-window (click at the minimise button at the top of the window) and it will be moved to the task bar. A window opens to show the Helmo-Train Number-Detection.

The Helmo-COM-port will be activated after starting the system. Only the amount of reading devices will be shown, which have been registered in the system settings. In this example the entry contains **8** reading devices (01 to 08) out of a maximum of **30**.

The small white number in the left of the digital display is the current number of the reading device. The black numbers in the grey input panels are free to define and combine the train number display on your track layout with the Helmo system.

Enter the correct feedback number of the train number panel (from your track layout), which then will be automatically transferred out of the Helmo-system.

If the Helmo-system has recognised a locomotive address (max. 99 addresses are possible), it will be transferred directly to the train number panel of the corresponding track layout position.

The recognised locomotive addresses will be shown as red digital numbers.


The feedback contacts at the grey panels have also an additional function:

The locomotive address displayed at the Helmo system will at least be updated, if **another** loco will be recognised during passing the reading device.

To improve this, the Helmo address will be deleted by the program (= grey, digital **00**), if the corresponding contact (= the feedback contact of the train number panel at the track layout) at the grey panel in the right will be reported as "cleared" (free) from your model railroad.



14.22 Hardware - Joystick control in Win-Digipet

In **Win-Digipet** you can control locomotives and cranes very comfortable with joysticks/gamepads. The program supports up to 16 joysticks at the same time. For opening the joystick configuration press the button  in the toolbar of the main program.

A small window will show you all available joystick of your computer system in a list.

When you open the joystick control for the first time, then you need to press the button **'Open configuration'**. This will enhance the bottom side of the dialog. Within the enhanced dialog you can configure the buttons and axes used for controlling locomotives and cranes.

For your first configuration you can use the configuration shown in the example figure on the index card "Example".

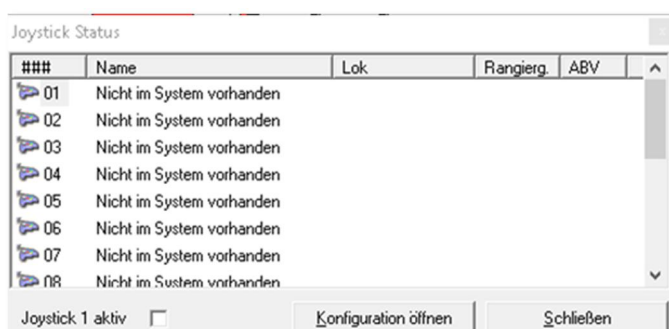


Fig. 14.98 All connected joysticks within a list.

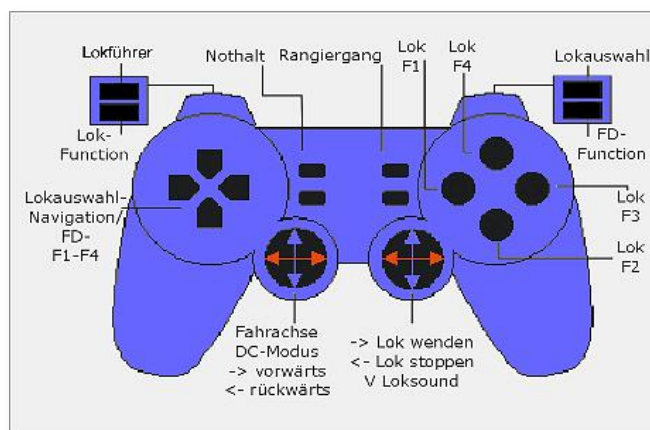


Fig. 14.99 Example for key assignments using a joystick.



14.22.1 Joystick control of your locomotives – Index card Axis

After you have opened the configuration of one joystick you will see the index card for the axis configuration.




When you open this index card for the first time you will see the configuration show in the figure on this side.

When you move then axes of your joystick you will see this within the dialog.

For controlling the locomotive, the x-axis of the joystick has been preselected. If you move this axis to the right, you will see below the label 'Test' a speed indicator similar to the one in the locomotive controls. If you move the axis to the right the speed will increase. If you move the axis to the left the speed will be decreased. And if you keep the axis untouched the speed will stay the same.

You can now move all axis of your joystick and follow the data change within the dialog. You have now to choose which axis you want to use for speed control.

You can choose between different modes of speed control:

-  **Relative speed change**
In this mode you can increase the speed of the locomotive by a short movement of the selected axis in one direction and decrease speed by an axis movement to the other direction. Releasing the joystick will lead to no speed change. In this mode you have to define an extra button for direction selection.
-  **DC-controller (with middle position)**
In this mode you can use the joystick axis similar to an analogue DC transformer. Moving the selected axis in one direction will result in driving the locomotive forward. A movement to the direction will cause the locomotive to drive backwards. A small amplitude of the axis will result in a low locomotive speed and a big amplitude in a higher locomotive speed. We suggest using this mode.
-  **AC-controller (Zero setting at limit)**
This mode is similar to an analogue AC transformer, where you will have

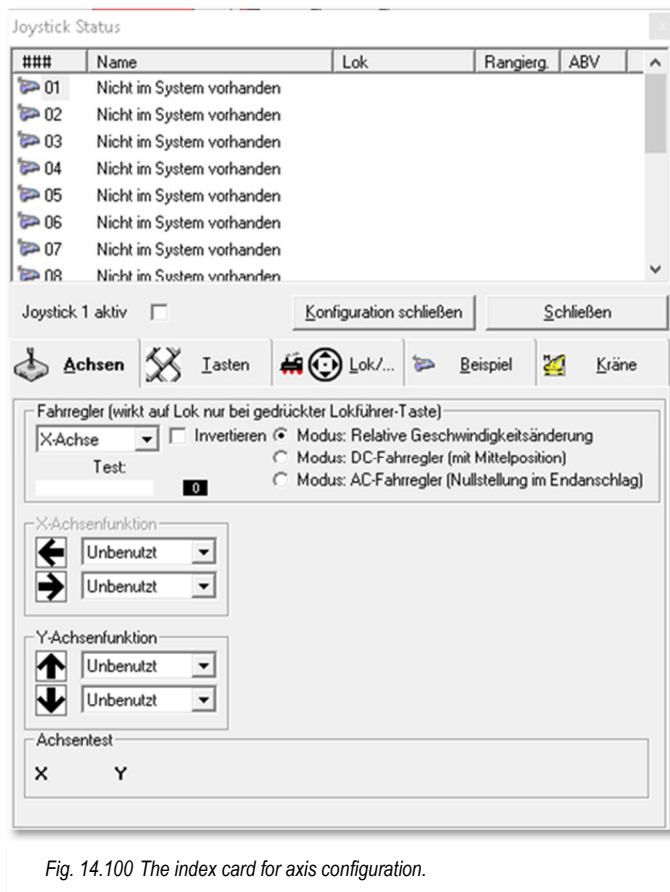


Fig. 14.100 The index card for axis configuration.



zero speed at one of the mechanical end stops of the transformer (e.g. if you use a joystick with a thrust control) and at the other mechanical end stop maximum speed. In this mode you have to define an extra button for direction selection.

Using the option "*Invert*" you can invert the speed axis function to adapt the control to your joystick's mechanical behaviour.

In the lower part of the window you can select functions that should be executed when the axes, which are not used for speed control, these axes are then used similar as buttons e.g. moving the Z-axis to right could be used for changing the locomotive's direction.



On this or one the following index card you have to assign the function "*Train driver*", because otherwise you will not be able to control the locomotive speed.

14.22.2 Joystick control of your locomotives – Index card Buttons

On this index card you can define functions for each of the joystick's buttons. The program supports up to 31 buttons. You can identify the button number by pressing the according joystick button; its number will be coloured red. The system automatically identifies the number of your joystick buttons and enables the according selection boxes.

The most important functions, which you should assign to a joystick's button, are the functions "*Loc selection*" and "*Train driver*".

The "*Train driver*" button has to be pressed each time you want to send a speed command using the defined axis of the previous index card. This used to prevent you and your locomotive from false commands.

If you define a button for "*Shunting mode*" you can select in the lower right corner the maximum speed for the locomotive while the shunting mode is active.

When you press the buttons on your joystick you can see which button is assigned to which number (marked red).

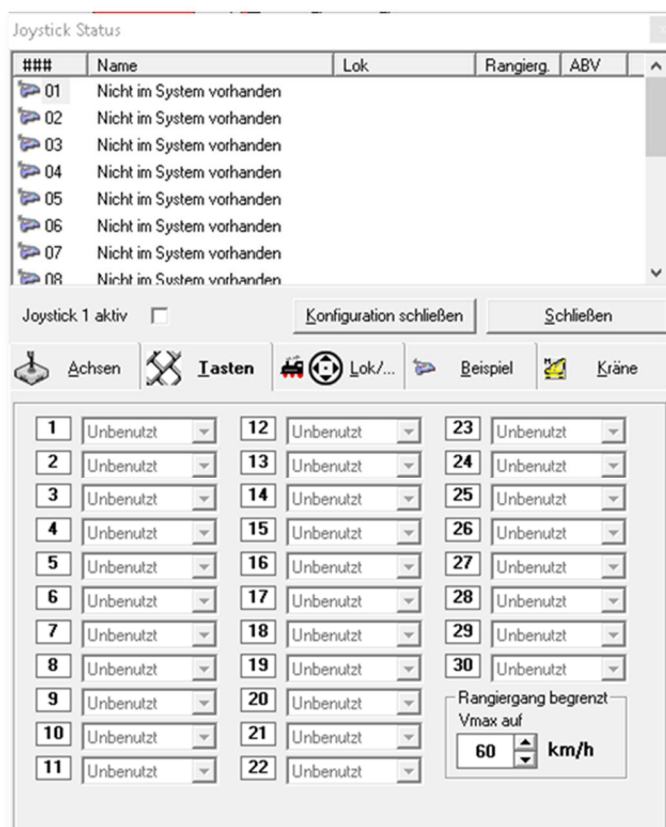


Fig. 14.101 The index card for button configuration.



14.22.3 Joystick control of your locomotives – Index card Loc/...

On this index card you can select, which axis should be used to navigate through the locomotive selection or emergency stop window.

You can also select if a locomotive control shall be opened whenever you select a locomotive to be controlled by joystick. It is also possible to enable/disable the emergency window control using the joystick. If the joystick emergency control is enabled, you can select one of the options in the emergency stop window using the defined axes and confirm your selection with any joystick button.

Further you can assign also functions to the Point-View-Buttons (Cross-Key).

Afterwards you should activate the Joystick by checking "Joystick x active".

Now you can reduce the window's size with the button '**Close configuration**' and press '**Close**' to return to the main program.

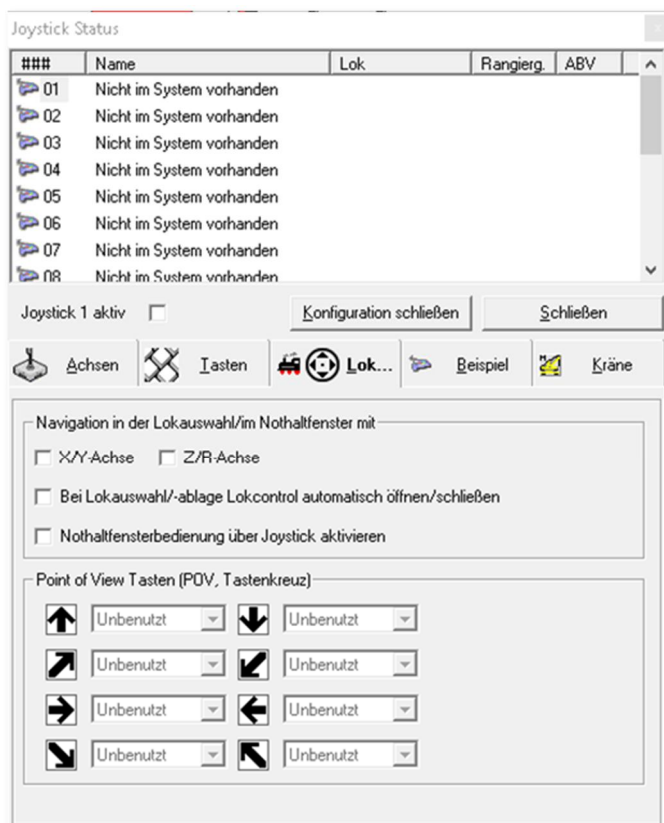


Fig. 14.102 configuring the navigation and additional settings



14.22.4 Joystick control of your cranes – Index card Cranes

On this index card you can assign your several joystick axes to up to four crane axes. The numbering of axes is listed in the right part of the index card for some common cranes.

The example configuration is shown for a Märklin 46715.

Please remember when assigning joystick axes to the several crane axes to be sure to choose different ones.

For most cranes you need a joystick with two axes.

Now you can reduce the window's size with the button '**Close configuration**' and press '**Close**' to return to the main program.

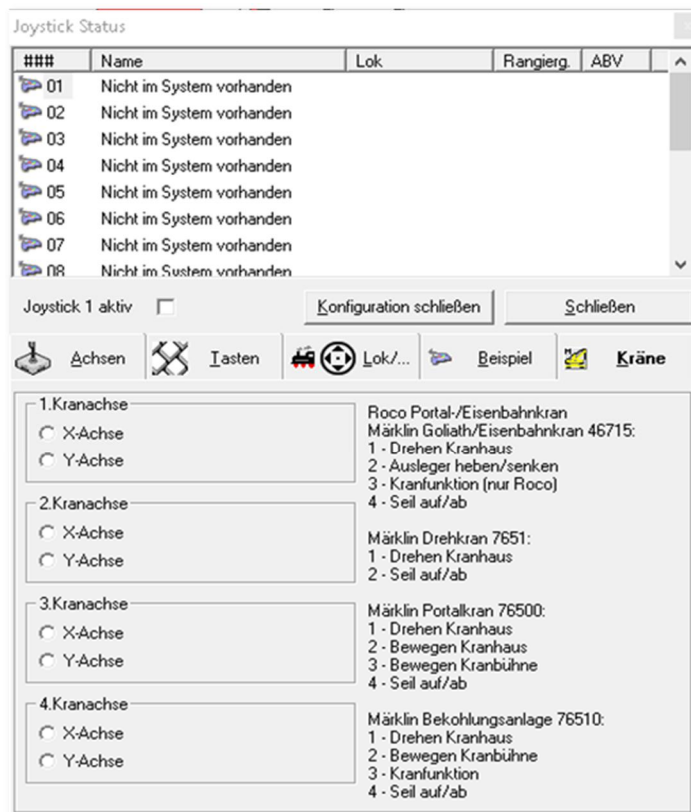


Fig. 14.103 The crane configuration dialogue.

14.22.5 Controlling a locomotive/crane with your joystick

After finishing the joystick's configuration, you can start to use the joystick in the main program. First of all, press the button, which you have assigned to the function "Loc selection".

A window will appear where you can select the locomotive to be controlled by the joystick. The window lists all locomotives and cranes available within your vehicle database (only vehicles set to "On Layout"). The current selection has a green frame and is shown on the bottom of this window (we know some users who placed the selection window on a second screen which can be seen from any place of your layout).

Below the picture of the locomotive you can also see its digital address and its class. You can navigate through the window using the configured joystick axes and confirm your selection with any of the joystick's buttons or using the mouse.

Now you can control the locomotive or crane on your model railroad layout using the joystick or gamepad.



If you have selected, the automatic opening of the locomotive/crane control within the system settings index card "Locomotives" the according control will open and your joystick control will be indicated by the coloured speed dial/slider.

The colour of the speed dial also indicates if you used the locomotive in shunting or normal operation. Shunting operation means, that your locomotives speed range will be limited to the maximum speed defined in the joystick configuration. You can switch between shunting and normal operation by assigning the shunting mode to one of the joystick's buttons.



For speed changes of your locomotive you have to press **always** the button "Train driver", all other "speed inputs" will be ignored and the locomotive will continue driving with the last used speed.

14.22.6 Further commands using the joystick status/configuration window

If your joystick only has few buttons, you can also (de-)activate the shunting mode and/or ABV-mode by using the context menu in the joystick configuration/status window. Just select the joystick in the list and press the right mouse button.

With "ABV on/off" option you can select whether the locomotive is controlled under consideration of the acceleration/deceleration properties set in the vehicle database or directly with any acceleration/deceleration-ramps. If "ABV off" is activated this will be indicated by colouring the speed display of the locomotive control in red.

For operation with children etc. you may prefer not to assign the "Loc selection" to any of the joystick buttons, because you want to decide which locomotive is controlled by the kids. For this purpose, you can also open the locomotive selection using the context menu and then selecting a locomotive in the window with your mouse. The selection can be confirmed with a double click.

14.23 Controlling Win-Digipet using a mobile device

Basic functions of **Win-Digipet** can also be controlled by a remote mobile device like a smartphone, tablet or notebook. On these devices you can start an application (app) and establish a Wi-Fi-connection to your **Win-Digipet** PC.

Using these apps, you can execute routes and tours, control locomotives/trains, switch solenoid devices and monitor the state of your feedback contacts.

The required apps for the several operation systems have been developed and programmed by Markus Herzog. They can be used free of cost when using with **Win-Digipet**. They are not part of **Win-Digipet**, but **Win-Digipet** provides the required network interface (not in the Small version).



The **Win-Digipet** hotline cannot help in case of problems related to the apps or the connection of the apps to **Win-Digipet**.



Due the large number of different available devices and operation system versions, nobody can give you a function guarantee for the mobile applications.

Just give it a try on your own mobile device.




If you cannot establish a connection with your device leave a message in the sub forum **Win-Digipet Mobile** of the **Win-Digipet** forum. But there is no guarantee, that the apps will be adapted to specific device or system.

14.23.1 Requirements for the usage of Win-Digipet mobile

If you want to use the **Win-Digipet** mobile apps these requirements have to be fulfilled:

-  Your model railroad PC is Wi-Fi enabled (e.g. using a Wi-Fi-USB stick) or it has to be connected to network, which provides a Wi-Fi access as your model railroad layout,
-  Your mobile device is also Wi-Fi enabled,

The mobile device has to be operated using one of the following operation systems:


-  Windows-Mobile
-  Android
-  Apple iOS

Of course you need to install the according app on your device. The apps can be obtained from the normal operation system distribution sources (e.g. Apple AppStore, Google PlayStore or the Windows Market Place). Further information regarding download sources etc. can be found in the sub forum **Win-Digipet Mobile** of the **Win-Digipet** forum.



14.23.2 Establishing a connection between a smart phone and Win-Digipet

In this subchapter we use an Android smart phone as example for explain the connection procedure.

First of all, you need to enable the network module in **Win-Digipet** on your PC. Therefor click on the button  in the toolbar of **Win-Digipet**.

A small window called "**Win-Digipet Remote**" will be opened. This window lists all IP addresses of your model railroad PC. The port address of 15209 should not be changed.

When clicking on the red button "Network module inactive" the colour of the button will be switched to green and the network module will be enabled.

After you have installed and started the app on your mobile device you need to enter the IP address of your model railroad PC and press '**Verbinden**' (resp. '**Connect**') afterwards. In our example the PC has three IP address. If you are not sure which one to use, you can try one after the other (tip: the correct one is in most cases the ip address, which is for the first three numbers identical to the IP address shown for the device at the bottom of the screen in the app).

After the connection has been established the IP address will also be shown in the "**Win-Digipet remote**" window. You see here also which locomotive is currently controlled by the remote device.

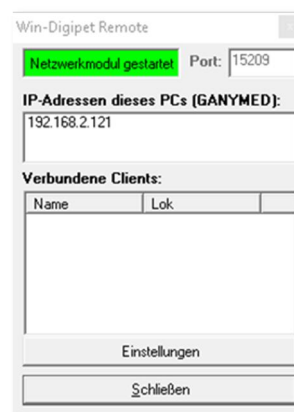


Fig. 14.104 The network module.

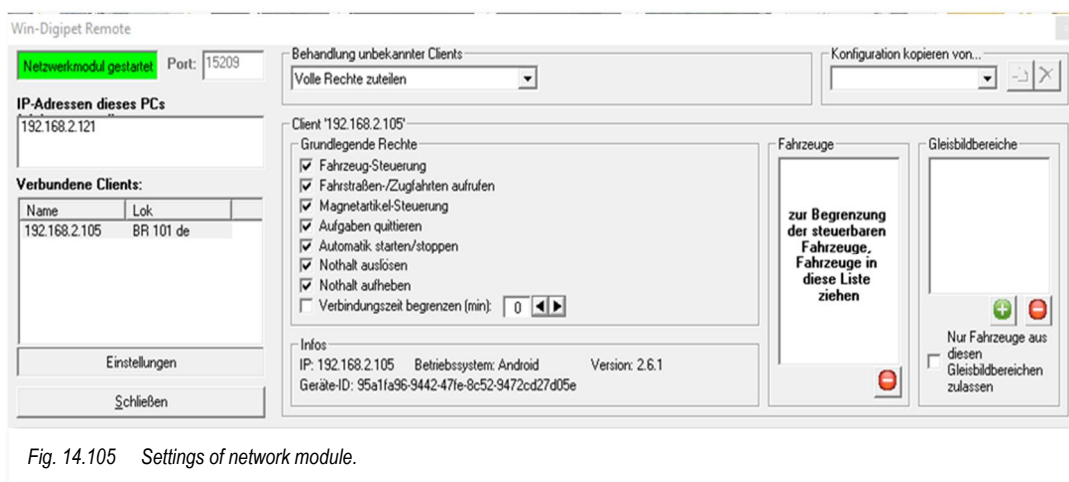


Fig. 14.105 Settings of network module.

Via the button „Settings“ you can assign or withdraw different possibilities to control the layout to each mobile client. For example, one mobile guest can control just a certain locomotive, whereas another guest can control just a certain part of the layout.



The usage of the apps itself is rather self-explanatory. If you have questions visit the support forum.

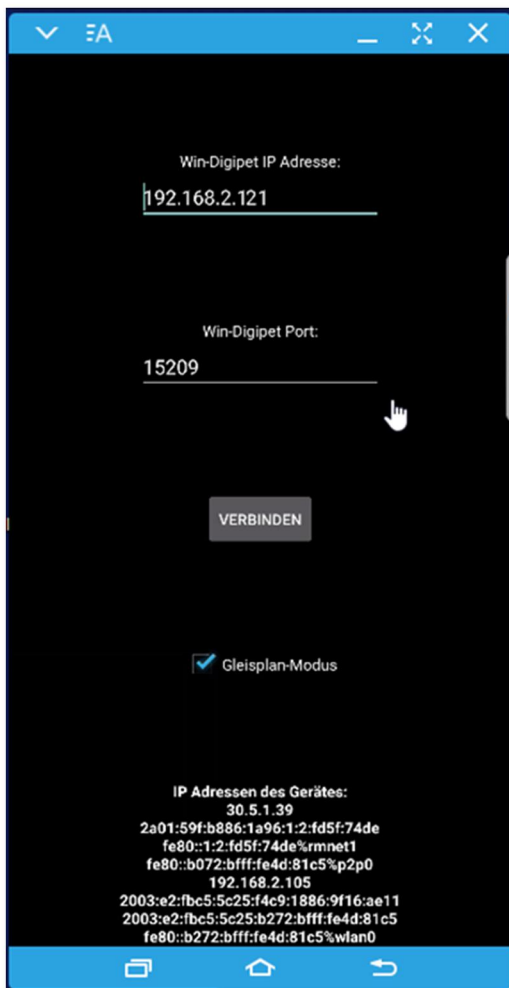


Fig. 14.107 IP address configuration within the app.

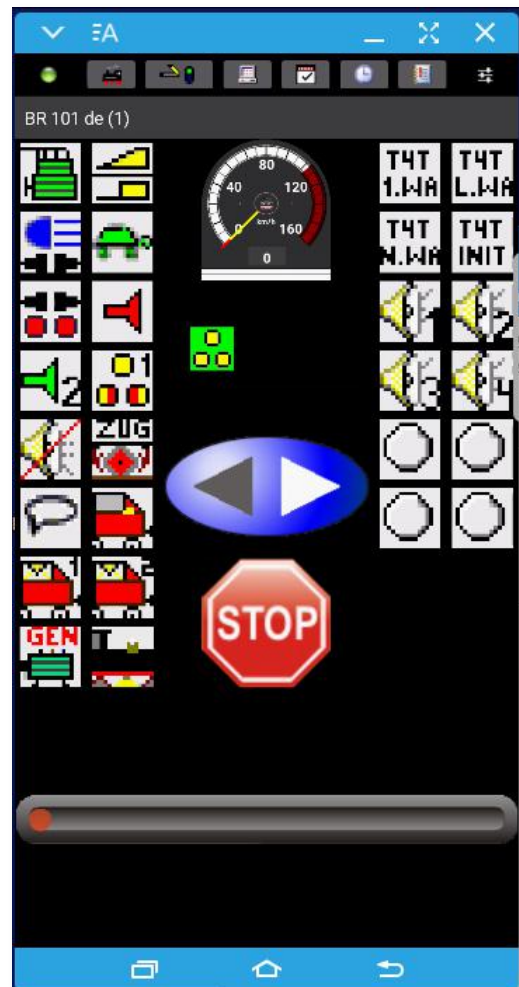



Fig. 14.107 The loco control in the mobile app.



14.24 Closing WIN-DIGIPET

If you want to leave the program, you can use the button  in the toolbar of the main program.

Your data will be saved when leaving **WIN-DIGIPET** and automatically backedup (if activated within the system settings).



To prevent data loss, you should always use the backup function, but it is enough to use this only if you have really changed data. According to section **3.12.1** you should enable the backup question at the end of the program to decide every time you leave the program if you want to perform a backup or not.

14.25 Keyboard and mouse shortcuts in WIN-DIGIPET



In the main program of **Win-Digipet** you can find a list of short-cuts within the <Help> menu.

On the next page you can see the most important short-cuts for printout.



Keyboard command and key combinations within the **main program** of WIN-DIGIPET

Pressing the function key...

- F1 calls the help function
- F2 minimizes all loc controls and arranges them at the top
- F3 minimizes all loc controls
- F4 closes all loc controls
- F5 increases the zoom factor (Zoom+)
- F6 decreases the zoom factor (Zoom-)
- F7 calls the train inspector
- F8 stops all locomotive(s) or (re-)accelerates them
- F9 will result in an emergency stop
- F11 jumps between program windows

Context menu with commands for start/dest. function, Blocking of routes/tracks, Changing the loc colors

- right mouse button on any train number display




For changing between

- RED **08** and BLACK **08** ALT + right mouse button
- BLUE **21** and BLACK **21** ALT- and Shift + right mouse button
- deletes locomotive number (also in the locomotive monitor) Shift+ right mouse button

The key/key combination **has to** be pressed always

Locking of tracks/routes

Click on an empty train number display with Shift + right mouse button an, then...

- after the first click the train number display will switch to RED with white X 
- after the second click the train number display will switch to RED with white Z 
- after the third click the train number display will be empty again 

Start-/Destination function for routes and tours

- click with middle mouse button on the **start** and on the **destination**.

Start-/Destination function for tour navigator

- ALT + middle mouse button on the **start** train number display
- ALT + middle mouse button on the **destination** train number display

Semi-Automatic route recording

- click with Shift+left mouse button on the **start** and on the **destination**.

In an active locomotive control...

- the UP- or RIGHT-arrow increases the speed
- the DOWN- or LEFT-arrow decreases the speed
- the key END accelerates to maximum speed
- the key HOME or SPACE BAR stops the locomotive immediately
- SHIFT + the UP- or RIGHT-arrow increases the speed by one decoder speed step
- SHIFT + the DOWN- or LEFT-arrow decreases the speed by one decoder speed step
- SHIFT+ the key END accelerates to half of maximum speed
- SHIFT + the key HOME or SPACE BAR sets the locomotive to decoder speed step 1
- the key „D“ or „R“ force a change of direction
- the key „F“ switches F0 on/off
- the key „S“ switches the locomotive sound on/off
- the key „1“ to „8“ switch F1-F8 on/off

If you click on a locomotive within the locomotive bar, a locomotive control or the locomotive monitor with on of the following key-combinations

- middle mouse button the train number display containing the locomotive will be colored **red**
- Shift+middle mouse button the train number display containing the locomotive will be colored **red** and the track diagram scrolled if necessary



14.26 Speed behaviour of tours

The following drawing is to show the speed behaviour of **WinDigipet** at the transfer between routes within tours and tour automatic, respectively. The speed behaviour has been adapted in this version of **WinDigipet**.

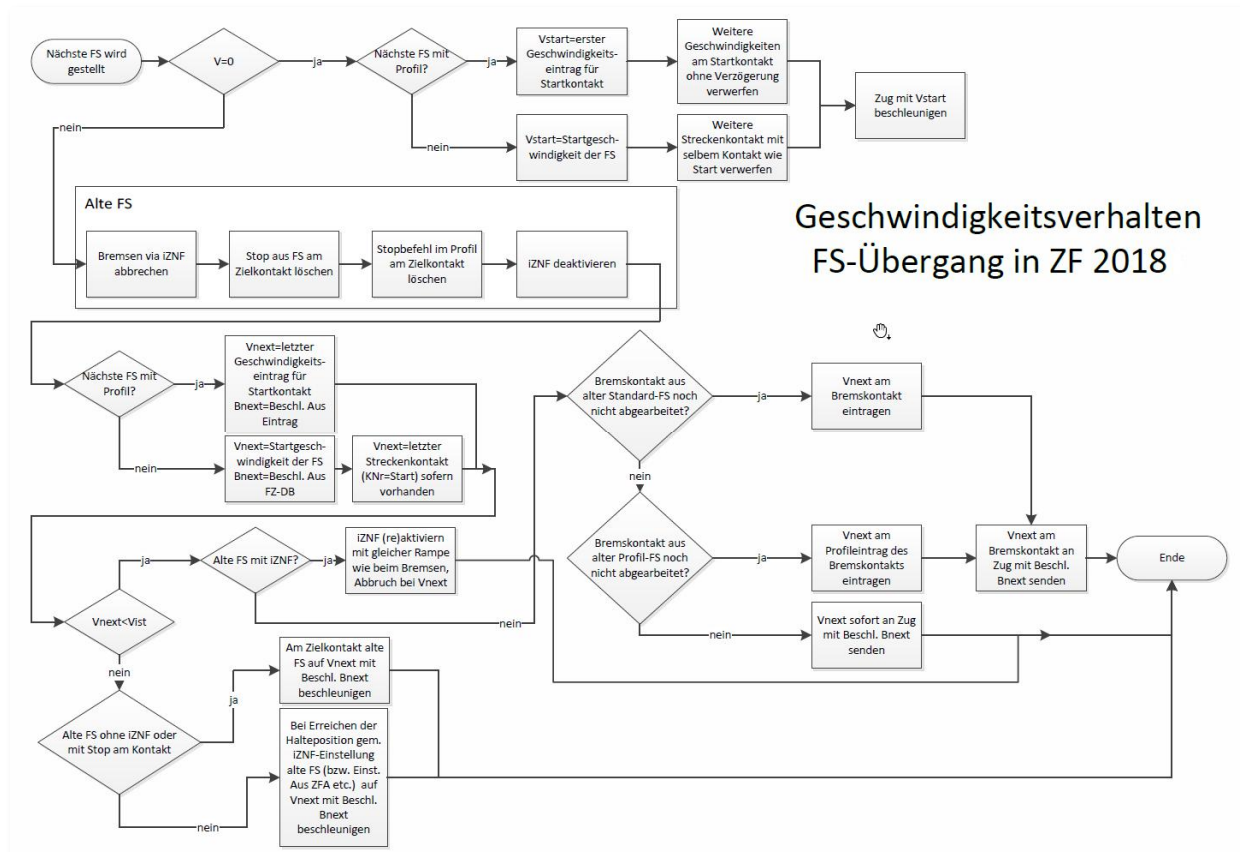


Fig. 14.108 Speed behaviour of tours.



14.27 Abbreviations in WIN-DIGIPET

The most common abbreviations in WIN-DIGIPET are (also German abbreviations because they are sometimes used for filenames)...

CU	=	Märklin Central Unit
DS	=	Turntable
ECoS	=	ESU ECoS
FB/RMK	=	Feedback contact
FB/RM-Module	=	Feedback module
Fzg-DB	=	Locomotive-database
GB	=	Track diagram
HSI	=	LDT High Speed Interface
IB	=	Intellibox
iDS	=	intelligent turntable
iZNF resp. iTND	=	intelligent train number display
MA	=	Solenoid device
PDB	=	Profile database
R/FS	=	Route
Stw	=	Dispatcher
Sys-E	=	System settings
ZF resp.	=	Tour
ZFA resp. TA	=	Tour automatic
ZNF resp. TND	=	Train number display
ZÜ	=	Train inspector

