Central Station

märklín digital

Controlling
Switching
Running

Central Station

Stylus

Switch to keyboard

Switch to layout

Switch to memory

Switch to setup

Switch to control

Function Buttons 0 - 7

Function Symbols 8 - 15

Locomotive set up for a shuttle train inactive / active

Changing, Storing of Data

Locomotive Menu

Control Knob 1

Function Buttons 0 - 7

Function Symbols 8 - 15

Locomotive Menu

Control Knob 2

Stop - Emergency Stop

Direction Indicator

Locomotive Image and Name Locomotive Menu

Locomotive Image and Name Locomotive Menu

Direction Indicator

Underside of Unit

Booster Connections 6017 / 6015

S 88 Feedback Module Connections

Front of Unit

Mobile Station Connections

Back of Unit

Locomotive Card

Stylus

Active Speaker or Headphones

Network PC

Output

Input

opt.

Keyboard / Mouse or USB Stick

opt.

Booster 60173

Programming Track

Track

Transformer

Locomotive Card

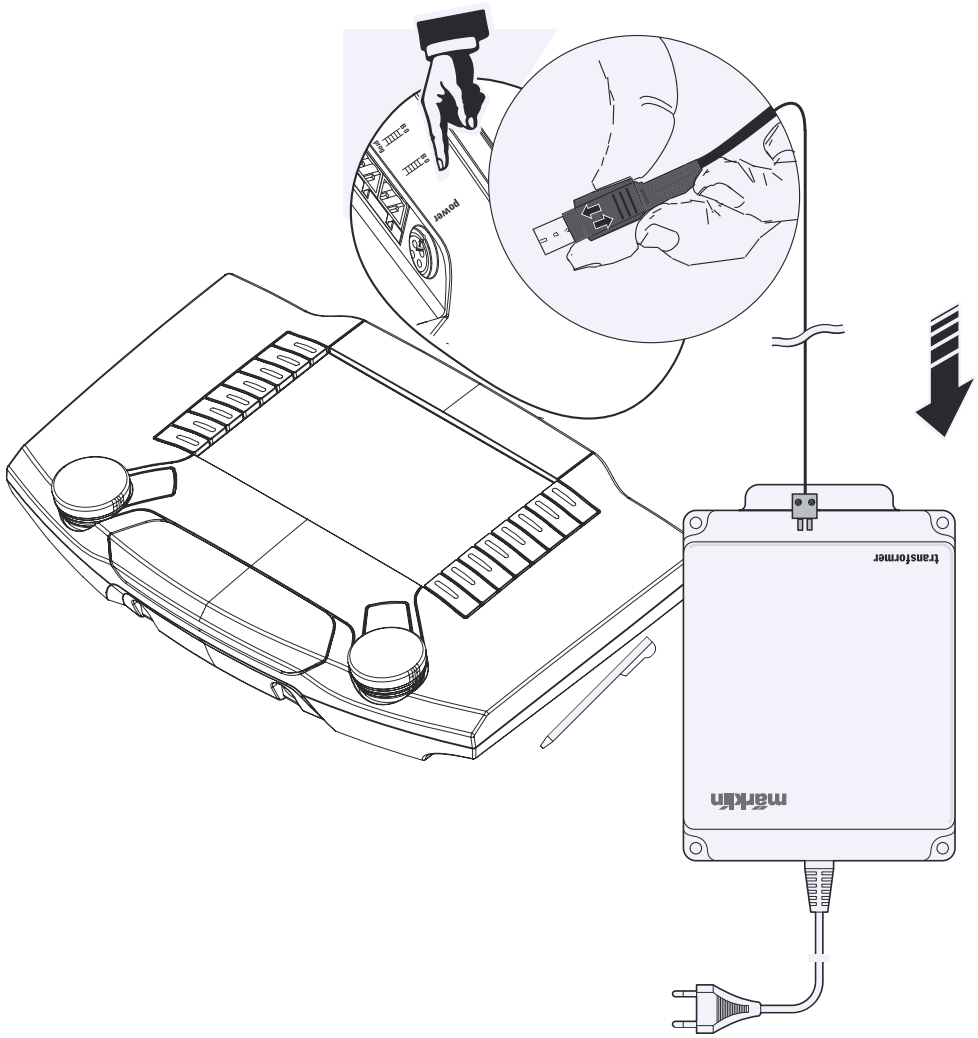
Getting Set Up and Started

Preparations

The following components are required to get started:
60 VA transformer, connecting cable between the transformer and the Central Station, connecting wires between the Central Station and the track layout, rolling stock and/or solenoid accessories.

Connect the parts as shown in the following illustrations.

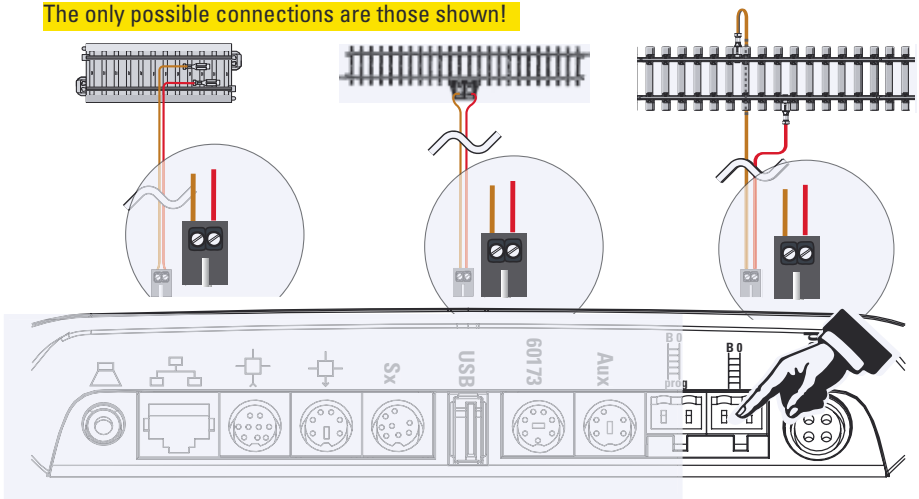
Power Connections to the Central Station



Connections to the Layout

Connections to C Track or Connections to K Track or Connections to 1 Gauge

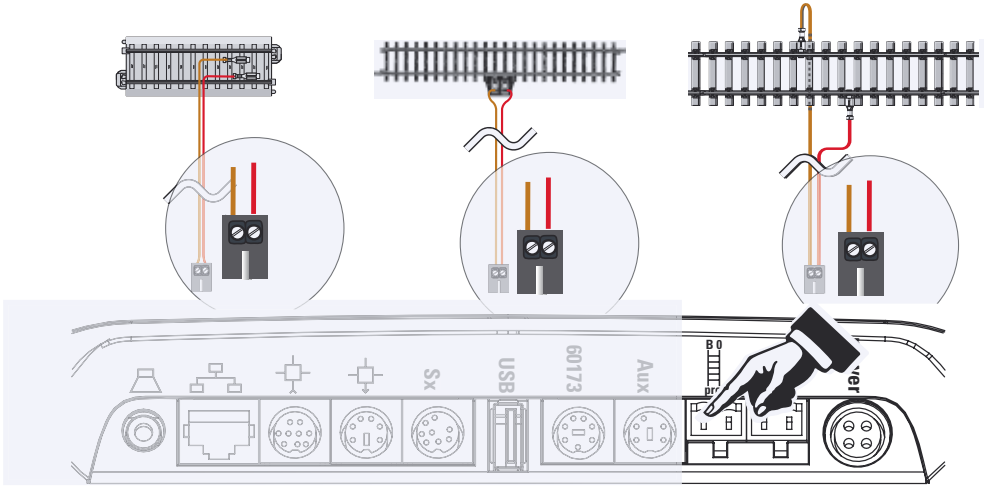
The only possible connections are those shown!



Connections to the Programming Track

The programming track may not have any direct electrical contact with the layout, nor can it have additional users (examples: lighting, turnout decoders, light track bumper, etc.) connected to it.
The programming track is required to read out, program, and process locomotive decoders.

C Track Programming Track or K Track Programming Track or 1 Gauge Programming Track

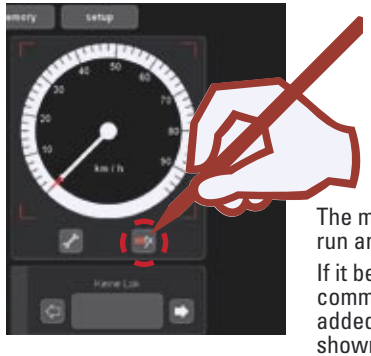


Getting Set Up and Started

Selecting and Running a Locomotive

Registering mfx locomotive

mfx locomotive recognized



Data from the mfx locomotive completely read in.

Confirm

The mfx locomotive is ready to run and can already be operated.

If it becomes necessary, we recommend that the locomotive be added to in the locomotive list as shown starting on Page 41.

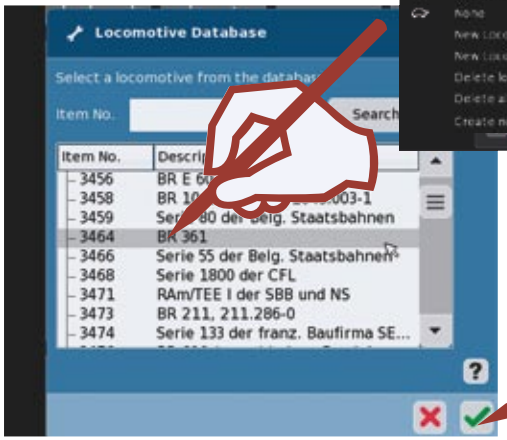
Selecting a Locomotive

You can start immediately if one of these locomotives is part of your roster:

(101 047-9 with address 1, Big Boy with address 40) then continue as described nearby under „Running a Locomotive“.

Or

Select a controller and continue with the following steps.

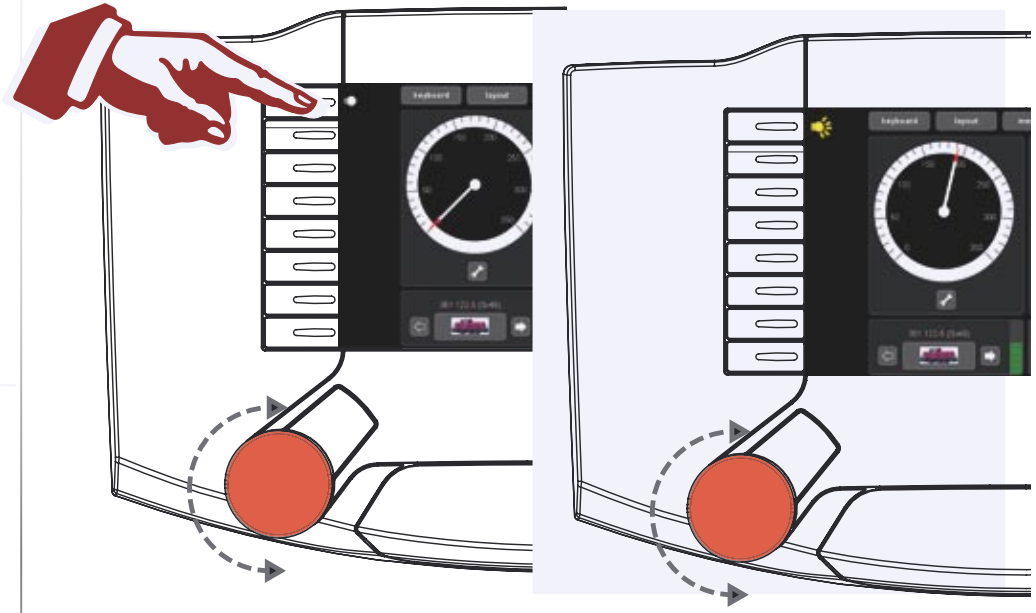


Select one of your locomotives in the database.

This only works if the settings done at the factory for the locomotive have not been changed.

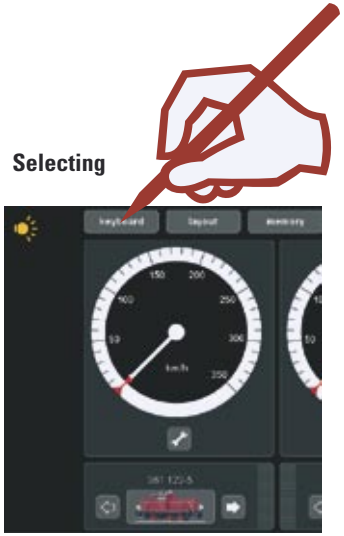
Confirm selection.

Running a Locomotive



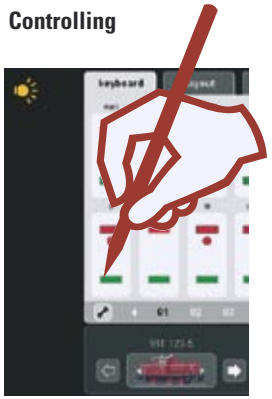
Selecting and Controlling Solenoid Accessories

Selecting



All accessory addresses are available without prior programming. These addresses are arranged in ascending order and can be confirmed with the standard keyboard.

Controlling



Introduction

The fourth generation of Märklin multi-train control systems is now ready with this „Märklin Digital“. The most important component is the Central Station, which is responsible for the generation of the correct control data, which carries out the coordination of the components connected to it, and which also offers an easy-to-use manageable operating surface. Trouble-free operation with this complex system is only ensured when you use only tested Märklin system components. Märklin's manufacturer's warranty therefore becomes invalid if you use any other make of product with the Central Station. The operator is thereby responsible for damages arising from the use of other makes of products.

Adhere to the techniques and principles presented in this instruction manual when connecting your layout to the Central Station. The use of other circuits can easily lead to damage to the electronic components. It is therefore best if you refrain from „expensive“ experiments. The Central Station is not a toy. Make sure that this device is also used by children only as a controller for a model railroad.

We hope you will have a lot of enjoyment using the Central Station with your model railroad layout.

With this Central Station you have a device that offers you extensive possibilities for controlling your model railroad. We recommend that you work through the examples presented in this handbook. You will thereby have a much greater level of reliability in using the Central Station.

Your Märklin Service Team

Notes for the Central Station

Do not expose the Central Station to moisture.

This Märklin product is not watertight. Malfunctions can occur if there is high humidity or if moisture gets inside the housing. The corrosion of the internal mechanism and electronics can lead to irreparable damages.

Do not expose the Central Station to shock.

If this controller is exposed to blows or strong vibrations, the result can be continuous malfunctions.

Do not expose the Central Station to extremes of temperature.

Sudden changes in temperature can cause moisture to condense inside the housing. In order to avoid condensation buildup, you should keep the Central Station protected andl you should protect it during transport before you change to a location with much higher or lower temperature.

Do not use force when operating the buttons and control knobs on the Central Station.

Do not use force when operating the buttons and control knobs on the Central Station.

Safekeeping

Do not keep the Central Station in locations where the following unfavorable conditions prevail:

High humidity or bad ventilation.

Temperatures over 50° Centigrade / 122° Fahrenheit (such temperatures can occur for example in direct sunlight) or under -10° Centigrade / 14° Fahrenheit.

Humidity over 60%.

The humidity must not be greater then that for Central Europe.

Cleaning

Remove lint and dust with a soft, dry or slightly moist cloth. Never use alcohol, thinners or other strong cleansers.

Technical Specifications

Power Output When Used with the 60052/60055 Transformer

Input voltage: 16 volts AC

Load: Train operating track 2.4 amps

Programming track 1.0 amps

Maximum 3.0 amps

Please take note of the specifications in the Help function for this unit so that you can make full use of the total possible load.

Display resolution: 800 x 480 Pixels with 16 bit color depth

Possible Connections

Transformer

Programming track

Mobile Station

Feeder track

Network: Ethernet

USB: for a mouse, keyboard, and/or memory stick

Booster: 6015, 6017, or 60173

Feedback Module: S88

Aux: currently not used

Output: connections to a Central Station (60213) or the 60125 Terminal

Input: Connections for a Central Station (60213) as an Auxiliary or Second Unit

SX-Bus: currently not used

Headphones or active speakers. (Currently not used)

Software:

Parts of the software for the Central Station are subject to the software license GPL.

You can get the source code for these software parts at no charge from Märklin, either as a CD or by downloading a CD image from the Märklin home page.

More complete and updated information can be found on our Internet pages „www.maerklin.com“

If an error or defect should occur, do not open the Central Station. Send the defective unit to the Märklin Service Department or to one of our service stations listed on our Internet page.

Opening this unit cancels any and all warranty claims. The individual and/or firm or customer responsible for opening the Central Station bears the burden of proof and demonstration that opening the unit did not cause the defect that has occurred and/or damages.

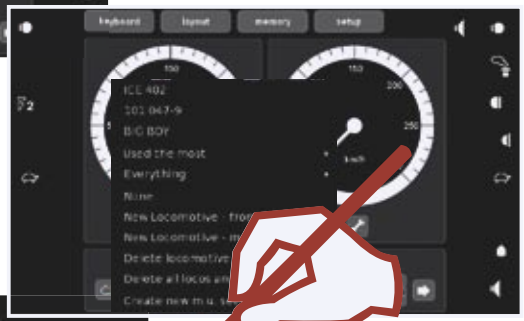
Control

Running • Entering • Managing

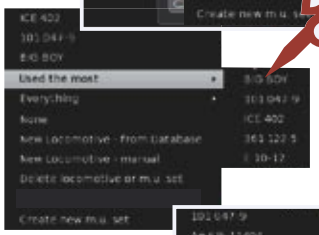
Locomotives and powered rail cars can be entered, run, and managed with the Central Control.

Selecting and Running

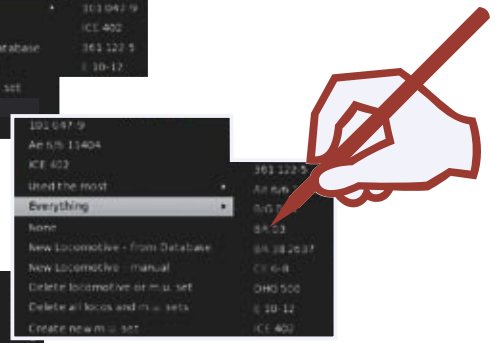
The last three locomotives are available for direct selection or you can expand the selection.



The most frequently used locomotives are available for you to select in this list.



All of the locomotives taken by you into the locomotive list are in this list for you to select.



Now you can run the locomotive you have selected with the control knob or by typing in the desired speed on the screen.

The functions can be activated by pressing on the button or by typing in the symbol.

Locomotive with an mfx Decoder

Registering and/or taking into the locomotive list.

Place your locomotive with an mfx decoder on the programming track. This can also be done while the layout is in operation. The locomotive registers itself as shown in the following illustrations. The registration can be done with an icon and locomotive name as as well as without. Additional processing as described starting on Page 42 will be necessary depending on the registration.

mfx locomotive recognized.

Data from the mfx locomotive completely read in.

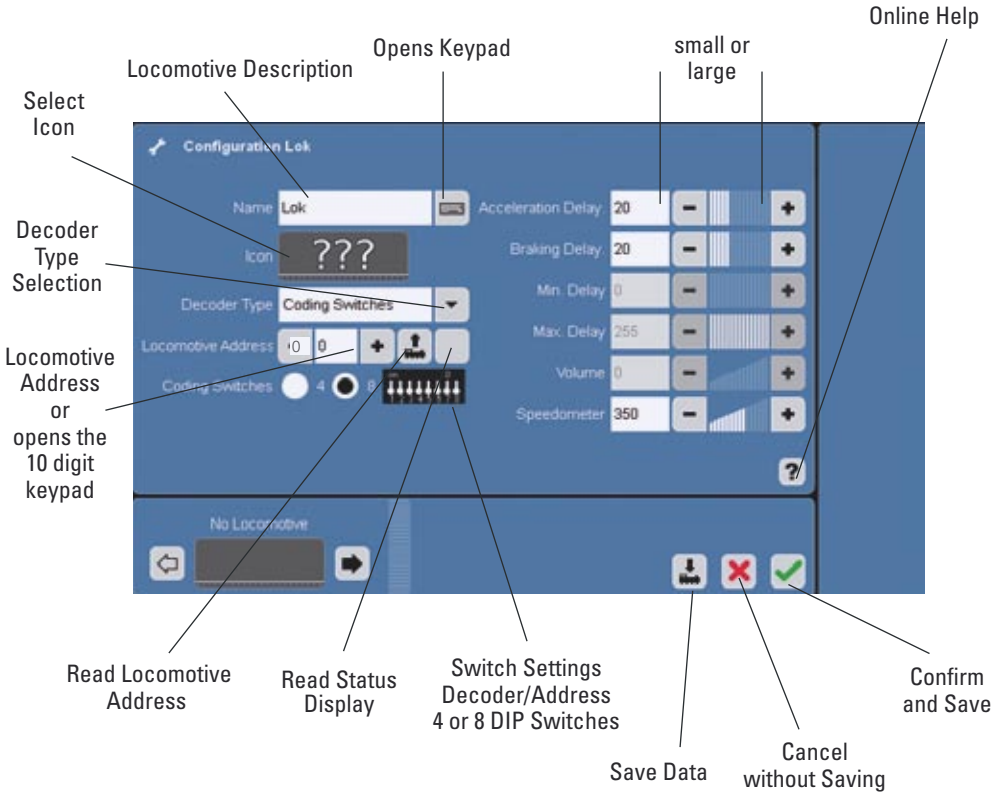
Confirm.

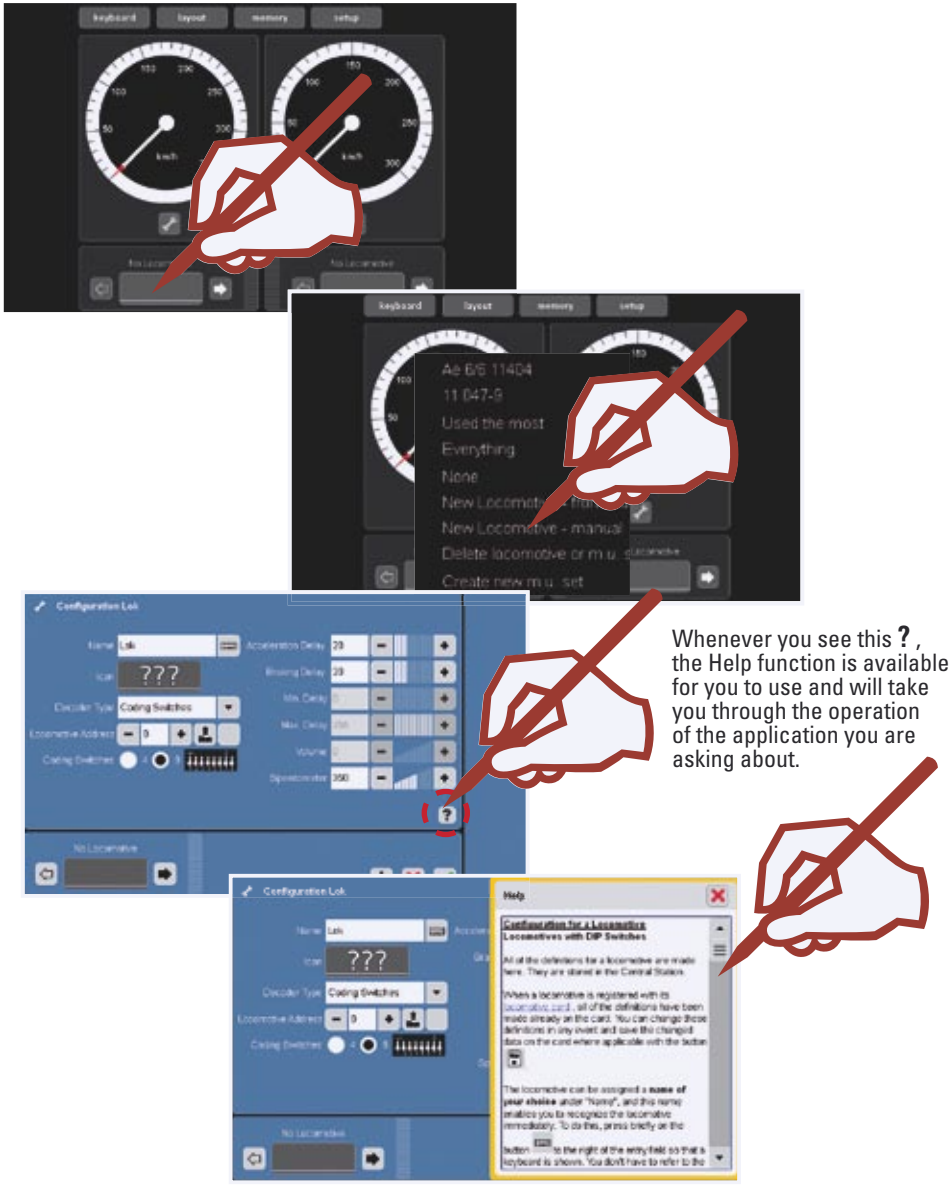
The mfx locomotive is ready to run and can already be operated.

If it becomes necessary, we recommend that the locomotive be added to in the locomotive list as shown starting on Page 41.

Entering:

New locomotive manually: Introduction and Preparation ⇨ Page 38
Locomotive with DIP Switches ⇨ Page 39
Programmable Locomotive ⇨ Page 40





Whenever you see this **?**, the Help function is available for you to use and will take you through the operation of the application you are asking about.

Enter locomotive name: ex. Class 03.

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3

Select icon.

Select an icon that goes with your locomotive.

Confirm selection.

With DIP Switches

Programmable locomotive ⇨ Page 40

If the locomotive is standing on the **programming track,** you can read out the address for it.

or

enter a decoder address.

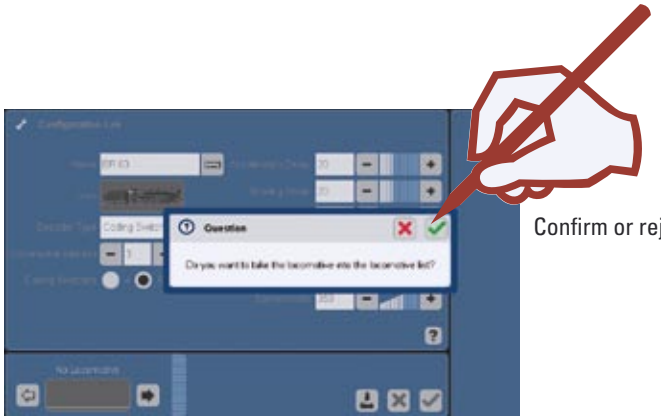
←

3

Check the settings for the decoder.

You can do other settings that influence the locomotive's running characteristics when controlled with the Central Station. The settings can be done in the fields with „-" or „+". In our example: acceleration and braking delay (these settings affect the Central Station's controllers and are not supported by this type of decoder). The speedometer setting is for the display on the Central Station's screen and has no influence on the maximum speed of the locomotive.

If all of the desired settings have been done, then confirm and save.



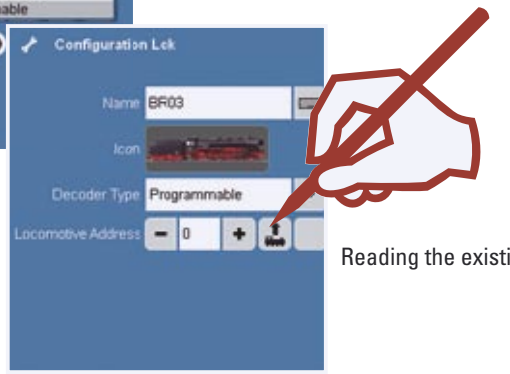
Confirm or reject.

You can find additional possible settings in the section „Processing and Changing a Locomotive“. Page 42.

Programmable Locomotive: Read or enter.

Place the locomotive on the programming track!

Selecting the decoder type.

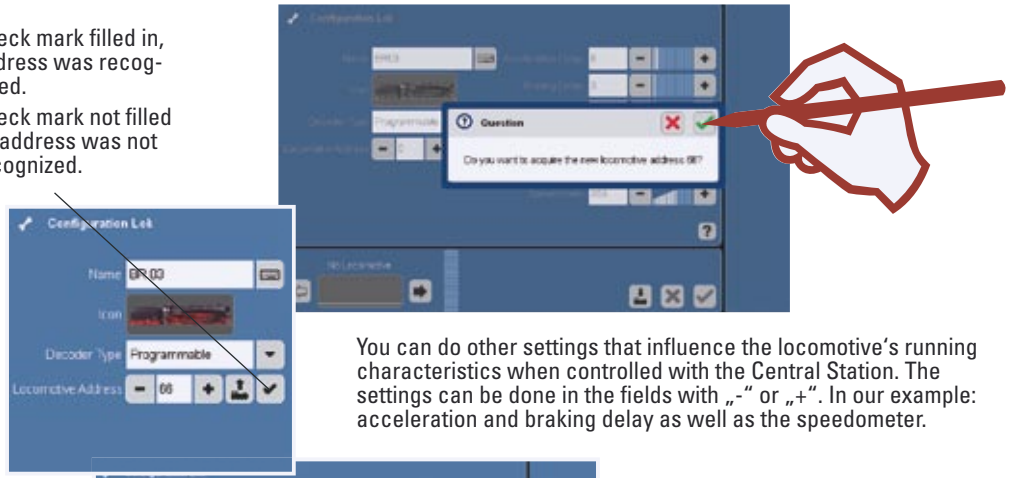


Reading the existing decoder address.

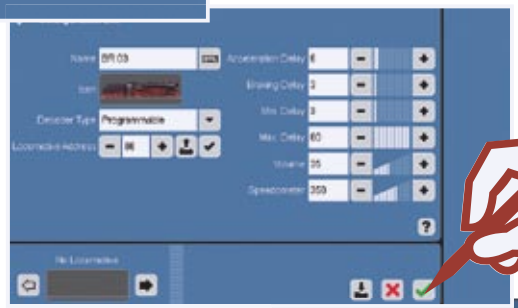
Confirm.

Check mark filled in, address was recognized.

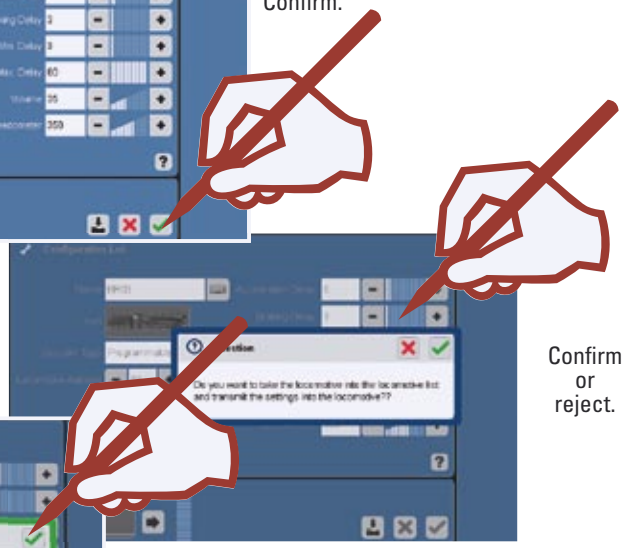
Check mark not filled in, address was not recognized.



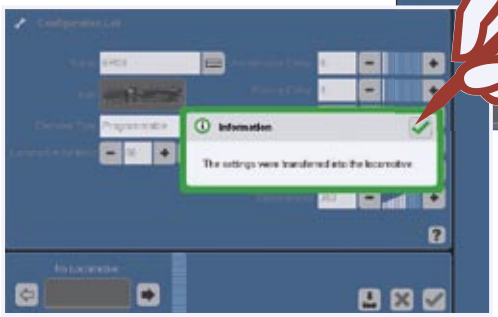
You can do other settings that influence the locomotive's running characteristics when controlled with the Central Station. The settings can be done in the fields with „-“ or „+“. In our example: acceleration and braking delay as well as the speedometer.



Confirm.



Confirm or reject.



The locomotive is now entered. It can be added to or changed as shown starting on Page 42.

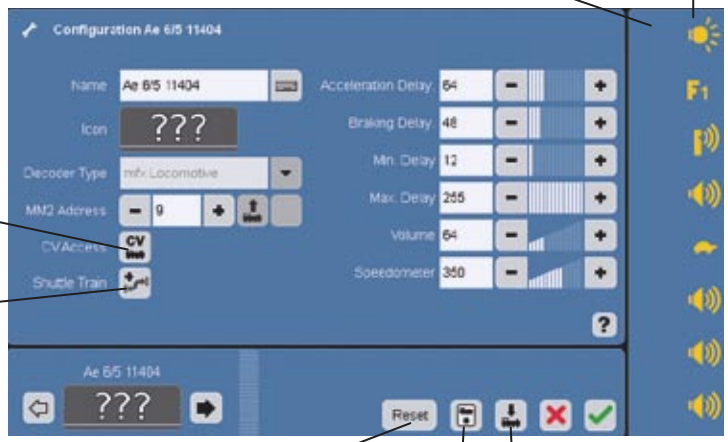
Configuring a Locomotive

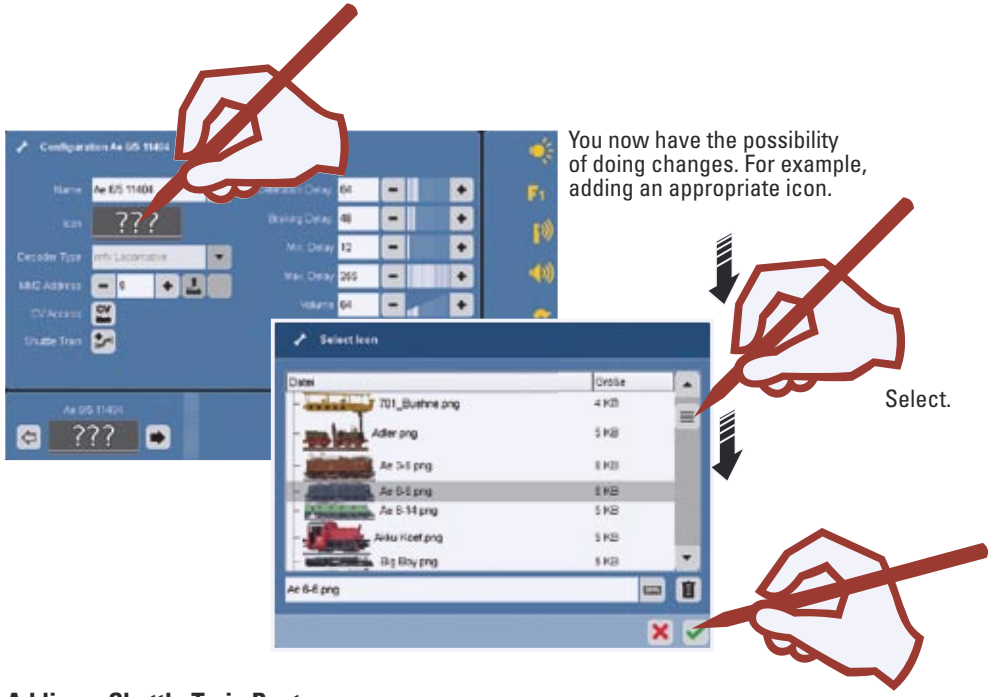
Adding to / changing symbols, functions, and settings. This function can be used for all types of decoders. However, only those settings and functions available on the computer can be processed. In the example of a locomotive with an mfx decoder we are showing you the multifaceted possibilities for these settings.

The locomotive to be processed should be called up on one of the two controllers. Then go with this locomotive to the configuration mode as shown here.

In the configuration mode there are additional icons available for the supplementary setup of the locomotive.

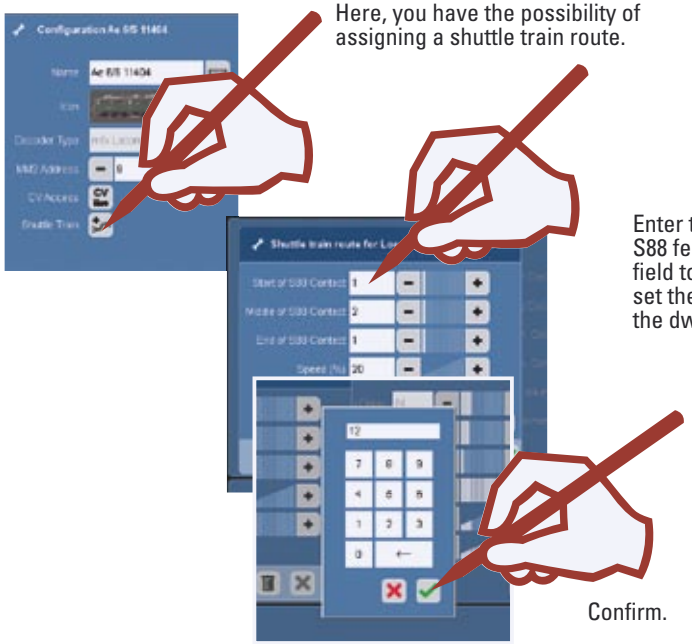
! Please note that not every locomotive decoder supports all functions and characteristics. Take a look at the instructions for your locomotive; there you'll find the appropriate information.





You now have the possibility of doing changes. For example, adding an appropriate icon.

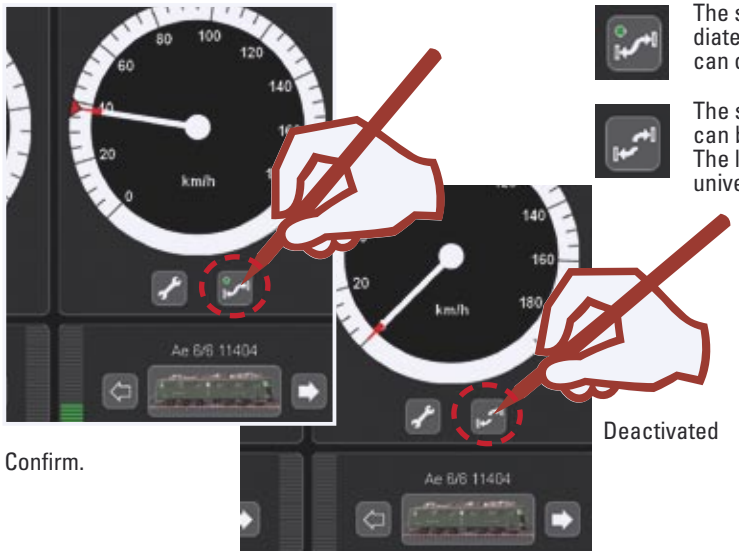
Adding a Shuttle Train Route



Here, you have the possibility of assigning a shuttle train route.

Enter the contact from the S88 feedback module in the field to which it belongs and set the maximum speed and the dwell time.

Deletion of the shuttle train route for this locomotive



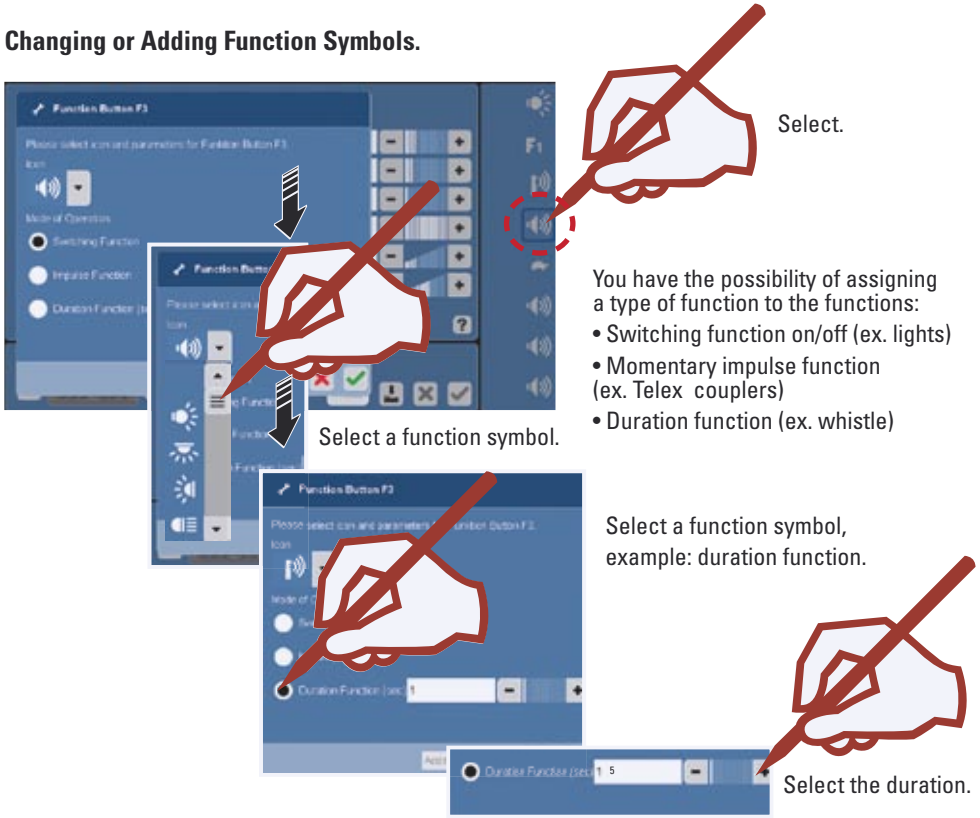
Confirm.

Deactivated

The shuttle train is now immediately active; the locomotive can only used for this now.

The shuttle train is set up and can be activated at anytime. The locomotive can be used universally.

Changing or Adding Function Symbols.



Select.

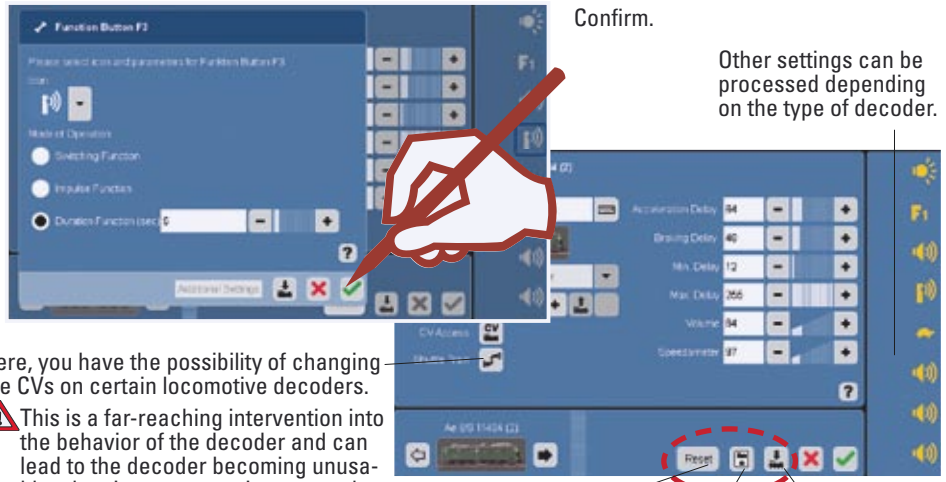
Select a function symbol.

Select a function symbol, example: duration function.

Select the duration.

You have the possibility of assigning a type of function to the functions:

- Switching function on/off (ex. lights)
- Momentary impulse function (ex. Telex couplers)
- Duration function (ex. whistle)



Confirm.

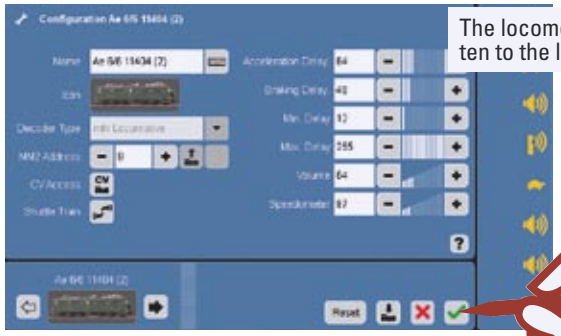
Other settings can be processed depending on the type of decoder.

Here, you have the possibility of changing the CVs on certain locomotive decoders.

⚠ This is a far-reaching intervention into the behavior of the decoder and can lead to the decoder becoming unusable when incorrect entries are made. Please use the instructions for your locomotive and our extensive help resources when doing this.

The locomotive is reset to factory default settings if this is supported by the decoder.

The locomotive data are temporarily saved without leaving the configuration mode.



The locomotive data are written to the locomotive card.

The data are transferred and the configuration mode is closed.

Confirm.

The data are transferred only for programmable or mfx decoders. Decoders with DIP switches are only taken into the locomotive list.

Confirm.

Now, the newly entered or processed locomotive is available for operation with the Central Station.

Important Note!

Carry out the function „Shutdown“ before turning the Central Station off, in order to ensure that all data are saved. If you suddenly turn the Central Station off, you may lose data.

Accept locomotive from locomotive card

You can accept locomotives from existing cards or write to a locomotive card.

Read:
Insert the locomotive card as shown into the card reader.
The data are taken into the locomotive list, and you can start.

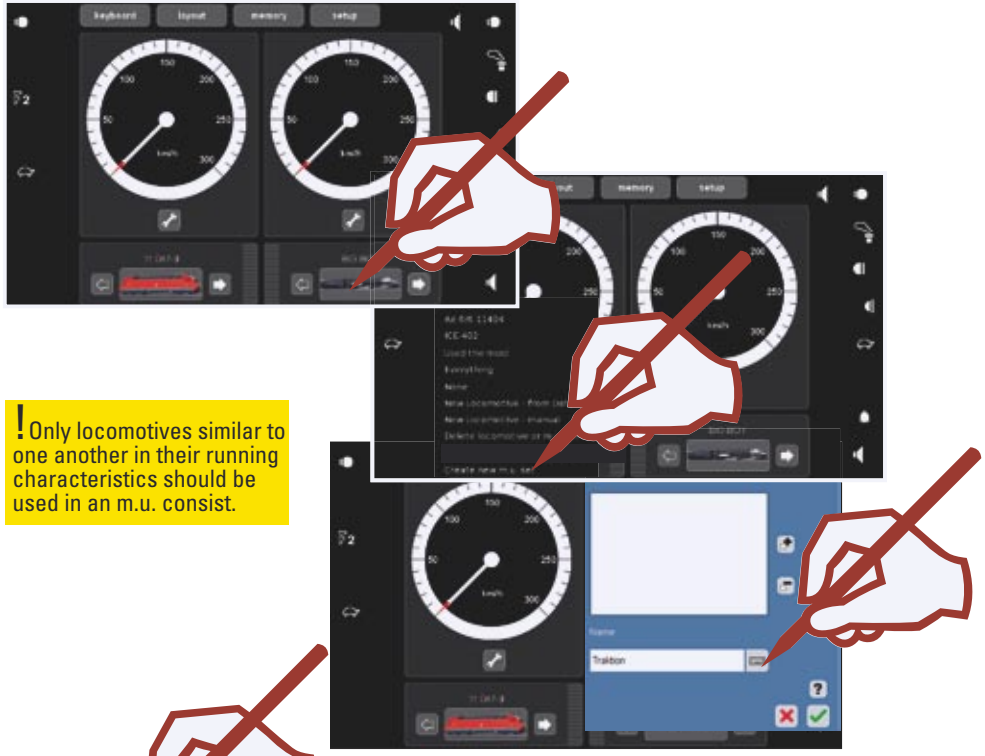
!Make sure that the chip on the card is facing down.

Write: (only in the configuration mode)
Insert the locomotive card as shown into the card reader.
Press the symbol. Locomotive data is written to the locomotive card.

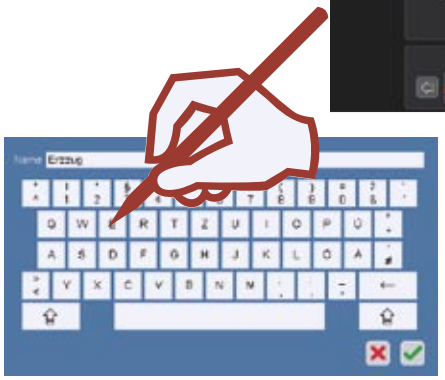
Locomotive data is being transferred to the locomotive card.

Entering an M.U. Consist

An m.u. (multiple unit) consist consists of at least 2 locomotives. You can however also have several locomotives in a consist. The number of locomotives is limited by the current draw for users in the power consumption area.



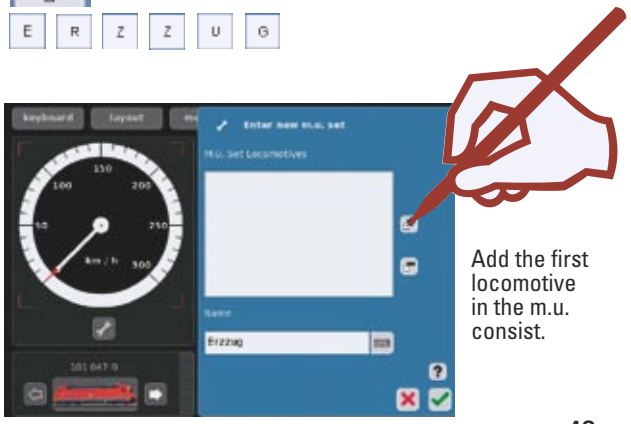
!Only locomotives similar to one another in their running characteristics should be used in an m.u. consist.



Delete existing text.

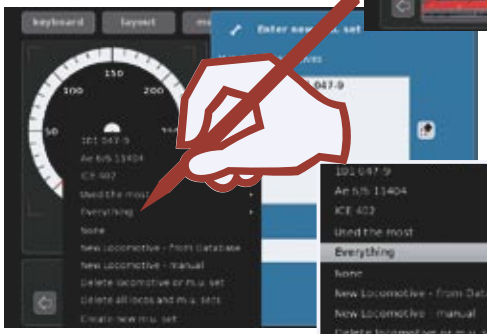
Enter new name, ex. „Ore Train“.

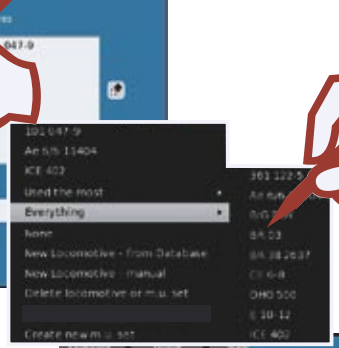
E R Z Z U G

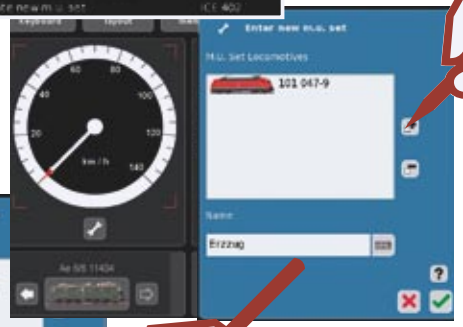


Add the first locomotive in the m.u. consist.

Go to the next locomotive.

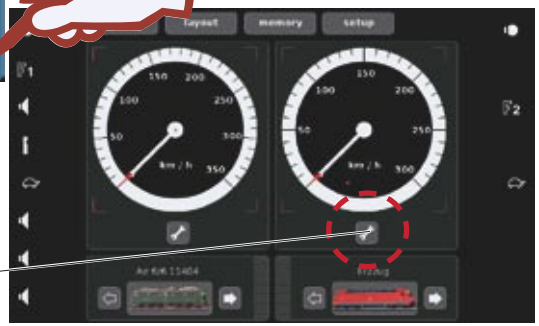






Add the locomotive to the m.u. consist.

Confirm entry.



The m.u. consist is now available for use. The 2nd controller can now be used for another locomotive or m.u. consist.

You can process the m.u. consist with this tool. Add or remove locomotives as in the 2nd step above.

Deleting a Locomotive or M.U. Consist

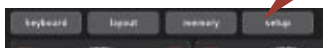
The locomotive or m.u. consist is removed from the locomotive list and is no longer available for use. It must be entered again.

If you have not carried out any kind of prior data backup, all of the data is lost and can only be generated again by entering and setting up the locomotives and m.u. consists all over again.

! Now and then you should generate a data backup in the menu „setup“. You should always do this data backup after changes to data. You can then produce the old status from this backup and thereby have your locomotive list available again.

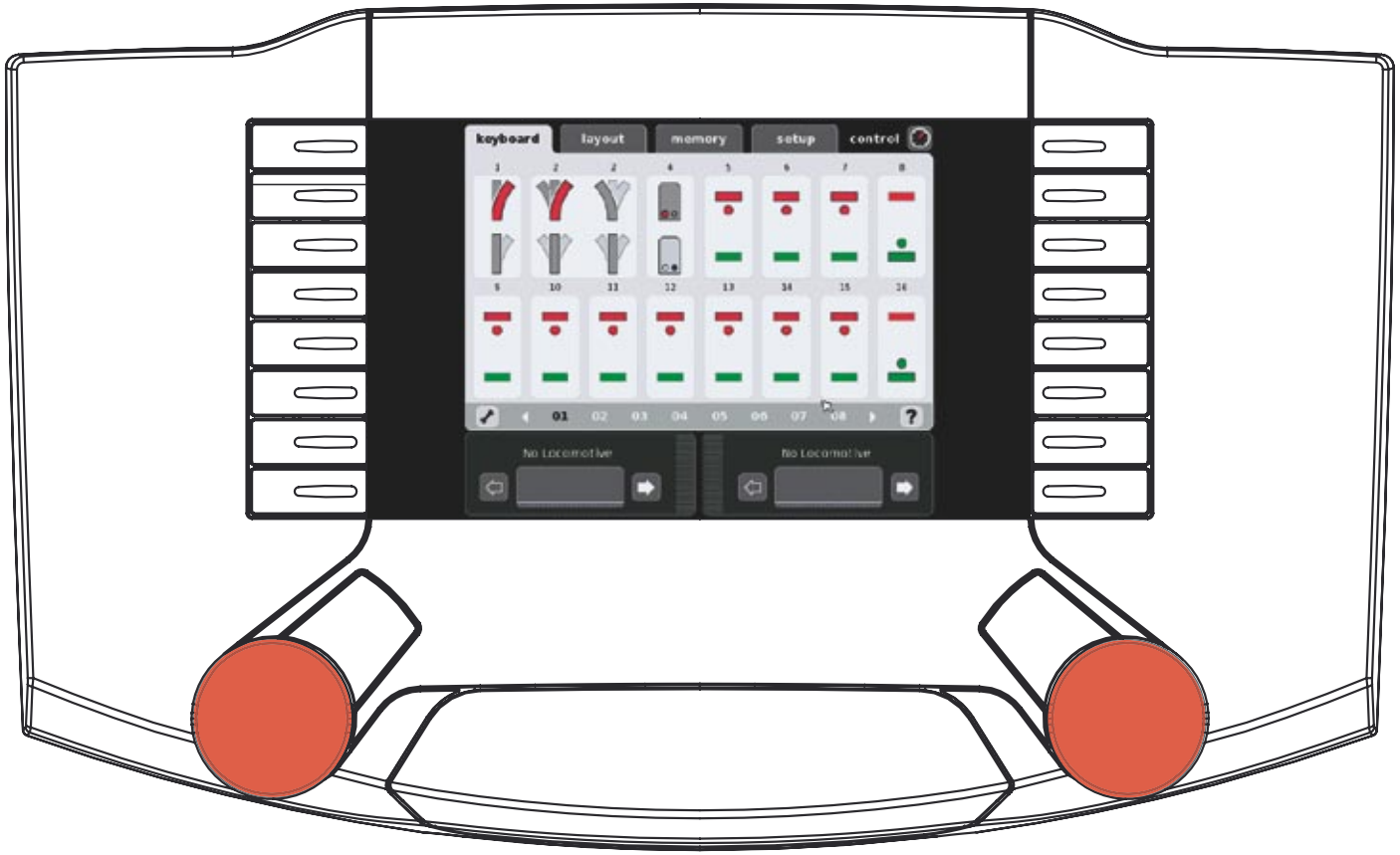
Turning off the Central Station:

Go to the „Setup“ menu before turning the Central Station off. Select „Shut-down“ and confirm the selection. The „Stop Button“ will light up on the controller and the shutdown will begin. The Central Station can be unplugged when the display goes off.



Keyboard

Controlling • Setting Up



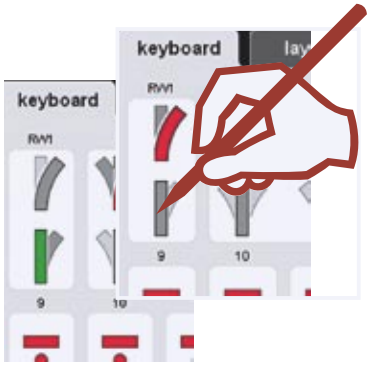
The keyboard enables you to control and manage all turnouts, signals, turntables, and transfer tables: a total of 320 addresses are available for use.

Controlling Standard Turnouts and Signals

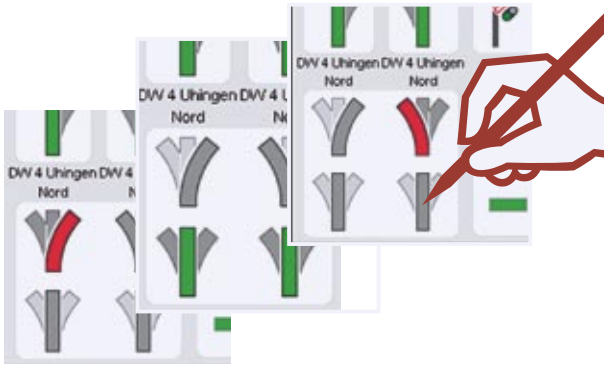
All 320 addresses are available for use immediately after the Central Station has been started and can be operated from the standard control surface. Please use the stylus, which is included with the Central Station, to control accessories. (See illustrations)

Tip: We recommend that you set up the solenoid accessories with the symbols and descriptions that properly go with them in order to have better management of the accessories. See the next section ⇨ Setting up Solenoid Accessories.

Controlling Turnouts and Signals.

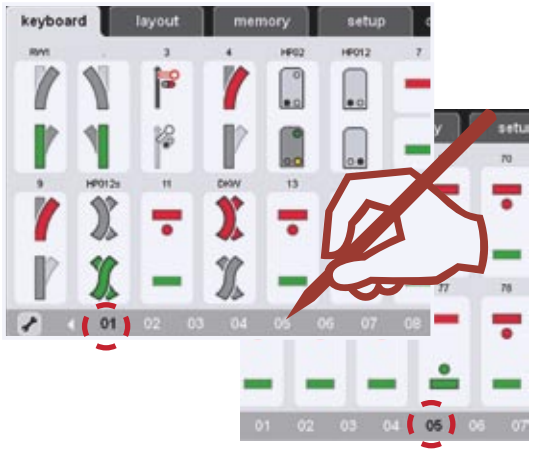


Controlling Multiple Position Turnouts and Signals.

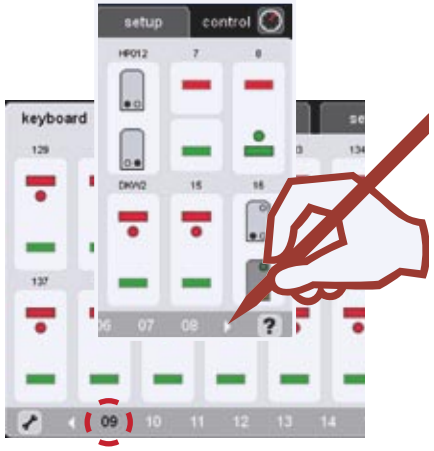


The Keyboard has over 20 pages, each with 16 addresses. These addresses are permanently assigned and cannot be moved around.

Changing Windows.



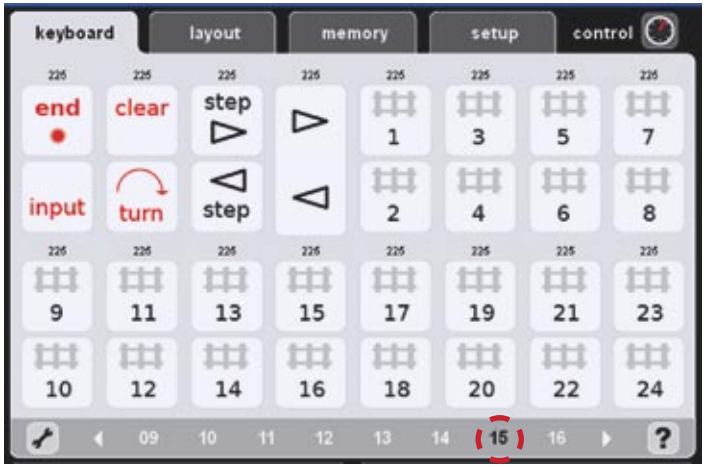
or



Turntable

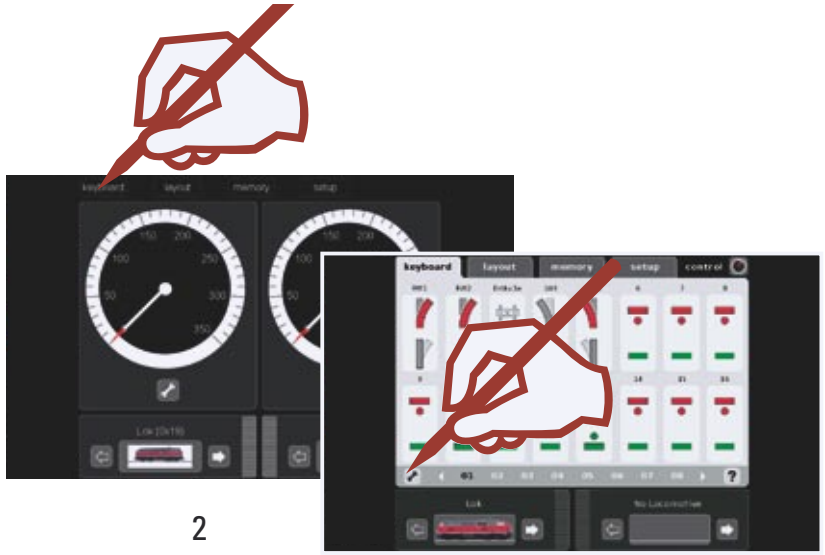
Keyboard Window 15 is pre-assigned for the 7686 turntable. Please note that the turntable automatically occupies the 15 following addresses.

You can delete this address assignment if you are not using a digital turntable and thereby free it up for other solenoid accessories.



Keyboard: **Setting up Solenoid Accessories • Step by Step.**

1



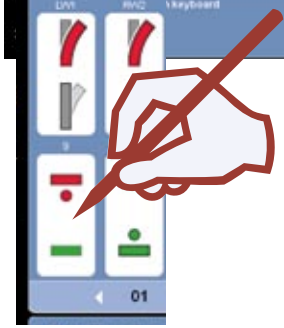
2

Keyboard: Setting up Solenoid Accessories • Step by Step

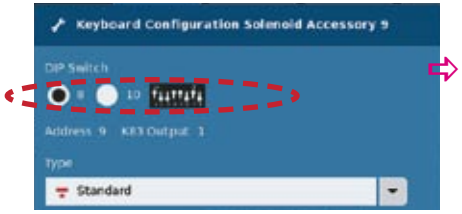
Selecting the Desired Address.

3

4

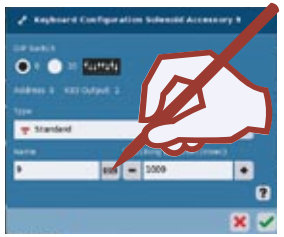


5

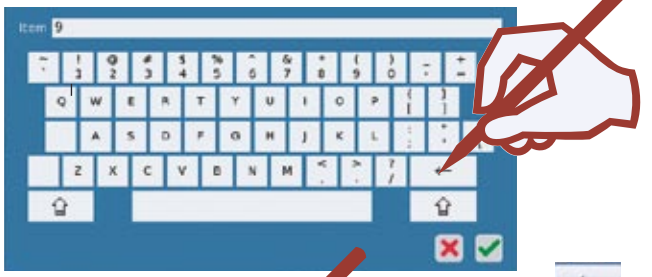


Check the setting for the turnout decoder.

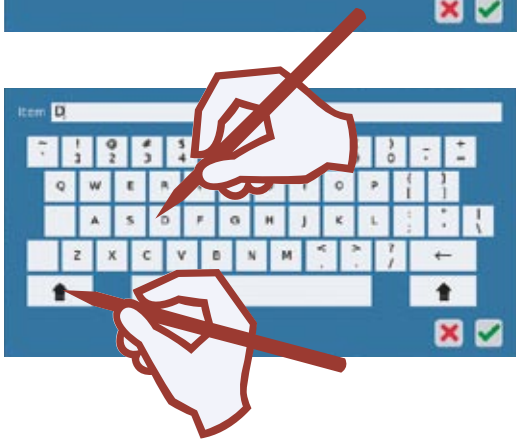
5.1



6

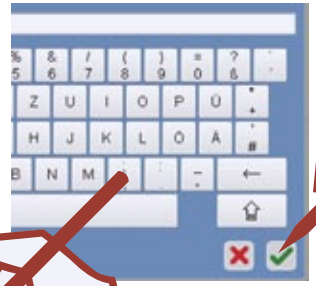


7



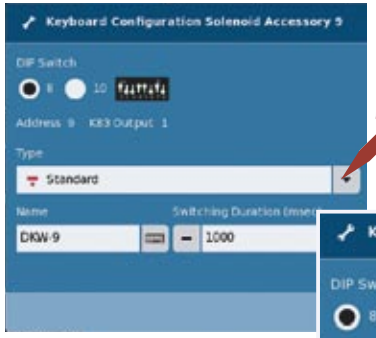
Enter a designation, ex. DSS-9.

8

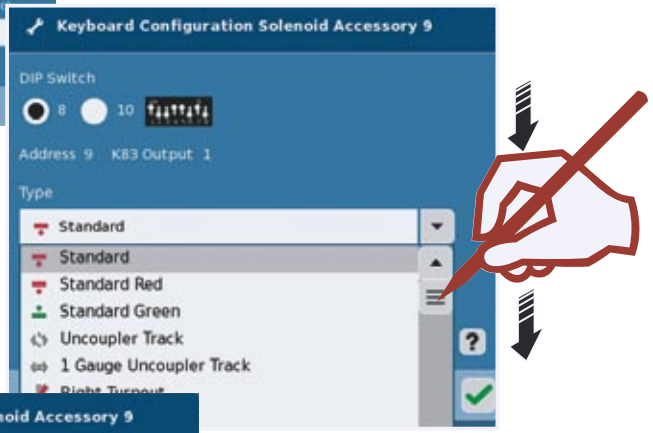


Confirm entry.

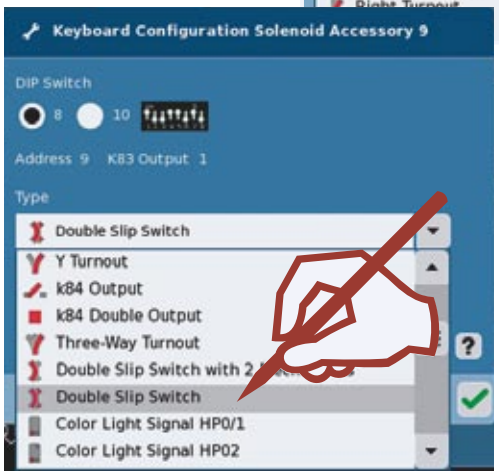
9



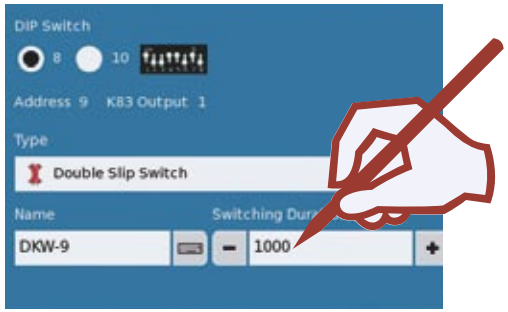
10



11

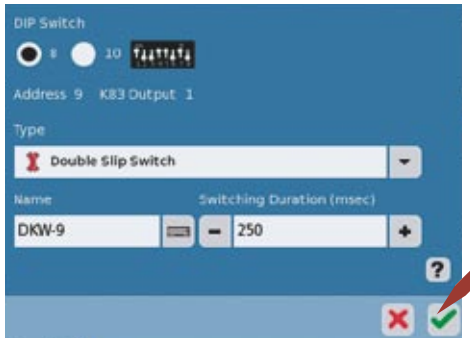


12



Set the switching duration: We recommend a duration between 250 - 500 milliseconds.

13

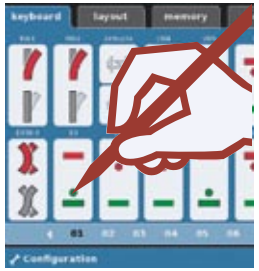


Confirm entry.

14

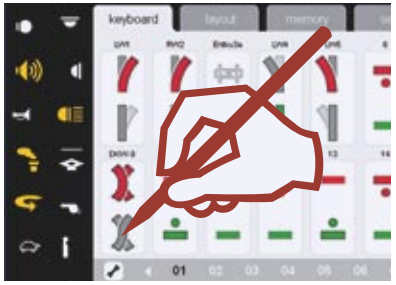
Confirm or enter a new accessory.

(starting at Step ⇨ 4)

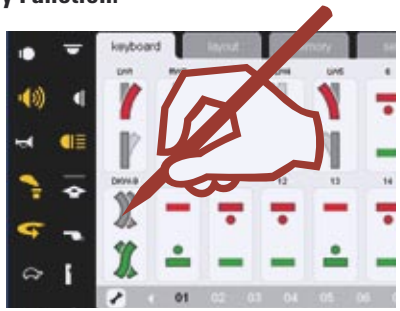


Checking Accessory Function.

15



15.1



If the turnouts/signals are connected to k83 decoders (item nos. 6083 or 60830) and the turnout/signal setting does not correspond to the display, then the blue wires for the connection in question must be swapped.

! If the solenoid accessory does not operate despite the correct address, please check the wires at the track connection.

Important Note!

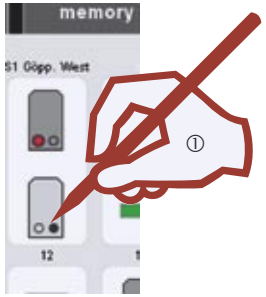
Before you turn the Central Station off, perform the function „Shutdown" in order to ensure that all data has been saved. Turning off the Central Station suddenly may cause loss of the last data to be changed.

Programming Professional Quality Color Light Signals.

Set up the signal to be programmed on your Keyboard as already described in Steps 1-15. Enter the switching duration at 1,000 milliseconds for the programming procedure. Confirm the entries and switch to the operating mode (Step 14). If a distant signal is mounted on the mast with a home signal, you must also set up the home signal in advance to which the distant signal is assigned. Connect the signal to the Central Station. Make sure that the wire bracket covered in card stock (programming bracket) is hooked onto the underside of the decoder.

!Keep the programming bracket; it will be needed in the future for address changes.

76391 Hp1



After you have connected the signal, switch to the configuration mode for the Keyboard and touch this symbol to confirm the messages that follow.

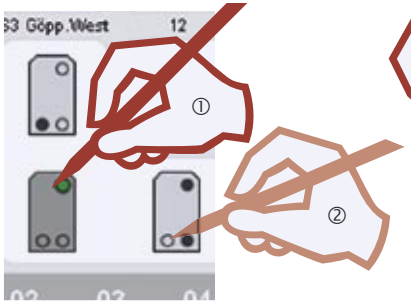
Now switch to the operating mode for the Keyboards. The LEDs on the signal will begin to blink. Enter the signal aspect for the signal in question one after the other.

If the signal begins to switch between the signal aspects, the programming procedure is completed. You can now disconnect the signal and remove the programming bracket.

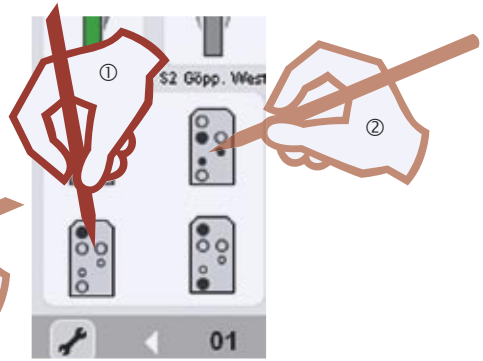
Switch to the configuration mode. Now, change the switching duration to 250 milliseconds (Step 12). This is a long enough time for ordinary operation.

76393 Hp1/Hp2

76397 Hp1/Hp2 and the home signal to which the distant signal is assigned.

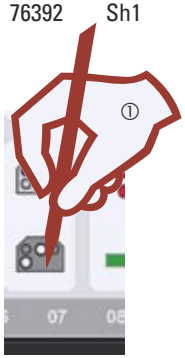


76394 Hp1/Sh1



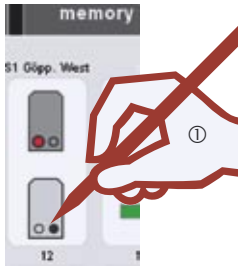
76371 Sh1

76392 Sh1



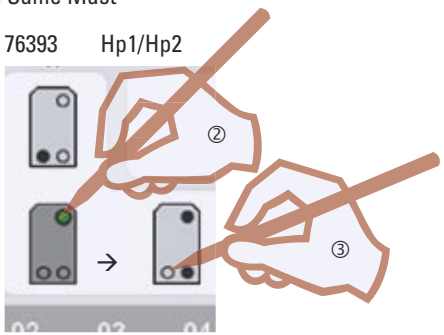
Programming Home Signals with a Distant Signal Mounted on the Same Mast

76395 Hp1



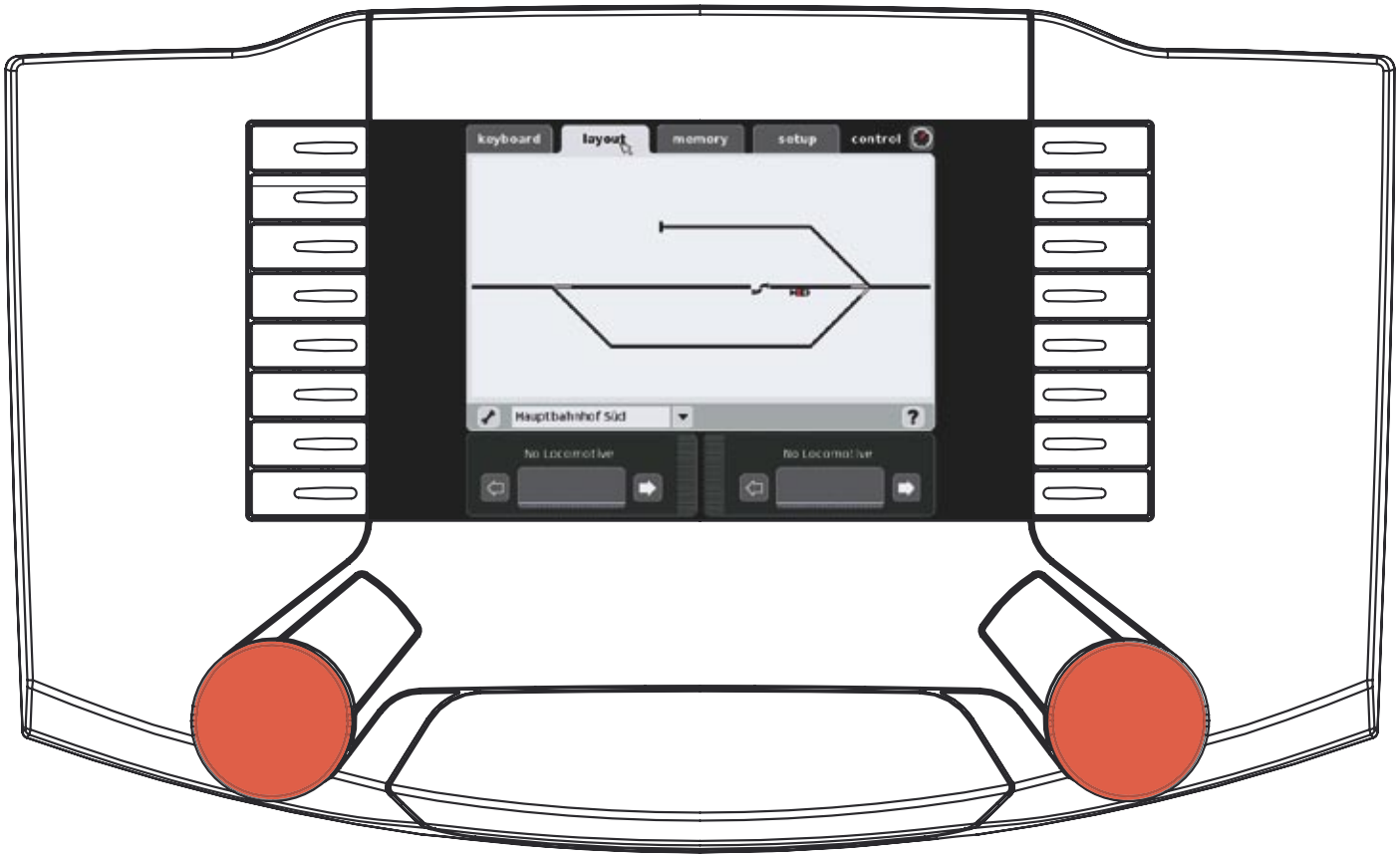
Now wait until only the distant signal is blinking. Then activate the home signal to which the distant signal is assigned, ex.

76393 Hp1/Hp2



Layout

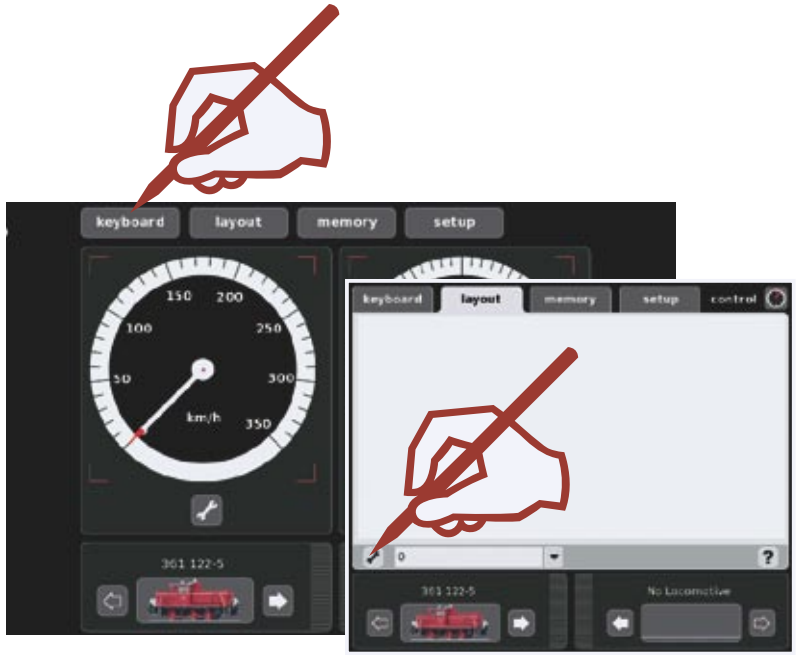
Designing • Controlling

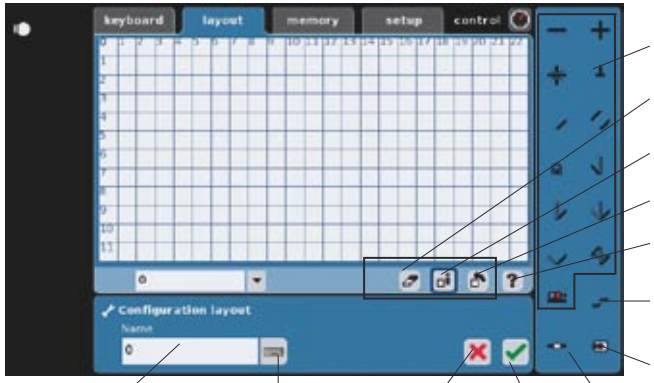


Setting up a Layout.

The Layout level of control on the Central Station simplifies setting up and operating solenoid accessories and routes on a model railroad later on. After a Layout has been set up, turnouts, signals, or routes can be activated by pressing on a symbol. Several Layout pages can be constructed in a Central Station.

We recommend that you set up the appropriate items on your Keyboard before setting up the Layouts page.





Symbols:
Track and Solenoid Accessories

Delete in Track Diagram

Information about the Solenoid Accessory to be Used

Rotate the Symbol

Help Function

Symbol:
Route

Symbol:
Go to the next page

Designation Field

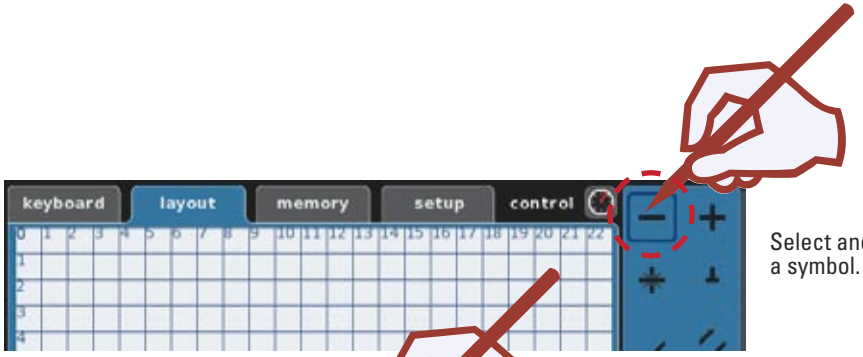
Keypad

Exit without Saving

Confirm and Save

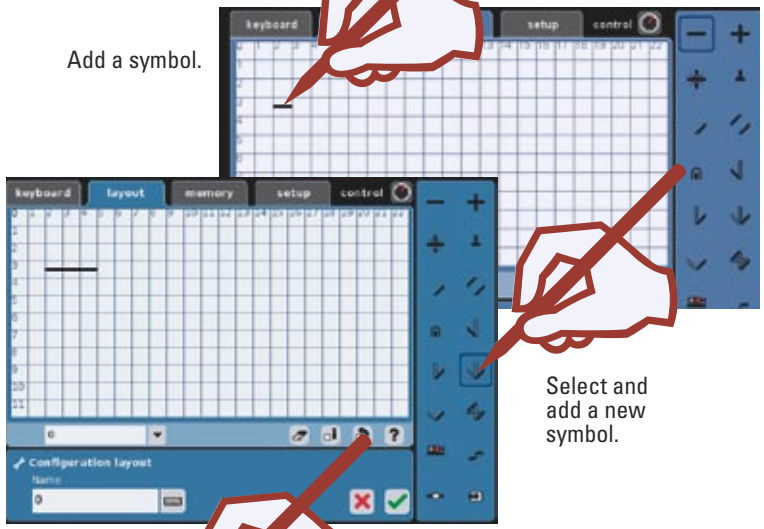
Symbol for Contact (S 88)

A complete description of the symbols is available in our Help function.

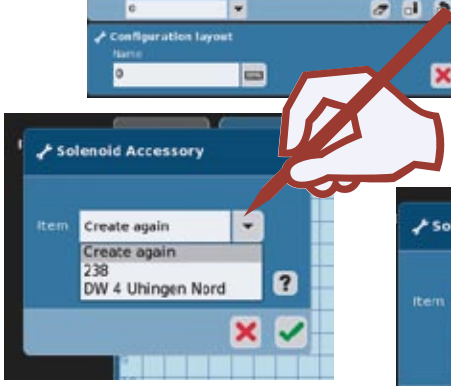


Select and mark a symbol.

Add a symbol.

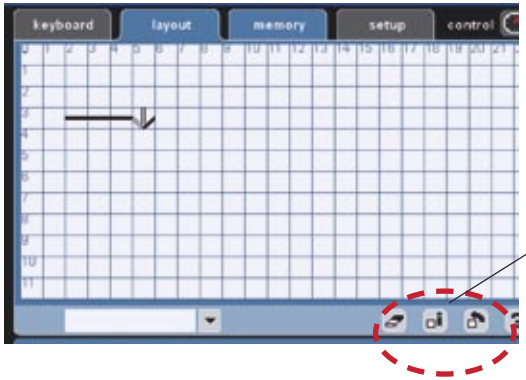


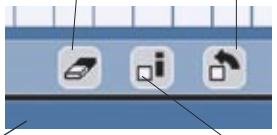
Select and add a new symbol.



Select and confirm a turnout.

Ex. Three-way Turnout 238 from Route Exit N1.

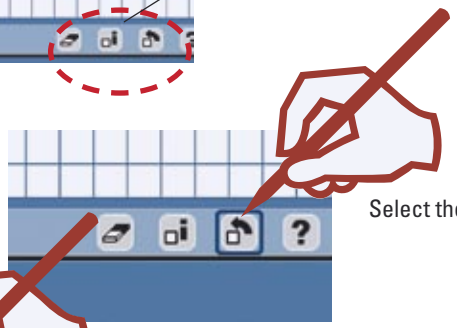




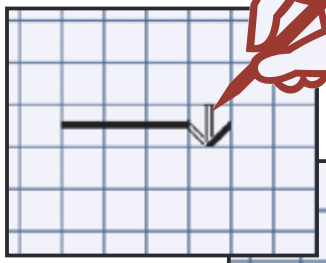
Delete symbol.

Rotate symbol.

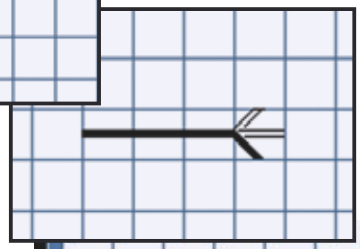
Information about solenoid accessory and change.

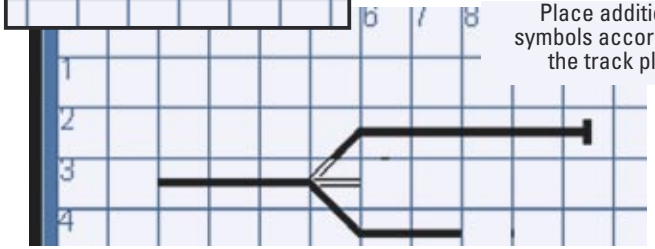


Select the symbol „Rotate“.



Touch the symbol repeatedly until its position corresponds to the track plan.



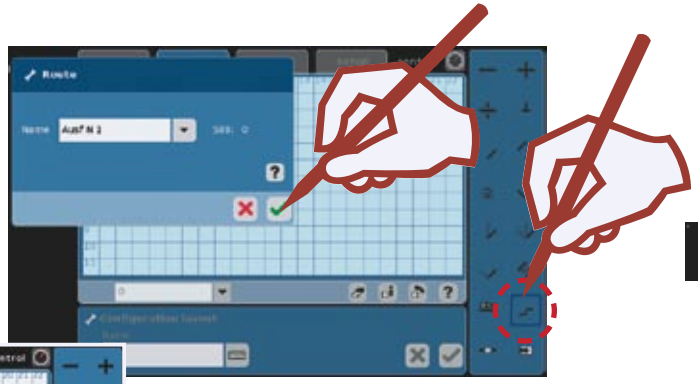


Place additional symbols according to the track plan.

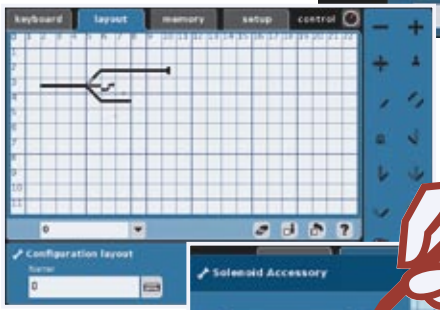
Adding a Route:

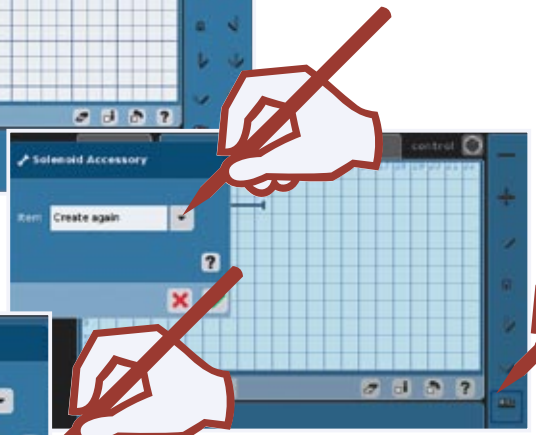
In our example there is only 1 route available for use.
If several routes are available, then the desired route can be selected with the arrow button.

Confirm selection.

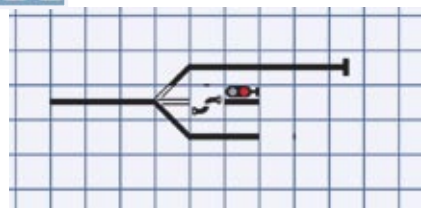


The route has been added.

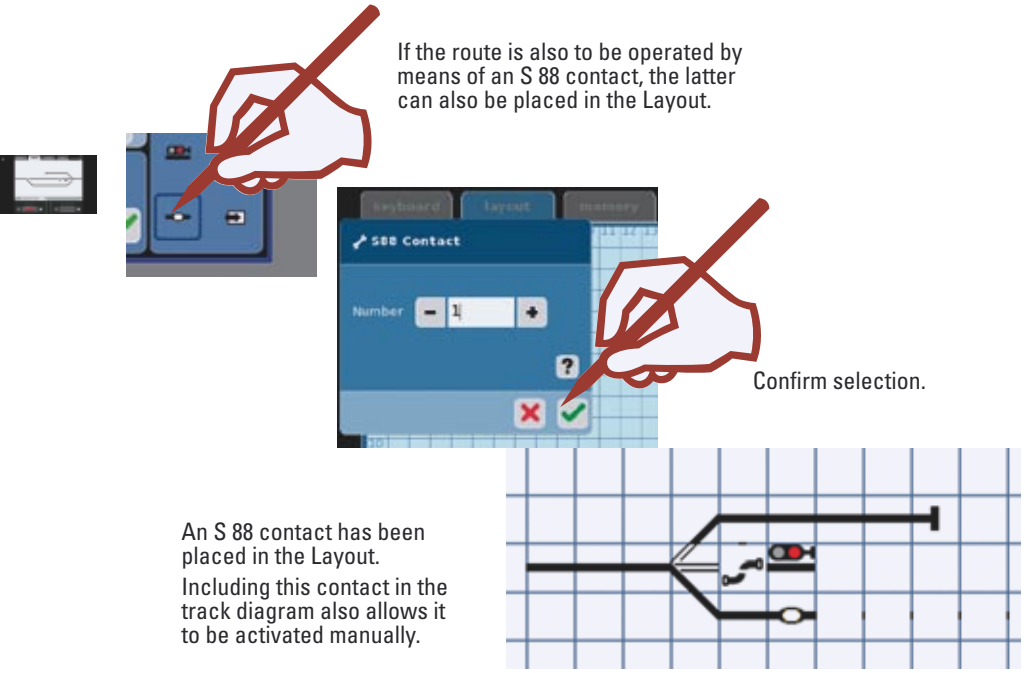




Select signal from the solenoid accessories as before.



The signal has been added.

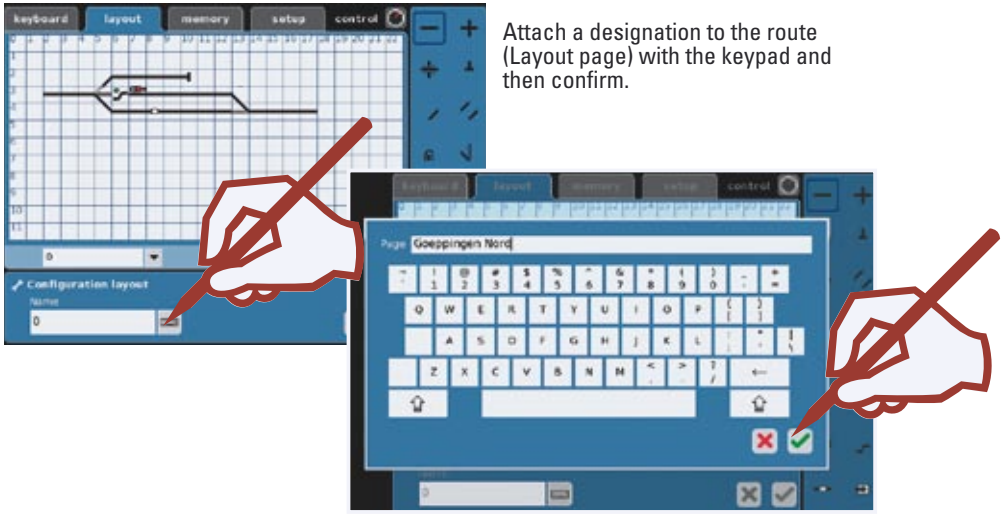


If the route is also to be operated by means of an S 88 contact, the latter can also be placed in the Layout.

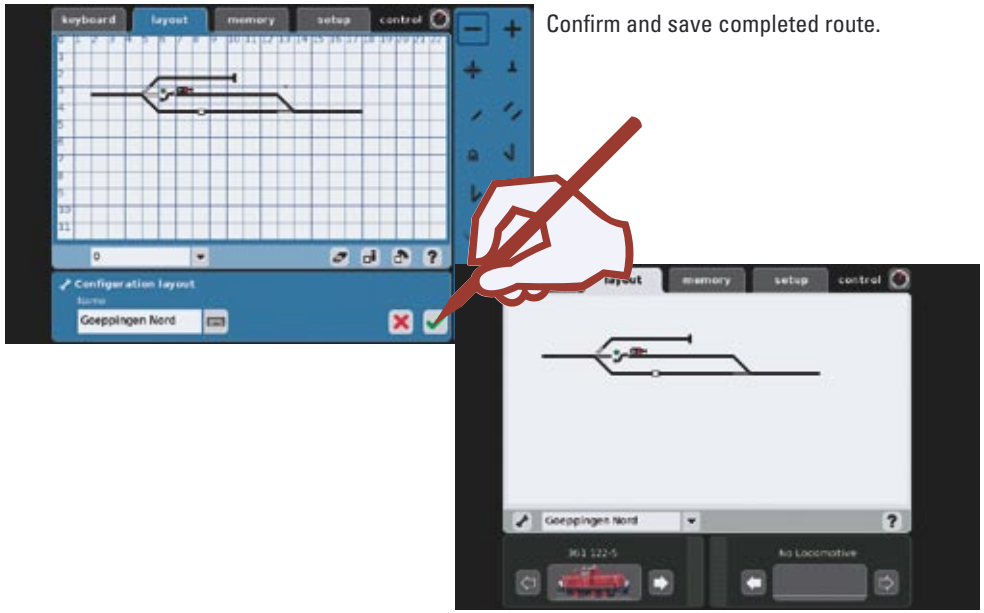
Confirm selection.

An S 88 contact has been placed in the Layout.

Including this contact in the track diagram also allows it to be activated manually.



Attach a designation to the route (Layout page) with the keypad and then confirm.



Confirm and save completed route.

Controlling Accessories with the Layout.

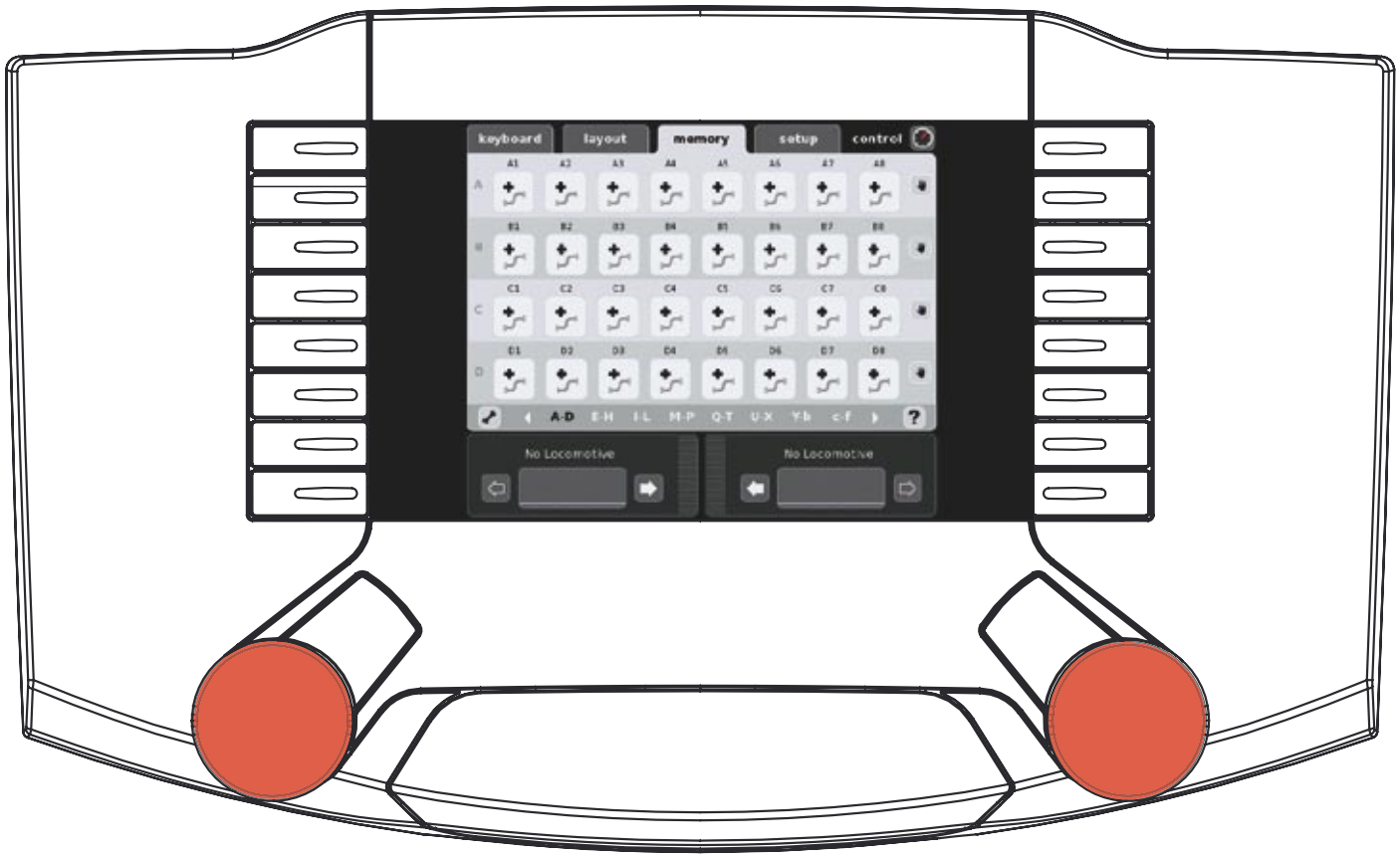
After you have set up your Layout (track diagram) you can control individual solenoid accessories or complete routes by touching the symbols. You can identify the status of particular solenoid accessories from the track diagram.

Important Note!

Before you turn the Central Station off, perform the function „Shutdown“ in order to ensure that all data has been saved. Data may be lost, when the Central Station is suddenly turned off.

Memory

Setup • Control

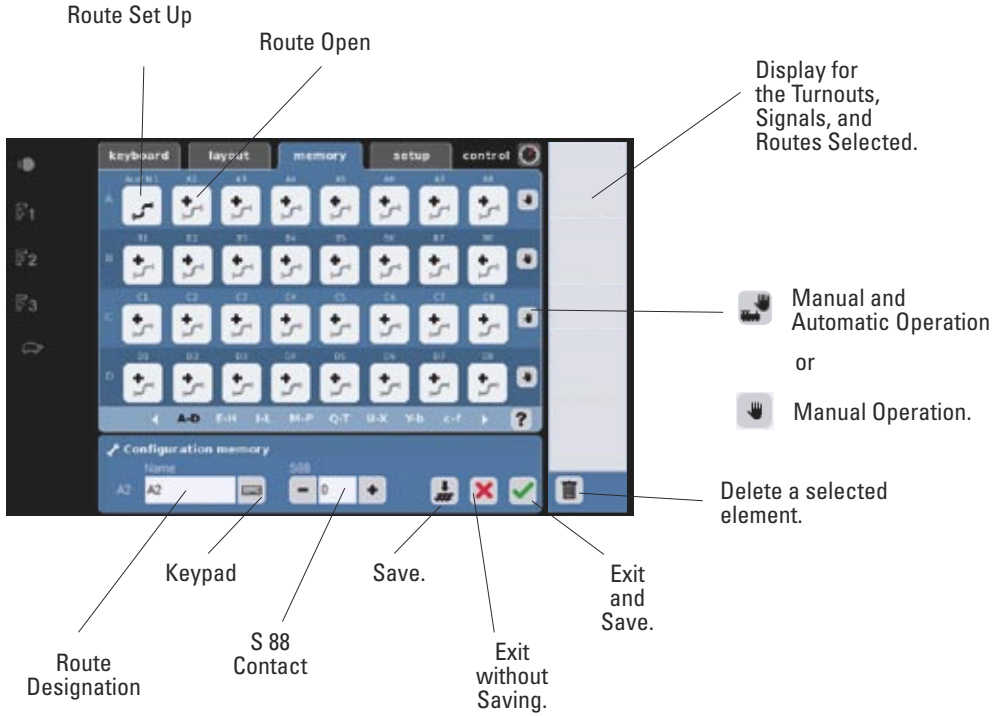


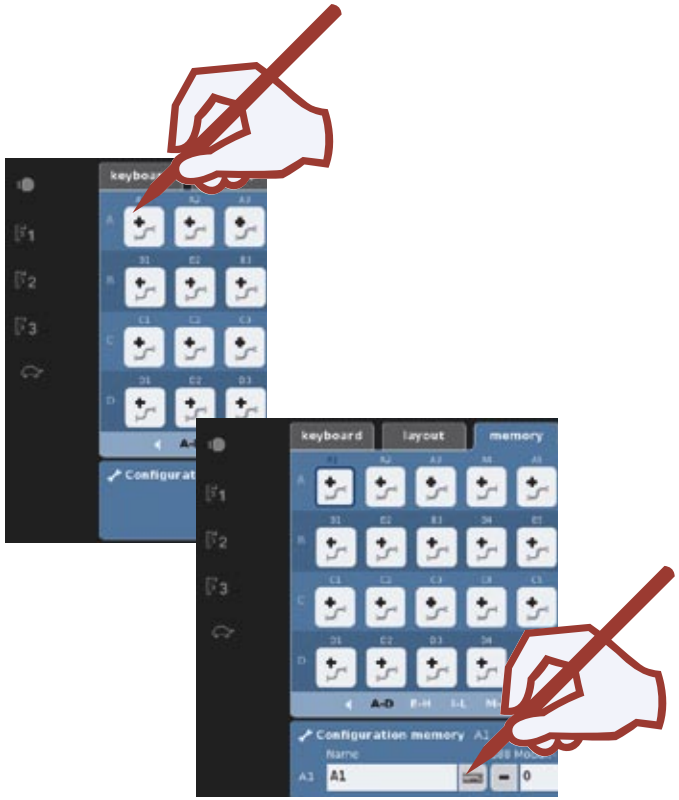
Setting up a Route.

The „Memory“ part of the Central Station is used to set up and operate routes on a model railroad. Thirteen Memory windows are available for

We recommend that you set up the appropriate items on your Memorys before setting up the Layouts page.

Routes are used so that you can activate several solenoid accessories with the press of a single button. With automatic controls routes are combined with contacts on a model railroad layout in order to control certain processes on a model railroad automatically. Examples of this are block controls and staging yard controls. More information about this can be found in the Help function.

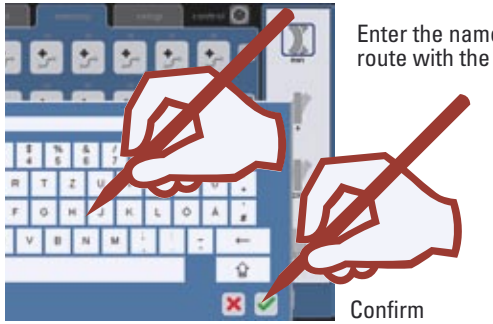




Tip: Enter clear, short terms; divide your yard or station into North-South or right-left for example. These names can only be used once.

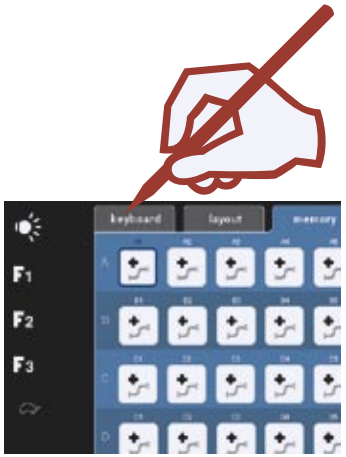
Example:

Exit N1 = Exit North Track 1



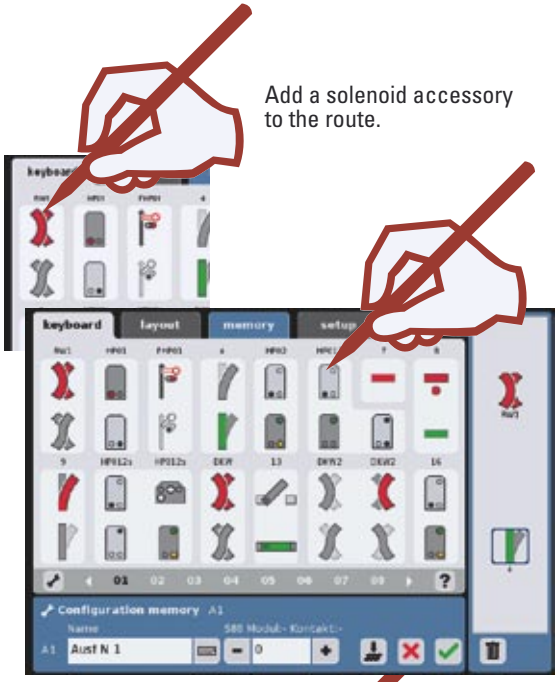
Enter the name of the route with the keypad.

Confirm



Switch to the Keyboard.

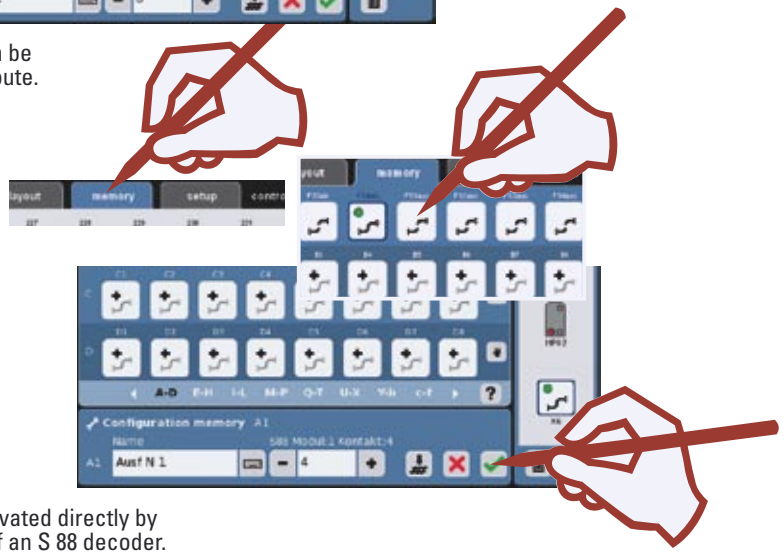
Add a solenoid accessory to the route.



You can add the solenoid accessories from different Keyboards to a route.
You do not have to adhere to an obligatory sequence.

Unclear or in doubt?
Use the „?“, our help function.

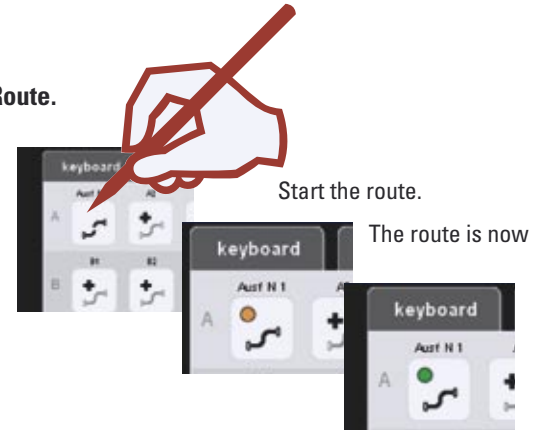
Existing routes can be integrated into a route.



Routes can be activated directly by a train by means of an S 88 decoder. To do this, the appropriate contact output must be entered in the field for the S 88.

✔ End the setting up of the route and save it or save with and design a new route.

Controlling a Route.

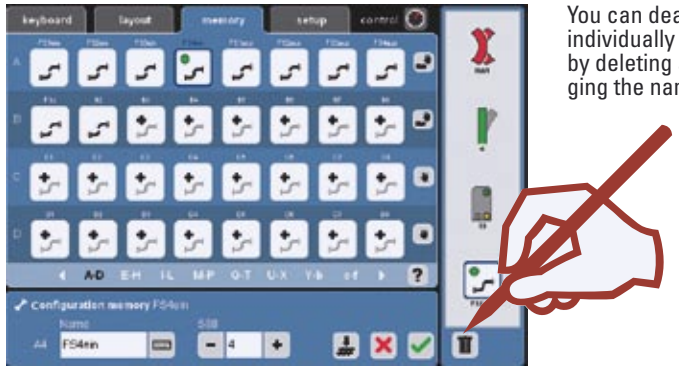


Start the route.

The route is now in the operation mode.

The route is now in operation.

Deleting a Route.



You can deactivate solenoid accessories individually or you can deactivate the route by deleting all of the elements and changing the name to the basic setting (ex. A5).

Important Note!

Before you turn the Central Station off, perform the function „Shutdown“ in order to ensure that all data has been saved. Data may be lost, when the Central Station is suddenly turned off.

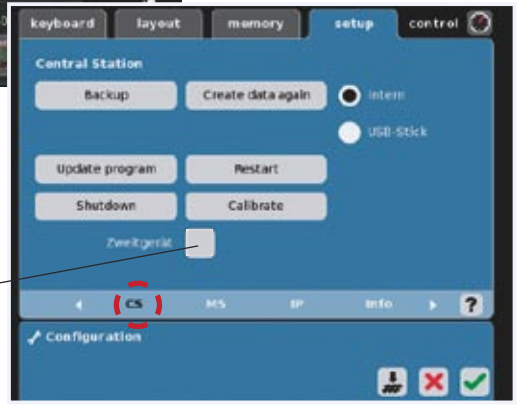
Setup

Change • Backup • Settings

Setup allows you to adjust the reproduction of data, backup of data, update, reboot, shut down, calibrating, and settings to the Central Station.

Setup

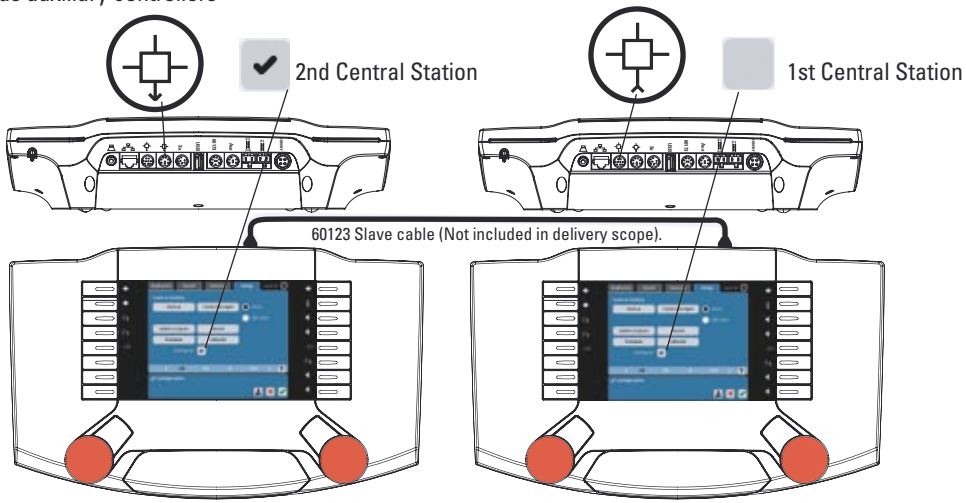
Switch to the processing mode.



Possible Settings for the Central Station

- ☐ This Central Station is activated as the main controller.
- ☑ This Central Station is being used as a second or auxiliary controller.

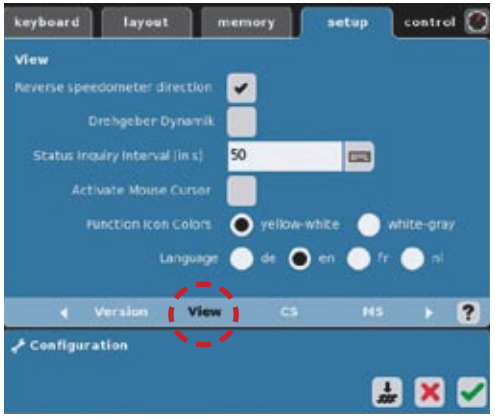
The Central Station can be used alone or in conjunction with several Central Stations. When you are using several Central Stations, one must be used as the main controller and the others may only be used as auxiliary controllers



The locomotive list must be set up again in the 2nd Central Station.

Here, you can connect the Central Station to a computer network.

More information about this can be found with our help „?“.



This menu can be used to adapt the Central Station to your personal needs.

For example: speed indicator, status inquiry, mouse pointer, function icon color, and language.

After you have plugged the Mobile Station in, it will register itself automatically. After the registration procedure is over, locomotives can be added to or removed from this Mobile Station. Up to 10 locomotives can be assigned to the Mobile Station.

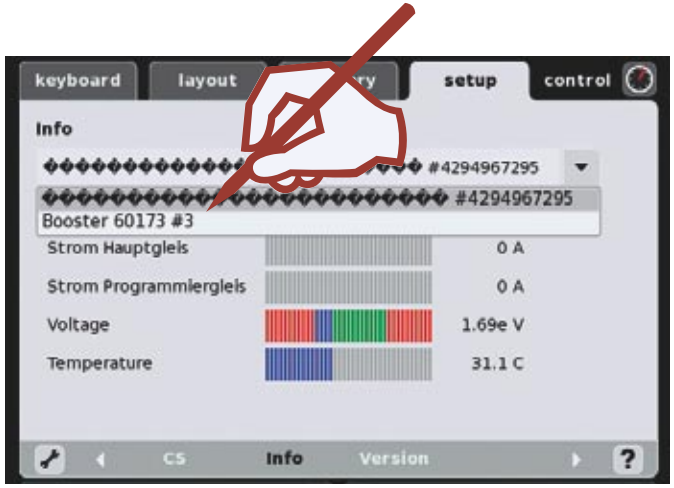
save and process further

exit without saving

save and exit

Information about your Central Station is displayed here.

It is not possible to make a manual change.



Selection

Information about a Central Station

Information about Devices Connected to the Central Station

You can get information about current, voltage, and temperature for the Booster or 2nd controller that you have selected.

! The 6015/6017 Booster cannot be displayed.

Information about a 60173 Booster

Appendix:

Available Symbols

	Headlights	F0	instead of symbol
	Interior lights	F1	instead of symbol
	Marker light	F2	instead of symbol
	Long distance headlights	F3	instead of symbol
	Operating sounds	F4	instead of symbol
	Pantograph	F5	instead of symbol
	Smoke generator	F6	instead of symbol
	Telex coupler	F8	instead of symbol
	Horn	F9	instead of symbol
	Conductor whistle	F10	instead of symbol
	Whistle blast	F11	instead of symbol
	Bell	F12	instead of symbol
	Right/Left	F13	instead of symbol
	Up/Down	F14	instead of symbol
	Turn	F15	instead of symbol
	Low speed switching range		

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