

DR5052 Profi Set installation guide

(2019-07-23)



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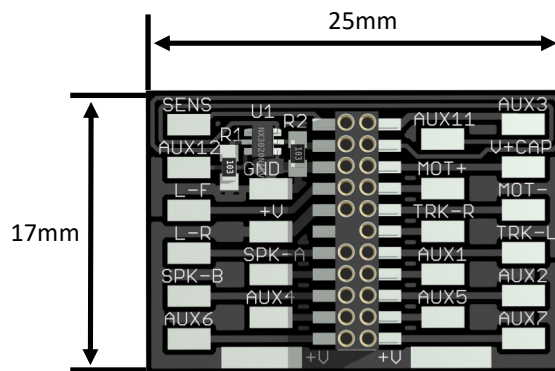
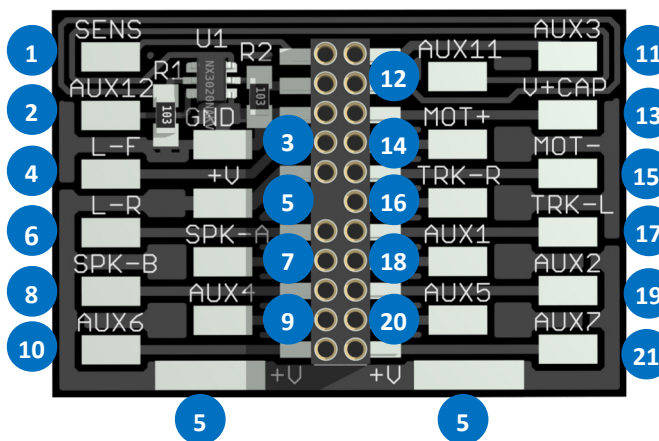


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1.0 Overview dimensions and connections PluX® 22 adapter board

Description	Bez.	Pin	
General input/output	SENS (AUX 10)	1	1
Output AUX 12 (max. 100mA not short-circuit proof)	AUX 12**	3	2
Decoder Minus, connection behind rectifier	GND	5	3
Front light	L-F	7	4
Decoder Plus, connection behind rectifier	+V	9	5
Index Pin (not assigned)	Index*	11	*
Rear light	L-R	13	6
Speaker Connection A	SPK-A	15	7
Speaker Connection B	SPK-B	17	8
Output AUX 4	AUX 4	19	9
Output AUX 6	AUX 6	21	10



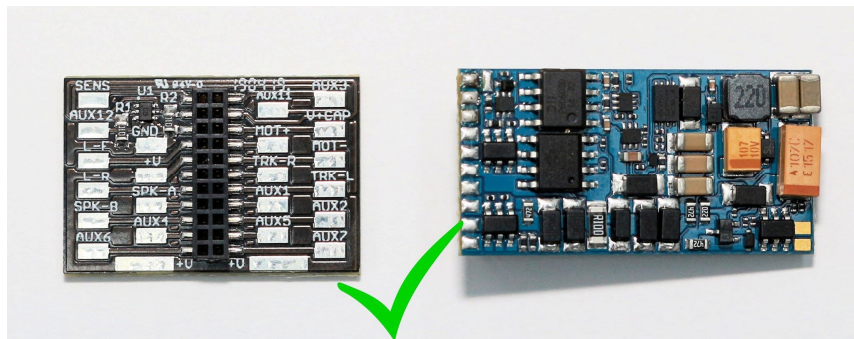
	Pin	Bez.	Description
11	2	AUX 3	Output AUX 3
12	4	AUX 11**	Output AUX 11 (max. 100mA not short-circuit proof)
13	6	V+ Cap	Decoder Plus, connection storage capacitor
14	8	Mot+	Motor connection plus
15	10	Mot -	Motor connection minus
16	12	TRK-R	Current pick-up/track right in direction of travel forwards
17	14	TRK-L	Current pick-up/track left in direction of travel forwards
18	16	AUX 1	Output AUX 1
19	18	AUX 2	Output AUX 2
20	20	AUX 5	Output AUX 5
21	22	AUX 7	Output AUX 7

*) Please note the correct position of the index pin when attaching the decoder.

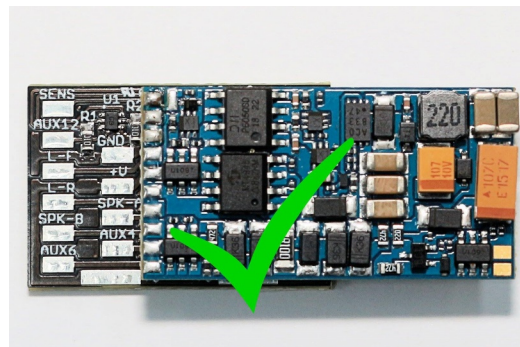
***) AUX 11 and AUX 12 are not available for all decoders. The outputs are "normal" full-fledged outputs with a max. load capacity of 100mA. Both outputs **are not** short-circuit proof! Since AUX 11.12 are amplified outputs, the function according to RCN-122 (Susi/train bus) is no longer available.

1.1 Mounting the decoder on the adapter board

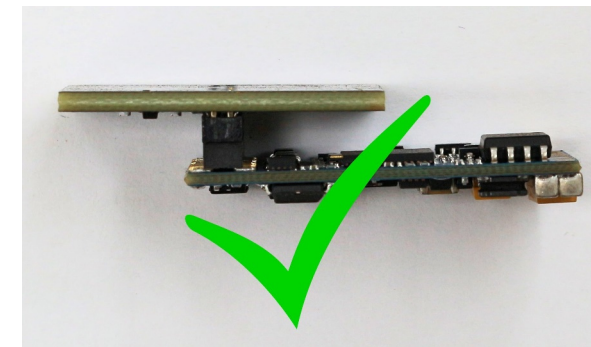
Right!



Observe the mounting direction of the decoder.

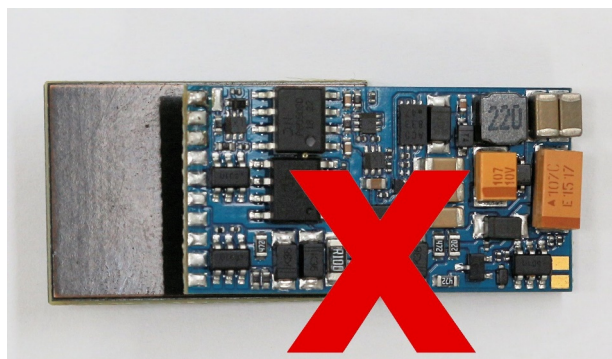


Decoder inserted in correct position.

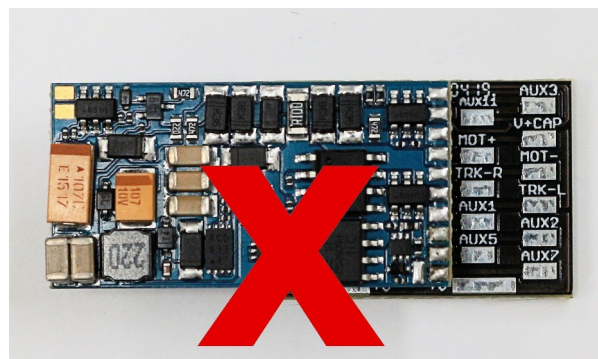


Attention! The decoder must be completely plugged into the adapter board.

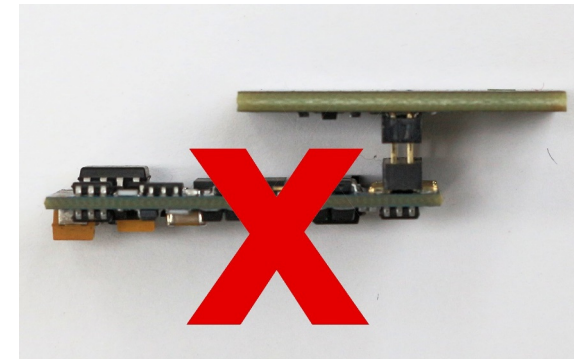
Wrong!



Wrong! Decoder plugged in from below.



Wrong! Decoder rotated by 180°.



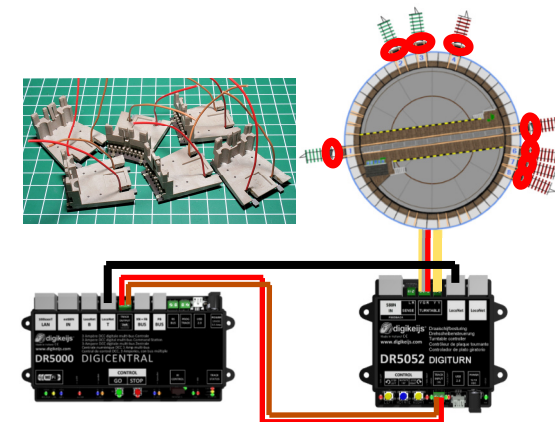
Wrong! Decoder not fully inserted or position of the index pin of the decoder and the Plux22® adapter board do not match.

1.2 Prerequisites for the professional modification

Before the conversion to the professional version can be carried out, some prerequisites must be fulfilled.

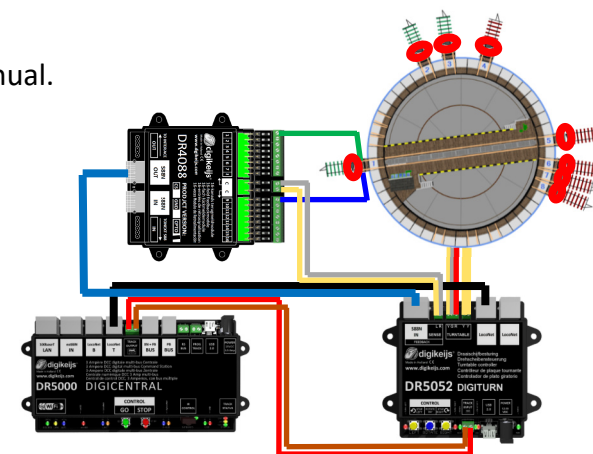
Step 1: First, the basic version of the DR5052 must be put into operation.

- The basic version of the DR5052 must be wired.
(Please refer to the DR5052 operating instructions)
- In preparation for the use of the Basis Plus, the track sidings should already be equipped with connecting cables for the Basis Plus extension set.
- The track connections must be insulated or separated from the shed tracks on **both sides**.
- The brackets on the turntable platform **must** be present.
- The **Basic Version** must be selected in the DR5052 tool.
- All **track sidings** must be parameterized in the DR5052.
- The **speed settings** should be left at the default values for the function test.
- Now the **function test** can be started.
- Use the tool to drive off each siding (by clicking on it). The stage accelerates and moves to the desired siding.
- A click of the locking mechanism must be heard on each track connection (this also applies to the blind plates).
- Only if the basic version works absolutely reliable continue with **step 2**.



Step 2: Now the Basic Plus version of the DR5052 must be put into operation.

- The extension set for the Basic Plus version must be wired according to the wiring diagram in the DR5052 manual.
- The **Basic Plus version** must be selected in the DR5052 tool.
- The **speed settings** should be left at the default values for the function test.
- Now the **function test** can be started.
- Use the tool to drive off each siding (by clicking on it).
The platform unlocks, accelerates and moves to the desired siding.
- When the selected siding is reached, the stage brakes and stops when the final position is reached.
If no deceleration is visible, check the connection of the sensor cables to the track connections.
Make sure that the connection of the sensor cables is always from the track connection must be checked from the middle of the stage (middle of stage -> right rail -> right rail of the track connection).



2.0 Installation of the PluX[®] 22 adapter board in the turntable platform

The following pages show step by step how to convert the bridge of a Fleischmann turntable for the DR5052-Profi operation.

Please follow these steps meticulously, various parts of the drive and the electronics of the decoder are sometimes very sensitive and can easily be destroyed.

Before you start with the conversion there are some hints:

- You should be trained in handling the soldering iron, it is necessary to make connections to small SMD soldering pads.
- A flat working surface for working on the turntable platform should be available.
- The turntable must be disassembled for conversion.
- For the conversion it may be necessary to work with superglue, please observe the usual safety instructions of the glue manufacturer.
- In order to be able to use the decoder correctly, the function mapping of locomotive decoders must not be a foreign word to you and you should be familiar with the locomotive decoder you have chosen. It is important that the decoder offers the possibility to freely assign the outputs of the decoder to the function (F1-Fx).
Unfortunately it is not possible to create a programming example for every decoder available on the market.
- When selecting the locomotive decoder, make sure that sufficient **function outputs are available** for the signal and lighting variants you require.
- The locomotive decoder must provide at least **300mA** output current at one function output to control the interlock. Failure to do so may result in damage to the decoder or other components.
- Some components (decoder, signals, lighting, plug connections) must be purchased separately and are not included in the set.

We've tested these decoders so far:

- ESU[®] LokPilot[®] 4

We are looking forward to record further decoders here support@digikeijs.com.



Step 1.

Since the modification changes the wiring of the drive, the platform must be disassembled:

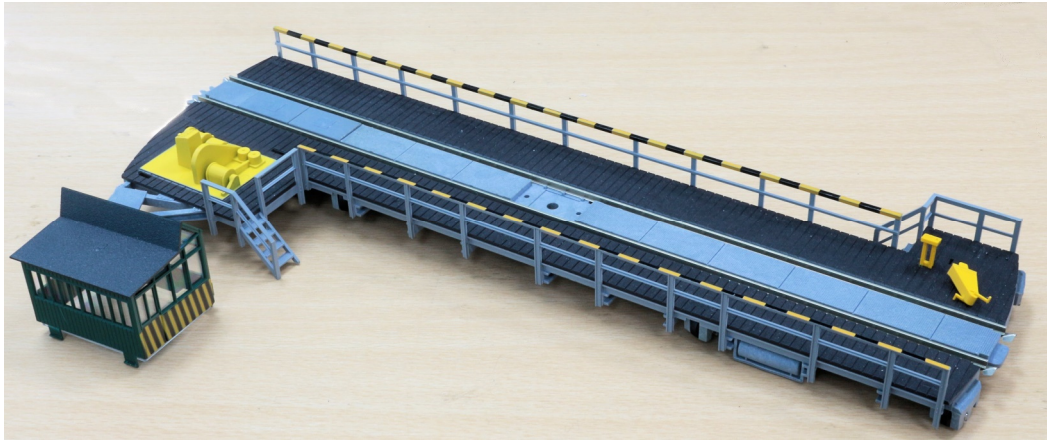
Remove:

- Center cover,
- Snap ring,
- Spring of the turntable



Step 2.

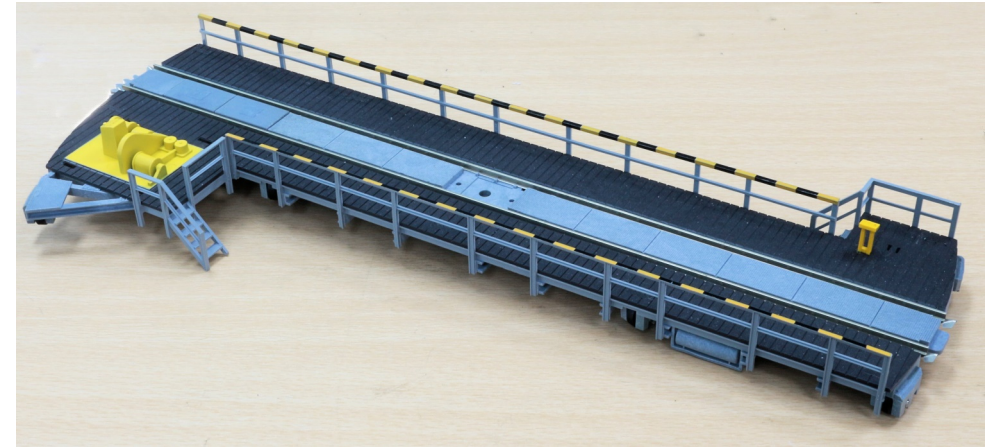
To remove the platform from the pit, track sidings/blind plates must be removed. The turntable platform can now be removed vertically.



Step 3.

Turntable house and handwheel are removed.

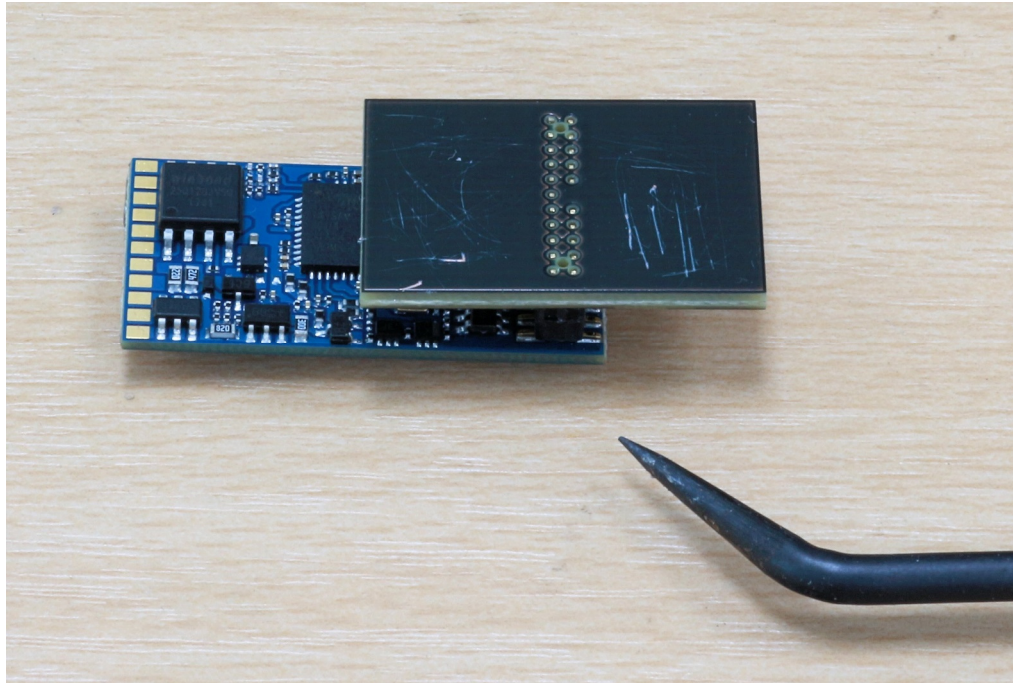
The hand crank can be easily removed, the turntable house is held by clips which can be released from the underside by means of a small screwdriver.



Step 4.

After removing the turntable house and handwheel the stage balustrade will result in a flat surface.

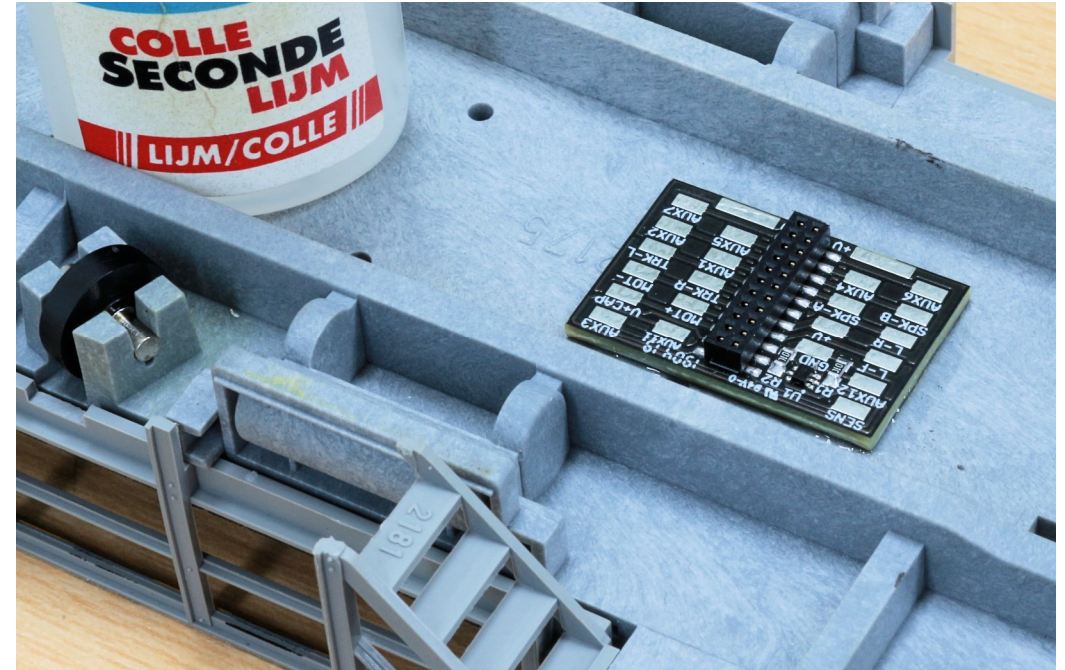
This allows the stage to rest firmly on the worktop and work can now be carried out on the underside of the stage without any problems.



Step 5.

The adapter board can be mounted with either double-sided adhesive tape or superglue gel.

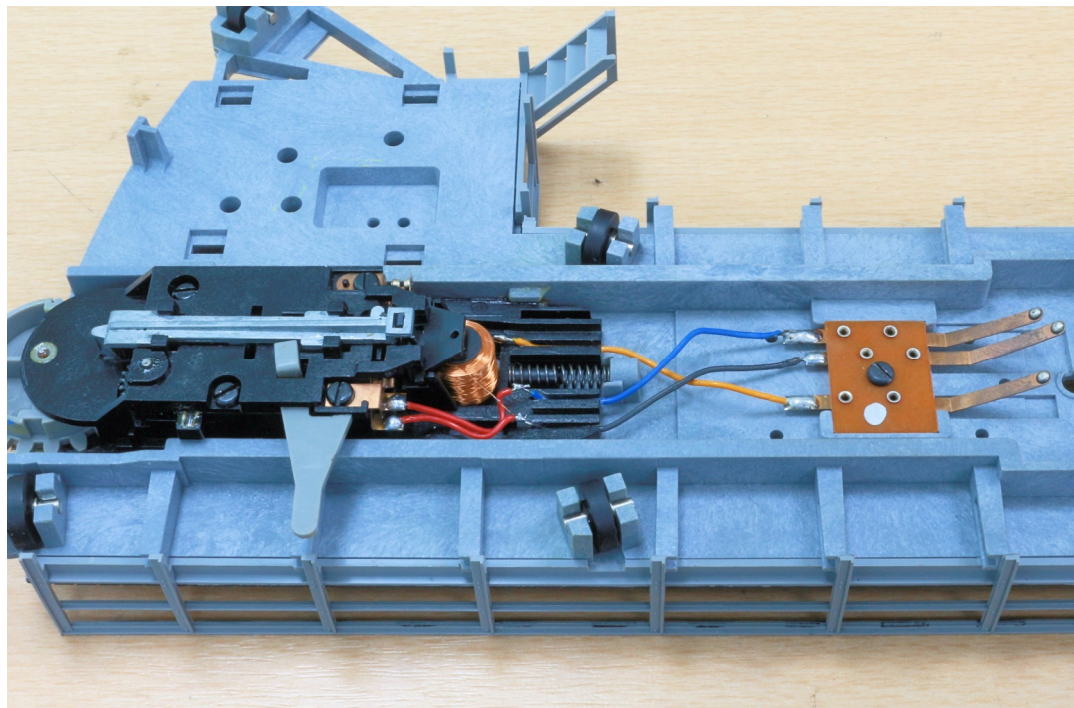
If glue is used, degrease the underside of the board well and roughen or scratch it a little so that the adhesive holds better.



Step 6.

Mount the PluX® adapter board opposite the drive motor in the middle of the stairs, using superglue (use sparingly, the holes of the plug connection must remain free of glue!) or with adhesive tape on both sides.

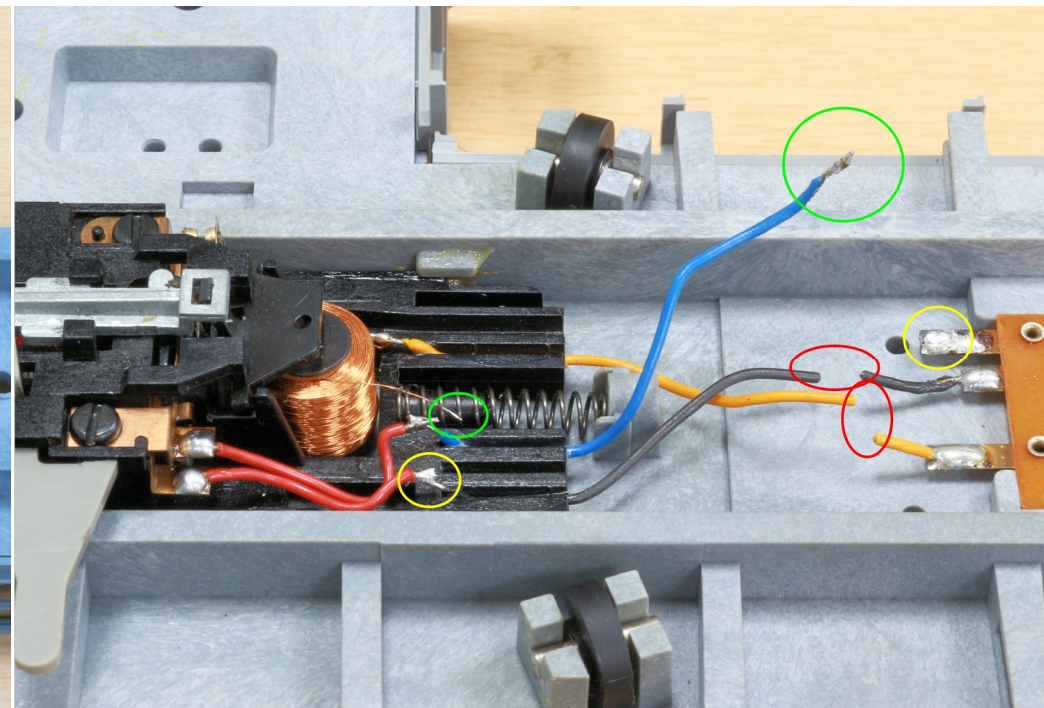
Please note the engravings, the board should not be mounted over them!



Step 7.

The original wiring of the drive.

Instead of the two red wires two red-black chokes can be used. If this is the case, replace them with short pieces of wire as shown in the picture.

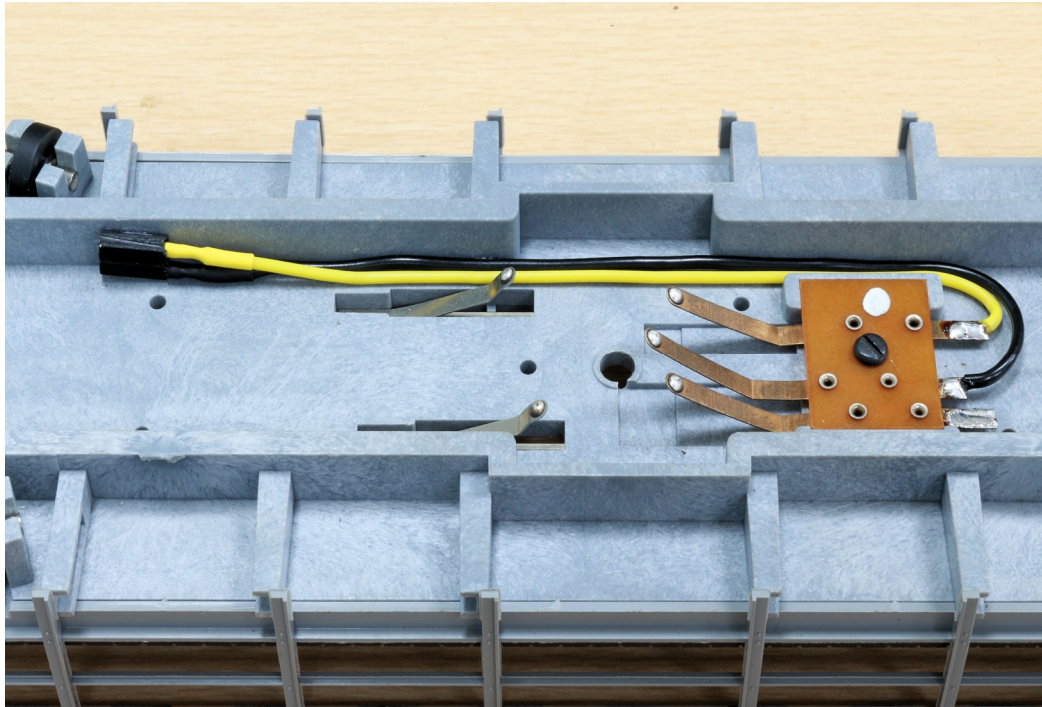


Step 8.

Disconnect the original wiring:

- Unsolder the blue cable.
- Cut the yellow and black cable (so that you can still see the right colors later).
- Unsolder the very delicate wire of the coil from the black cable (yellow circle) and clear it (green circle). The coil wire is later connected directly to the PluX22 adapterboard.

Attention! Be extremely careful with the coil wire. It can easily break off at the bobbin. A repair is then no longer possible!

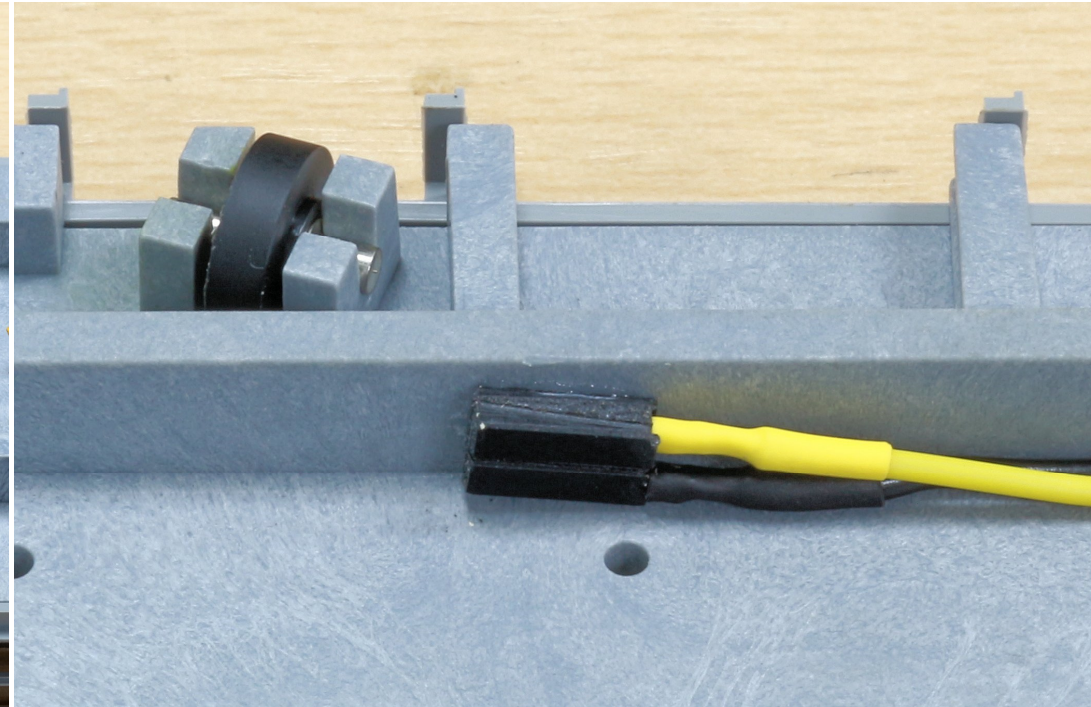


Step 9.

To supply the decoder with digital voltage, solder a yellow and a black cable in place of the cut cable ends.

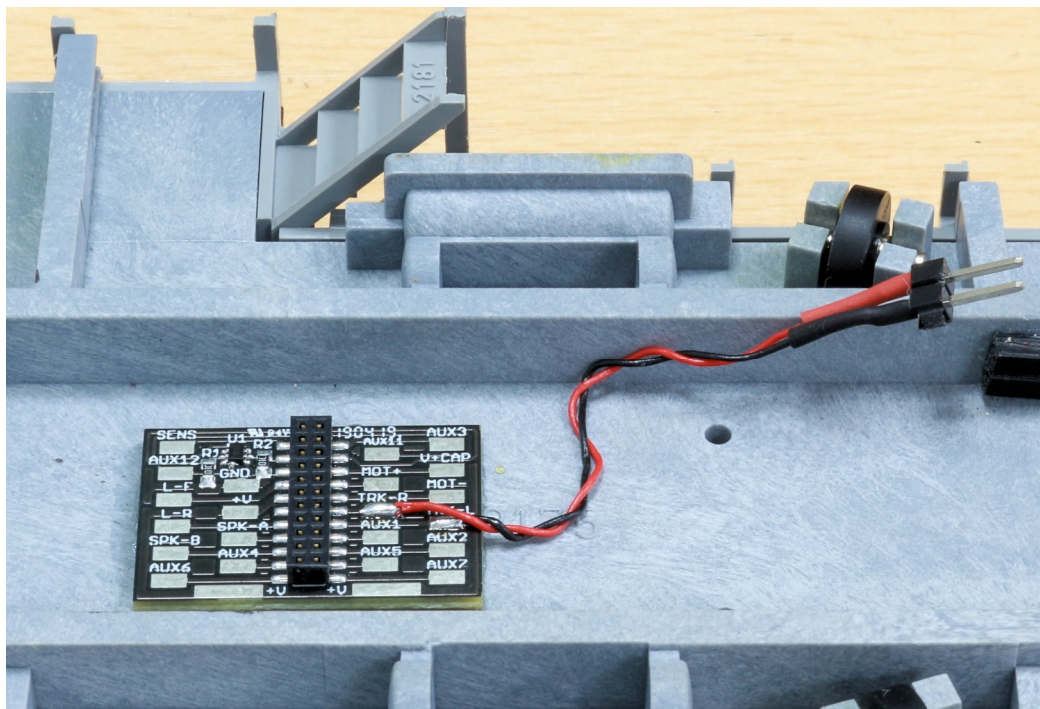
The two cables are fixed with a drop of superglue gel in the groove above the slider board.

Note: The DR5052-PROFI adapter supplies the stage with digital power via the former "coil" and "common" cables.



Step 10.

A small 2-pole socket is soldered to the end of the new cables. This makes it possible to connect the decoder adapter board directly to the programming track of the central unit via an appropriate cable.



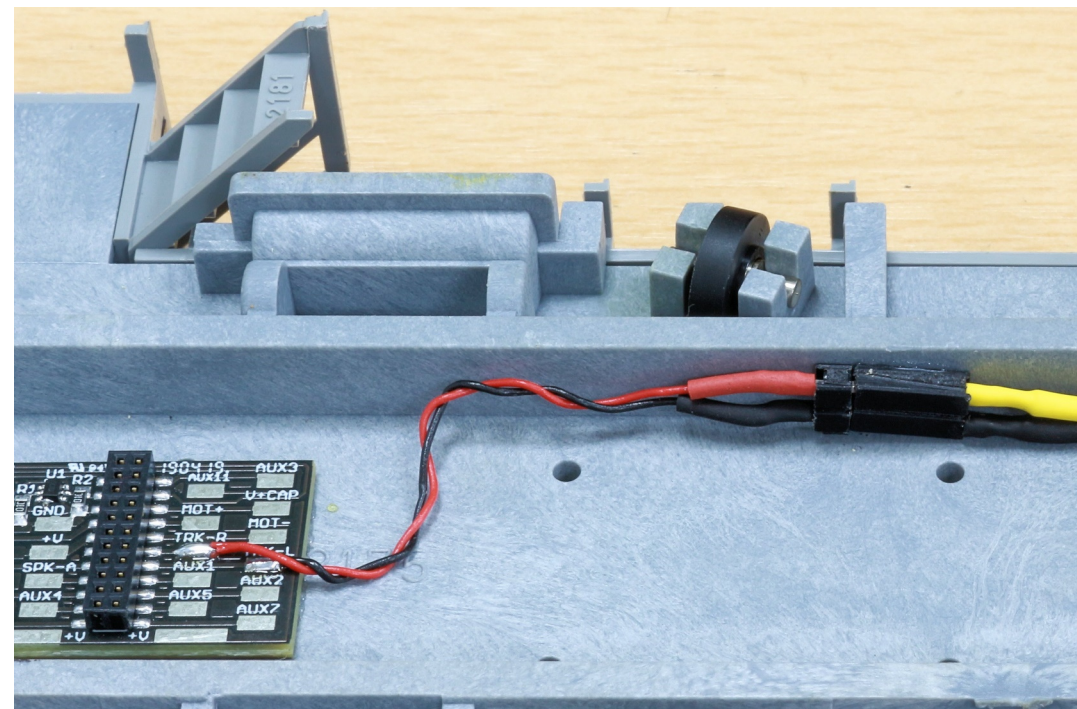
Step 11.

Adapter board for power supply.

Using NEM colors, a black and a red cable of decoder wire is soldered to the pads of the board:

- TRK-R = **red**
- TRK-L = **black**

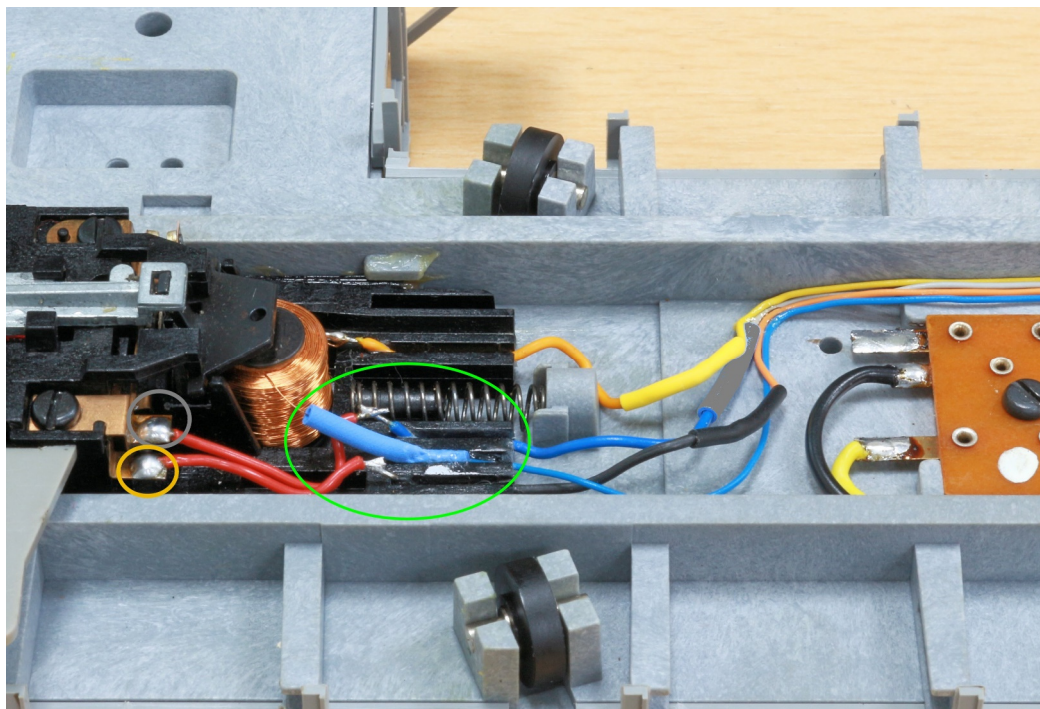
There is a 2-pin plug at the end of the cable.



Step 12.

Connection of the board to the bridge wiring.

- Black on black
- Red on yellow



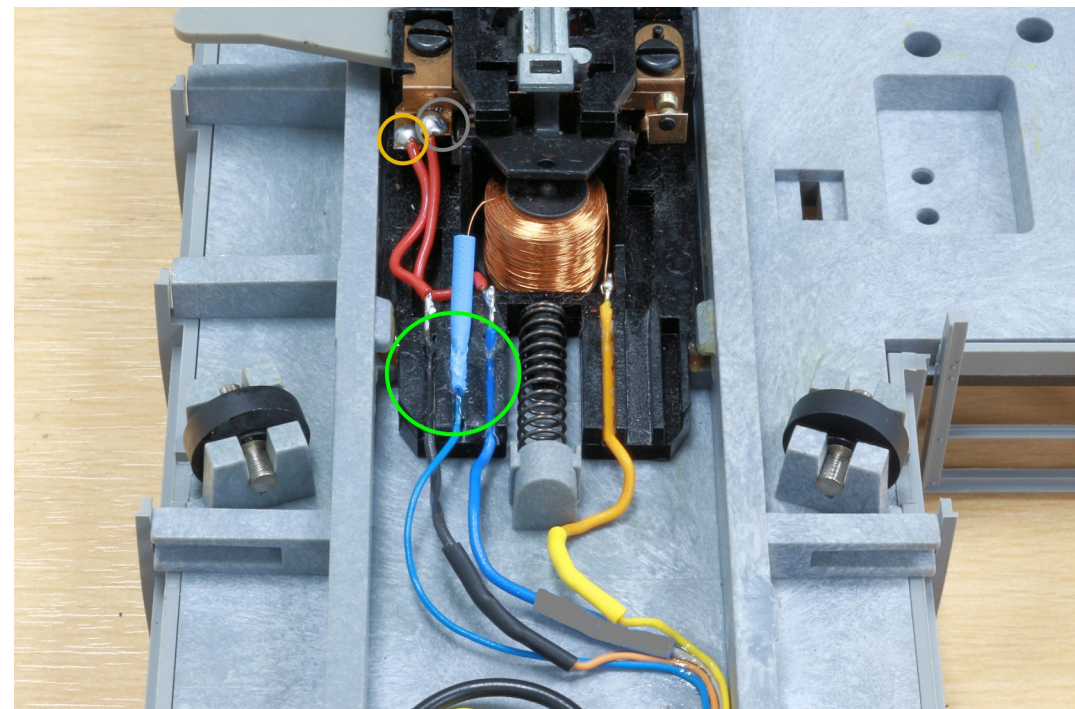
Step 13.

Connection of the coil and the motor by means of new wiring.

The new wiring uses the standard NEM colors.

- **Orange** = Motor Plus (original black)
- **Grey** = engine minus (original blue)
- **Yellow** = coil minus (decoder F0 reverse) (original yellow)
- **Blue** = Coil Plus (Decoder U+) (original black)

Be very careful when wiring the coil (+). The coil wire is very filigree and can easily break off at the coil body!



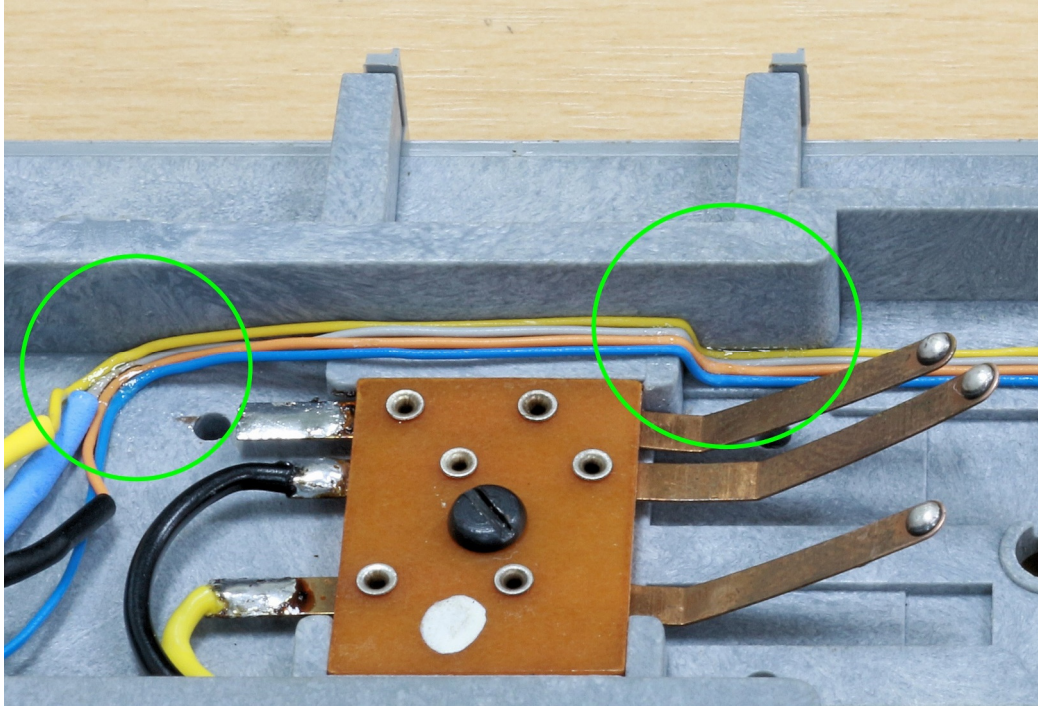
Step 14.

Securing the spool plus wire.

To protect the delicate coil wire from mechanical stress, a piece of (blue) shrink tubing is used.

After very careful soldering, the shrink tubing is pushed over the soldering point and shrunk. While the heat shrink tube is still warm, it is pinched flat at one end with flat pliers.

The flattened shrink tubing is pressed into a free groove of the drive holder and secured with a drop of superglue gel.



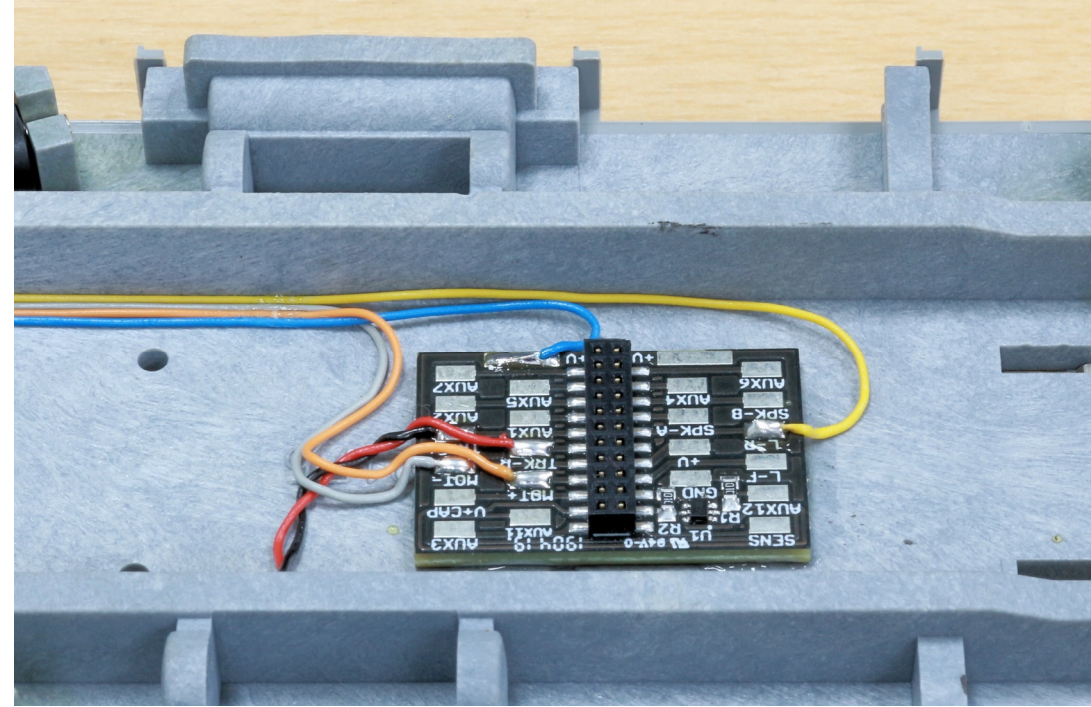
Step 15.

Cable laying and fixing.

The four new cables are laid cleanly and flat along the inside of the bridge on the bridge bottom.

For fixing, a drop of superglue gel is applied, in which the thin decoder wires can simply be pressed in and fixed. (Green circles)

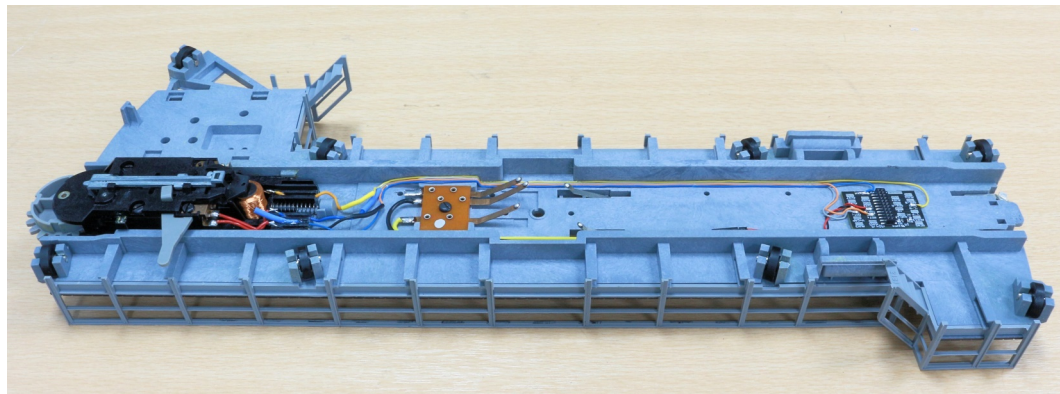
It is important that the cable ends (by means of a small loop in the direction of the motor) can still move with the movement of the drive and that no tensile forces act on the cables.



Step 16.

Connect the new cables to the board.

- L-R = **Yellow** (Minus coil)
- MOT+ = **Orange** (Motor Plus)
- MOT- = **Grey** (motor minus)
- +V = **blue** (coil plus)



Step 17.

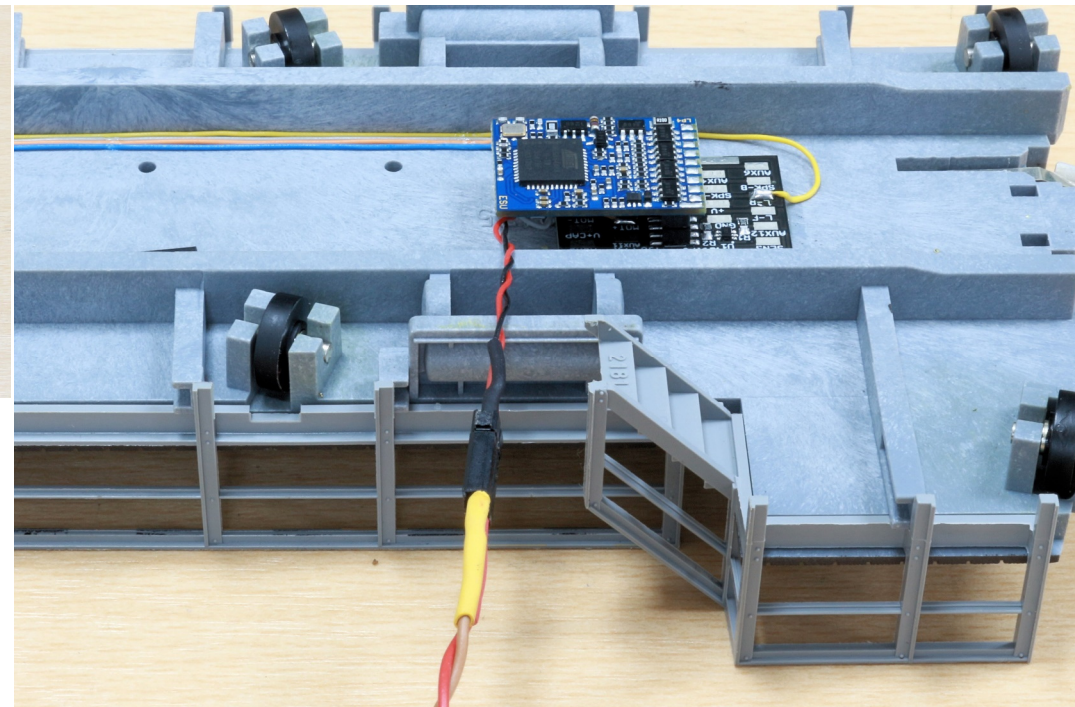
Overall overview of the newly laid cabling.

We have shown only the connections necessary for operation. Of course you can also connect bridge-signals and bridgehouse lighting according to your own taste.

This description shows a ESU® LokPilot® 4-DCC decoder recommended by us.

A .esux file is available for separate download on our website.

This file contains motor settings and function mapping that matches the default settings of the DR5052.



Step 18.

Programming and testing decoders.

The 2-pole plug can be easily removed from the bridge connector and connected to a locomotive programmer by means of cable and connector. Then we are ready to test the function of the coil and the motor. The safest way to do this is to use the locomotive programmer.

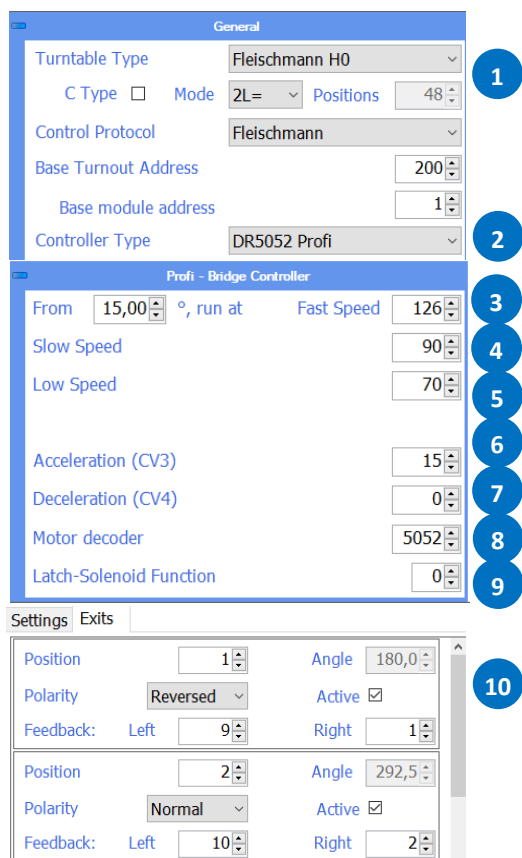
If everything is ok, the cable can be connected to the digital control unit and tested. Please note that the unlocking of the Platform is not controlled for too long, that can cause damage to the coil.

Next step: Reassemble the turntable and connect the DR5052-PRO adapter. (next page)

3.0 DR5052-Profi for Fleischmann® H0,N and Roco TT DS, 2-wire track

If the DR5052 is used in the professional version, the contact tabs on the turntable platform must not be removed under any circumstances. It is also important that the track connections on both sides are insulated (separated) from the shed tracks. The shed tracks can be supplied with track voltage either via feedback devices or directly from the control panel. Various information (RailCom® information, feedback, control commands) is exchanged with the control centre via LocoNet®.

Additional feedbacks: The DR5052-EXT set is required for internal position feedback and for precise braking and stopping. The feedback included in the set enables the DR5052 to detect the exact position of the turntable platform and react accordingly. All track sidings must be equipped with feedback devices. The DR5052-EXT set includes a DR4088-OPTO. This allows 8 track sidings to be monitored. If there are more than 8 sidings, a further DR5052-EXT is required to monitor all sidings. These are then simply connected to the last DR4088-OPTO as an extension.



The screenshot shows the configuration interface for the DR5052 Profi. It is divided into two main sections: 'General' and 'Prof - Bridge Controller'. The 'General' section includes:

- Turntable Type: Fleischmann H0
- C Type: Mode: 2L= Positions: 48
- Control Protocol: Fleischmann
- Base Turnout Address: 200
- Base module address: 1
- Controller Type: DR5052 Profi

 The 'Prof - Bridge Controller' section includes:

- From: 15,00 °, run at: Fast Speed: 126
- Slow Speed: 90
- Low Speed: 70
- Acceleration (CV3): 15
- Deceleration (CV4): 0
- Motor decoder: 5052
- Latch-Solenoid Function: 0

 At the bottom, there is a 'Settings' window with two feedback device configurations:

- Device 1: Position 1, Angle 180,0, Polarity Reversed, Active Feedback: Left 9, Right 1
- Device 2: Position 2, Angle 292,5, Polarity Normal, Active Feedback: Left 10, Right 2

- 1) **Turntable Type control protocol turnout address turnout mode**
(Please refer to the main manual for details)
- 2) **Controller Typ** DR5052 Profi select.
- 3) **Fast Speed** of the turntable in speed steps and from how many degrees this speed is active.
(The locomotive decoder used must support 128 speed steps and must also be set to 128 speed steps).
- 4) **Slow Speed** of the turntable in speed steps.
- 5) **Low Speed** of the turntable in speed steps.
- 6) **Acceleration (CV 3)** of the decoder.*
- 7) **Delay (CV 4)** of the decoder.*
- 8) **Motor decoder Address** of the installed locomotive decoder.
This address should be assigned to the used decoder via the programming track.
- 9) **Latch Solenoid Function.** Function (we use here F0) with which the locking of the bridge is to be unlocked.
Please note that the decoder you are using must provide enough current at F0 (min. 300mA).
- 10) Setting up and down ramps
(Please refer to the main manual for details)

*) these values are automatically written into the decoder in one of the next firmware versions. Currently these settings have to be done via the POM programming of the central unit.

Bridge Feedback	
Occupied Feedback	70
Occupied Block	170
Bridge is turning Feedback	72
Emergency Feedback	2052

11

Profi - Bridge Light 1 - Signals	
Bridge House Light	
Show <input checked="" type="checkbox"/> State Off Turnout	255
Bridge decoder	5052 Function 4
Bridge Enter signal Turnout	256
Bridge Leave signal Turnout	257
Left Entry Signal	
Show <input type="checkbox"/> State Off Turnout	251
Bridge decoder	5043 Function 1
Right Entry Signal	
Show <input type="checkbox"/> State Off Turnout	253
Bridge decoder	5052 Function 2
Left Exit Signal	
Show <input checked="" type="checkbox"/> State Red Turnout	252
Bridge decoder	5055 Function 5
Right Exit Signal	
Show <input checked="" type="checkbox"/> State Red Turnout	254
Bridge decoder	5052 Function 6

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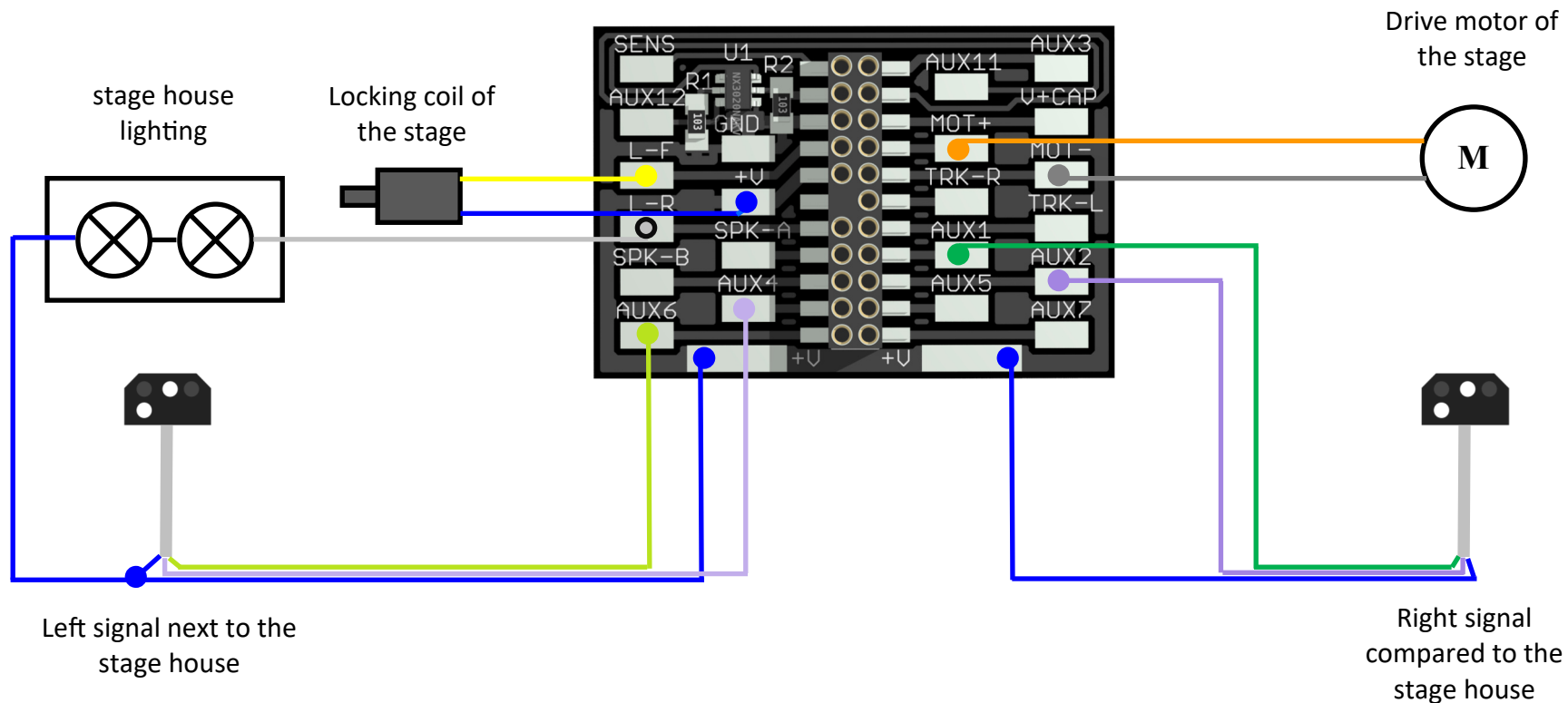
22

23

- 11) **Feedback number** of the occupancy detector of the turntable platform.
RailCom® Feedback number of the occupancy detector of the turntable platform.
Feedback number Turntable platform turns or stops.
Feedback number to trigger an emergency stop.
(For details please refer to the main instructions)
- 12) **Turnout address** (magnetic article) with which the stage lighting is to be switched.
- 13) **Function** of the locomotive decoder (here F4) which is assigned to the turnout address.
- 14) **Bridge Enter signal** Turnout address with which the Enter signals are switched.
- 15) **Bridge Leave signal** Turnout address with which the Leave signals are switched.
- 16) Left Entry Signal **Turnout address**
- 17) Left Entry Signal **Function** of the locomotive decoder (here F1) which is assigned to the turnout address. (Two outputs must be mapped to this function for the signal patterns red and white.)
- 18) Right Entry Signal **Turnout address**
- 19) Right Entry Signal **Function** of the locomotive decoder (here F2) which is assigned to the turnout address. (Two outputs must be mapped to this function for the signal patterns red and white.)
- 20) Left Exit Signal **Turnout address**
- 21) Left Exit Signal **Function** of the locomotive decoder (here F5) which is assigned to the turnout address. (Two outputs must be mapped to this function for the signal patterns red and white.)
- 22) Right Exit Signal **Turnout address**
- 23) Right Exit Signal **Function** of the locomotive decoder (here F6) which is assigned to the turnout address. (Two outputs must be mapped to this function for the signal patterns red and white.)
- 24) **Bridge-Decoder Address** of the locomotive decoder installed in the stage.
- 25) **Show** the corresponding signal or lighting (active or hidden).
This check mark should only be set for the functions that are also available.
- 26) **State** determines which signal pattern the corresponding signal displays or how the stage lighting should switch (only for adjustment, the DR5052 switches the signals automatically when in operation).

3.2 Wiring of lighting and signals on PuX® 22 adapter

This circuit example shows a possible connection of light signals and stage lighting. Please note that this is only a suggestion which can be added and changed according to your own ideas. The circuit schematically represents the connection of two signals, the stage lighting, the drive motor and the lock. Resistors for signals and stage lighting must be added individually, depending on the LEDs and signals used. We have used an ESU® LokPilot V4.0®. The Lok-Programmer file can be downloaded from the homepage.



4.0 Attachment A. Inspiration for bridge-signals and bridge-house lighting

