

54680 RailCom® Transmitter module

Please Note: This document is an unofficial translation.

These notes are not an exact copy but my own interpretation of the ESU 54680 RailCom® Transmitter module manual. It has NOT been authorised or approved by ESU and used entirely at your own risk.

Read this manual before you begin. If there is anything you do not understand, do NOT proceed with the installation.

Steve Weeks

Installation and Operating Instructions 1st edition, November 2014



Warning

- Protect from water, moisture, impact and pressure loads.
- Never solder on the circuit, if necessary, extend cable.
- To install the locomotive must be disconnected from power.
- Adhere to the following principles as outlined in this manual.
- When assembling the Loco check that no cables are pinched or metal parts touched as a short circuit will occur.
- Do not operate your locomotives unattended. The RailCom transmitter module is not a toy.

3. General properties

With the help of a RailCom® transmitter module you can upgrade your older decoders with the new RailCom® Technology, so you can determine the position of your locomotives on the system or read CVs directly on the main track. The transmitter module is in addition to the actual decoder in a locomotive. It can also be installed in wagons or coaches due to its small size of only 11.0 x 9.0mm.

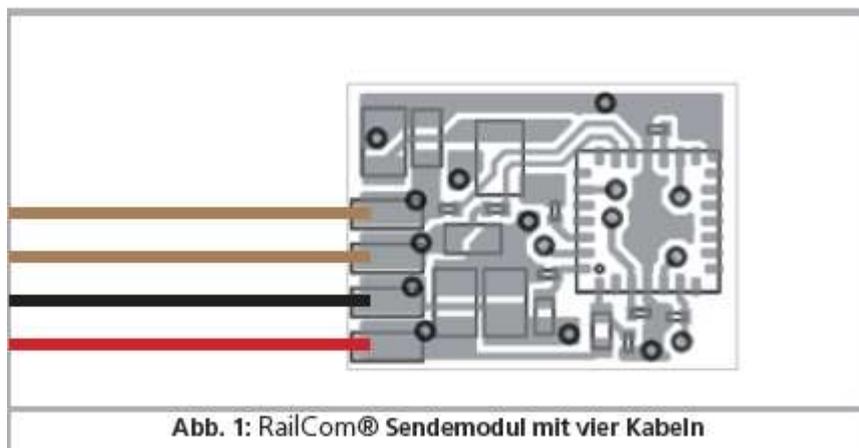
The transmitter module can be programmed like any other DCC decoder and "reflects" the CVs that are actually assigned to the decoder: The transmitter module accepts all CV Write commands for the specified address (which normally coincides with the previously installed Decoder register) and stores them in its internal memory.

When reading a CV via RailCom PoM ("Programming On the Main") the RailCom® transmitter module replies instead of the built-in non RailCom®-enabled decoder. In practice, you will not notice the transmitter module.

4. Installation

Before you install the RailCom® transmitter read all relevant CV values from original decoder and write them down. These will be required for commissioning.

The RailCom® transmitter module has 4 wires.



For normal use only the red and the black wires are used and can be connected as follows:

- Install the transmission module in a suitable location within the model. Preferably use double sided tape to secure and make sure that the transmitter module cannot touch any conductive parts as a short circuit would destroy the module immediately!
- Connect the red wire to the right rail pickup.
- Connect the black wire to the left rail pickup.
- The two dark-brown wires are for firmware updates using the LokProgrammer. Isolate these cables thoroughly with heat shrink or consider a 2 pin plug / socket arrangement.

5. Commissioning

5.1. Programming with DCC

From the factory, the transmitter module will send the default address 3. Since this is usually not the address of the locomotive in which you have installed the module, you need to first program the address again.

To do this put the vehicle on the programming track and write the address again. Thus, the RailCom® transmitter module is set to the correct address and which it sends immediately for position detection.

5.2. Read CV

As mentioned, the RailCom® transmitter module reflects all CVs in the range of 1 - 256. A CV write command which is actually sent to the original decoder is "tapped" and stored in the Transmitter module. When you next read these CVs the RailCom® transmitter module replies instead of the original decoder.

To make it work, the RailCom® transmitter module must know all CV values of the original decoder. For this purpose, all CVs of the original decoder must first be read and written back via the programming track. If the CVs of the transmitter module are not re programmed, the value 0 is returned via PoM.

5.3. Programming with the LokProgrammer

The ESU LokProgrammer is very convenient as all CVs can be programmed at the same time.

- Place the vehicle on the programming track, which is connected to the LokProgrammer and run the software.
- Make sure you read the CV data of the decoder.
- Then write the CV data back to the decoder.
- The transmitter module will now mirror all CVs of the original decoder.

6. Firmware Update

If there are any changes to the RailCom® standards, the transmitter module can have a firmware update by using the ESU LokProgrammer 53451.

For this purpose, the transmitter module vehicle must be removed from the track. Connect the two brown wires to the LokProgrammer.

You can now read the transmitter module with LokProgrammer software from version 4.4.14 and update new firmware. Using the menu item "Tools" - "Update decoder firmware". After updating, the transmitter module must be reprogrammed.

8. Specifications

Operating Voltage	4 - 24V 0 / ~
modes	DCC with 14, 28 and 128 speed steps (automatic detection)RailCom® feedback
Dimensions	11.0mm x 9.0mm x 3.5mm