



16-fold Feedback Module

for the s88-feedback bus

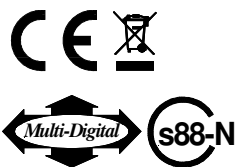
from the *Digital-Professional-Series!*

RM-88-N-G Part-No.: 310113

>> finished module in a case <<

- ⇒ with 16 input connections, switching against ground (e.g. for contact tracks [one isolated rail], switch tracks or reed-contacts).
- ⇒ for s88-standard connections and s88-N (with 6-poles s88-pinbars as well as RJ-45 sockets and suitable for 5 and 12V bus voltage).
- ⇒ suitable for the digital control:
Märklin-Digital~/=, CS 1, 2, 3 plus and L88, Intellibox, TWIN-CENTER, HSI-88(-USB), EasyControl, ECoS, DiCoStation.

This product is not a toy! Not suitable for children under 14 years of age! The kit contains small parts, which should be kept away from children under 3 years of age! Improper use will imply danger of injuring due to sharp edges and tips! Please store this instruction carefully.



The Märklin Module Link L88 (60883) provides the operation of 31 RM-88-N per bus line.

All feedback modules will receive the operating current from the s88-feedback bus.

If you want to extend your layout with RM-88-N feedback modules you can combine those with our feedback modules RM-DEC-88(-Opto), RM-88-N-O, RM-GB-8(-N) respectively with s88 feedback module of other manufacturers.

The addresses of the feedback modules are related to the sequence of the connection to the command station respectively to the interface. The feedback module, which is directly connected to the central unit, will receive always the address 1. Further details can be found within the operation instruction of your command station respectively your interface.

The feedback module RM-88-N contain two 6-poles pin-bars for the s88-standard connection and as well two RJ-45

sockets for a bus connection according to s88-N. At the RM-88-N are pin-bars and sockets marked with OUT and IN.

Out indicates the connection in direction to the command station or interface. IN indicates the connection to the next following feedback module within the s88-bus line.

Command stations and interfaces are always equipped with an s88-input for an s88-standard connection.

For the s88-standard connection is an interference protected twisted s88-bus cable with original s88-bus plugs available.

The plugs of the s88-bus cable are correct attached onto the 6-poles pin-bar of the RM-88-N if the white single wire corresponds with the white marking on the pc-board next to the pin-bar.

Introduction / Safety Information:

You have purchased the feedback module RM-88-N for your digital model railway.

The RM-88-N is a high quality product, which is supplied within the *Digital-Professional-Series* of Littfinski DatenTechnik (LDT).

We are wishing you having a good time using this product.

The finished modules in a case come with **24 month warranty**.

- Please read the following instructions carefully. Warranty will expire due to damages caused by disregarding the operating instructions. LDT will also not be liable for any consequential damage caused by improper use or installation.
- **Attention:** Please switch-off your digital control unit and unplug all transformers from AC-current before starting any installation.

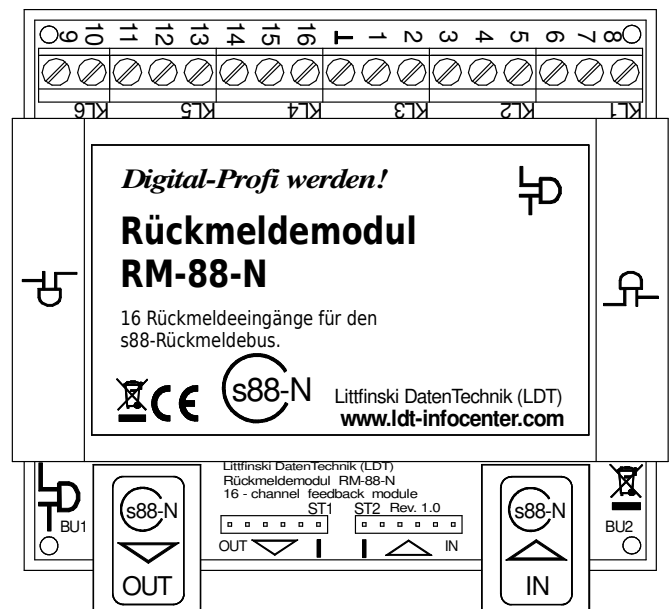
General functions:

The feedback module RM-88-N contains 16 inputs, which will switch against ground. The module is compatible to the Märklin feedback module s88.

Connecting the RM-88-N to command stations or interfaces:

Up to 31 feedback modules RM-88-N can evaluate the reports of a Märklin INTERFACE, Central Station 1, 2 and 3 plus, Intellibox, TWIN-CENTER, EasyControl, ECoS, HSI-88(-USB) and DiCoStation.

On each Märklin Memory can be up to 3 feedback modules RM-88-N connected.



The direction of the cable has to be directly away from the feedback module. Additionally attend to the position of the plugs on the 6-poles pin-bars. No offset will be acceptable.

For the s88-N s88-bus connection we offer a screened blue patch-cable with RJ-45 plugs.

Attention: Command stations with PC-network connection (e.g. Central Station 1, 2 and 3 plus and ECoS) contain as well a RJ-45 socket. It is not acceptable to connect the RM-88-N to the RJ-45 network sockets.

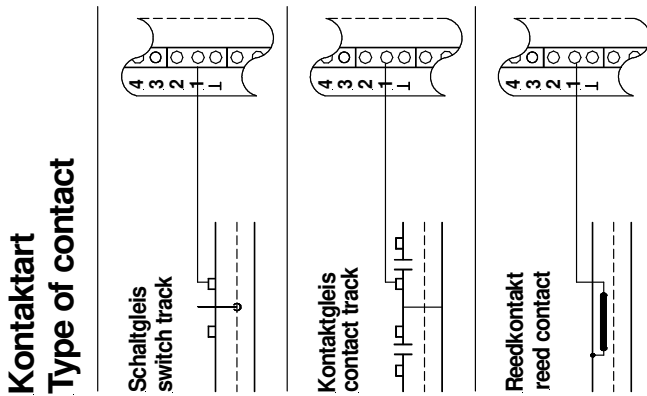
Connection of contacts:

1. Three-conductor rail-system

At the feedback module **RM-88-N** all contacts can be connected which are switching against ground (mostly **digital wire "brown"**).

Therefore is it possible to switch against the feedback module connection clamp marked \perp or against the connection 0 (brown) of the rails.

Switch rails, contact rails and **reed-contacts** can be connected to the clamps 1 to 16 as shown below.



At section 2 (two-conductor rail system) you can find an additional possibility to connect reed-contacts. The second connection of the reed-contact will not be soldered to the connection 0 of the track but connected to the ground clamp \perp at the feedback module.

All shown above connections are conform exactly to the known wiring of the Märklin feedback module s88.

Further sample connections can be found at the Internet on our Web Site (www.ldt-infocenter.com) at the section "**Downloads**" and "**Sample Connections**".

Beside the single sample connections we recommend the file "**RM-88_Info**" within the section "**Downloads**".

To avoid interferences and wrong occupancy reports by feedback module, which are switching against ground, is it recommended not to install the connection cable to the 16 inputs together with digital current carrying cables (e.g. common cable channel).

If the connection cables to the contacts are very long and installed very narrow (e.g. within one cable with several wires) it can even come to some signal transfer between two wires. Although only one section is actually occupied several sections can be reported to be occupied.

But also the particularly simple **track occupied report** from **contact rails** (one isolated rail) can initiate problems because the isolated rail runs inevitable parallel to the digital current carrying middle conductor.

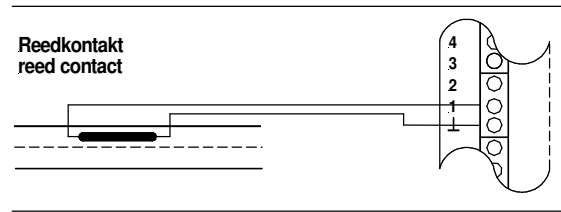
As longer a contact track as sooner interferences are possible. As a result the input can be switched temporarily to be occupied although no train is on the respective track section.

The described problems can be solved by using interference **suppression diodes** or **decoupling diodes** before the single inputs. A sample wiring can be found on our Web Site at the section "**Sample Connections**".

Alternative is it possible to use the feedback module **RM-88-N-O** that is less sensitive against interferences due to **opto-coupling inputs**.

2. Two-conductor rail-system:

If you use **reed contacts** or other **potential-free contacts** for feedback signals on your layout you can install the wiring to the feedback module **RM-88-N** as shown at the below circuit.



Even the **shortest switch impulses** will be transferred by the feedback module **RM-88-N** because they will be **stored** via the **s88-feedback bus** until the digital control unit or the interface will request this information.

Feedback module from our **Digital-Professional-Series** are easy to use on your digital model railroad, as they **are 100% compatible** with the s88 feedback bus.

Further products from our Digital-Professional-Series:

RM-88-N-O

16-fold feedback module with integrated **opto coupling-inputs** for the s88-feedback bus.

RM-GB-8

8-fold feedback module with integrated occupancy detectors for the s88 feedback bus.

S-DEC-4

4-fold turnout decoder for 4 magnet accessories with free programmable decoder addresses and possible external power supply.

M-DEC

4-fold decoder for motor driven turnouts. For motors up to 1A. With free programmable decoder addresses. Drives can be connected directly with the decoder output.

LS-DEC

Light signal decoder for up to 4 LED train signals. Signal signs will be originally dimmed up and down and directly positioned via the decoder address.

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