



16-fold feedback module

from the *Digital-Professional-Series!*

RM-DEC-88-F Part-No.: 310312

As s88 with 16 inputs.

>> finished module <<

For connection to the following digital units:

- ⇒ **INTERFACE** (up to 31 modules)
Märklin-Digital- \neq and Arnold-Digital
- ⇒ **MEMORY** (up to 3 modules)
Märklin-Digital- \neq and Arnold-Digital
- ⇒ **Intellibox / TWIN-CENTER** (up to 31 modules)
Uhlenbrock/Modeltreino / Fleischmann
- ⇒ **High Speed Interface** (up to 31 modules)
Littfinski DatenTechnik (LDT)

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.

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Introduction / Safety Information:

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

The **RM-DEC-88** 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 come with a **2-years warranty**.

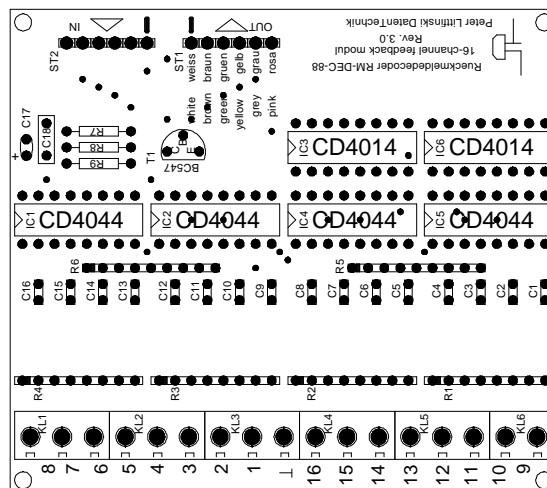
- Please read the following instructions carefully. Warranty will expire due to damages caused by disregarding the operating instructions. LDT will also not be liable for any consequential damage caused by improper use or installation.

Connecting the module to your digital layout:

- **Attention:** Please switch off your model railway by disconnecting the transformers from AC-current before starting any installation.
- Connect the 6-pole plug to the Märklin-INTERFACE, Märklin-MEMORY, Intellibox or TWIN-CENTER or existing s88 feedback modules with the direction of the connection cable to the bottom side. The plugs of further connected feedback modules have to be connected in a way to the 6-pole pin-plug-bar that the cable will be directed away from the pc-board. The white marking at one side of the pin-plug-bar has to correspond to the white single wire of the s88-bus cable of the following modules.

General Functions:

The feedback module **RM-DEC-88** with 16 inputs is 100% compatible to the s88.



The feedback module **RM-DEC-88** is suitable for decentralized installation below the model railway layout. There are 4 bores on the pc-board for quick and easy installation. A suitable installation kit consisting of four distance spacers and four wood-screws is available under the order code MON-SET. An exact matching case for the feedback module can be ordered under coder LDT-01.

The modules can be connected to each other by a bus-cable of 75cm length. In case this distance has to be extended it is possible to order a **2 meter cable extension** under order code Kabel s88.

Connection to Märklin-Memory / INTERFACE, Intellibox / TWIN-CENTER or High Speed Interface HSI-88:

Up to 3 feedback modules can be connected to each **MEMORY**.

The feedback signals of up to 31 modules can be controlled by connection to **Märklin-INTERFACE**, **Intellibox** or **TWIN-CENTER** and **HSI-88**.

After switching on the power to the digital system the feedback modules will be numerical identified at the sequence as they are connected to the central unit.

For example, the first feedback module directly connected to the **MEMORY** will be addressed to the key-group **A1 to A8**.

Contacts 1 to 8 of the **MEMORY** will perform switching tasks (like a request of a drive-track) whereas contacts 9 to 16 are responsible for circuit release (e.g. hold tracks occupied).

Märklin-INTERFACE, **Intellibox** or **TWIN-CENTER** and **HSI-88** do not use this kind of differences of subdivisions at switching and release. All 16 inputs have equal access (activated or not activated).

If you intend to extend your model railway with **RM-DEC-88** feedback modules you can easily combine these with any existing s88 modules.

Please make sure that the digital layout has been switched off when connecting the decoders with the 6-pole plug. Check carefully the correct orientation of the plugs.

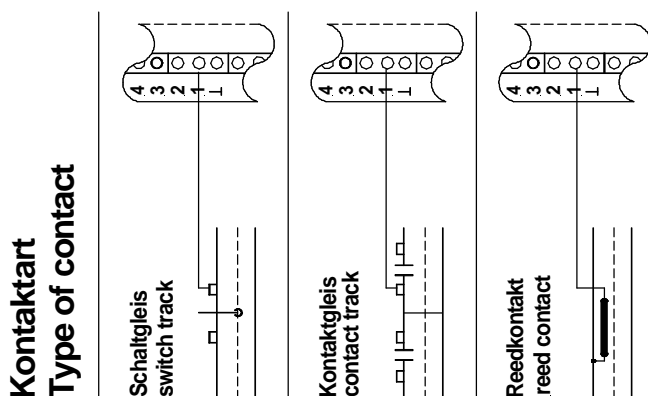
Connection of contacts:

1. Three-rail conductor system:

With the feedback module **RM-DC-88** all contacts can be connected which are switched to ground (brown cable).

Therefore it can either be switched against the input clamp of the feedback module marked with ^ or to the connection 0 (brown) of the rail.

Switch rails, contact rails and reed contacts can be connected to the clamps 1 to 16 of the feedback module as shown below:



At section 2 you can find a further possibility to connect reed contacts to the RM-DEC-88. The second connection of the reed contact will not be soldered to input 0 of the rail but connected to the ground clamp (^) at the feedback module.

All shown above connections conform exactly to the wiring known from the s88.

For further examples please visit our web-site (www.ldt-infocenter.com) at the section "Downloads" and "Sample Connections". Beside the single sample-connections we recommend the file "rmdec_info_engl" at the section "Downloads".

The 16 inputs of the **feedback module RM-DEC-88** and **s88** are reacting very **sensitive to electrical interferences**. Therefore no current-carrying wires (e.g. digital voltage) should cross the cables, which are connecting the inputs of the feedback modules.

Especially the simple **occupied track report** via **contact rails** can lead to problems as the isolated rail and the connection cable to the feedback module can easily catch electrical interference. As a result the input can be switched temporarily to "occupied" although no train is on the respective track section.

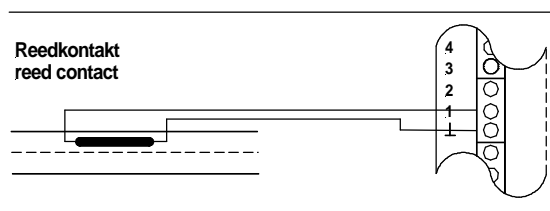
This can be avoided by using our **feedback module RM-DEC-88-Opto** which is **insensitive against interferences due to preconnected opto coupling inputs**.

If the connection wires to the contacts are very long and installed very narrow it can even come to some signal transfer between two wires. Although only one section is actually occupied some more sections can be reported to be occupied.

This can be avoided by using **suppress- or decoupling diodes** before the single feedback inputs. A sample wiring can be found on our web-site at the section "**Sample Connections**".

2. Two-rail conductor system:

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



Even the shortest switch impulses will be transferred from the feedback module and they will be stored until the control unit will request this information via the feedback bus.

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

Accessories:

For safe **installation** of the pc-board below your model layout we offer an **installation set** under the order code **MON-SET** and a stable exact matching **case** (order code: **LDT-01**).

Further products from our **Digital-Professional-Series**:

S-Dec-4

4-fold turnout decoder for four magnet accessories with free programmable decoder address and external power supply possibility.

SA-DEC-4

4-fold switch decoder with four bistable relays and free programmable decoder address and external power supply possibility.

RM-DEC-88-Opto

16-fold feedback module with integrated opto couplings for the s88-feedback bus for connection to **MEMORY** and **INTERFACE (Märklin/Arnold)**, **Intellibox** or **TWIN-CENTER** and **HSI-88**.

RM-GB-8

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

Made in Europe by
Littfinski DatenTechnik (LDT)
Kleiner Ring 9
D-25492 Heist/Germany
Phone: 0049 4122 / 977 381
Fax: 0049 4122 / 977 382
Internet: <http://www.ldt-infocenter.com>

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