

Sample connections for feedback module RM-88-N and RM-88-N-Opto!

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1. Connect feedback modules to digital central control units and interfaces

General:

Under the order code **Kabel s88 0,5m**, **Kabel s88 1m** and **Kabel s88 2m** are **s88-bus cables** as **accessory** for the feedback module **RM-88-N** and **RM-88-N-O** available. The **s88-bus cables** are manufactured with **twisted wires** and are **interference protected** and contain two **original s88-bus plugs**.

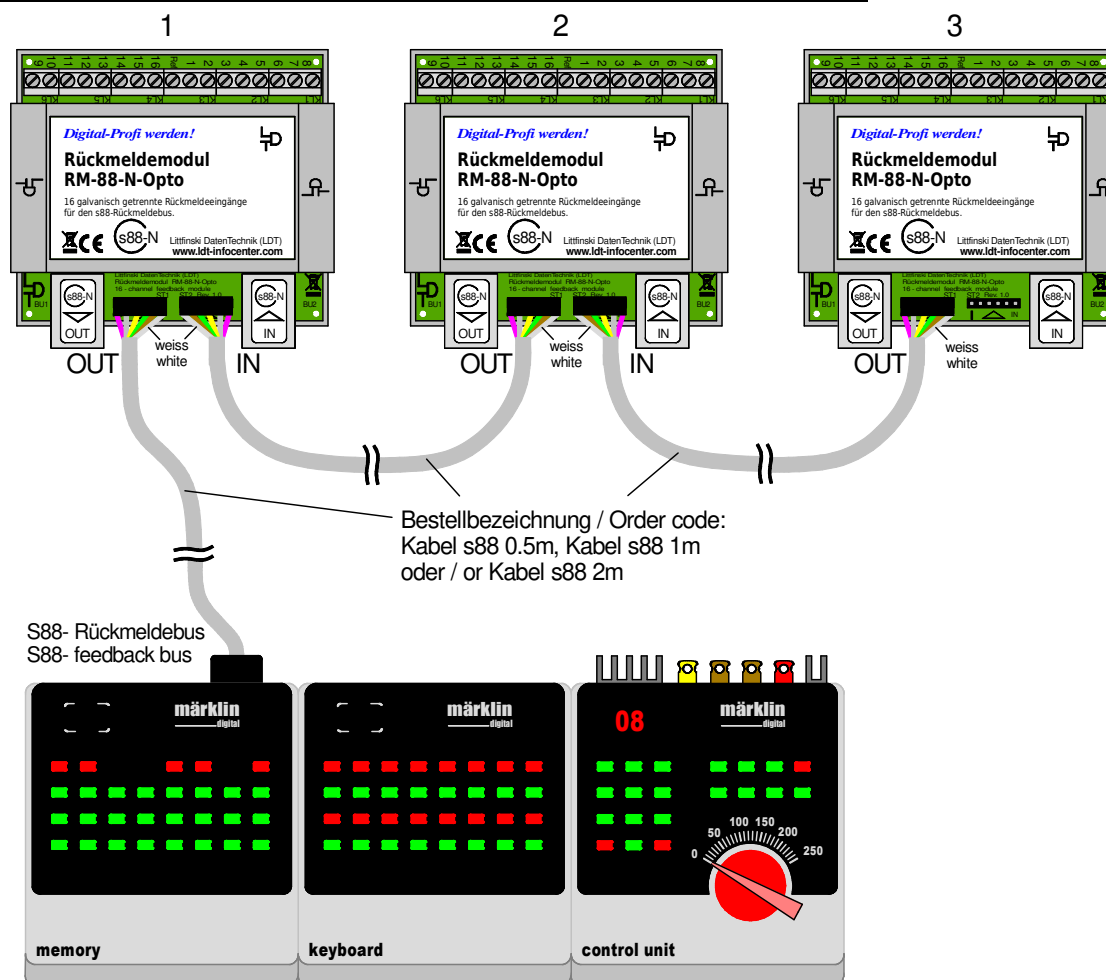
Connect **one of the two bus-plugs** that way onto the **6-poles pin bar**, which is marked **OUT** that the **white single wire** of the bus cable will **correspond** to the **white marking** right hand to the pin bar.

Connect the second **6-pole bus plug** of the **bus cable** to the **INTERFACE, MEMORY, Intellibox / TWIN CENTER ECoS** or **s88-feedback modules of other manufacturer** with the **bus cable facing to the bottom**.

Please pay special attention that the **digital system** has been **switched-off** during connection of the 6-pole plug to the decoders.

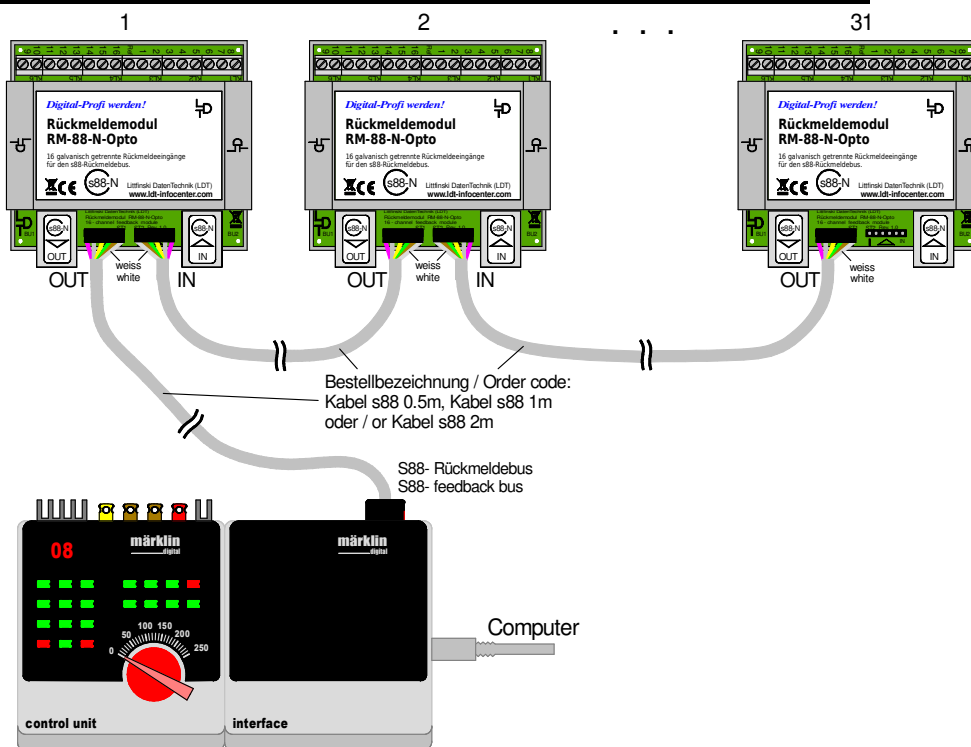
Check careful the **correct orientation** of the plugs.

1.1 Connect feedback modules to the MEMORY



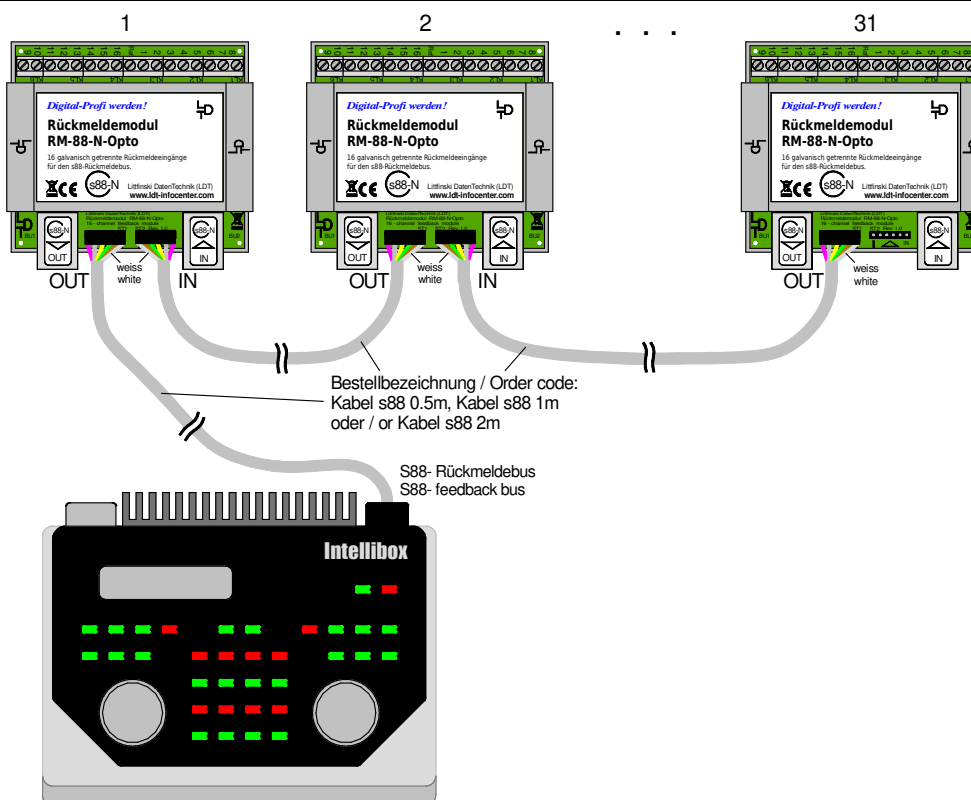
Up to 3 RM-88-N or RM-88-N-O can be connected to the MEMORY.

1.2 Connect feedback modules to the INTERFACE



Up to 31 RM-88-N or RM-88-N-O can be connected to the INTERFACE.

1.3 Connect feedback modules to the Intellibox / TWIN CENTER



Up to 31 RM-88-N or RM-88-N-O can be connected to Intellibox / TWIN-CENTER.

2. Three-conductor-system

2.1 Switch rails with RM-88-N and RM-88-N-O

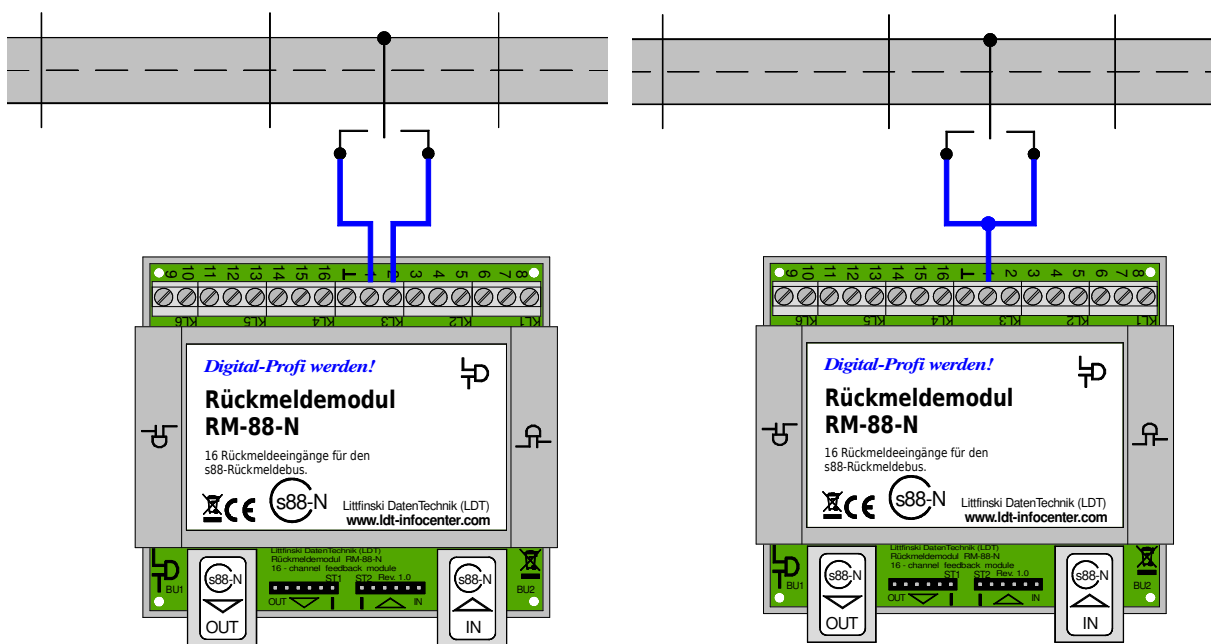
With the Märklin switch rails is it possible to create drive-direction-dependent (left draft) and drive-direction-independent (right draft) feedback information. The contact will be released via the vehicle pick-up shoe. As one side of the switch is stationary connected to the rail-ground (brown) only the two remaining contacts of the switch have to be connected to the inputs of the feedback module **RM-88-N**.

For example: as a vehicle drives from right to left the pick-up shoe will close the left contact. The feedback module **RM-88-N** or the **RM-88-N-O** keeps this switch-event in the memory until this information will be recalled via the feedback bus from the digital central unit or the interface. Even if the switch-rail will be a quick-action-switch no switch-event will be lost.

Switch rails for C-track: 24994, 24294, and 24194.

Switch rails for M-track: 5146, 5147, and 5213.

Switch rails for K-track: 2299, 2229, and 2239.

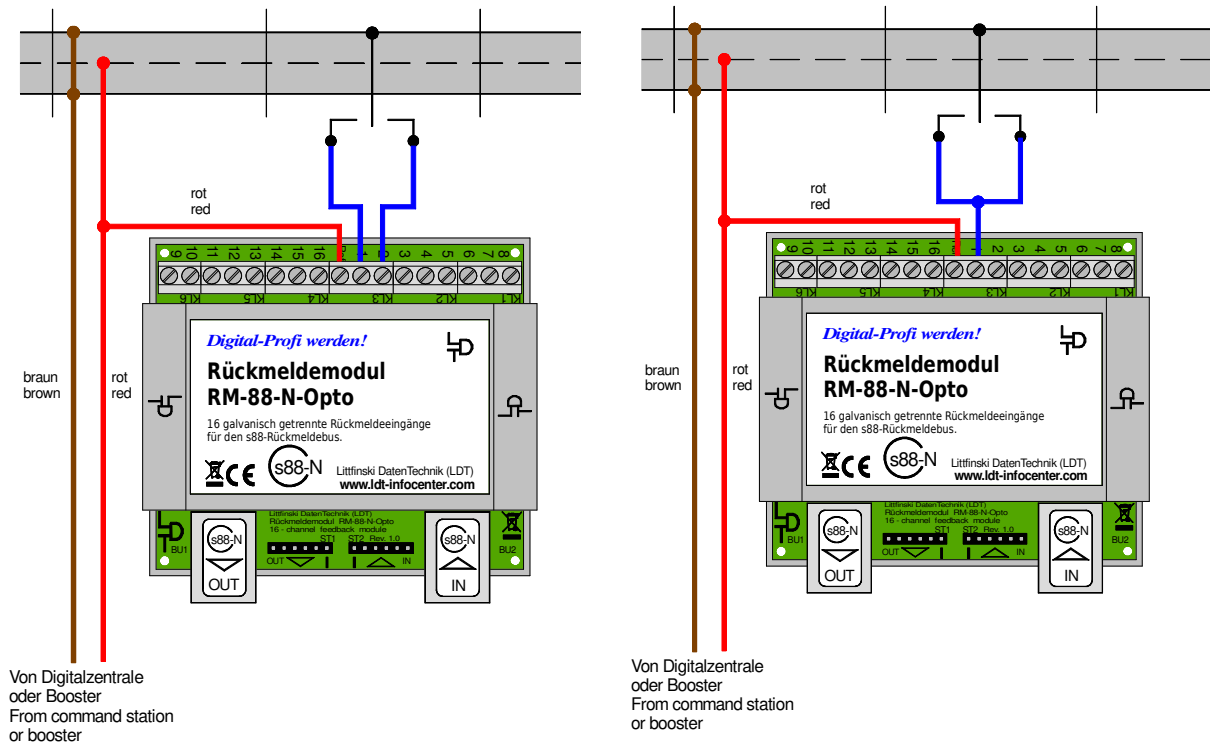


Drive direction dependent feedback with switch-rail and RM-88-N

Drive direction independent feedback with switch-rail and RM-88-N

The following drafts show the wiring with the feedback module **RM-88-N-O**.

As the opto-coupling inputs require a low switch-current to assure the feedback signal to be free from interferences the rail center conductor has to be connected to the screw-clamp marked **Ref**.



Drive direction dependent feedback with switch-rail and RM-88-N-O

Drive direction independent feedback with switch-rail and RM-88-N-O

2.2 Contact-rails with RM-88-N and RM-88-N-O

It is easy to create track-occupancy feedback with the Märklin contact-rails. It is possible to isolate one of the two rails on both sides.

Each conductive axle of a vehicle creates on the isolated track section a connection to ground (brown) of the non-isolated rail.

The following draft shows that the isolated rail has simply to be connected to the feedback module **RM-88-N**. On this way is it possible to monitor the occupancy status of up to 16 track sections, with one feedback module.

On C- and K-rails is it easy to produce the isolated track section by separating the respective rail by a saw cut. On the M-rail is this not possible as the total track body is electrical conductive.

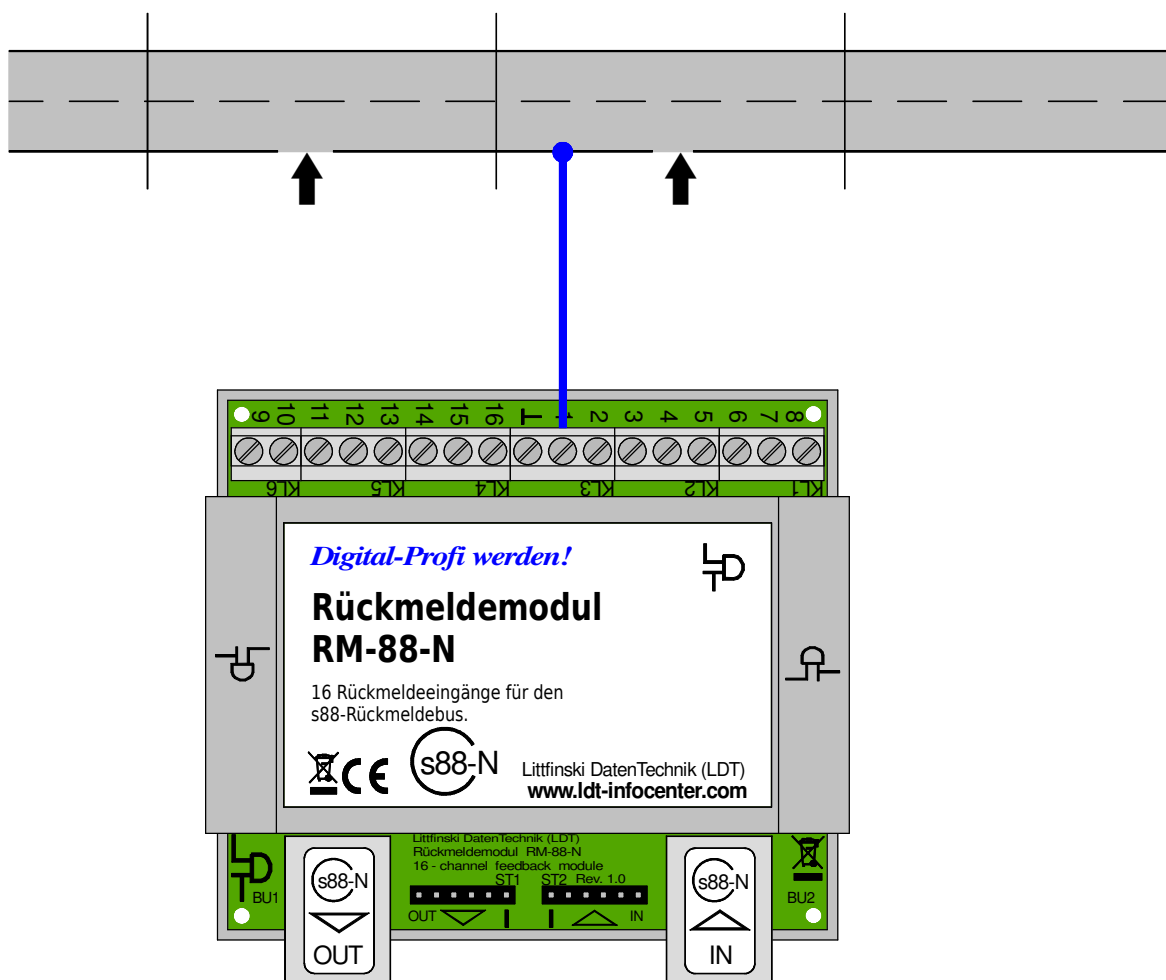
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Therefore is it required either to use original M-contact-rails or to use our feedback module with integrated occupancy detection **RM-GB-8-N**.

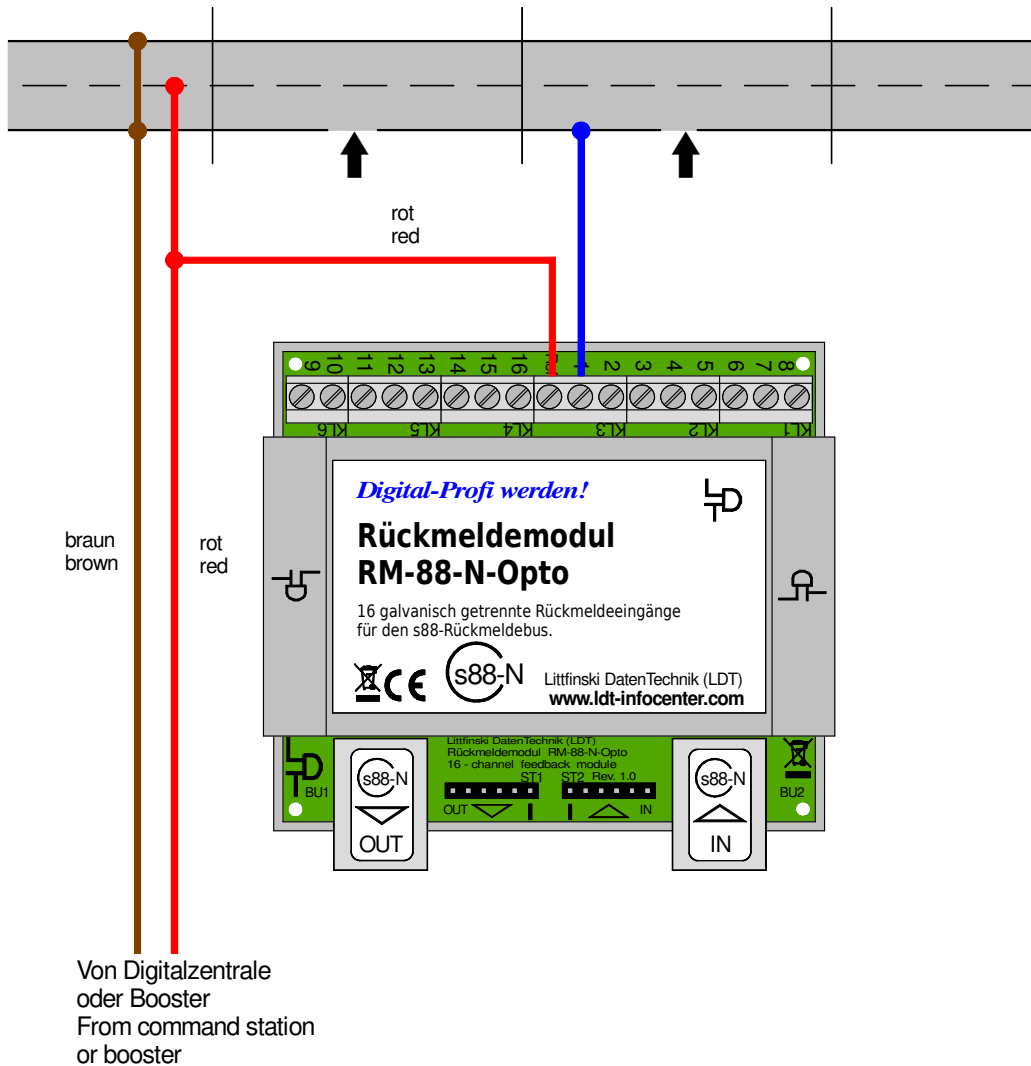
This module is special recommended in case you intend to install your existing M-rails into a hidden siding. There is a track occupancy report absolutely essential and with our **RM-GB-8-N** is the realization at a considerable low price without expensive M-contact-rails possible.

- Contact rails for C-tracks: 24995.
- Contact rails for M-tracks: 5145, 5115, and 5116.
- Contact rails for K-tracks: 2295.



Track occupancy feedback monitoring with contact-rails and RM-88-N

The next draft shows the wiring with the feedback module **RM-88-N-O**. As the opto coupling input requires a low switch-current to assure an interference free feedback signal, the rail middle conductor has to be connected to the screw-clamp marked **Ref**.



Track occupancy feedback monitoring with contact-rails and RM-88-N-O

2.3 Reed-contact with RM-88-N and RM-88-N-O

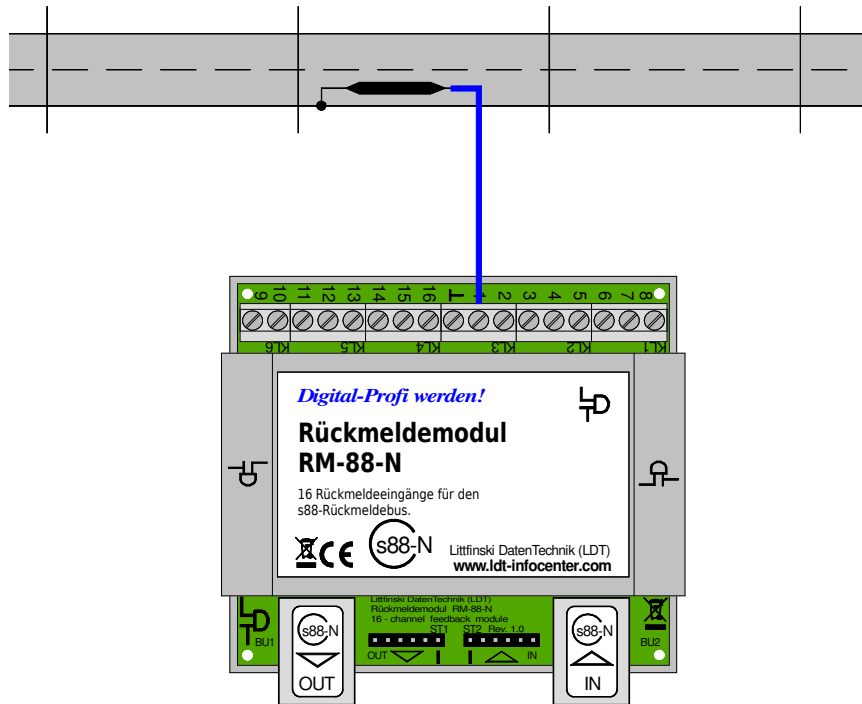
The Märklin reed-contact 7555 is a quick action switch, which can be integrated into the rail. Each vehicle equipped with a magnet will release this contact. The feedback module **RM-88-N** or the **RM-88-N-O** will keep this event at the memory until the information will be transmitted to the digital central unit or interface.

Even if fast-driving trains will pass no switch-event will be lost.

Customary reed-contacts can be used instead of the Märklin reed-contacts. We can supply two types: **REED 1** with a length of 10mm and **REED 2** with a length of 15mm. Further details are available within our price-list.

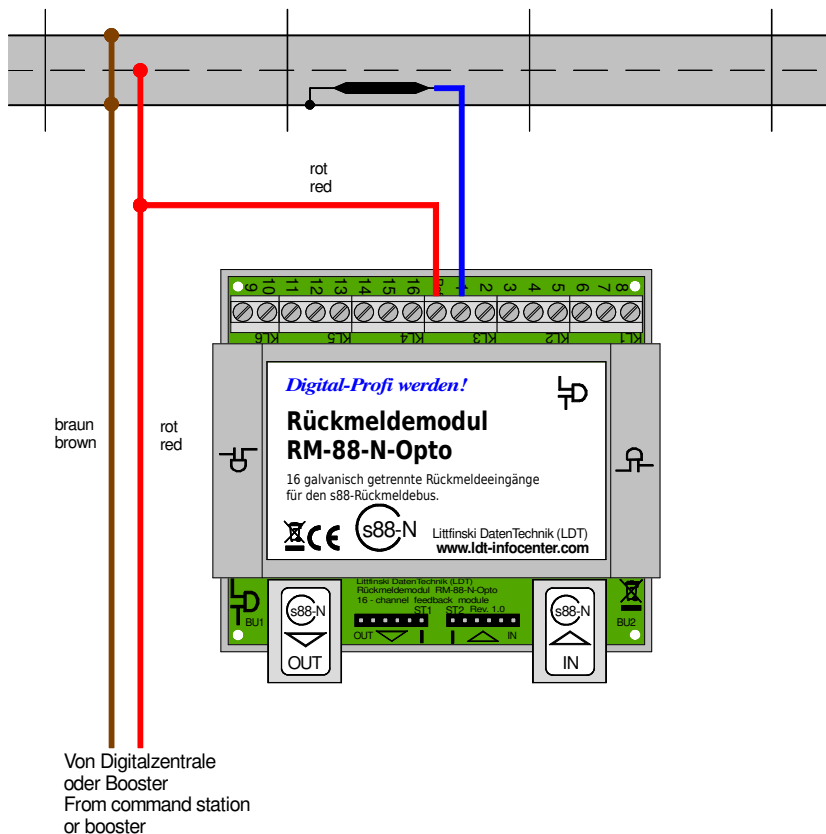
As shown in the draft one side of the contact shall be soldered to one of the two rails (ground, brown). The other side of the contact shall be connected to the input of the feedback module **RM-88-N**. On this way each feedback module can monitor up to 16 reed-contacts.

Reed contact for C-, M- and K-tracks: 7555



Feedback monitoring with reed-contacts and RM-88-N

The following drafts show the wiring with the feedback module **RM-88-N-O**. As the opto coupling input requires a low switch-current to assure an interference free feedback signal the rail middle conductor has to be connected to the screw-clamp marked **Ref**.



Von Digitalzentrale
oder Booster
From command station
or booster

Feedback monitoring with reed-contacts and RM-88-N-O

3. Two-conductor-system

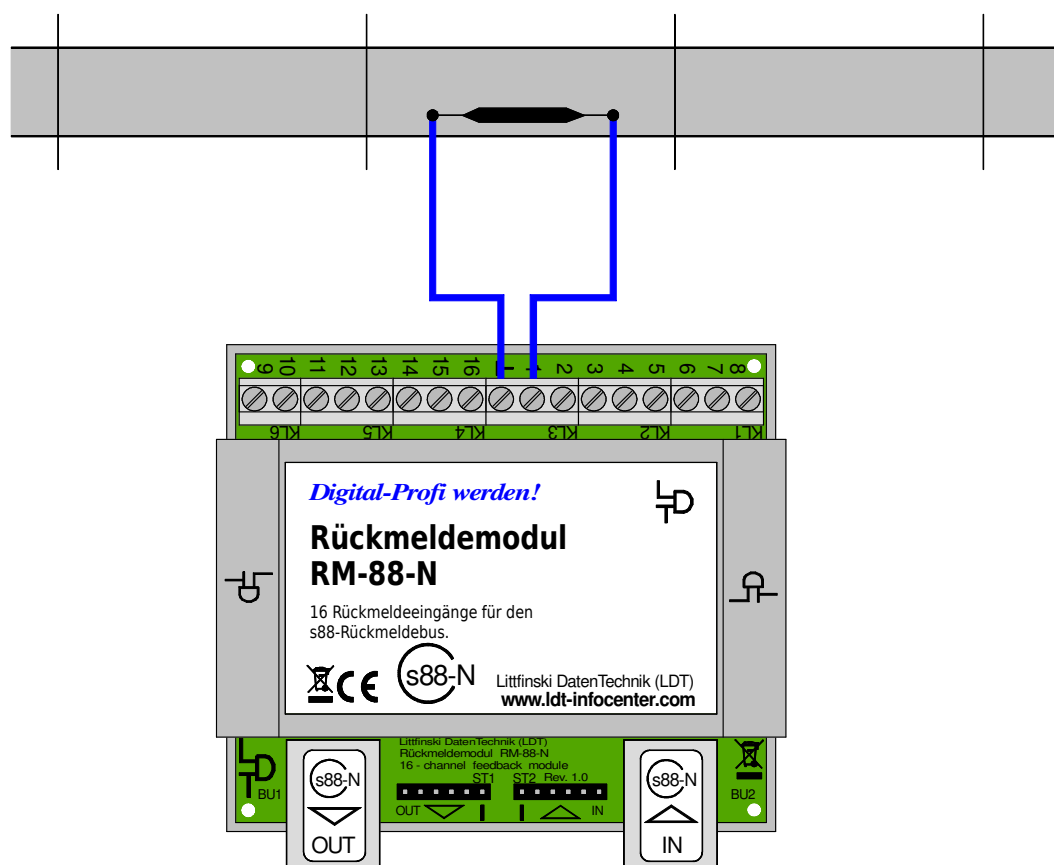
3.1 Reed-contact with RM-88-N and RM-88-N-O

The reed-contacts are quick action switches, which can be integrated into the rail. Each vehicle equipped with a magnet will release this contact. The feedback module **RM-88-N** or the **RM-88-N-O** will keep this event at the memory until the information will be transmitted to the digital central unit or interface.

Even if fast-driving trains will pass no switch-event will be lost.

Customary reed-contacts can be used instead of the original reed-contacts. We can supply two types: **REED 1** with a length of 10mm and **REED 2** with a length of 15mm. Further details are available within our price-list.

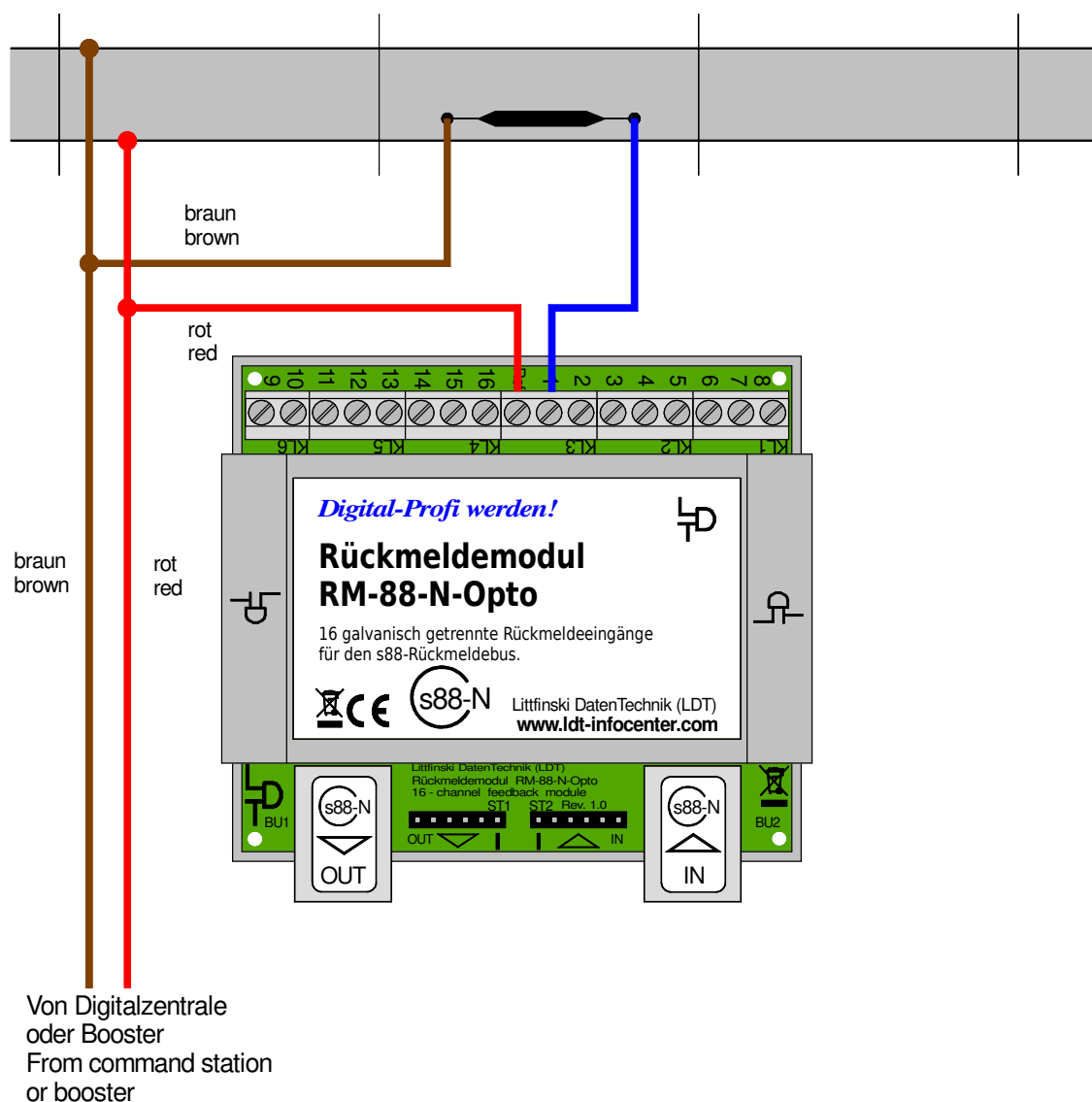
As shown in the draft one side of the reed-contact shall be connected to the central ground (\perp) of the feedback module **RM-88-N**. The other side of the reed-contact shall be connected to the input of the feedback module **RM-88-N**. On this way each feedback module can monitor up to 16 reed-contacts.



Feedback monitoring with reed-contacts and RM-88-N

The following draft shows the wiring with the feedback module **RM-88-N-O**. As the opto coupling input requires a low switch-current to assure an interference free feedback signal the rail middle conductor has to be connected to the screw-clamp marked **Ref**.

One connection of the reed-contact has to be connected to the second power supply wire. The second connection of the reed-contact has to be connected to one of the 16 inputs of the feedback module **RM-88-N-O**.



Feedback monitoring with reed-contacts and RM-88-N-O

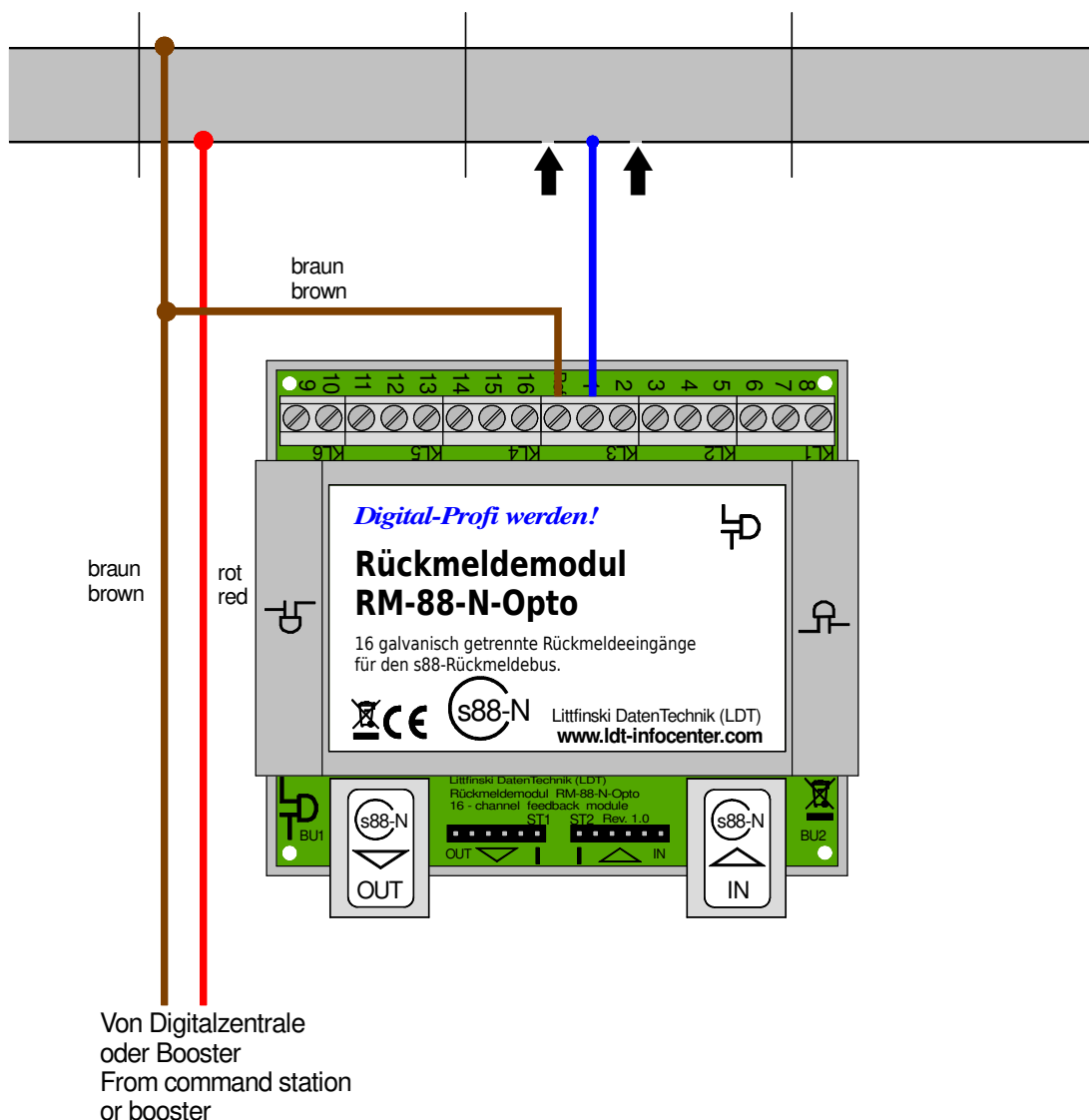
3.2 Contact-rail as quick action switch with RM-88-N-O

With reason to the galvanic separation is it possible to create a simple quick-action switch with our feedback module **RM-88-N-O** by isolating a small rail section. In accordance to the nominal size the isolated section should be about 3 to 5mm long.

Every passing wheel will release a contact during it passes the separated section because the isolated section will be intermittent supplied with power from the non-isolated section during this period.

The feedback module **RM-88-N-O** will keep this event at the memory until the information will be transmitted to the digital central unit or interface.

Even if fast-driving trains will pass no switch-event will be lost.
 This is a very cheap method to create a feedback contact at the two-conductor-system.



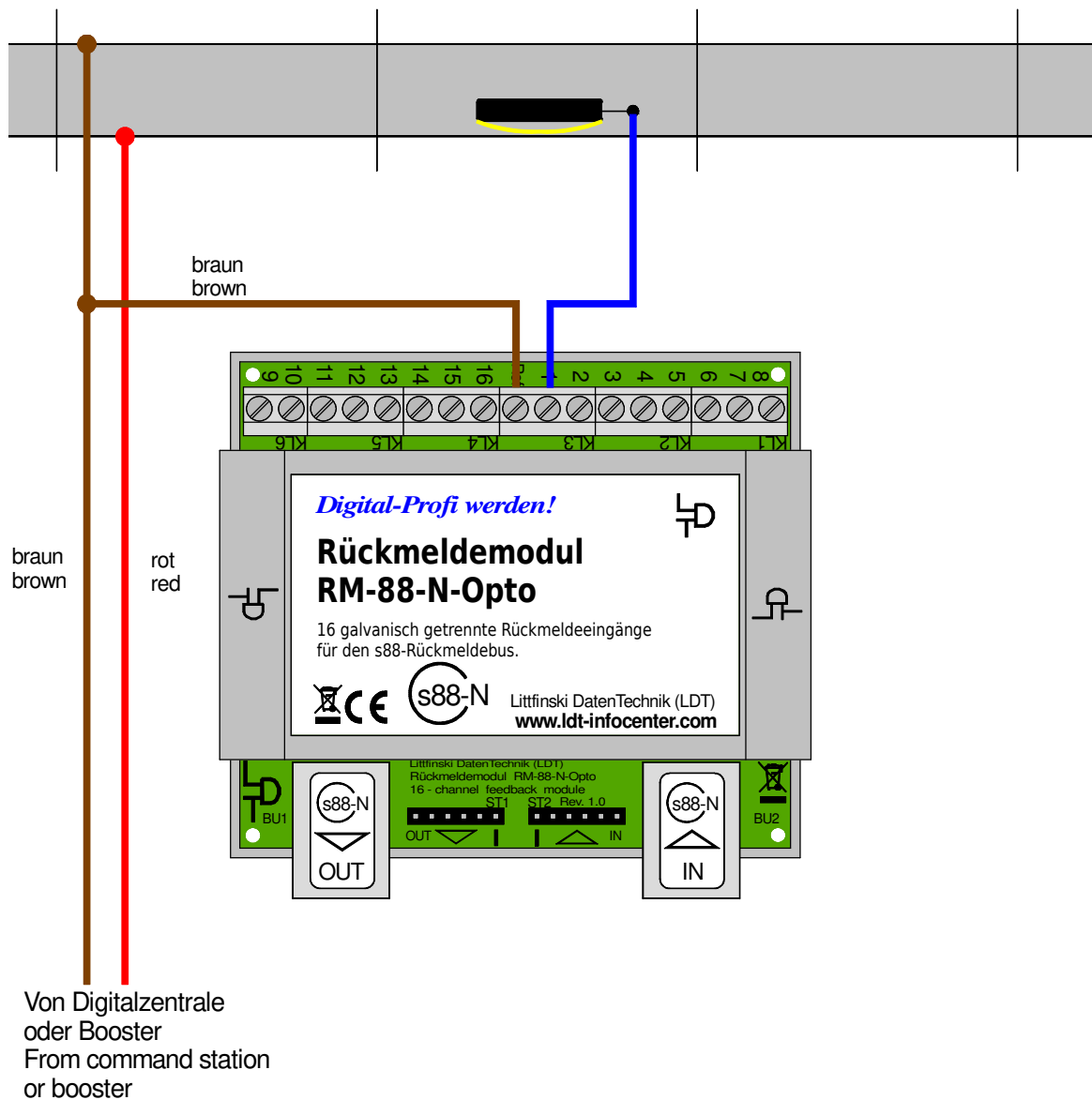
3.3 Contact-rail-switch with RM-88-N-O

For the contact-rail-switch (e.g. from Arnold, Part No. 7440) each passing metal wheel will create an electrical connection to the current-carrying rail. As this kind of feedback is not potential free is it an excellent application for our **RM-88-N-O** because of its galvanic separation. The following wiring-draft shows the connection of a contact-rail-switch to the feedback module **RM-88-N-O**.

As soon as a metal wheel moves into the switching section current will flow into the connected feedback input.

The feedback module **RM-88-N-O** will keep this event at the memory until the information will be transmitted to the digital central unit or interface.

Even if fast-driving trains will pass no switch-event will be lost.



Feedback monitoring with contact-rails and RM-88-N-O

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