Littfinski **D**aten**T**echnik (**LDT**)

Operating Instruction

16-fold feedback module

from the *Digital-Professional-Series* !

RS-16-O-G Part-No.: 310203

>> finished module in a case <<

As **LR101** but with 16 inputs and additional opto-coupling for potential separation and for high interference safety.

Suitable for the RS-feedback bus

⇒ **controls up to 16 feedback contacts**
(safe galvanic separation by opto coupler).

⇒ **separated by opto coupler**
(contacts can be separated from layout ground connection).

⇒ **compatible to RS-feedback bus**
(can be operated together with RS-8, LR101, LS100 etc.).

⇒ **suitable for Lenz Digital plus System.**

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! Improper use will imply danger of injuring due to sharp edges and tips! Please store this instruction carefully.

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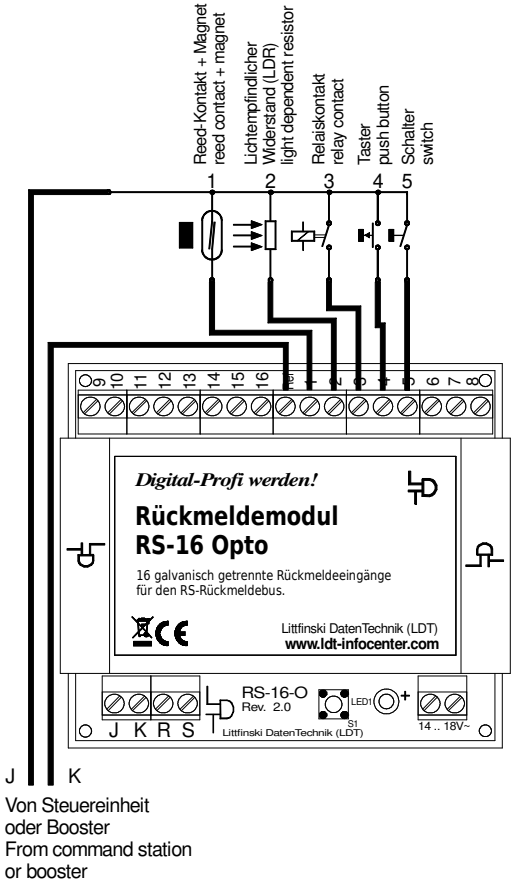
Digital Current: Connect the clamps J and K of the 4-poles clamp to the identical marked clamps on a booster (LZV100 / LV101 / LV102 / LV200).

General Functions:



Introduction / Safety Information:

You have purchased the 16 fold feedback module **RS-16-O** with galvanic separation by opto-coupler for your model railway. The **RS-16-O** is a high quality product that is supplied within the ***Digital-Professional-Series*** of **L**ittfinski **D**aten**T**echnik (**LDT**).

We wish you having a good time using this product.

The feedback module **RS-16-O** can be easily operated on the RS-feedback bus of your digital model rail way.

The finished modules 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 be not liable for any consequential damages caused by improper use or installation.

Connecting the RS-16-O to your digital model railway:

- **Attention: Please switch off your digital control unit and unplug the transformer from AC-current before starting to assemble the unit.**
- **Power Supply: Connect the feedback module at the 2-pole clamp with your model train transformer (14 to 18V AC). It is also possible to connect the RS-16-O module directly to the digital circuit. In this case clamps J and K have to be connected with the booster (LZV100 / LV101 / LV102 / LV200).**

  Feedback bus: Connect the input R and S at the 4-pole clamp to the identically marked clamps of the central unit LZV100 / LZ100. Further feedback modules (RS-16-O, RS-8, LR101, LS110 etc.) shall be simply connected in parallel.

The feedback module **RS-16-O** reports the switch events of any contact to the central unit LZ100 via the RS-bus. Up to **16 contacts** can be connected to the **RS-16-O.**

The **feedback events** can be monitored on the **hand controller LH-100.** Further is it possible to report the feedback events to the **personal computer** via the **Interface LI100** by using a suitable **model railway software**.

The **16 inputs** of the **RS-16-O** are equipped with **opto couplers** to be able to report **different electrical potentials**. A **common ground** connection of the power supply and the feedback contacts **is not required.**

The middle input **Ref** of the 17-poles clamp is the **common pole** of the feedback contacts.

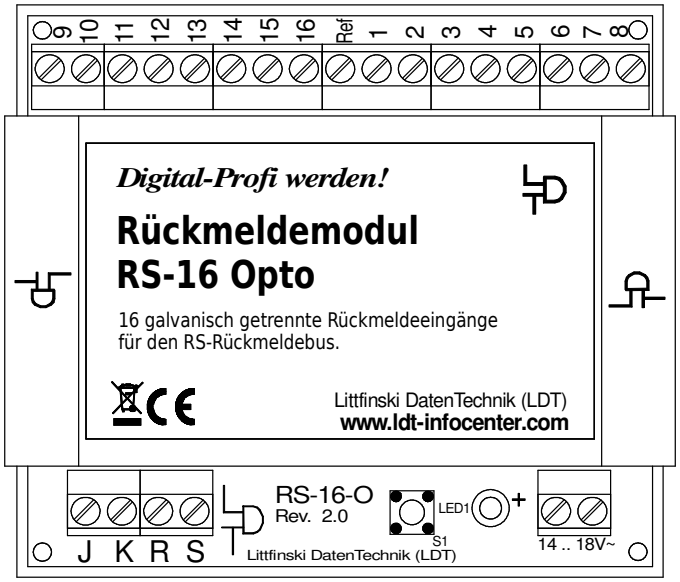
The **usual dc and digital voltages of the model rail road** are suitable for the power supply of the feedback contacts.

Detailed **Sample Connections** are available on our web page (www.ldt-infocenter.com) under **Downloads/Sample Connections.** Please load the file "**rs16o_info_engl**" to your PC.

The feedback modules **RS-16-O** are suitable for a decentralize installation underneath the model railway installation. There are 4-bores on the edges of the modules for quick and easy installation. A suitable assembly kit (plastic distance spacers and wood screws) is available under **MON-SET.**

Assigning addresses of the feedback modules:

For information transfer all feedback modules of the installation are connected to each other respectively to the central unit via the **RS-feedback bus** (cables to the clamps R and S). Therefore each feedback module gets it's own **individual address** which is unique and **cannot be allocated a second time** by another module.



Addresses for feedback tasks at the Digital plus System are located in the **area** from **1** to **128**. For a definite feedback each address can only be assigned once.
Each address can report **8 contacts**. As the **RS-16-O has 16 inputs** each unit occupies **2 addresses** of the feedback system. The **first address** covers the **inputs 1 to 8** and the second the **inputs 9 to 16.**

The feedback address area at the Digital plus System is subdivided. Area **1** to **64** is reserved for **turnout decoders with feedback function**. If you will feedback turnout positions via the **RS-16-O** (for example a **combination** with our turnout decoder **S-DEC-4**) you should use the address area **1** to **64.**

If you report **contacts** back with the **RS-16-O** you should probably use the address area **65** to **128.**

The **RS-16-O** feedback module is delivered with the default feedback address **65** and **66**.

For changing the address the **RS-16-O** is equipped with a **programming key S1** and a **red light diode**. By depressing the **programming key** the light diode will **flash** which means that the **RS-16-O** is **ready for programming.**

The programming mode will only work, if the **J** and **K** marked clamps of the 4-poles clamp block are properly connected to the **digital current circuit** (see description above).

While the diode is flashing, you can assign the feedback address with the hand controller LH100. Press the keys >**F**< and >**5**< to get into the mode "magnet accessories". Enter the requested **feedback address** now (e.g. >**7**< >**4**< for 74) and press **ENTER**. By depressing key >**+**< or >**-**< the feedback address will be stored by the module **RS-16-O**. The diode will go out if the module has accepted the address. The **RS-16-O** is now in operation mode again.

By **entering** an address **always the first address** will be **programmed** for the inputs **1** to **8**. The **second address** for the inputs **9** to **16** is automatically the next higher address (as per example the **75).**

By pressing the keys >**ESC**<, >**F**< and >**6**< on the LH100 you will get into the mode "feedback". Enter the previously assigned address (e.g. >**7**< and >**4**< for 74) and press >**ENTER**<.

If the **RS-16-O** is properly connected to the RS-feedback bus, the display of the hand control LH100 will show a "**b**" left below the assigned feedback address.

If there was no feedback information received from the **RS-16-O** the display of the LH100 shows a hyphen behind the feedback address. Check the connection wires of your **RS-16-O** and repeat programming as described above.

To check the function of the single inputs connect the input **REF** (middle connection of the 17-poles clamp) to the pole **K** of the digital voltage.
Connect the inputs **1** to **8** in sequence to pole **J** of the digital voltage.
In the mode feedback (as described above) the hand controller will indicate in accordance to the respective input the **digit 1 to 8.**

If you want to check input **9** to **16** choose the next higher feedback address on the hand controller. If you **followed** the addressing as per described **sample** it should be the feedback address **75.**

Connect the pole **J** of the digital voltage to the input **9** to **16** in sequence. On the hand controller the digits **1** to **8** will be displayed.

Trouble shooting:

What to do if something is not working as described above?

Please check the single inputs as described above before you connect the actual contacts.

Further products within the *Digital-Professional-Series*:

RS-8
8-fold feedback module with integrated track occupancy feedback and voltage monitor for the RS-feedback bus.

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

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 aspects will be originally dimmed and direct controlled via the decoder address.

All products are supplied as easy to **assemble complete kits** or as **finished modules**.

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