



Components for the Transponder Technology (RFID)

Transponder-Reader COL-10

COL-10-G Part-No.: 070053

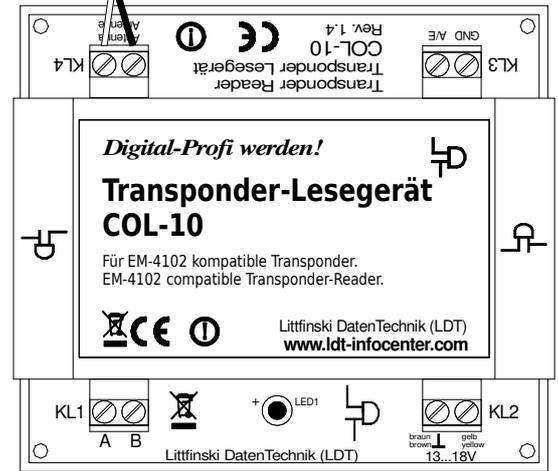
>> finished module in a case <<

The **Transponder Reader COL-10** supplied with a **rugged external PC-board antenna** is suitable for the **reading of 125 kHz transponder (RFID-Tag)** according **EM-4102**.

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.



The **Transponder-Reader COL-10** receives the **power supply** at the connection clamp **KL2**. Acceptable will be either an **accelerated voltage of 14 to 18 Volt** (light-supply-output of a model railway transformer) or a **direct voltage of 13.6 Volt** (e.g. **LDT Plug-In Power Supply SNG-10**).



Introduction / Safety instruction:

You have purchased the **Transponder Reader COL-10** for your transponder system. The **COL-10** is a high quality product that is supplied within the assortment of **Littfinski DatenTechnik (LDT)**.

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

- Please read the following instructions carefully. Warranty will expire due to damages caused by disregarding the operating instructions. **LDT** will not be liable for any consequential damages caused by improper use or installation.
- We designed our devices for indoor use only.

The finished module in a case comes with **24 month warranty**.

Connecting the Transponder-Reader COL-10:

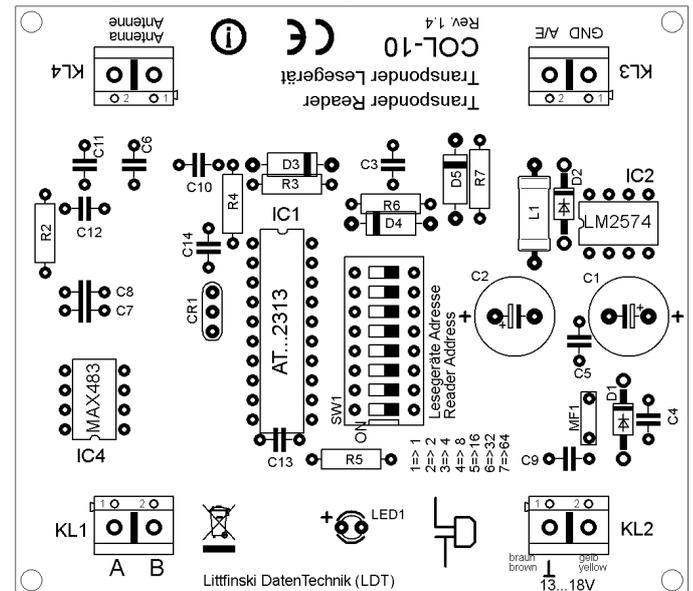
- **Attention:** Before starting any installation take care that all components are voltage free.

At first connect the enclosed **antenna** to the **connection clamp KL4**. The sequence of connecting the two wires is not important.

The **Readers COL-10** have to be connected to each other and to the **interface** (e.g. **TD-88** for the s88-feedback bus and **INTER-10** for the serial interface) via the clamp **KL1** by using a **twisted 2-pole wire** (e.g. suitable is a simple **twisted bell wire**). The exact allocation of the connection "A" and "B" has to be maintained.

Each **interface** will be supplied with a **1.5 kOhm terminal resistor**. This resistor shall be connected to clamp **KL1** together with the reader which is installed at the largest distance from the interface. Does the installation include only one reader the terminal resistor has to be connected to this unit.

Please pay special attention to the **correct polarity** of all connected components related to the used power supply. For further clarification of the cohesion you can find **wiring circuits plans** at the relative **operating instruction** of the used interface (**TD-88** and **INTER-10**).



On our web-site (www.ldt-infocenter.com) you can find colored wiring-samples on the page "Downloads" and "Sample connections" for downloading.

The clamp **KL3** is provided for future tasks and is presently **not connected**.

Setting the reader address:

As several **Transponder-Reader COL-10** can operate on one interface each reader requires its own address.

These have to be adjusted with the **address switch SW1**. Factory setting is the address 1. The reading address shall be set with the adjustment of the sliding switches 1 to 7.

Each of the 7 switches has a decimal significance. The relevant significance of the switches is printed on the pc board next to the address switch.

The switch position "on" of the sliding switch 1 will give a decimal 1. The switch position "on" of the sliding switch 2 will give a decimal 2. The switch position "on" of the sliding switch 3 will give a decimal 4 etc.

For example: for setting the **address 6** the **sliding switches 2 and 3** have to set to "on". The decimal significance **2 plus 4** will give the reader-address 6.

For setting the **address 5** the **sliding switches 1 and 3** have to be set to "on". The decimal significance **1 plus 4** of the two switches will give the reader-address 5.

Getting started:

The **light emitting diode** will **glow** as soon as the **Reader COL-10** receives power supply. Thus indicates that the Reader is **ready-to-operate**.

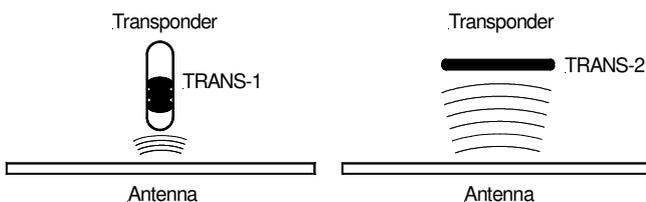
Each **Transponder-Reader COL-10** will be supplied for the start with two different transponders.

There is one **glass-tube transponder TRANS-1** and one **disc transponder TRANS-2**.

For functional test please pass on a transponder over the connected reader-antenna at a distance of about 20mm.

During the time the transponder will be within the area of the antenna the light emitting diode shall flash.

Please make sure that the **glass-tube transponder** moves **vertical to the antenna** and the **disc transponder** moves **parallel to the antenna**. The below draft clarifies the position of the transponder to the antenna.



Transponder- and antenna assembly:

The **reading distance** of the **glass-tube transponder** is up to **30mm** and by the **disc transponder** up to **40mm** if the **Reader COL-10** gets the supply from **14 to 18 Volt AC**. If the supply of the Readers COL-10 comes from a **switched mode mains power supply** with **13.6 Volt DC** (e.g. **LDT Plug-In Power Supply SNG-10**) the **reading distance** will **increase** by about **50%**.

The **reading distance** of the transponder will be **reduced** in case some **metal** is near the transponder or near the reader antenna.

The **external antenna** makes an **assembly to almost any place possible**.

It is **not permitted to extend or reduce the antenna cable**. It is recommended to assemble the **Reader COL-10** so far away from the antenna as the **length of the antenna cable** makes it **possible**.

In case the **antennas of different Readers** are assembled at very close distances it can be possible that they **will influence each other** and probably **reduce the reading sensitivity considerable**. Therefore you should choose the position of the readers to assure that the antennas are assembled at a **minimum distance of 40 to 50cm**. Also the reader modules **COL-10** should be assembled to each other at least at the above mentioned distance. If the local distances make the assembly at the mentioned minimum distances impossible some metal screening covers will be required.

For **assembly** purpose is there a **bore** on the **antenna**. This bore is located between the two arrows which indicate the main reading direction. The bore is marked with a circle.

Transponder Technology for the train identification on model railway layouts

With the **train identification** via **transponder** is it possible to identify every train automatically. For this issue is it required to **assemble** every **train** on the layout with a **transponder**. At suitable **identification stations** (e.g. **where new trains will be inserted**) will be a **Reader COL-10** assembled. The **Reader unit COL-10** transmits the unique laser programmed **serial number** read from the train **transponder** via the **interface TD-88** or **INTER-10** to the **PC-model railway software**. At the software are the **transponder data** stored as **train-name** or **train-number** and will be **indicated** at the PC-screen at the **track layout plan**. After the **model railway software** train **identification system** identified the **train** the software will realize the further **tracing** of the **train** and the **control** via the **standard feedback modules** such as **RM-88-N**, **RM-88-N-O**, **RM-DEC-88**, **RM-DEC-88-O** or **RM-GB-8-N** for the **s88 feedback bus** or **RS-16-O** or **RS-8** for the **RS-feedback bus**. In accordance to the type of **transponder** and **vehicle** is it possible to assemble the transponder **inside or on the vehicle**.

If the **antenna** will be assembled **below the rails** and the **transponder below the vehicles** will be the reading distance very low caused by various metal objects at the rails and at the locomotive base.

The **assembly beside the track** or **above the track** and the **transponder inside or on the locomotive** will result to a **considerable larger reading distance**.

If the **transponder** shall be assembled **inside a vehicle** (possible on plastic housings) should be a large **distance to the motor** considered.

Assembly samples of **transponders** and **antennas** and **colored sample connections** can be found on our **Web-Site** (www.ldt-infocenter.com) at the **Internet** within the section "**Downloads**" and "**Sample Connections**".

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