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

Operating Instruction

4-fold switch decoder

from the *Digital-Professional-Series* **!**

SA-DEC-4-MM-F Part-No.: 210312

(With possible external power supply)

>> finished module <<

Compatible to Märklin-Motorola-Format:

(e.g. **Märklin-Digital**~ [**Control Unit**, **Central Station 1 und 2**], **Intellibox**, **EasyControl**, **ECoS**, **KeyCom-MM**, **DiCoStation**, **EDiTS**, **EDiTS pro** and others)

For digital control of:

⇒ **consumers up to 4 Ampere on each output**
  (e.g. illumination, disconnection of track sections from power).

⇒ **jammed turnout- and signal drives**
  (drives with integrated end switch).

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.

CE ⊠ **CE Part-No.: 21 21 48 red point**

Multi-Digital

4 038264 023073

Introduction/Safety instruction:

You have purchased the 4-fold switch decoder **SA-DEC-4** for your model railway as a kit or as finished module.
The **SA-DEC-4** is a high quality product that is supplied within assortment of **L**ittfinski **D**aten**T**echnik (**LDT**).

We wish you having a good time using this product.

The switch decoder **SA-DEC-4** of the *Digital-Professional-Series* can be easily installed and used on your digital railway.

The **colored point** on the **receiver device** indicates to which digital system the decoder can be adapted.

In case the **receiver device** is marked **red** the decoder is suitable for **Märklin-Digital~** respectively for **Märklin-Motorola** layouts.

In case the **receiver device** is marked **yellow** the **SA-DEC-4** will be suitable for the **DCC Data format,** used for instance at the systems of **Lenz-Digital Plus, Arnold-, Märklin-Digital=, Intellibox, TWIN-CENTER, Roco-Digital, EasyControl, ECoS, KeyCom-DC, Digitrax, DiCoStation** and **Zimo.**

The decoder **SA-DEC-4** is **multi digital** and can be installed to the **Intellibox** without any problems.

The finished module comes 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 decoder to your digital model railway layout:

• **Attention: Before starting the installation switch off the drive voltage by pushing the stop button from the command station or disconnect the main supply.**

The decoder receives the **digital information** via the clamp **KL2**. Connect the clamp with a rail or even better connect the clamp directly to the command station or to a booster assuring supply of digital information free from any interference.

Pay attention to the mark at clamp **KL2.** The color markings '**Black/Schwarz**' and **'Red/Rot'** next to the clamp are used for **Arnold-Digital (old)** and **Märklin-Digital= .**

Other systems are using the letters '**J**' and '**K**'.

If you use the decoder for a **Märklin-Digital~** respectively **Märklin-Motorola** installation please attend to the colors marks **'red/rot'** and **'brown/braun'**.

The decoder receives the **power supply** via clamp **KL1.** Voltage in the range of 14 to 18V~ is acceptable (alternate current output of a model railway transformer).

If you **do not** want to supply power to the decoder **SA-DEC-4** from an **external transformer** you can connect the clamp **KL1 to KL2 with two wires**. In this case the decoder will get the power supply **complete** from the **digital system**.

Now connect the consumers (e.g. illumination, motors or turnout- and signal coils) to the outputs 1 to 4. The contact marked **'COM'** is the common connection for the bistable relay.

Programming the decoder address:

For programming the decoder address you have to connect a consumer to the output 1. As it is possible to hear the switching of the bistable relay the connection of a consumer is not mandatory.
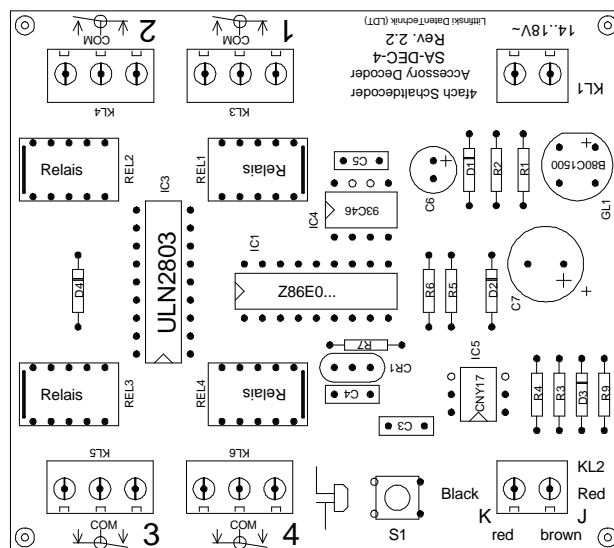
• Switch on the power supply of your model rail way.

• Depress the programming key S1. Do not touch the integrated circuits of the pc-board because any electrostatic discharge can destroy the IC`s.

• The relay connected to output 1 will now switch automatically every 1,5 seconds. This indicates that the decoder is in the programming mode.

- Depress now one key of the group which you want to assign to the decoder. For programming the decoder address you can also release a turnout switch signal via a personal computer.

  Remarks: The decoder addresses for magnet accessories are combined in groups of four. The address 1 to 4 build the first group. The address 5 to 8 build the second group etc. Each **SA-DEC-4** decoder can be assigned to any of these groups. Which of the 4 turnouts of a group will be activated for the addressing does not matter.

- If the decoder has recognized the assignment correctly the relay will move a little faster. Afterwards the movement slows down to the initial 1,5 seconds interval again.

- In case the decoder will not recognize the address it could be that the two digital information connections (clamp 2) are wrong connected. For testing this, switch off the system exchange the connection on KL2 and start the programming again.

- Leave the programming mode by depressing the programming key S1 again. The decoder address is now permanently stored but can be changed at any time by repeating the programming as described above.

- If you depress the first key of the programmed group of keys or you send a switch signal for this turnout from a PC the addressed bistable relay should now switch the connected consumer on or off.

## Please attend to the following:

- All 4 **outputs** can switch consumers with up to **4 Ampere**.

Decoder application:

Besides the switching of illumination and motors there is an excellent application for the decoder **SA-DEC-4** of digital switching the **Märklin gauge 1** drives (e.g. 5625).

As an advantage large current consuming drives will not unnecessary overload the expensive digital power supply.

The following draft shows the wiring.
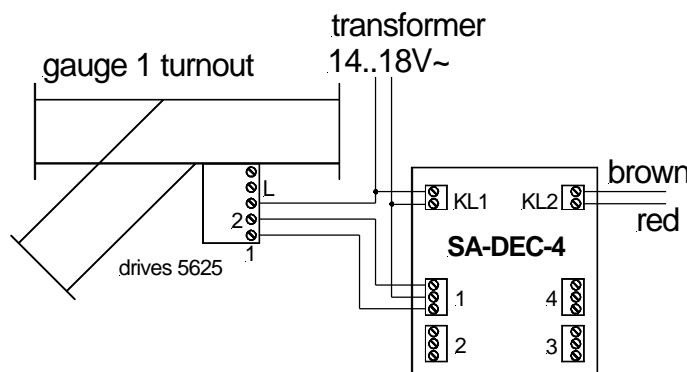
Feed the **SA-DEC-4** via **KL1** witch **AC** from the **model railway transformer**. Further connect one cable of the transformer with clamp **'L'** at the turnout drive. Connect the second cable of the transformer with the clamp marked with **'COM'** on the respective decoder output.

Now, connect the two remaining clamps of the decoder output with the outputs **1** and **2** of the turnout drive.

Further examples can be found on the **web-Site** (www.**ldt-infocenter**.com) in the **download** section.

A solid **low cost housing** is available for the decoder **SA-DEC-4**. Please consult our Web-Site for further details.

Trouble shooting:

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

If you have purchased the decoder as a kit, please carefully check all parts and soldered joints.

Here some possible functional errors and possible solutions:

1. During **programming of the decoder addresses** the relay on output moves within 1,5 seconds, but does not **confirm** the programming with **faster movement** by **depressing any key**.
- **Change cable** connections at **KL2**.
- **Interfered digital information** at **KL2** respectively **lost of voltage** at the **tracks!** Connect the decoder directly with cables to the digital control unit or to the booster instead to the tracks.
- Eventually the **clamps** have been **tightened to strong** and therefore the clamps got **loose at the soldering** to the pc board. **Check** the **soldering connection of the clamps** at the lower side of the pc-board and re-solder them if required.
- **For kits:** Is IC5 correct inserted into the socket? Value of R6 actually 220kOhm or mixed up with R5 18kOhm?

2. The **programming of the decoder address** functions as described, nevertheless the **connected consumers** will **not be activated.**
- **Interfered digital information** on **KL2** respectively larger **lost of voltage** at the **tracks** result to unsafe data transfer! Connect the decoder directly with cables to the command station or the booster.
- **For kits:** Is IC4 correct inserted into the socket?

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

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 aspects will be originally dimmed up and down and directly positioned via the decoder address.

RM-88-N / RM-88-N-O
16-fold feedback modules (also with integrated opto-couplings) for the s88-feedback bus and the connection to **Memory** and **Interface (Märklin / Arnold)**, Central Station 1 and 2, ECoS, **Intellibox** respectively **TWIN-CENTER, EasyControl, DiCoStation** and **HSI-88**.

RM-GB-8-N
8-fold feedback module with integrated **track occupancy detectors** for the s88-feedback bus.

All components can be purchased as easy to **assemble complete kits**, as **finished modules** or as ready **finished modules in a case**.