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# Littfinski Daten S-DEC-4-DC-F 4 Fold Turnout Decoder Instruction Manual

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**Littfinski Date Technik (LDT)**

## **Operating Instruction**

4-fold turnout decoder with possible external power supply from the Digital-Professional-Series !

S-DEC-4-DC-F Part-No.: 910212

>> finished module <<

### **Compatible to the DCC-Format:**

(e.g. Lenz Digital Plus, Arnold-, Marlin-Digital=, Intellirocks, TWIN-CENTER, Rocco-Digital, EasyControl, Eco's, Keyon-DC, Digital, Dictation, Zima and others) (switching of turnouts via Lokmas 2® and R3® is possible)

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## **S-DEC-4-DC-F 4 Fold Turnout Decoder**

### **For digital control of:**

- ⇒ up to 4 twin-coil magnet accessories (e.g. turnouts or semaphore-signals).
- ⇒ up to 8 single-coil magnet accessories (e.g. uncoupling tracks).
- ⇒ up to 4 permanent power switch units [DSU] (e.g. illumination).

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.



yellow point



## Introduction/Safety instruction:

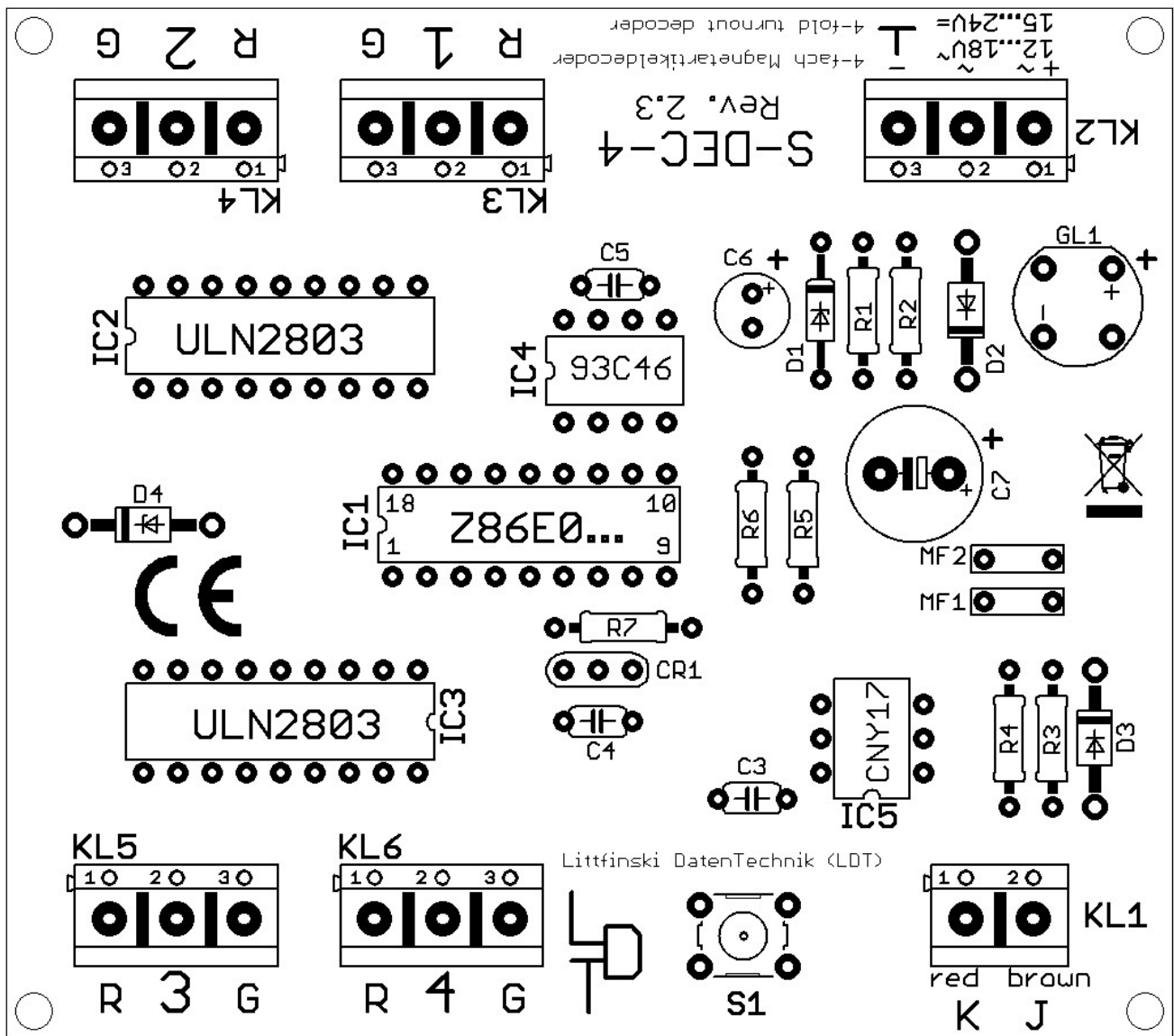
You have purchased the 4-fold turnout decoder S-DEC-4-DC for your model railway supplied within the assortment of Littfinski DatenTechnik (LDT). We are wishing you having a good time using this product. The S-DEC-4-DC (yellow marking on the receiver) will be suitable for the DCC Data format, used for instance at the systems of Lenz-Digital Plus, Arnold-, Murklins-Digital=, Intellirocks, TWIN-CENTER, Rocco-Digital, EasyControl, Eco's, Kenco-DC, Digital, MicroStation and Zibo. The decoder S-DEC-4-DC can not only switch turnouts via the turnout addresses but also responds to lock-addresses. Therefore is it possible to shift turnouts with the keys F1 to F4 of the Lokmas 2® or R3®. The decoder S-DEC-4-DC is multi digital and can be installed to the Intellirocks and on the TWIN-CENTER 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.
- Also, note that electronic semiconductors are very sensitive to electrostatic discharges and can be destroyed by them. Therefore, discharge yourself before touching the modules on a grounded metal surface (e.g. heater, water pipe or protective earth connection) or work on a grounded electrostatic protection mat or with a wrist strap for electrostatic protection.
- We designed our devices for indoor use only.

## Connecting the decoder to your digital model railway system:

- **Attention:** Before starting the installation switch off the drive voltage by pushing the stop button from the command station or disconnect the main supply from all transformers.
- The decoder receives the digital information via the clamp KL1.  
Connect the clamp directly to the command station or to a booster assuring the supply of digital information free from any interference.  
The DCC-Digital-Systems uses different color codes respectively indications for the two digital cables. Those markings are indicated next to the clamp KL1. These markings have not necessarily to be maintained correct as the decoder converts the signal automatically to be correct.  
The decoder receives the voltage-supply via the clamp KL2. The voltage shall be in the range of 12 to 18V~ (alternating voltage output of a model railway transformer) or 15 to 24Volt = (direct voltage output of an insulated power supply unit).



Now connect turnouts, signals, uncoupling tracks or the permanent power switch units [DSU] to the 3-pole clamps marked 1 to 4.

The common conductor of a double coil (turnout or semaphore signal) has always to be connected to the middle clamp of the relevant decoder output. The two remaining cables mostly marked with red (turnout round) and green (turnout straight) shall be connected to the clamps marked ,R` and ,G` accordingly.

### Programming the decoder addresses:

To program the decoder address a turnout has to be connected to the output 1 of the decoder.

- Switch on the power supply of your model rail way.
- Adjust the speed of all connected speed controller to zero.
- Press the programming key S1.
- The turnout connected to output 1 will move now automatically every 1.5 seconds. This indicates that the decoder is in the programming mode.
- Switch now one turnout of the group of four assigned to the decoder via the keyboard of the control unit or via a remote control. 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 into groups of four. The address 1 to 4 build the first group. The address 5 to 8 build the second group etc. Each S-DEC-4-DC decoder can be assigned to any of these groups. Which turnout of a group will be activated for the addressing does not matter.
- If the decoder has recognized the assignment correctly the connected turnout will move a little faster. Afterwards the movement slows down to the initial 1.5 seconds again.
- Leave the programming mode by pressing the programming key S1 again. The decoder address is now

permanently stored but it can be changed at any time by repeating the programming as described above.

- If you press the first key of the programmed group of keys or you send a switch signal for this turnout from a PC the addressed turnout should move into the called direction either into `round` or into `straight`. In case the movement goes the wrong way please exchange the two turnout connection cables at the ,Greene (straight) and ,Reed (round) marked connection clamps of the decoder output 1.

### **Switching turnouts via lock-addresses (e.g. Lokmas 2® or R3®):**

The decoder S-DEC-4-DC makes it possible to switch turnouts via loc-addresses. For example switching with the functional keys F1 to F4 of the Lokmas 2® or R3®.

The function key F1 will shift the turnout at the output 1 and the key F2 will shift the turnout at the output 2 etc.

Each stroke on a function key will shift the respective turnout from round to straight or vice versa.

Also for programming the loc-addresses a turnout-drive has to be connected to the output 1 of the decoder.

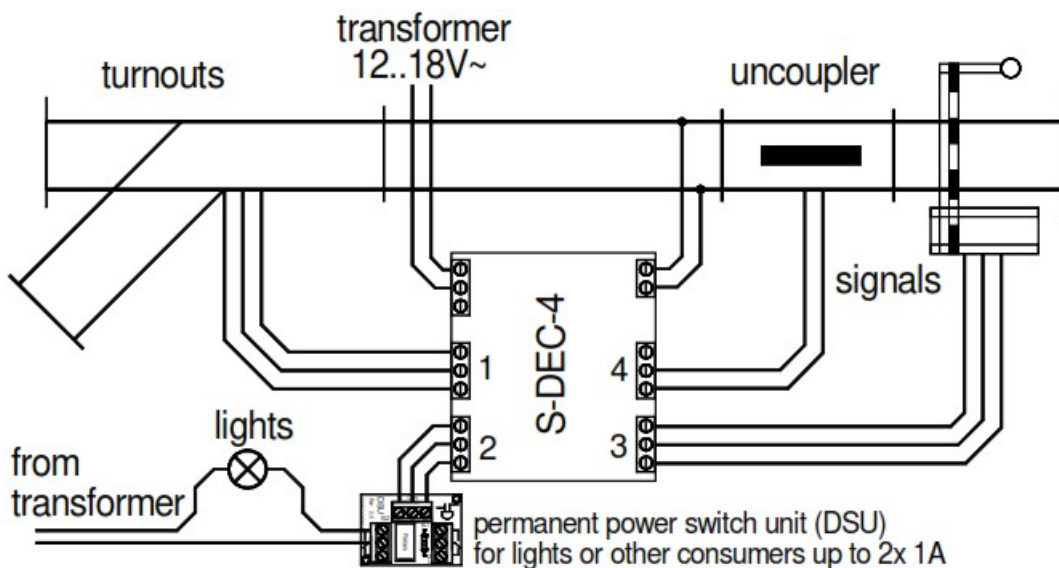
- Switch on the power supply of your model rail way.
- Adjust the speed of all connected speed controller respectively Lokma uses to zero (center position of the adjusting dial).
- Press the programming key S1. Do not touch the integrated circuits of the pc-board because any electrostatic discharge can destroy the IC`s.
- The turnout connected to output 1 will move now automatically every 1.5 seconds. This indicates that the decoder is in the programming mode.
- Adjust now on one of the Lokma uses the required address and turn the speed adjusting dial off from the center position. If the decoder has recognized the assignment correctly the connected turnout will move a little faster. The decoder S-DEC-4-DC will accept lock-addresses between 1 and 99.
- Adjust the speed now to zero again. The turnout will move now a little slower.
- Press the programming key S1 again for leaving the programming mode.
- If you press functional key F1 you can shift the turnout of the output 1 with each stroke. If there are turnouts connected on output 2 to 4 of the decoder S-DEC-4-DC you can shift the respective registered turnouts with the programmed loc-addresses with each stroke of the function keys F2 to F4.

### **Please attend to the following:**

- All 4 decoder outputs can switch a current of 1 Ampere peak. Modern turnout drives need about 0.25 up to 0.5 Ampere. Older drives which are not free moving or which are dirty need more Ampere. The S-DEC-4-DC Decoder is protected against overload caused by drives which are not switching off at the end movement. The protector is an automatic fuse which will switch back into normal operation a few seconds after the load current is below maximum value.
- Turnouts with integrated end-switch can create considerable electromagnetic interference. Normally the decoder S-DEC-4-DC will not be influenced by this interference. But in case the decoder will be influenced please check the turnout installation cables. Those cables should not wrap or cross the decoder closely. Install the cables that way that they go straight away from the clamps of the decoder. If limited space requires a bad installation layout and the function of the decoder will be disturbed please disconnect the middle cable of each turnout connection and push about 5 to 10 ferrous pearls onto this cable before connecting to the clamp again.
- These ferrous pearls are available at electronic shops or at LDT with the order code `FP`.

### **Decoder application:**

Besides the typical application of turnout control the decoder S-DEC-4-DC can also be used for uncoupling tracks and semaphore-signals.



With our permanent power switch unit [DSU], which is equipped with a bi-stable relay, it is possible to switch lights or other consumers up to 2x 1A digital on or off.

Further application and circuit examples can be found on our Web-Site ([www.ltd-infocenter.com](http://www.ltd-infocenter.com)) at the section downloads and sample connections.

A solid low cost housing (Part No. LDT-01) is available for the decoder S-DEC-4-DC. 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 turnout moves within 1.5 seconds, but does not confirm the programming with faster movement by pressing any key.

- Interfered digital information at KL1 respectively considerable lost of voltage at the tracks or at the installation! Connect the decoder directly with cables to the digital control unit or to the booster instead to the tracks. Increase the cable diameter for long distances.
- 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 IC4 and IC5 correct inserted into the socket? Has resistor R6 actually 220kOhm or has this resistor been mixed-up with the 18kOhm resistor R5 respectively with the 1MOhm resistor R7?

2. The turnout connected to output 1 will move always at a faster sequence after activating the programming key S1.

- Start programming the turnout decoder S-DEC-4-DC immediately after switching-on the digital central unit before any loc is traveling on the track.
- Perform a RESET of the digital central unit. All stored data will be preserved but the address-repeating-memory will be deleted. For Intellibox and TWIN-CENTER please switch-on the unit and press the keys GO and STOP simultaneous until the report "reset" can be read at the display.

Made in Europe by  
Littfinski DatenTechnik (LDT)  
Bohler electronic GmbH  
Ulmenstraße 43

15370 Fredersdorf / Germany

Phone: +49 (0) 33439 / 867-0

Internet: [www.ltd-infocenter.com](http://www.ltd-infocenter.com)

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Documents / Resources



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S-DEC-4-DC-F 4 Fold Turnout Decoder, S-DEC-4-DC-F, 4 Fold Turnout Decoder, Turnout Decoder

References

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