Littfinski DatenTechnik (LDT)

Operating Instruction

WatchDog-Decoder

from the *Digital-Professional-Series* !

WD-DEC-G Part-No.: 010013

>> finished module in a case <<

Perfect security for digital model railways controlled by a Personal Computer (PC).

Suitable for digital systems:
Märklin Motorola (Märklin-Digital~) and **DCC**

⇒ The WD-DEC-Decoder is a watch dog for your pc-controlled digital model railway. During a software crash of the computer or command station the WD-DEC will stop automatically all trains by separating the boosters from the command station.

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Introduction/Safety instruction:

You have purchased the **W**atch**D**og-**Dec**oder **WD-DEC** for your model railway supplied within the assortment of **L**ittfinski **D**aten**T**echnik (**LDT**).
We are wishing you having a good time using this product.

The WatchDog-Decoder **WD-DEC** of the *Digital-Professional-Series* can be easily operated on your digital model rail way.

The **WD-DEC** responds to **Märklin-Motorola-** and **DCC-commands**. The required data format can be adjusted via the plug-bridge JP1.

The WatchDog-Decoder **WD-DEC** has a **multi protocol ability** and can easily be used on various command stations which can send different data formats (e.g. **Intellibox** / **TWIN-CENTER**).

The finished module and the finished module in a case comes with a **2 years limited 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.
- We designed our devices for indoor use only.

Operation:

The **WatchDog-Decoder** shall be connected between the command station and the first booster. Has the **command station** an integrated booster, this booster will be used in future for the **switching**. The **boosters supply** the **digital current** to the **tracks.** If the pc stops sending every 5 seconds a normal switch command to the **WatchDog-Decoder,** the **WD-DEC** follows that the computer has lost control about the model railway circuit.

For preventing that trains will continue traveling uncontrolled on the tracks the **WatchDog-Decoder** separates the boosters from the central unit. All tracks will be cut off from power supply and **all trains will be stopped.**
It is important that the model railway software is able to support the **WatchDog-Decoder.** Further information can be found on our web-site or you should request your software supplier.
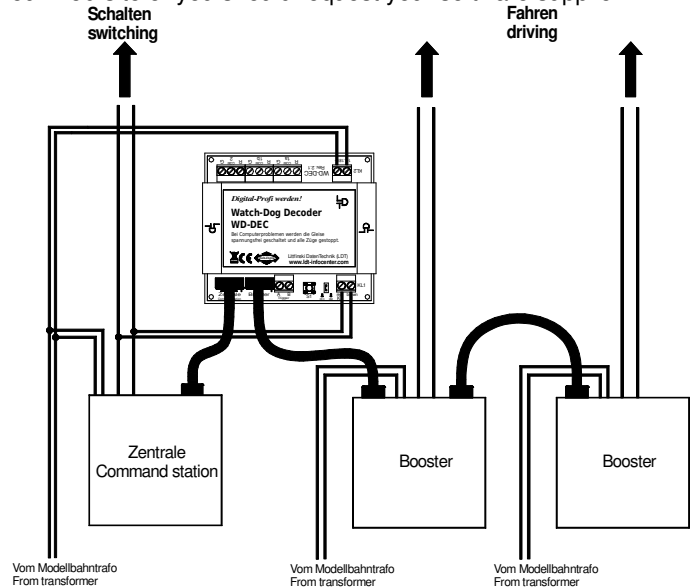
Connecting the Decoder to your digital model railway:

- **Attention: Please switch off your digital control unit and unplug the transformer from AC-current before starting to assemble the unit.**

The decoder receives the **digital information** via clamp **KL1** from the command station respectively from the booster which supplies the decoders with digital information for switching.
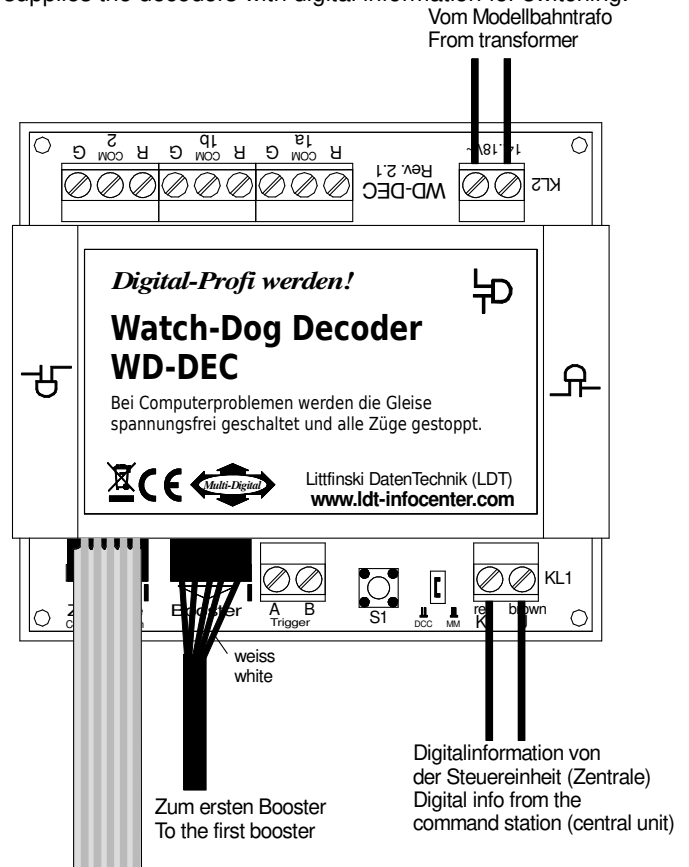
Picture 2

Please attend to the marking on clamp **KL1**.

The color markings **'red/rot'** and **'brown/braun'** next to the clamp are used for **Märklin-Digital~ and Intellibox.**

Lenz Digital plus systems are using the letters '**J**' and '**K**'.

If you use the decoder for **TWIN-CENTER** please clamp **violet to brown** and **violet/white to red**.

The decoder receives the **power supply** via clamp **KL2**. 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 **WD-DEC** from an **external transformer** you can shorten the clamps **KL1** and **KL2** with two wires. In this case the decoder will get the power supply **complete** from the **digital system**.

The connection of the **central unit** to the **boosters** can be made directly by using the **5-poles booster-bus** (**Märklin-Digital, Intellibox, TWIN-CENTER**). Every **WatchDog-Decoder** will be supplied **together** with a **connection cable** of 1 meter length.

By assembly of the connection cable please take special attention to the mark right hand next to the pin bar. This mark has to **correspond** with the **white single wire** of the **connection cable.**

If you use **a flat-ribbon cable** of other suppliers **the plug has to be assembled** that way onto the pin bar that **the flat-ribbon cable goes via the plug away from the decoder** (see picture 2).

Has the central unit (e.g. **Lenz Digital plus**) no 5-poles booster-bus the connection to the boosters has to be done via the **screw clamps KL4 and KL5** on the **WD-DEC.**

Further **sample connections** of the **WatchDog-Decoder** are available at the internet on our web site (www.ldt-infocenter.com) under **"Sample Connections"**.

Programming the decoder address:

The **digital format** will be adjusted via the **pin-plug JP1**. Is the **plug-bridge inserted at JP1** the **WD-DEC** responds to the **Märklin-Motorola** commands. Has the **plug-bridge removed** the **WatchDog-Decoder** responds to the **DCC System.**

The **WatchDog-Decoder occupies 4 addresses** as every magnet accessory- or switch decoder.

- For programming the decoder address switch "on" the power supply of your model rail way.

- Press the programming key S1.

- The relay 1 of the WatchDog-Decoder will now switch every 1.5 seconds (easy audible). 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 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 WatchDog-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 relay will switch 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 can be changed at any time by repeating the programming as described above.

Transfer now the address assigned to the **WatchDog-Decoder** to your **model railway software**. It will be always the **first chosen address (basic address)** of the group of four.

Communication with the model railway software

After **switching "on" the power supply** the **WD-DEC** will **activate** all **connected boosters** for the possibility to control the installation eventually with the digital control unit **without pc-control.**

The railway software can activate the **WatchDog function** by using the command of the **basic address "straight".** The **command** basic address **"straight"** has always to be **repeated within 5 seconds.** Is there **no command** received within 5 seconds the **WatchDog-Decoder will separate** the boosters from the central unit. **The tracks are then separated from power and all trains will be stopped immediately.**

After ending the **model railway software,** the software will **deactivate** firstly the **WatchDog function** by using the command **basic address "round"** to be able to operate the installation now without pc by the command station.

The function of the WatchDog is possible with an **external trigger pulse** via clamp **KL3** e.g. via an **impulse output from Selectrix- or FMZ-Decoder.**

At **clamp KL6 is a "normal" switch contact (bistable relay)** via **basic address + 1** available.

Both, **basic address + 2** and **basic address + 3** will **not be used by WD-DEC.**

Further Products from our *Digital-Professional-Series*:

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

S-DEC-4
4-fold turnout decoder for four magnet accessories and 1 Amp. switching power each. With free programmable decoder addresses and possible external power supply.

M-DEC
4-fold decoder for motor driven turnout-drives (Conrad, Hoffmann, Fulgurex and others) with free programmable decoder addresses and possible external power supply.

LS-DEC
Light signal decoder for up to 4 LED train signals. Signal signs will be originally dimmed up and down and directly positioned via the decoder address.