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

Operating Instruction

Master-Module for Decoder for Switchboard Lights

from the *Digital-Professional-Series* !

GBS-Master-DC-F Part-No.: 050222

>> finished module <<

Suitable for the data format DCC

The **GBS-Master-Module** together with the **Display-Module GBS-Display** will build the **Decoder for Switchboard Lights GBS-DEC**. Up to **4 Display Modules** can be connected onto each **Master-Module.**

Each Display-Module GBS-Display can control

⇒ 16 turnout symbols, up to 32 track-occupancy symbols or different 2- to 4-aspects DB-light signal symbols.

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.

Data format:
DCC
yellow point

4 038264 024636

Introduction/Safety instruction:

You have purchased the **Master-Module GBS-Master** as a kit or as a finished module for the **Decoder for Switchboard Lights GBS-DEC**.
The **Master-Module GBS-Master** is a high quality product that is supplied within the ***Digital-Professional-Series*** of **L**ittfinski **D**aten**T**echnik (**LDT**).

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

Our components of the ***Digital-Professional-Series*** can be easily and without any problems operated on your digital model railway.

The **Master-Modules GBS-Master-DC** is suitable for the **DCC** data format.

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

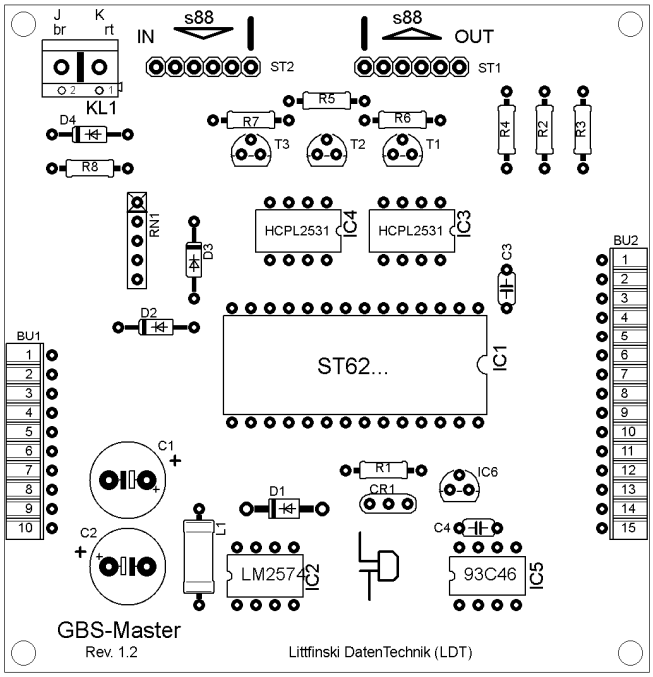
Connecting GBS-Modules:

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

At first connect the **Master-Module GBS-Master** to a **Display-Module GBS-Display** via the **10-poles pin-plug-bar BU1**. For setting the **addresses and operating modes** connect the **Master-Module GBS-Master** additionally to a **Service-Module GBS-Service** via the **15-poles pin-plug-bar BU2**.

Avoid any offset of the **pin-plug-bar** of the Display- and the Service-Module to the **pin socket bar** of the Master-Module. For this issue **please attend** to the **operating instructions** of the **Display-** and **Service-Module**. The **picture 1** at the rear side of the **Service-Module operating instruction** shows the correct connection of the **Display-, Master- and Service Module**.

Up to **4 Display-Modules GBS-Display** can be connected to each **Master-Module GBS-Master**. For this layout has the **second Display-Module** to be connected to **the first Display-Module** via the **10-poles pin-plug-bar**. Corresponding has the **third module** to be connected to the **second** and the **fourth** to the **third module**.



Connecting the decoder to the digital layout:

By using the **Master-Module GBS-Master-DC** the **Decoder for Switchboard Lights GBS-DEC** is suitable for the **data format DCC**.

The **Master-Module** receives the **digital information** via the connection clamp **KL1**. Supply the **Master-Module** with this information via a connection-rail or even better directly from the control unit or from a booster (**separate digital-ring-supply for all decoders**) for an interference-free transmittance of data.

Attend to the mark at the clamp **KL1**. The colors "**red**" and "**brown**" or "**K**" and "**J**" next to the clamp is common on **DCC** layouts.

The **Master-Module GBS-Master** receives the **voltage supply** always **from the first Display-Module**. More information to this issue can be found within the **operating instruction** of the **Display-Module GBS-Display** at the paragraph **voltage supply to the Display-Module.**

Also **details for the connection** of the **switchboard panel symbols** (light emitting diodes and incandescent lamps) to the **Decoder for Switchboard Lights GBS-DEC** can be found within the **operating instruction** of the **Display-Module**.

Colored sample connections can be found on our **Web-Site** www.ldt-infocenter.com **at the section "Sample Connection"**.

Setting address- and operation modes:

1.1 Putting into operation:

If the **Decoder for Switchboard Lights** will be connected to the **power supply** firstly all connected light diodes and incandescent lamps will lighten for **2 seconds** at a **brightness of 50%** (**lamp test**). The display of the service module indicates **GBS-DEC DCC Vx.y**. If the information at the display of the service module is not clearly readable during the first start of operation please turn **carefully** the **trim-pot R1** a **half turn** to the **left** and to the **right** by using a **small screw driver** until the information at the display is optimal readable.

1.2 Setting the number of connected Display-Modules:

On top of the **Service-Module** are **4 keys** located which will be identified within the following description as **>left<**, **>right<**, **>above<** und **>below<**.
At first push the key **>right<**. The display shows **Anzahl DIS: 1** (quantity of Display-Modules).
If the start information remains to be at the display after pushing the key **>right<** there will be no DCC commands transmitted from the digital central unit or the digital information to clamp KL1 at the Master-Module is wrong connected. Check the correct connection of the digital information (red and brown or K and J) and call a loc with DCC-Loc decoder via the digital central unit. Actual traveling of the loc is not required. For setting the address- and operation mode it is sufficient if DCC commands will be continuously transmitted.
If you depress the key **>right<** during switching-on the Decoder for Switchboard Lights you will get in any case into the address and operation mode. Do not release the key before you can read the message **GBS-DEC DCC Vx.y** at the display of the service module.
Push now the key **>above<** as many times until the display indicates the amount of connected display-modules. It is possible to operate at a **maximum 4 Display-Modules** on **one Master-Module**.

1.3 Setting the address for a Display-Module:

If the display of the service-modules shows **Anzahl DIS: x** (with `x` for the quantity of connected Display-Modules) please push the key **>right<** for getting to the address setting of the first Display-Module. The display shows now the current address of the first Display-Module as **DIS1 ADR:016-001**.
At this moment is the address section from 1 to 16 adjusted for the first Display-Module. Each **Display-Module** receives **16 coherent addresses**. To each address are two outputs assigned. One output for **turnout round** and one output for **turnout straight**.
The **picture 3** at the rear side of the **Display-Module Operating Instruction** shows the cohesion.

By pushing the keys **>above<** and **>below<** you can now select one of **62 address sections** with **16 coherent addresses each** for the **Display-Module**. The highest address within the DCC data format is 992. The display of the Service-Module shows in this case the text **DIS1 ADR:992-977** for the address section 977 till 992.

1.4 Setting the operation mode of single outputs:

After setting the required address-section for the Display-Module (for example the display shows **DIS1 ADR:032-017** for the address section 17 to 32) push again the key **>right<** for setting the operation mode of the single outputs. The display shows e.g. **DIS1 K08-01:******.

DIS1 identifies the **Display-Module No. 1** which has been connected directly to the Master-Module.

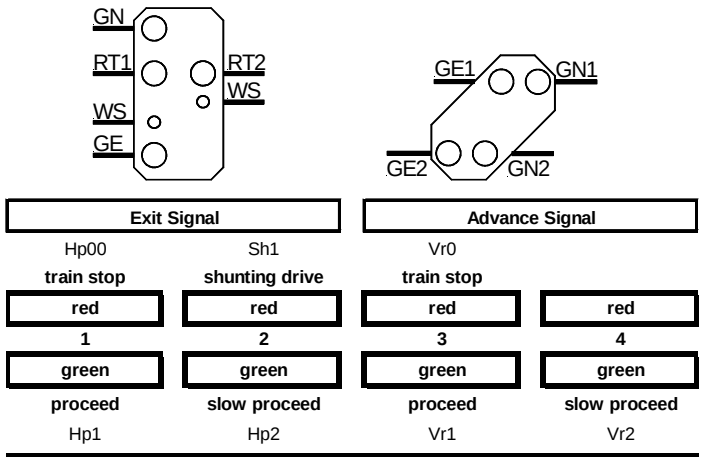
K08-01 stays for clamp KL1 with outputs 1 to 8.

******** stays for **8 normal switched outputs** which can control **turnout symbols** or **2-aspect DB-Block-** or **DB-Line-Close signal symbols.**

With the keys **>above<** and **>below<** you can choose now one of three operation modes.
Additionally to the described operation mode **** for 8 normal switched outputs there are the operation modes **Vo**** and **VoHE** available.
Vo** stays for the possibility to control one **3-aspect DB-Advance-** and one **2-aspect DB-Blocksignal symbol**.
Picture 5 at the rear side of the **operating instruction** for the **Display-Module** shows the wiring of the signals at the clamp KL1.
VoHE stays for the possibility to control one **3-aspect DB-Advance-** and one **3-aspect Entry-** or a **4-aspect Main-signal symbol**. **Picture 6** at the rear side of the operating instruction for the **Display-Module** shows the wiring of one Advance- and one Main-signal at the clamp KL1.

By connecting a **4-aspect DB-Exit-signal symbol** to clamp **KL1** the wires of the **white LED`s or lamps** have to be connected to **output 33** of the clamp KL5 of the Display-Module.
Shall a **Main-signal** operate on clamp **KL2** will it be the **output 34**. With a **Main-signal symbol** at the clamp **KL3** is it the **output 35** and at the clamp **KL4** is it **output 36**.

Further colored sample connections can be found on our **Web-Site** www.ldt-infocenter.com at the section **"Sample Connection"**.
The function of the **control** of the **signal symbols** on the **switchboard panel** via **decoder addresses** will be analogue to the control of signals via the **Light Signal-Decoder LS-DEC-DB**. The following draft clarifies the connection of decoder address and signal aspect. There will be an exit-signal controlled via address 1 and 2 and an advance-signal via address 3 and 4.



If you selected the correct operation mode for the first clamp bar (KL1 with outputs 1 to 8) please push the key **>right<** for adjusting the operation mode at the clamp bar KL2 (outputs 9 to 16) with the keys **>above<** or **>below<**.

With the key **>right<** you can go to the operation mode adjustment for clamp bar KL3 and KL4.

Did you register further Display-Modules under 1.2 activate again the key **>right<** for setting the operation mode adjustments of the second Display-Module. The display of the Service-Module shows the text **DIS2 K08-01:******.

Have you completed the setting of the operation mode on all outputs of all available Display-Modules please push the key **>left<** repeatedly until the Decoder for Switchboard Lights performs a **lamp test** again. The display of the Service-Module shows now **GBS-DEC DCC Vx.y** . It is now ready for switching the connected switchboard panel symbols. If you require to change the operation mode adjustment please start again as described under **1.2** . If you require an alteration at a particular setting only you can stop the adjustment from any step by a multiple pushing of the key **>left<** until the **lamp test** starts. During the normal switching operation it is not required to connect the Service-Module.

Accessories:

For the **assembly** of the pc-boards of the GBS-DEC inside your switchboard lights panel we offer **assembly material** under the order code **MON-SET**. The set consists of **4 plastic distance spacer** and **4 matching wood-screws**.

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