Littfinski DatenTechnik (LDT)

Operation Instruction

KeyCommander (KeyCom)

from the *Digital-Professional-Series* !

KeyCom-MM-G Part-No.: 090303

>> finished module in a case<<

Creates a digital switch command by key-stroke e.g. for turnout- switch- or light-signal decoder!

With the **KeyCommander (KeyCom)** it is now possible to benefit from the advantage of the simple wiring of a digital layout on your analogue layout.

The **KeyCommander** translates a key-stroke into a digital switch command (data format **Märklin-Motorola**). Just two wires will transmit the information e.g. to a turnout decoder which has been installed near the turnout to be switched as required.

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 🗑

**Data format:
Märklin-Motorola**

4 038264 023653

Introduction / Safety Instruction:

You have purchased the **KeyCommander (KeyCom)** 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.

- 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.

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

Connecting the KeyCom to a Feedback-Module, Booster and if required to a Service-Module:

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

Additionally to the **KeyCommander (KeyCom)** is **at** least a **Feedback-Module RM-88-N or RM-DEC-88** and **a Booster DB-2** required. The **picture** at the next column indicates how to connect a **Feedback-Module** and a **Booster** to the **KeyCom**.

Plug-in the **socket of the Feedback-Module RM-88-N or RM-DEC-88** onto the **6-poles pin bar** and the **socket of the booster cable** onto the **5-poles pin bar** in that direction that **each cable shows away from the KeyCom**. There is a **white mark at one end** of **the two pin bars** of the **KeyCom** pc-board. This mark has to **correspond** with the **white single wire** of the respective cable.

The **KeyCommander** uses the **s88-feedback-bus** for feeding the key-information. Besides to the **RM-88-N** or **RM-DEC-88** other **s88-compatible feedback modules** can be used as well. The **Booster DB-2** will be connected to the **KeyCom** via the **5-poles booster-bus**. **Booster with 5-poles booster-bus** from other manufacturers can be used as well for **operating** the **KeyCommander**.
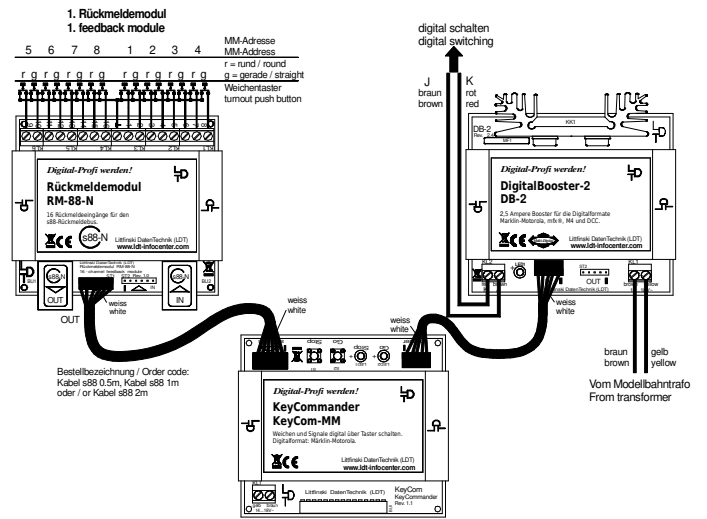
The **KeyCom** receives the **voltage supply** directly from the **Booster DB-2** via the **5-poles booster bus cable** as soon as the **booster** will be supplied by a **model railway transformer** with an **alternated voltage** of 16…18 Volt. If **boosters** of **other makes do not** offer any **supply voltage** via the booster bus cable the **KeyCom** and the **Booster** can get **together** the **alternated voltage** from a **52VA transformer** with **16…18 Volt**. Please **attend in any case** to the correct **connection** of the **alternated voltage** (**yellow** and **brown wire**) at the **clamp KL1** of the **KeyCom** and the used **Booster**.
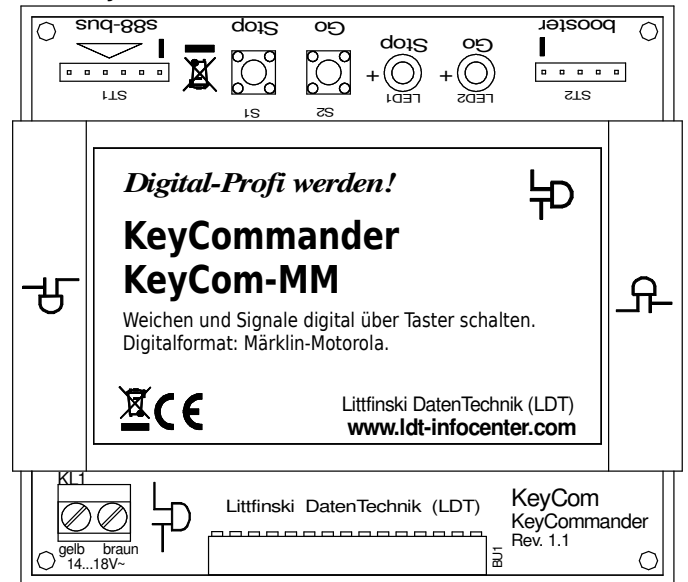
Mode of Operation:

The **keys** or **shift-keys** for **switching the turnouts** have to be connected to **the inputs of the Feedback modules RM-88-N or RM-DEC-88**. Each **Feedback-Module** contains **16 inputs** and a **common connection** for all keys or shift keys in the **middle of the 17-poles clamp bar**. This common connection has been marked with a **ground-symbol** (**"T" upside down**).

Two inputs or push buttons are required for **each turnout** (for **turnout round "R" and turnout straight "G"**). Therefore is it possible to switch **8 turnouts** with **one Feedback-Module RM-88-N or RM-DEC-88**. **15 Feedback-Modules** in total can be connected to one **KeyCommander**. With that is it possible to create 15 * 8 = **120 Märklin-Motorola-Addresses** with **one KeyCommander**.

The **picture** of the first page of this instruction shows the **wiring of the turnout push buttons**.

Colored sample connections can be found on our web site **www.ldt-infocenter.com** at the section "Sample Connections".

Out of a relevant **key stroke** the **KeyCommander creates a Märklin-Motorola switch-command** which will be **amplified** by the **Booster DB-2** and transmitted to the **accessory decoders** (e.g. T**urnout-, Switch- or Light-signal decoder**). The command will be transmitted via the wires "**J**" and "**K**" respectively "**brown**" and "**red**".

All **Märklin-Motorola** -Decoders are suitable, e.g. for **turnouts with twin-coil drive** the **S-DEC-4-MM**, for **turnouts with motor drive** the **M-DEC-MM** and as **switch decoder** the **SA-DEC-4-MM** and for **light signals** the **Light-signal decoder LS-DEC**.

The **Märklin-Motorola -Decoder addresses** will result out of the **connection sequence** of the **feedback modules**. The **first feedback module RM-88-N or RM-DEC-88** connected directly to the **KeyCom** will create the **decoder addresses 1 to 8**. The **second feedback module** connected to the first one creates the **addresses 9 to 16** etc.

Starting the system:

If the **KeyCommander receives power supply**, the **green LED** will come on after a short time and will indicate that the system is **ready to operate**. The connected booster is now active. Via the keys **Stop** and **GO** is it possible to **activate** or **deactivate** the connected **booster** (e.g. **DB-2**). If there is a **short circuit** at the digital output of the booster the **KeyCommander** will switch automatically to **Stop** (**red LED** comes on at the **KeyCom**). After **eliminating** the **short circuit** you can **start** the **booster** again by depressing the key **Go**.

General information to drive-ways:

From on **KeyCom software version 2.00** (described within this instruction) is it possible programming **optional 8 or 16 drive ways** with up to **16** related **turnouts or signals per drive way**. Additional to the **KeyCom** is therefore the **Service Module GBS-Service** required. The **KeyCom-Startset** includes the **Service-Module**. Plug the **15-poles pin bar** of the **Service-Module GBS-Service** onto the **15-poles pin socket** of the **KeyCommander**. Please take care that there is no offset between plug and socket. A **Sample Connection** can be found at the **operation instruction** of the **Service Module**.

The first **8 drive-ways** can be **set** and **released** by the **first feedback module** which has been directly connected to the **KeyCommander**. The setting and resetting of the **second 8 drive-ways** shall be done via the **second feedback module** which is connected to the first one.

The **key** for the **drive-way** which is connected to the **input 1** of the **feedback module** will set the **drive-way 1 or 9 to occupied**. The **key** at the **input 2** will switch the **drive-way 1 or 9** to **vacant**. The tables "**KeyCommander: Adresszuordnung**" (**Address assignment)**, supplied with each **KeyCommander** or downloaded from our web-site (section "Downloads"), indicate the **relation** of all **8 or 16 drive-ways**. The **KeyCommander** will transmit, additionally to the 16 switch commands for each drive-way, the switch command related to the drive-way key (e.g. set turnout round by drive-way 1). This makes it possible to indicate via the **first 8 or 16 accessory addresses** the **status of the drive-ways** e.g. via the **Switch-Decoder SA-DEC-4** or the **Layout-Panel-Decoder GBS-DEC**.

If it is not possible to set a drive-way because it is **crossing another drive-way** this status will be indicated via the corresponding switch **command by several switch-over signals. Model railway lamps or light emitting diodes** showing the **status** of the **drive way** (e.g. **red for occupied** and **green for vacant**) will **flash** therefore shortly and will indicate that **this drive-way can not be set to occupied** because one or more turnouts of other already **occupied drive- ways have to be shifted**.

If **individual turnouts** which momentary **belong to an occupied drive-way** will be switched by a **relative turnout command** for an **opposite direction** this command will **not be executed by the KeyCommander**.

Programming Drive-Ways:

After switching-on the **KeyCom** the display of the Service-Module shows **KeyCom-MM V2.xx**. If the display of the Service Module does not indicate the correct information at the first set-up you should turn with a **small screw driver careful** the **trim-potentiometer R1** a **half turn** to the **left** or to the **right** until you can read the **correct information at the display.**

On top of the **Service-Module** there are **4 push buttons** located which will be at the following description indicated as **>left<, >right<, >above<** und **>below<**.

At first please depress the key **>right<**. During the first set-up the display will now show the text **Fahrstr.:00 (Drive-way:00)**. With the key **>above<** or **>below<** is it possible to switch between **Fahrstr.:00** (**Drive-way:00**), **Fahrstr.:08** (**Drive way: 08**) and **Fahrstr.:16** (**Drive-way:16**).

If you **don't want** to **establish drive-way**s please press the key **>left<** during the display indicates **Fahrstr.:00** (**Drive-way:00)** for finalizing the input.

If you do want to **establish** or **change drive-ways** please depress the key **>right<** during the display indicates **Fahrstr.: 08 or Fahrstr.:16 (Drive-way:08 or 16)**.

The display shows now **Fahrstr.:0101:--- (Drive-way:0101:---)**. Now you got the possibility to establish the first of **16 max. possible switch commands** (accessory addresses) for the **drive-way 1**. The sign **---** indicates that no command shall be transmitted. With the keys **>above<** or **>below<** you can select an **address number** between **17** and **240** (for 8 drive-ways) and **address numbers** between **33** and **240** (for 16 drive-ways).

If you selected previously **address numbers 17 to 32** for switching of turnouts or signals within the **8 drive-way mode** and you switch over to the **16 drive-way mode** there will be the **address numbers 17 to 32** no longer used by the KeyCom within the previous programmed drive–ways because those address numbers will now be **drive-way addresses 9 to 16**.

For which **switch commands** (accessory addresses) you have to enter which **address number** you have to attend to the tables "**KeyCommander: Adresszuordnung**" (address assignment).

The **first 8 or 16 addresses** will be needed to indicate the **status** of the **relative drive-way** (**occupied or vacant**) by **model-railway-lamps** or **light emitting diodes**. Therefore is **the first possible address** for **accessory decoders** the **address 9 or 17**. If e.g. at the **drive-way 1** (within the 16 drive-way mode) the turnout with the **address 17** shall be switched to **round** you have to select with the keys **>above< or >below< according to table** the **33**.

The display will indicate now **Fahrstr.:0101:033** (**Drive-way: 0101:033**).

If you have selected the correct address number for the first switch command you can proceed to the **second switch command** of the **first drive-way** with the key **>right<**. The display indicates now **Fahrstr.:0102:---** (**Drive-way:0102:---**) Select now with the keys **>above<** and **>below<** the required **address number** for the switch command.

Continue now with the switch commands **Fahrstr.:0103:---** (**Drive-way:0103:---**) up to **Fahrstr.:0116:---** (**Drive-way:0116:---**) accordingly. If there are less then 16 switch commands for a drive-way required the remaining switch commands up to **Fahrstr.:0116:---** (**Drive-way:0116:---**) shall get the sign **---** instead of an address number.

If you depress again the key **>right<** the display will indicate that you are now within the programming mode of **Fahrstr.:0201:---** (**Drive-way:0201:---**). Now, as mentioned above for drive-way 1, you can select the **switch commands** for the **drive-way 2**. After selecting the switch commands for all drive-ways you have to depress the key **>left<** until the display indicates **Systemcheck**. The **KeyCommander** evaluates now the input of the data. After a short time the display of the service module will show **KeyCom-MM_V2.xx**.

The **KeyCommander** is now ready to switch all selected switch commands at the selected drive-ways.

For **further operation** is the **Service-Module** not necessarily required. You can detach the **Service-Module** from the **KeyCommander** as soon as the **power supply** has been **switched off** and the display indicates no data.