Model railway electronic

Components for digital switching and feedback monitoring on digital model railways!

Be a Digital-Professional!

General Catalogue

Low cost kits,
finished modules and
finished modules in a case

Littfinski DatenTechnik - LDT

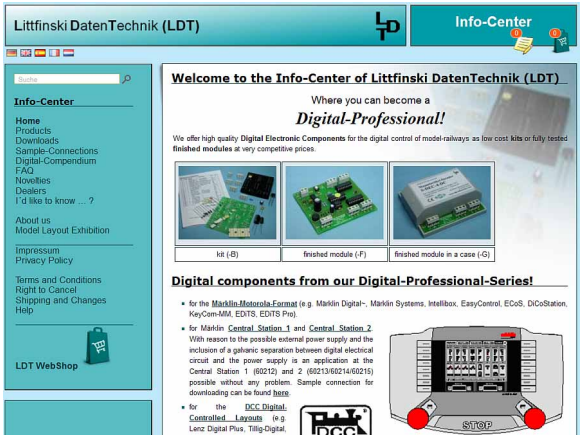
Kleiner Ring 9 - D-25492 Heist/Germany - Phone: 0049 4122 / 977 381 - Fax: 0049 4122 / 977 382

www.ldt-infocenter.com

Be a Digital-Professional!

Dear Model-Railroader,

if you are searching for high quality low cost electronics for your model railroad layout you will certainly find something special for your requirement within our product line.



Here is a short review: Since **1996** we are on the market with our products. Especial if you require some equipment for **switching** and **monitoring** of your digital model rail road layout you will find innovative and technically sophisticated solutions which are **technically updated** und available at **low cost**.

Apart from standard products such as **turnout- and switch-decoder** we offer several products which will **reduce considerable the wiring** efforts on your specific layout.

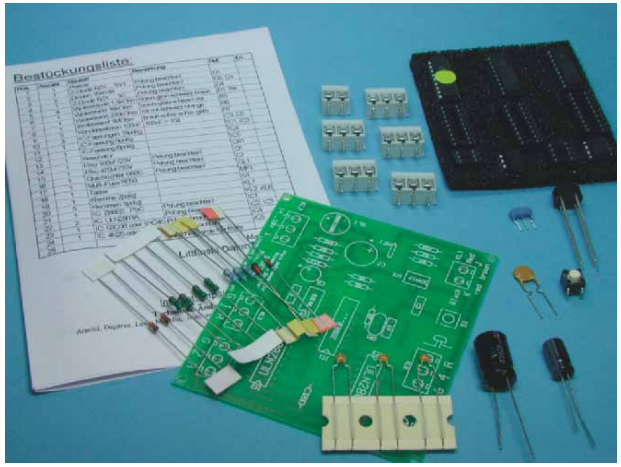
For permitting you an **easy entry** into the **digital technique of the digital model railway** equipment it will help probably to read **this catalogue with an excessive product survey** and as well the **booklet "To be a Digital-Professional**" (in German language only). All this features will be introduced at the last pages of this catalogue.

Detailed product information can be found as well on our **Web-Site** (**www.ldt-infocenter.com**). At first you should click onto the **section "Products"** to give you the information, which digital components will be suitable for **switching** and **feedback monitoring** with your **digital command station**.

At the **section "Digital-Compendium"** we offer very useful tips for the interaction of our components with various **digital command stations** and **model railway control software**. If you are searching for tips of wiring our digital components please visit the **section "Sample-Connections"** on our Web-Site.

All **Assembly- and Operation-Instructions** of our products can be loaded onto your PC from the **section "Downloads"**. You can **read** the instructions directly on your PC or you can make a **print-out**.
We will certainly advice you about specific problems via our **hotline** (**Monday** and **Thursday** from **6pm to 8pm**) and as well personally on several **model railway trade fairs**.
By using this supports will it be easy to be a ***Digital Professional!***
If you like to see our digital components "**switching and managing**" in real action you should visit eventually the **world-wide biggest digital controlled model railway layout Miniatur-Wunderland** at the **Hamburg Speicherstadt in Germany**.
More than **2500 LDT-components** from our ***Digital-Professional-Series*** are assembled and in action (below and behind) at the world-wide biggest digital model railway layout at the **Miniatur-Wunderland** at the Hamburg Speicherstadt.

The model railway team of company **L**ittfinski **D**aten**T**echnik (**LDT**) wishes you much **enjoyment** and **relaxation** by selecting suitable products for your model railway hobby.



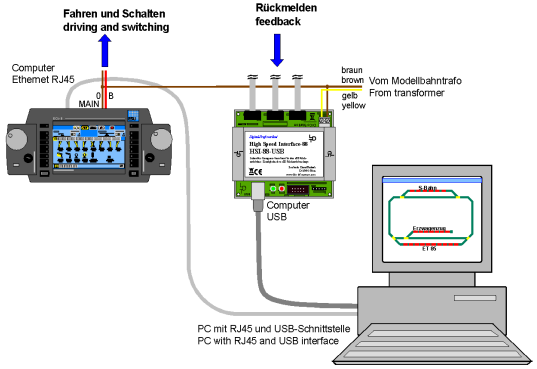
LDT-Components are as **tested finished modules** and as **finished modules in a case** available.

Nearly all modules of the ***Digital Professional-Series*** are as well available as easy to assemble **kits**.

Be a Digital-Professional!

Table of Contents:

Inside this catalogue you will find various digital components of the ***Digital-Professional-Series*** for switching and feedback monitoring. For digital **switching** we are supporting the digital formats Märklin-Motorola (**MM**) and **DCC**. Therefore is it possible to implement our components within the following digital systems:
Märklin-Motorola-Format (**MM**): Intellibox, Märklin-Digital (Control Unit, Central Station 1 and 2, Mobile Station 2), EasyControl, ECoS 1 and 2, Commander, KeyCom-MM, DiCoStation.
DCC-Format: Arnold-, Lenz-, LGB- and Roco-Digital, Digitrax, Intellibox, Märklin-Digital=, Central Station 1 and 2, Mobile Station 2, TWIN-CENTER, EasyControl, ECoS 1 and 2, Commander, KeyCom-DC, DiCoStation.
For **feedback** monitoring we support the s88- and the RS-feedback bus:
s88-feedback bus: High-Speed-Interface HSI-88(-USB), Intellibox, Märklin-Digital (Control Unit with Interface, Central Station 1 and 2), TWIN-CENTER, EasyControl, ECoS 1 and 2, Commander, KeyCom, DiCoStation.
RS-feedback bus: Lenz Digital plus.



To assure a fast and without detour transmitting of feedback reports from the model railway layout via the digital command station to the PC we offer within our program **High-Speed-Interfaces** for the serial **COM-Interface** (**HSI-88**) and the **USB-Interface** (**HSI-88-USB**) for the **s88-feedback bus**.

More details to the interfaces can be found at **page 21** and **22** on this catalogue.

S-DEC-4 For Digital Formats: MM / DCC

4fold Turnout Decoder from our *Digital-Professional-Series!*

For digital control of:

- Up to 4 twin-coil magnetic accessories (e.g. turnouts or signals).
- Up to 8 single-coil magnetic accessories (e.g. uncoupling tracks).
- Up to 4 Permanent Power Switch Units [**DSU**] (e.g. for turnout-/ and road lights).

The four connected turnouts can be switched as well via the **functional keys F1** to **F4** of the **loc-addresses** (valid for **S-DEC-4-DC**).

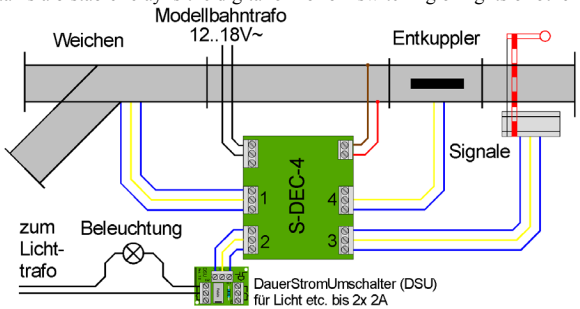
The **S-DEC-4** is a 4-fold turnout decoder with **self-learning decoder addresses**:

The **decoder address can just be set** by pushing the **S-DEC-4** programming key and then **send** a **switch command** via the **digital command station** or via your **model railway software**.

The **decoder address** will be **permanently** stored, but can **always** be **changed** by pressing the programming key again. **It's as simple as that!**

Each of the 4 decoder outputs can be loaded with a current up to **1 Ampere**. By high-current consumer drives with integrated end-switch you should rather use our Switch-Decoder SA-DEC-4 which is able to handle up to 4 Ampere on each output. **Simple and secure connection** of turnouts, signals and uncoupling tracks by practical **screw clips**. The **switching current** is supplied to the decoder either from the **digital circuitry** or even better directly from **model railroad transformer** (**12 to 18V~**). **Valuable digital current can be saved!** For the **external supply voltage** can be a **DC-voltage** (**15 to 24 Volt=**) used.

The S-DEC-4 is available as ready to use **finished module** or as **finished module in a case** or as a **kit** (a suitable **case** for the kit or **assembly material** for the direct assembly of the printed circuit under your layout base plate can be found on page 32 of the catalogue). The below picture indicates clearly the **various operation** possibilities of the Decoder **S-DEC-4**. Apart from the basic operation features of the **turnout switching** you can use the decoder for **uncoupling tracks** and **signals**. Via our Permanent-Power-Switch Unit (**DSU**) which contains a bistable relay is the digital on- or off-switching of lights or other consumer of up to **4 Ampere** possible.



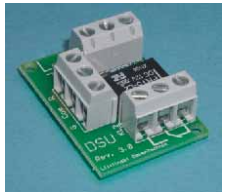
Order code:

S-DEC-4-MM: 4-fold Turnout Decoder for **MÄRKLIN-Motorola** (**MM**) as a kit (**-B**) **Part-No.: 910311**, as a finished module (**-F**) **Part-No.: 910312** or as a finished module in a case (**-G**) **Part-No.: 910313**.

S-DEC-4-DC: 4-fold Turnout Decoder for **DCC Digital-Layouts** (**DCC**) as a kit (**-B**) **Part-No.: 910211**, as a finished module (**-F**) **Part-No.: 910212** or as a finished module in a case (**-G**) **Part-No.: 910213**.

The **Permanent Power Switch Unit (DSU)** contains a bistable relay with two switch contacts. The DSU can be connected directly to each output of our Turnout Decoder **S-DEC-4**. Very easily you can now operate digitally **turnout-lights** or **road-/ house-illuminations**. The bistable relay of the **DSU** "stores" the short switch-over impulses of the turnout decoders. This allows the lights of the connected consumer to be switched permanently on or off.

The **DSU** can be combined with the **Turntable-Decoder TT-DEC** for switching automatically to the correct polarity if a 2-rail conductor turntable bridge is turning by 180 degree.



Simple and safe connection of the 38*27*14 mm unit by use of **screw clamps**. The **finished module** is ready to use for a maximum current load up to **2* 2A. Order code: DSU (Part-No.: 700012)**.

SA-DEC-4 For Digital Formats: MM / DCC

4-fold Switch Decoder from our *Digital-Professional-Series!*

Our Switch Decoder **SA-DEC-4** is equipped with four bitable relays which can **store the digital switch impulses**. Consumers which are connected to the **switch-over contacts** of the relays will remain therefore **permanent switched on or off**. With the switch decoder is it therefore possible to switch **illuminations** or **motors**. The switch decoder is as well suitable for the **voltage-free switching of track sections** (e.g. stop section before signals) because the decoder is able to switch up to **4 Amperes**.

One further operation feature is the **switching of high-current slaggy magnetic articles** with end-switch (e.g. **Märklin track 1 drives**).

The four decoder outputs can be switched as well via the **functional keys F1** to **F4** of the **loc-addresses** (valid for **SA-DEC-4-DC**).

Simple and secure connection of the voltage supply and the consumers by **screw clips**.

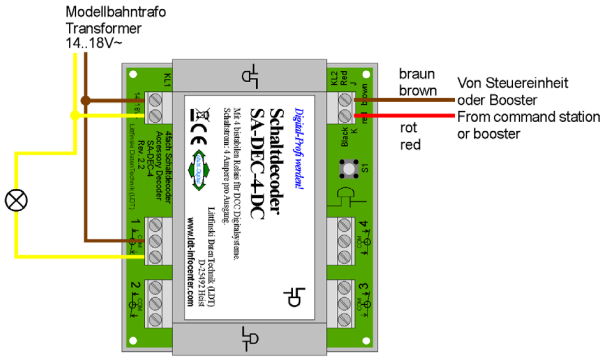
The **switching-current** for the 4 bistable relays will be supplied by the **digital circuit** or by a **separate input** from an **alternating current output** of a model railway transformer (**14 to 18Volt ~**) to the decoder. **Valuable digital current can be saved!** As **external power supply DC-current** (**20 to 24 Volt=**) can be used as well.

The **SA-DEC-4** is a 4-fold switch decoder with a **self-learning decoder address**: **The decoder address can be simply set** by pushing the **SA-DEC-4** programming key and then **sending** a **switch command** via the **digital command station** or via your **model railway control software**.

The **decoder address** will be **permanently** stored but can **always** be **changed** by pressing the programming key again. **It's as simple as that!**

A ready to use **finished module**, **finished module in a case** or a **kit** is available (a suitable **case** for the kit or **assembly material** for the circuit assembly under your layout base plate can be found on page 32 of this catalogue).

Decoder from our ***Digital-Professional-Series*** can operate without any difficulty on your digital model railroad. The decoders are **compatible** with the **Märklin-Motorola data format** (**MM**) or the **DCC** standard (**DCC**).



Order code:

SA-DEC-4-MM: 4-fold Switch Decoder for **Märklin-Motorola** (**MM**) as a kit (**-B**) **Part-No.: 210311**, as a finished module (**-F**) **Part-No.: 210312** or as a finished module in a case (**-G**) **Part-No.: 210313**.

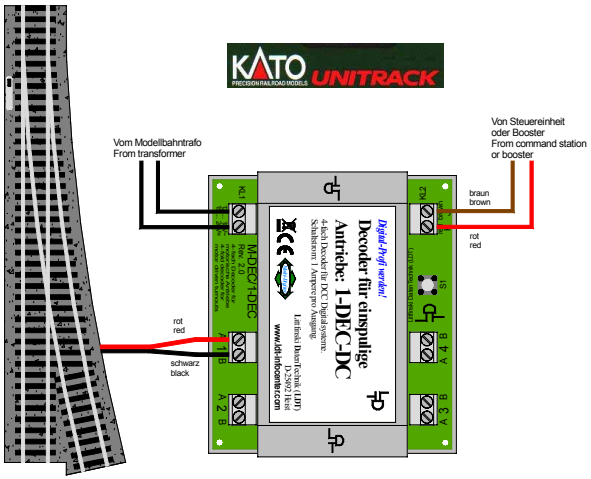
SA-DEC-4-DC: 4-fold Switch Decoder for **DCC Digital-Anlagen** (**DCC**) as a kit (**-B**) **Part-No.: 210211**, as a finished module (**-F**) **Part-No.: 210212** or as a finished module in a case (**-G**) **Part-No.: 210213**.

1-DEC-DC For Digital Formats: DCC

4-fold Turnout Decoder for DCC Digital layouts and LGB-, PIKO G-, KATO-, TOMIX- and ROKUHAN turnout drives from our *Digital-Professional-Series!*

With the Decoder **1-DEC-DC** is the digital control of up to **4 single coil turnout drives** possible.
Each output can be loaded with a nominal current up to **1 Ampere**.
The **1-DEC-DC** is a **4-fold** decoder with **self learning decoder address**: The **decoder address can just be set** by pushing the 1-DEC-DC programming key and then **send** a **switch command** via the **digital command station** or via your **model railway software**.
The **decoder address** will be **permanently** stored, but can **always** be **changed** by pressing the programming key again. **It's as simple as that!**
Simple and secure connection of electrical power supply and turnout drives by **screw clips**.
The **switch-current** is supplied to the decoder either from the **digital circuitry** or through a **separate input** directly from the **alternating current** (AC) output of a model railway transformer (**12 to 18V~**). **Valuable digital current can be saved!** For the **external power supply** can be as well a **DC-current** (**15 to 24 Volt=**) used.
Switching of turnouts or signals is as well possible with the **LGB universal mobile 55015**. For the programming of the decoder address is the "**LGB-programmer**" **not required**.
Available as a ready to use **finished module**, **finished module in a case** or as a **kit**. A suitable **case** for the kit or assembly **material** for the circuit assembly under you layout base plate can be found on page 32 of this catalogue. A suitable splash water protected case for outdoor use can be found at our pricelist.
The Decoder **1-DEC-DC** from our ***Digital-Professional-Series*** can be operated without any difficulty on your digital model railway. This decoder is **compatible** with the **DCC** standard (**DCC**).

Apart from switching single coil **LGB-** and **PIKO G-**Drives is the digital switching of **TOMIX-**, **ROKUHAN-** and **KATO UNITRACK-**Drives with the **1-DEC-DC** possible. A related sample connection is shown at the right side.

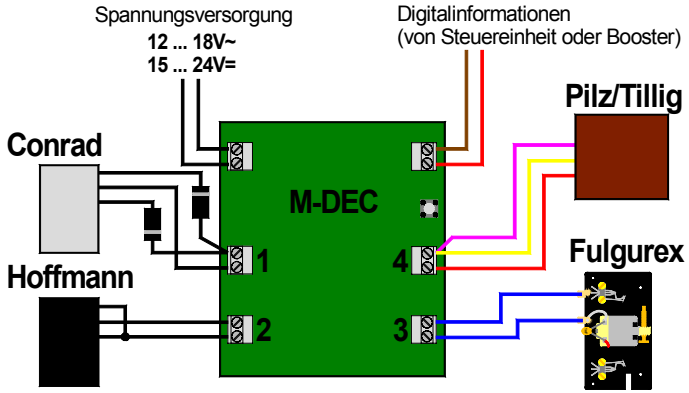


Order code:
1-DEC-DC-B (Part-No.: 110411):
4-fold Turnout Decoder for single coil turnouts of **DCC** digital-systems as a **kit**.
1-DEC-DC-F (Part-No.: 110412):
4-fold Turnout Decoder for single coil turnouts of **DCC** digital-systems as a **finished module**.
1-DEC-DC-G (Part-No.: 110413):
4-fold Turnout Decoder for single coil turnouts of **DCC** digital-systems as a **finished module in a case**.

M-DEC For Digital Formats: MM / DCC

4-fold Decoder for motor driven turnouts from our *Digital-Professional-Series!*

For digital control of: Up to **four** motor driven turnouts (e.g. motor driven underfloor-drives of company Tillig / Pilz, Fulgurex, Hoffmann, Conrad e.g.). The four motor-drives can be controlled as well via the **functional keys F1** to **F4** of loc-addresses (valid for **M-DEC-DC**).
Each output can be loaded with a nominal **motor current** of up to **1 Ampere**.
M-DEC is a **4-fold** decoder with **self-learning decoder address**: The **decoder address can just be set** by pushing the **M-DEC** programming key and then **send** a **switch command** via the **digital command station** or via your **model railway control software**.
The **decoder address** will be **permanently** stored, but can **always** be changed by pressing the programming key again. **It's as simple as that!**
Simple and secure connection of the power supply and the turnout-motors by use of **screw clips**. The decoder receives the **motor current** either from the **digital circuitry** or through a **separate input** directly from the **alternated current** (AC) output (**12 to 18 Volt** ~) of a model railway transformer. **Valuable digital current can be saved!**
As **external power supply** can be as well a **DC-current** (**15 to 24 Volt** =) used.
As the **moving time** of a motor drive **needs only some single seconds**, each output will be **switched voltage-free** after a **period of 10 seconds**.
The **M-DEC** is available as a **kit**, as tested **finished module** or as tested **finished module in a case** (a suitable **case** for the kit or **assembly material** for the direct assembly of the printed circuit under your layout base plate can be found on page 32 of the catalogue).
Decoder from our ***Digital-Professional-Series*** can be operated without any difficulty on your digital controlled model railway. The decoders are **compatible** to the **Motorola data format** (**MM**) and to the **DCC standard** (**DCC**).



The beside drawing shows how to connect the motor drives directly to the decoder. Further wiring or auxiliary voltage is not required. **It is as simple as that!**

Order code:
M-DEC-MM-B (Part-No.: 410511):
4-fold motor-turnout Decoder for **Märklin-Digital~** (**MM**) as a kit.
M-DEC-MM-F (Part-No.: 410512):
4-fold motor-turnout Decoder for **Märklin-Digital~** (**MM**) as a finished module.
M-DEC-MM-G (Part-No.:410513):
4-fold motor-turnout Decoder for **Märklin-Digital~** (**MM**) as a finished module in a case.

M-DEC-DC-B (Part-No.: 410411): 4-fold motor-turnout Decoder for **DCC** Digital (**DCC**) as a kit.
M-DEC-DC-F (Part-No.: 410412): 4-fold motor-turnout Decoder for **DCC** Digital (**DCC**) as a finished module.
M-DEC-DC-G (Part-No.: 410413): 4-fold motor-turnout Decoder for **DCC** Digital (**DCC**) as a finished module in a case.

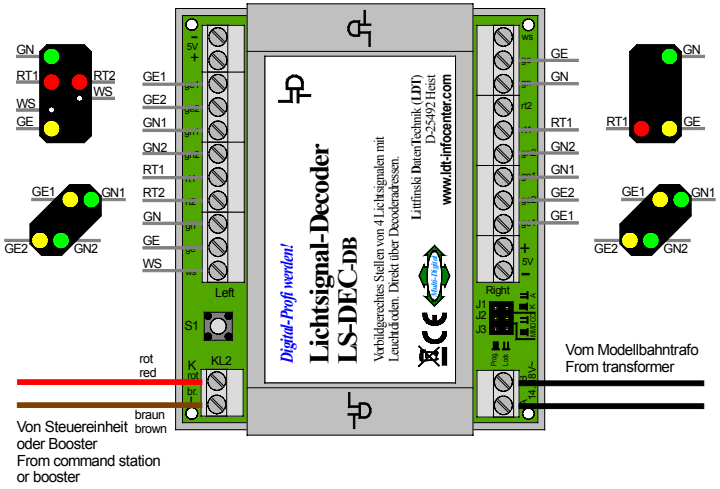
LS-DEC-DB For Digital Formats: MM / DCC

Light-Signal Decoder for train signals equipped with LED from our *Digital-Professional-Series!*

With the **LS-DEC-DB Light-Signal Decoder** is it possible to **switch DB-light signals directly with** the decoder addresses.
Ideal for Memory- and PC-control. No further circuitry required. The **signal wiring** will be **simply connected** to the signal module with **practical and secure clamps**.

Up to **two 7-aspect signals** (advance- and main-signal on one common signal post) or **four 2-aspect signals** (e.g. block- or shunting signals) or **four 3-aspect signals** (e.g. 2 entry- and 2 advance signals) can be controlled by one Light-Signal Decoder **LS-DEC-DB**.

Dark switching is programmable, if advance- and main signal are arranged on one common signal post.
Signal aspects will not be simply cross faded but as realistic the prior aspect will be firstly dimmed and after a short **dark phase** the new signal aspect will appear. The light emitting diodes will be **dimmed up and down** during this process.
Suitable for all LED light-signals with **common anode** or **common cathode**.
In case you want the digital switching of light signals with **incandescent lamps** instead of light emitting diodes you can extend the Light-Signal Decoder LS-DEC-DB simply with our **Adapter Adap-LS** which are is to supply more current. More information about the adapter **Adap-LS-A** and **Adap-LS-K** can be found on the catalogue page 10.
By use of a **jumper you can select** if you want to operate the decoder on a Märklin-Motorola (**MM**) system or on a digital system with the **DCC** Standard.
The **signal current has not necessarily to be supplied by a booster** but can be directly feeded into a separate input from a model railroad transformer. **This saves expensive digital current**.
The LS-DEC is available as a **kit**, as tested **finished module** or as tested **finished module in a case**. A suitable **case** for the kit or **assembly material** for the direct assembly of the printed circuit under your layout base plate can be found on page 32.



Order code:
LS-DEC-DB: Light-Signal Decoder for **DB**-Signals with LED as a kit **(-B) Part-No.: 512011**, as a finished module **(-F) Part-No.: 512012** or as a finished module in a case **(-G) Part-No.: 512013**.

LS-DEC For Digital Formats: MM / DCC

Light-Signal Decoder for further signal systems equipped with LED from our *Digital-Professional-Series!*

Besides the **Light-Signal Decoder** for DB-Signals **LS-DEC-DB** there are decoders for other signal systems available within our program. With all **Light-Signal Decoders** can be **LED equipped light signals** directly digital controlled. All decoders can be extended if required by the adapter **Adap-LS-A** or **Adap-LS-K** to switch eventually signals with incandescent lamps or with installed serial resistors.

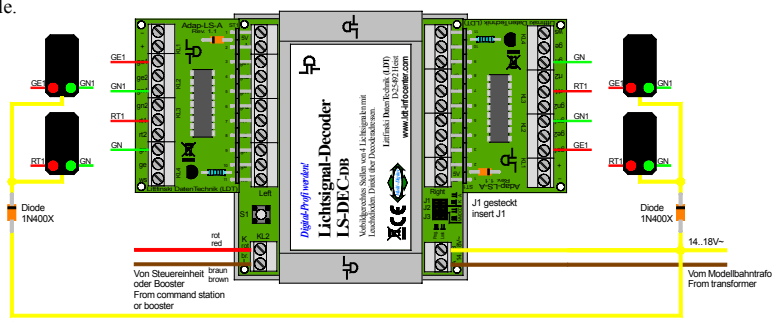
Order code:
LS-DEC-DR: Light-Signal Decoder for LED assembled **DR**-signals as a kit **(-B) Part-No.: 516011**,
as a finished module **(-F) Part-No.: 516012** or as a finished module in a case **(-G) Part-No.: 516013**.
LS-DEC-KS: Light-Signal Decoder for LED assembled **KS**-signals as a kit **(-B) Part-No.: 519011**,
as a finished module **(-F) Part-No.: 519012** or as a finished module in a case **(-G) Part-No.: 519013**.
LS-DEC-SBB: Light-Signal Decoder for LED assembled **SBB**-signals (with 5 or 7 lamps) as a kit **(-B) Part-No.: 513011**,
as a finished module **(-F) Part-No.: 513012** or as a finished module in a case **(-G) Part-No.: 513013**.
LS-DEC-NS: Light-Signal Decoder for LED assembled **NS**-signals as a kit **(-B) Part-No.: 515011**,
as a finished module **(-F) Part-No.: 515012** or as a finished module in a case **(-G) Part-No.: 515013**.
LS-DEC-NMBS: Light-Signal Decoder for LED assembled **NMBS**-signals as a kit **(-B) Part-No.: 518011**,
as a finished module **(-F) Part-No.: 518012** or as a finished module in a case **(-G) Part-No.: 518013**.
LS-DEC-ÖBB: Light-Signal Decoder for LED assembled **ÖBB**-signals as a kit **(-B) Part-No.: 511011**,
as a finished module **(-F) Part-No.: 511012** or as a finished module in a case **(-G) Part-No.: 511013**.
LS-DEC-BR: Light-Signal Decoder for LED assembled **BR**-signals as a kit **(-B) Part-No.: 510111**,
as a finished module **(-F) Part-No.: 510112** or as a finished module in a case **(-G) Part-No.: 510113**.
LS-DEC-FS: Light-Signal Decoder for LED assembled **FS**-signals as a kit **(-B) Part-No.: 510211**,
as a finished module **(-F) Part-No.: 510212** or as a finished module in a case **(-G) Part-No.: 510213**.
LS-DEC-SJ: Light-Signal Decoder for LED assembled **SJ**-signals as a kit **(-B) Part-No.: 510311**,
as a finished module **(-F) Part-No.: 510312** or as a finished module in a case **(-G) Part-No.: 510313**.
LS-DEC-SNCF: Light-Signal Decoder for LED assembled **SNCF**-signals as a kit **(-B) Part-No.: 510411**,
as a finished module **(-F) Part-No.: 510412** or as a finished module in a case **(-G) Part-No.: 510413**.

Adap-LS-A and Adap-LS-K

For all Light-Signal Decoder LS-DEC from our *Digital-Professional-Series!*

The digital switching of signals containing little **incandescent lamps** is possible with the LDT Light-Signal Decoder LS-DEC by application of the Adapter **Adap-LS-A** and Adap-LS-K. Also the switching of light signals with light emitting diodes which require a constant operating voltage is possible with those adapters.
The Adapters **Adap-LS** will just be plugged into the clamp-bar of the Light-Signal Decoder. The Adapter **Adap-LS-A** is suitable for light signals with **incandescent lamps**, light signals with **light emitting diodes and incandescent lamps** or for light signals with **light emitting diodes (with common anodes)** which require a constant operating voltage.
For light signals with **light emitting diodes (with common cathodes)** which require a constant operating voltage is the Adapter **Adap-LS-K** suitable.

Order code:
Adap-LS-A-B (Part-No.: 540011): 2 Adapter version A as a kit.
Adap-LS-A-F (Part-No.: 540012): 2 Adapter version A as a finished module.
Adap-LS-K-B (Part-No.: 550011): 2 Adapter version K as a kit.
Adap-LS-K-F (Part-No.: 550012): 2 Adapter version K as a finished module.



ZBM For Light-Signal Decoder LS-DEC

Train Influence Module from our *Digital-Professional-Seriese !*

With the **Train Influence Module ZBM** is it possible to switch track sections in front of signals which are controlled by a Light-Signal Decoder LS-DEC **free of voltage**.

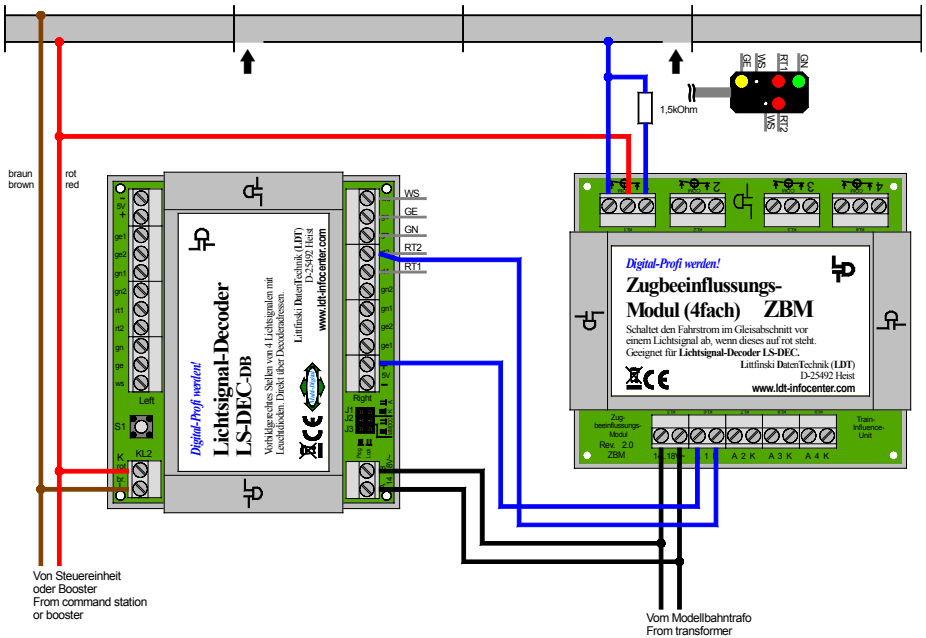
The below **sample connection** shows the operation: if the **signal shows "red"** the track section before the signal will be **switched voltage free** and the **train stops**.

4 track-sections in front of signals can be controlled by **one Train Influence Module ZBM**.

The **ZBM** is available as a **kit**, as tested **finished module** or as tested **finished module in a case** (a suitable **case** for the kit or **assembly material** for the direct assembly of the printed circuit under your layout base plate can be found on page 32 of the catalogue)

Order code:

ZBM-B (Part-No.: 600011): Train Influence Module as a kit.
ZBM-F (Part-No.: 600012): Train Influence Module as a finished module.
ZBM-G (Part-No.: 600013): Train Influence Module as a finished module in a case.



WD-DEC

Watch-Dog Decoder from our *Digital-Professional-Series!*
Supervision of the pc-supported digital model train railroad!

The **Watch-Dog Decoder WD-DEC** is a **watch-dog** for your pc-supported digital model-train-railroad.
If the **model railway software** has **lost control** about the layout, the **WD-DEC** will switch the **tracks free of voltage** via the connected boosters and **all trains will be immediately stopped**.
Function: The **Watch-Dog Decoder** shall be connected between the **command station and the first booster**. In case the pc will not send every 5 seconds a normal switch command to the **Watch-Dog Decoder**, the **WD-DEC** concludes that the model rail way is out of control of the pc. To prevent the non-controlled running of trains the **Watch-Dog Decoder** disconnects the boosters from the command station. The rails will be voltage-free and **all trains will stop**. Therefore the **Watch-Dog Decoder** is not only absolutely necessary for exhibition model rail roads. The **WD-DEC** has been installed for example to the exhibition model rail road layout at **Miniatur-Wunderland at Hamburger Speicherstadt/Germany**. By using **a WD-DEC** your model rail road can operate without continuous observation at your ease.

The **WD-DEC** will not only monitor **the PC, but also the command station** at the same time. If the command station is not reacting to the commands of the computer the **Watch-Dog Decoder** will go into action. The **WD-DEC** accepts **Märklin-Motorola (MM)-** and **DCC-commands**. The **required data format** will be adjusted with the implementation of a **jumper**.

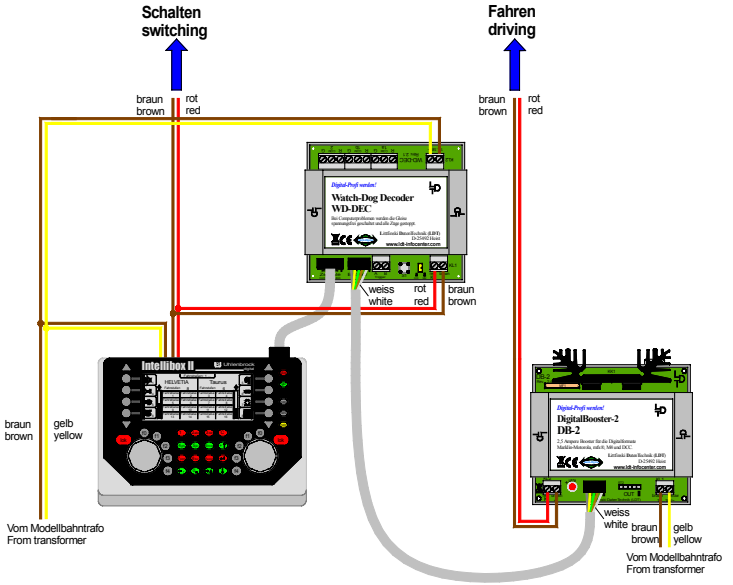
The command station can be **connected to the boosters** directly via the **5-poles boosterbus** (e.g. **Märklin-Digital / Central Station, Intellibox, TWIN-CENTER, ECoS**). Is there no 5-poles booster-bus available at the command station (e.g. Lenz Digital plus), the connection to the boosters will be done **via the screw-clamps** on the **WD-DEC**.

Each **WD-DEC** comes with a booster cable (1 meter length) for the 5-**poles booster-bus** for the immediate assembly.

Order code:

WD-DEC-B (Part-No.: 010011): Watch-Dog Decoder as a kit.

WD-DEC-G (Part-No.: 010013): Watch-Dog Decoder as a finished module in a case.



TT-DEC For Digital Formats: MM / DCC

TurnTable Decoder for the digital control of turntables without any alteration at the turntable!

The **TurnTable-Decoder TT-DEC** is **suitable for the digital control** of **Fleischmann-Turntables 6052, 6152, 6154, 6651, 9152, 6680** (with and without "C"), **6652** (with 3-rail conductor), the **Roco Turntable 35900** and the **Märklin-Turntable 7286**.

The **command-set** of the **TT-DEC** is **compatible** to the **Märklin Turntable-Decoder 7686**. This is a component of the **Märklin Digital-Retrofit Kit 7687** for the T**urntable 7286**.

Therefore is an immediate start of the **TT-DEC** with **any command station or model railway software possible** which is **supporting** the **Märklin Turntable-Decoder 7686** respectively the **Digital-Retrofit Kit 7687**.

The **digital format** (**Märklin-Motorola** or **DCC**) and the **location of the track connections** are easily programmable via any **command station** which is able to switch turnouts or via **a model railway software** which supports the Märklin turntable 7686. **Any pit track connection** of the turntable **can be programmed as track 1 (reference track)**.

Turntables with **48 or 24 track connections** can be directly **digital controlled by the TT-DEC**.

Track connection will be positioned by the **shortest path**. The **TT-DEC** permits the **step by step rotation to the right- or left side**, the direct connection with **pre-selected tracks** and **turning the movement direction** of the turntable **by 180 degree**.

The **rotation speed of the turntable** can be **individually adjusted** via a **potentiometer**.

The **TurnTable Decoder TT-DEC** is as well able of a digital operation of Märklin- and Fleischmann-turntables with a refit of a **bell-type armature motor** supplied **by sb modellbau**.

The plug of the **6-poles flat ribbon cable** of the **Märklin-Turntable 7286** can be **directly plugged** onto the **pin plug bar** of the **TT-DEC**.

If **the TurnTable Decoder TT-DEC** will be extended by a **Permanent Power Switch Unit DSU (Page 5)** is always a **correct polarity** connection of the **bridge track** on the **2-conductor-Fleischmann turntables** possible. Therefore is no reversing loop module for the bridge track required.

If the **turntable will be** in the **line-up track position** this can be **reported** to the model railway software via the **feedback output** of the **TurnTable Decoder TT-DEC**.

Order code:

TT-DEC-B (Part-No.: 010501): TurnTable Decoder as a kit.
TT-DEC-G (Part-No.: 010503): TurnTable Decoder as a finished module in a case.

TT-DEC-R For Digital Formats: MM / DCC

TurnTable Decoder for the digital control of Roco H0 Turntable 42615.

The **TurnTable-Decoder TT-DEC-R** is suitable for the digital control of the **Roco H0 Turntable 42615**.

The **Roco H0 turntable 4261**5 can be equipped with **4 up to 40 track connections**.

Non-aligned opposite track connection can be corrected **at a min. of 4.5 degree offset**.

The **command-set** of the **TT-DEC-R** is **compatible** to the **Märklin Turntable electronic 7686**. Therefore is a **very simple control** via any **digital command station** and **model railway software** possible, which supports the **Märklin turntable electronic 7686** with a **turntable graphic**.

The **digital format** (**Märklin-Motorola** or **DCC**) and the **location of the track connections** are **easily programmable** via any **digital command station** which is able to switch turnouts or via a **model railway software** which supports the Märklin turntable 7686.

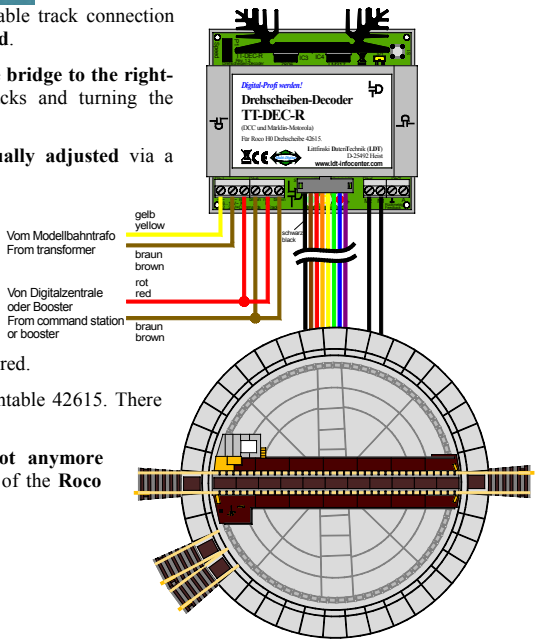
Any track connection of the turntable **can be programmed as track 1 (reference track)**. Each available track connection can be **directly approached by a simple switch command**.

The **TT-DEC-R** permits the **step by step rotation of the bridge to the right- or left side**, the direct connection of pre-selected tracks and turning the movement direction of the turntable by **180 degree**.

The **rotation speed of the turntable** can be **individually adjusted** via a **potentiometer**.

If the **turntable has reached the lined-up track position** this can be **reported** to the **model railway software** via the **feedback output** of the **TurnTable-Decoder TT-DEC-R**.

The **bridge track receives** the **correct polarity** from an **integrated switch-over relay**. Therefore is **no additional reverse loop module** for the bridge track required.



There are **no alterations required** on the Roco H0 Turntable 42615. There are only three small **electrical adaption** necessary.

After **completion of the electrical adaption** is it **not anymore possible to control the Roco Turntable 42615 by use** of the **Roco manual control unit**.

Roco Drehscheibe 42615 neue Variante
Roco Turntable 42615 new version

Order code:

TT-DEC-R-B (Part-No.:010511):
TurnTable-Decoder TT-DEC-R as a kit.

TT-DEC-R-G (Part-No.: 010513):
TurnTable-Decoder TT-DEC-R as a finished module in a case.

KSM-SG For **all digital formats**.

Reverse-Loop Module with short-circuit protected reversal polarity via Sensor Tracks

The KSM-SG from our ***Digital-Professional-Series*** is suitable for the **digital operation** with all **digital formats**.

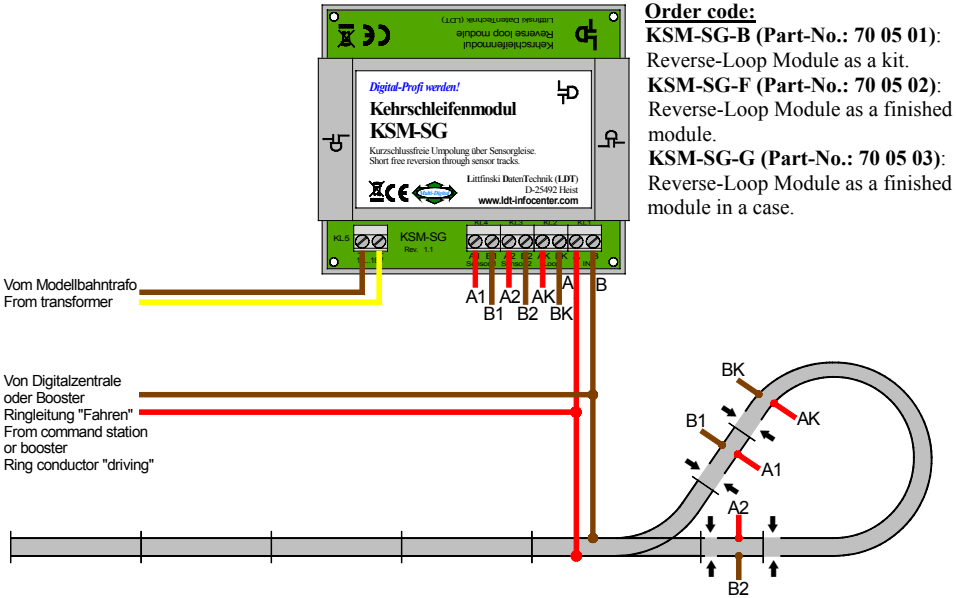
The **polarity reversal** of the **Reverse-Loop** will be carried out **without short circuit** via **2 sensor tracks** at the **entrance** and at the **exit** of the **Reverse-Loop**.

The **Reverse-Loop Module KSM-SG** can switch up to **8 Ampere digital current**.

With reason to an **external power supply** is a **simple control of the reverse-loop with track occupancy modules (e.g. RM-GB-8-N, GBM-8 or RS-8)** possible. The **sensor tracks** will be **controlled** as well.

Both rails of the **sensor tracks (A1/B1** and **A2/B2)** and the **Reverse-Loop (AK/BK)** will be **completely isolated** and **connected** to the **respective marked clamps** at the **Reverse-Loop Module KSM-SG.**

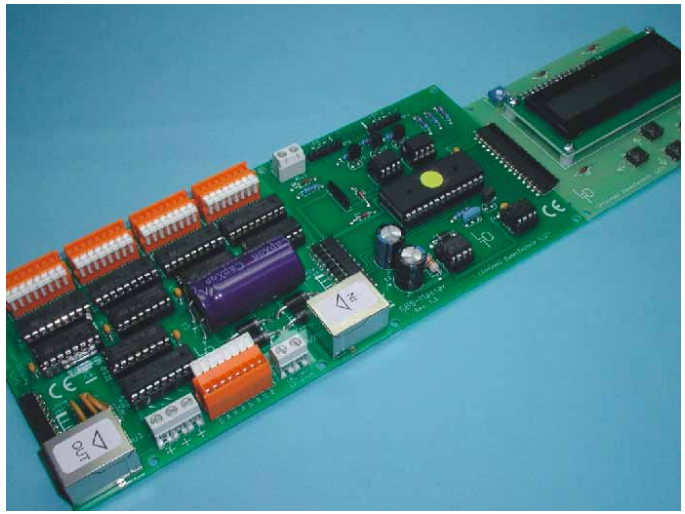
The **minimum length** of the **reverse-loop track** is **about 5 to 20cm**. **It has to be as long as the longest train on the layout**.



Order code:
KSM-SG-B (Part-No.: 70 05 01): Reverse-Loop Module as a kit.
KSM-SG-F (Part-No.: 70 05 02): Reverse-Loop Module as a finished module.
KSM-SG-G (Part-No.: 70 05 03): Reverse-Loop Module as a finished module in a case.

GBS-DEC For Digital Formats: **MM** / **DCC** and the **s88-feedback bus**

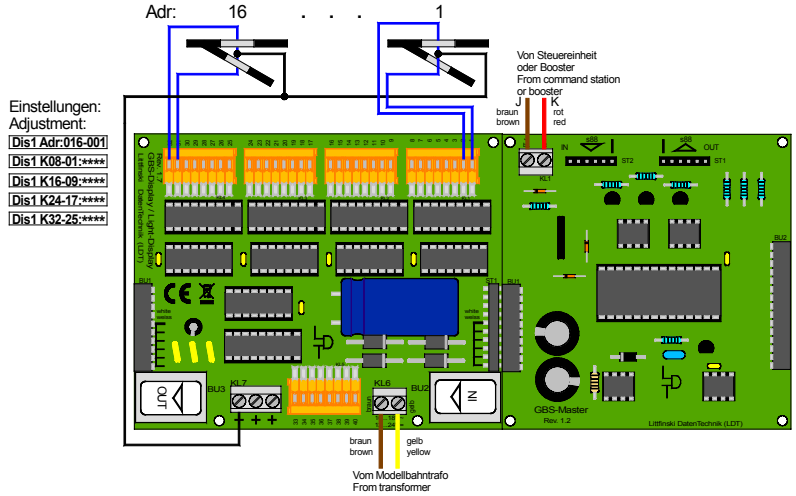
Decoder for Switchboard Lights for the illumination of turnout- and signal symbols and the occupied track sections on the switchboard panel!



To track and influence the events of a layout with a **switchboard panel** is **much more comfortable** as done with a PC-Monitor.
Either you assemble your **own switchboard panel** or you combine components of available **switchboard systems**.
But how are getting the **switchboard information's (e.g. keystroke for switching a turnout) to the PC** and the **information's of turnout status and track occupancies** from the **PC to the switchboard**?
As each **PC-supported digital system** contains a **feedback bus** is it possible to connect the **keys for switching of turnouts** simply onto **feedback modules** (**RM-88-N** for the **s88-feedback bus** or **RS-16-O** for the **RS-feedback bus**).
The status of turnout positions and occupancy information's of the **layout** shall now be **transferred** to the **switchboard** to enable the **illuminated indication** of the **turnout- and drive track-symbols** on a PC-monitor.

Just there comes the new Decoder for Switchboard Lights GBS-DEC into action.

The **Decoder for Switchboard Lights GBS-DEC** can be **connected to the digital current circuit** as any other decoder. On this way the **GBS-DEC** receives the **switch-information** for the **illuminated indication of turnouts** directly from the **command station or from the PC**.



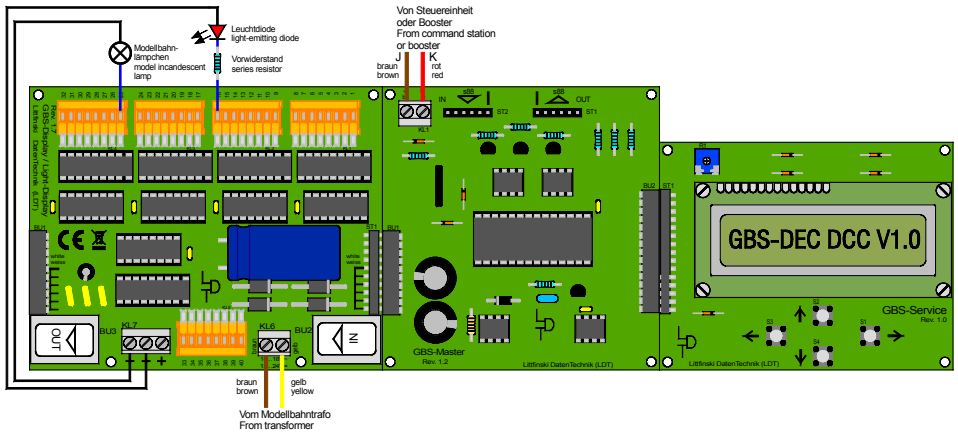
The Decoder for Switchboard Lights **GBS-DEC** consists of **three components**:

1. One **Master-Module** (at the center of the following picture). This is the **actual decoder** which is **getting the digital information** from the digital command station or from a booster.

The **Master-Module** is available for **digital formats Märklin-Motorola** or **DCC** and as **s88**-version which enables the **GBS-DEC to monitor the s88 feedback bus**. On this way is it possible to show **real turnout feedback reports** and **track occupation reports** on the **switchboard panel**.

2. Up to 4 **Display-Modules** (shown at the left on the following pictures) for the connection of max. **16 turnout symbols**. The **Display-Module** can supply with **40 outputs model railway incandescent lamps** or **light emitting diodes**. The connection of **turnout- and track symbols** as well as **signal symbols** (**DB-block-, entrance-, main-, and advance signals**) is possible.

3. One **Service-Module** (shown at the right on the following picture) with **4 keys** and one **display** for the setting of **addresses and operation options**. The **options will be stored** at the **Master-Module**. The **Service-Module** does **not need** to be **connected to the Master-Module** during **normal operation**.



On our Web-Site (**www.ldt-infocenter.com**) you can find under "**Sample connections**" further circuits for the **control of turnout-, track- and signal symbols**.

The components for the **Switchboard Light Decoder (GBS-DEC)** are available as **kit** or as checked **finished module**.

Order code:

GBS-Master-MM-B **(Part-No.: 050321):** Master-Module for **MM** as a kit.
GBS-Master-MM-F **(Part-No.: 050322):** Master-Module for **MM** as a finished module.
GBS-Master-DC-B **(Part-No.: 050221):** Master-Module for **DCC** as a kit.
GBS-Master-DC-F **(Part-No.: 050222):** Master-Module for **DCC** as a finished module.
GBS-Master-s88-B **(Part-No.: 050121):** Master-Module for **s88-Mode** as a kit.
GBS-Master-s88-F **(Part-No.: 050122):** Master-Module for **s88-Mode** as a finished module.
GBS-Display-B **(Part-No.: 050031):** Display-Module as a kit.
GBS-Display-F **(Part-No.: 050032):** Display-Module as a finished module.
GBS-Service-B **(Part-No.: 050041):** Service-Module as a kit.
GBS-Service-F **(Part-No.: 050042):** Service-Module as a finished module.

Beside to the 3 **single components** of **Master-**, **Display-**, **and Service-Module** there are as well **startsets** available. Those **sets** consist of **one Master-, one Display-, and one Service-Module**.

GBS-Startset-MM-B **(Part-No.: 050351):** Startset for **MM** as a kit.
GBS-Startset-MM-F **(Part-No.: 050352):** Startset for **MM** as a finished module.
GBS-Startset-DC-B **(Part-No.: 050251):** Startset for **DCC** as a kit.
GBS-Startset-DC-F **(Part-No.: 050252):** Startset for **DCC** as a finished module.
GBS-Startset-s88-B **(Part-No.: 050151):** Startset for **s88-Mode** as a kit.
GBS-Startset-s88-F **(Part-No.: 050152):** Startset for **s88-Mode** as a finished module.

Be a Digital-Professional!

RM-88-N For the **s88-feedback bus**

16-fold Standard-Feedback Module from our *Digital-Professional-Series!*

Standard-Feedback Module for digital command stations and interfaces with **s88-feedback bus**.

With **16 inputs**, which are **switching against ground**.

The Feedback Module **RM-88-N** is equipped for **s88-standard connections** with **6-poles pin bars** and for **bus connections according to** s88-N with **screened RJ-45 sockets**.

The Feedback Module **RM-88-N** will be supplied **without a s88-bus cable**.

Suitable s88-bus cables ("**Kabel s88**" for **s88 standard connections** or "**Kabel Patch**" for **connections according to** s88-N are available in different length) can be found on page 32 and 33 on this catalogue.

Order code:

RM-88-N-B (Part-No.: 310111): Standard-Feedback Module as a kit.
RM-88-N-F (Part-No.: 310112): Standard-Feedback Module as a finished module.
RM-88-N-G (Part-No.: 310113): Standard-Feedback Module as a finished module in a case.

RM-88-N-O For the **s88-feedback bus**

16-fold Feedback Module with galvanic separated Opto-coupling-Inputs from our *Digital-Professional-Series!*

Opto-coupling Feedback Module for digital command stations and interfaces with **s88-feedback bus**. With **16 opto-coupling-inputs** for the **potential separation** and **high interference protection**.

The Feedback Module **RM-88-N-O** is suitable for **s88-standard connections** with **6-poles pin bars** and for **bus-connections according to s88-N** equipped with **screened RJ-45 sockets**.

The Feedback Module **RM-88-N-O** will be supplied **without s88-bus cable**. **Suitable s88-bus cables** ("**Kabel s88**" for **s88 standard connections** or "**Kabel Patch**" for **connections of s88-N** are available in different length) can be found on page 32 and 33 on this catalogue.

Order code:

RM-88-N-O-B (Part-No.: 310101):
Feedback Module with opto-coupling-inputs as a kit.
RM-88-N-O-F (Part-No.: 310102):
Feedback Module with opto-coupling-inputs as a finished module.
RM-88-N-O-G (Part-No.: 310103):
Feedback Module with opto-coupling-inputs as a finished module in a case.

RM-GB-8-N For the **s88-feedback bus**

8-fold Feedback Module with integrated occupancy detector!

Feedback Module with integrated occupancy detector for the connection to digital command stations and interfaces which supports the **s88-feedback bus**.

Isolated rail sections or track sections to be monitored for occupation have to be simply connected to the output clamps of the feedback module to **get a digital current supply**.

The **permanent load of each output** can be up to **3 Ampere**. The **short time peak current** load can be **up to 7 Ampere**. It is **no additional power supply** required.

This **reduces** the **wiring effort**.
The **RM-GB-8-N** includes **an integrated voltage monitor**. If there is **no voltage at the tracks** (e.g. after short circuit) the occu**pied identification will be "frozen" during the interruption**.

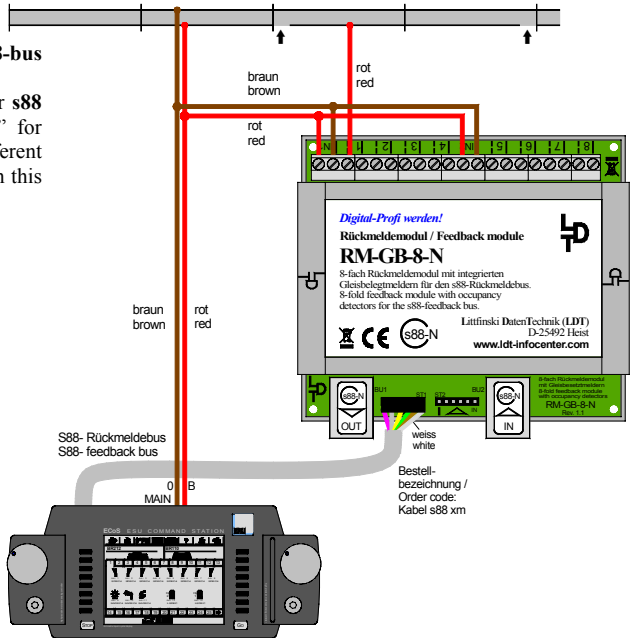
The **RM-GB-8-N** supports **s88-standard connections** via 6-**poles s88-pin bars** and connections according to s88-N via **RJ-45 sockets**.

The Feedback Module **RM-GB-8-N** will be supplied **without s88-bus cable**.
Suitable s88-bus cables ("**Kabel s88**" for **s88 standard connections** or "**Kabel Patch**" for **connections of s88-N** are available in different length) can be found on page 32 and 33 on this catalogue.

Order code:
RM-GB-8-N-B (Part-No.: 320101): Feedback Module with occupancy detector as a kit.

RM-GB-8-N-F (Part-No.: 320102): Feedback Module with occupancy detector as a finished module.

RM-GB-8-N-G (Part-No.: 320103): Feedback Module with occupancy detector as a finished module in a case.



DSW-88-N For the **s88-feedback bus**

Data Switch from our *Digital-Professional-Series!*

At the s88-feedback bus all connected feedback modules are installed behind each other's in one bus line. The **Data Switch DSW-88-N** provides the possibility to **split** the **s88-feedback bus**.

The **Data Switch DSW-88-N** provides in addition three **6-poles pin bars** for the **s88 standard connection** and as well three **RJ-45 sockets** for a bus connection according to **s88-N**.

If your **command station** has been **placed** into the middle of the model railroad layout you do not need any more to install a long feedback ring. You can now **easily split** the feedback line after the **Data Switch DSW-88-N** for a separate **left and right feedback line**.

The **Data Switch DSW-88-N** can be implemented if the **s88-bus** is used for feedback monitoring (e.g. **Märklin-Memory, Märklin-Interface, Central Station 1, Intellibox, TWIN-CENTER, High-Speed-Interface HSI-88(-USB), Commander, EasyControl, ECoS 1 and 2, DiCoStation**).

No additional power supply is required for the **Data Switch DSW-88-N**.

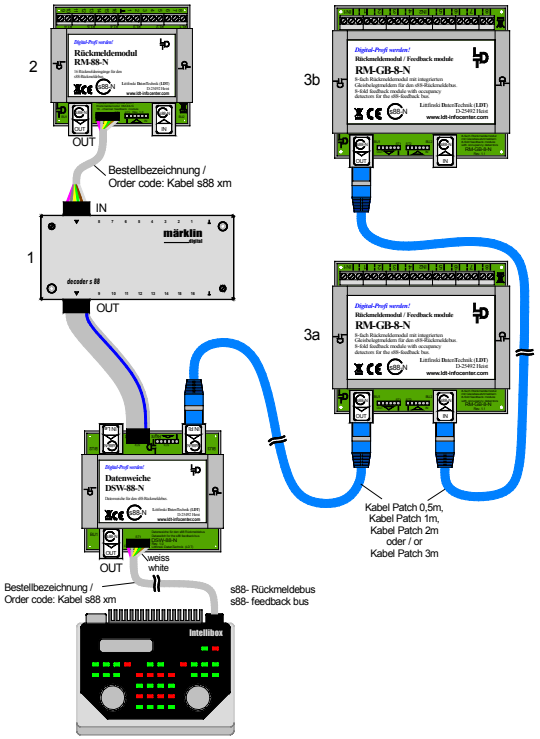
The feedback information's will be transferred through the **Data Switch DSW-88-N without any delay**.

Each reading of feedback information started by the digital command station will initiate **the report of the information of all connected feedback modules** to the command station.

First reading will be the information of the **left line**. Following, the **Data Switch will change to the right feedback line** for transfer of those information's.

The **Data Switch DSW-88-N** is **compatible** with **all s88-feedback modules** available on the market.

Order code:
DSW-88-N-B (Part-No.: 040111): Data Switch as a kit.
DSW-88-N-G (Part-No.: 040113): Data Switch as a finished module in a case.



HSI-88 For the **s88-feedback bus**

High-Speed-Interface from our *Digital-Professional-Series!*

The **HSI-88** is an **Interface** between the **s88-feedback bus** and the **COM port** of a **Personal Computer**. On this way the feedback reports can be transmitted without **any detour via the digital command station directly to the PC**.
The interface includes **three s88 bus-plugs**. This offers the advantage of a much faster s88 bus handling and the possibility to **build up three bus-lines at the system**.
The **HSI-88** operates **event-driven**: any changes on the tracks are **reported** immediate **to the PC**. **This saves substantial PC resources** and **reduces the response time** considerable because the PC has not to request cyclical about changes but gets all updated changes reported from the interface.
Fast (9600Baud), **galvanically** isolated **connection** to the computer via the serial COM-port (RS232).
The **3 feedback lines additionally** enhance the **reading** of the s88-feedback bus by 3-times.

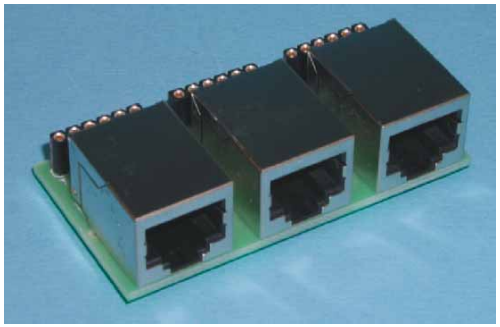
3 feedback lines will give you the advantage of a **simple arrangement** of the feedback module below your layout.
It is possible to **monitor a total of 31*16 feedback contacts** with one bus-line or divided onto the three bus-lines.
Besides all **Standard Feedback-Modules** such **as s88 from Märklin** or our **RM-88-N** you can naturally operate on the **HSI-88** as well our Feedback Modules **RM-88-N-Opto** and **RM-GB-8-N**.
Each Interface **HSI-88** comes with a **9-pole PC-connection cable**.

Order code:
HSI-88-B (Part-No.: 030311): High-Speed-Interface for the s88-feedback bus as a kit.
HSI-88-G (Part-No.: 030313): High-Speed-Interface for the s88-feedback bus as a finished module in a case.

Adap-HSI-s88-N For the Interfaces **HSI-88**, **HSI-88-USB** and **DiCoStation** for s88-Bus connections according to **s88-N** from our *Digital-Professional-Series!*

Via the **Adapter Adap-HSI-s88-N** is it possible to connect **s88-feedback Modules** such as **RM-88-N**, **RM-88-N-O** and **RM-GB-8-N** directly via the screened **Patch-Kabel** to the Interfaces **HSI-88**, **HSI-88-USB** and **DiCoStation** in accordance to **s88-N**.

The **6-poles Socket bars** of the **Adapter Adap-HSI-s88-N** shall be connected to the **three 6-poles Pin bars** of the Interface HSI-88, HSI-88-USB or **DiCoStation**. With this connection are **three s88-Bus-Lines** of the **Interface RJ-45 sockets** available for a **s88-connection** of the first feedback modules by using the **screened patch cable**.



Order code:
Adap-HSI-s88-N-F (Part-No.: 38112): Adapter for HSI-88, HSI-88-USB and DiCoStation for s88-bus connection in accordance to s88-N as a finished module.

HSI-88-USB For the **s88-feedback bus**

High Speed Interface with 3 feedback lines!

The **HSI-88-USB** is a **Feedback-Interface** from a **s88-feedback bus** to an **USB-Interface** of a Computer.

The I**nterface includes three s88 bus-plugs**. This offers the **advantage** of a **much faster s88 bus handling** and the possibility to build **three bus-lines** at the layout-system with a **total of 496 feedback contacts**.

All Feedback-Events will be **fast transmitted, without any detour** via the command station, **via the USB-Interface directly to the PC**. For this operation contains the **HSI-88-USB** a **fast (1.1/2.0 Full-Speed), galvanic separated USB-connection**.

The **3 feedback lines** additionally enhance the **reading-time** of the s88-feedback bus by **3-times**.

The **HSI-88-USB** operates **event-driven**: any **changes** on the tracks are **reported immediate to the PC**. This saves **substantial PC resources** and **reduces the response time** considerable because the PC has not to request cyclical about changes but gets all updated changes **reported from the interface**.

Via the **Adapter Adap-HSI-s88-N** is it possible to connect s88-Feedback Modules such as **RM-88-N**, **RM-88-N-O** and **RM-GB-8-N** directly via the screened **Patch-Kabel** to the **HSI-88-USB** in accordance to **s88-N**.

The 6-poles socket bars of the **Adapter Adap-HSI-s88-N** shall be simply connected to the three 6-poles pin bars of the **HSI-88-USB**.

Each Feedback-Interface **HSI-88-USB** will be supplied together with an **USB-Connection-Cable** for the connection to the PC. We supply the HSI-88-USB incl. a **CD with USB-Software-Driver for Windows 98, ME, 2000, XP, Vista (32- and 64-Bit), Windows 7 (32- and 64-Bit) and Windows 8.x (32- and 64-Bit)**.

Order code:
HSI-88-USB-G
(Part-No.: 030913):
as a finished module in a case
plus USB-Connection Cable
and CD with USB-Driver.

RS-16-O For the **RS-feedback bus** (Lenz-Digital plus)

Feedback Module with 16 galvanic separated inputs.

The 16 fold Feedback Module **RS-16-O** reports the switch events of any contact to the **command station LZ100** or **LZV100** via the **RS-bus**.

The **feedback events** can be **monitored** on the **hand controller LH-100**. Further is it possible to report the feedback events to the **personal computer** via the **Interface LI100F** or **LI-USB** by using a suitable **model railway software**.

The **16 inputs** of the **RS-16-O** are equipped with **opto couplers** to be able to **report different electrical potentials**. A **feedback monitoring** is possible in **combination** with our Turnout Decoder **S-DEC-4**.

This and further **sample connections** can be found on our Web-Site at the sections "**Download**" and "**Sample Connections**". For that please load the file "**RS160_INFO**" onto your PC.

The **feedback address** is **free programmable** at the section **1 to 128**.

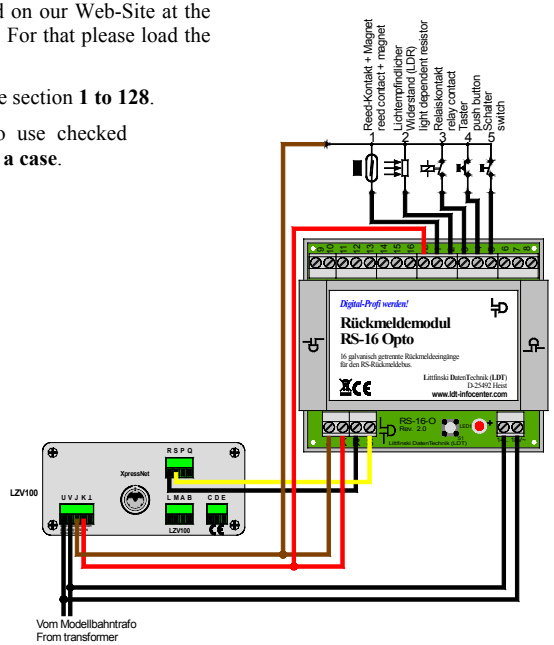
The **RS-16-O** is available as a **kit**, as ready to use checked **finished module** or as checked **finished module in a case**.

Order code:

RS-16-O-B (Part-No.: 310201):
16-fold Feedback Module with opto coupler for the **RS-feedback bus** as a kit.

RS-16-O-F (Part-No.: 310202):
16-fold Feedback Module with opto coupler for the **RS-feedback bus** as a finished module.

RS-16-O-G (Part-No.: 310203):
16-fold Feedback Module with opto coupler for the **RS-feedback bus** as a finished module in a case.



RS-8 For the **RS-feedback bus** (Lenz-Digital plus)

8-fold Feedback Module with integrated occupancy detector from the *Digital-Professional-Series!*

The **Feedback Module RS-8** contains **track occupation sensors** and is therefore suitable for the **monitoring** of **8 track sections** each. **Isolated track-sections** to be monitored for occupancy will **get simply the digital current** via the output clamps of the Feedback Module.
Each output can cover a **max. nominal current of 3 Ampere**. The **short time peak current** load can be up to **7 Ampere**.

Further features of the RS-8:
For the direct connection to the **RS-feedback bus** of the **Digital plus** system of company Lenz.
The Feedback Module can get the **current supply** either from the **digital current circuit** or via a separate input from an **AC-output** (14 to 18V~) of a transformer. This **saves expensive digital current**.

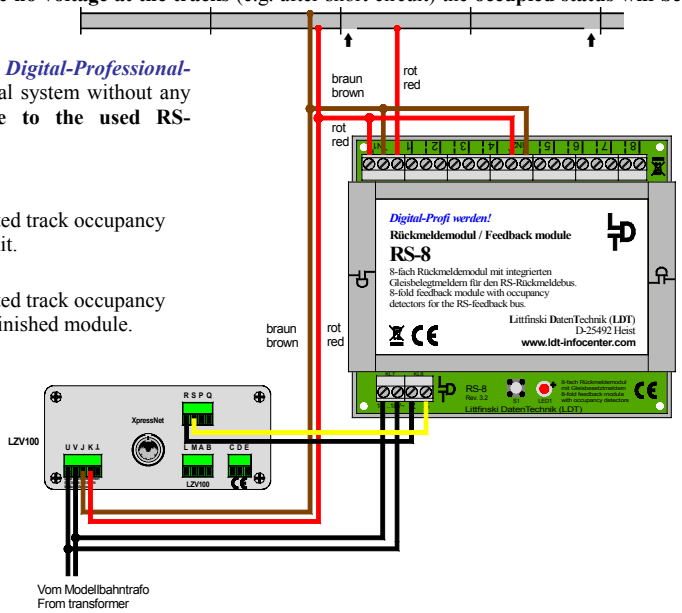
The Feedback Modules **RS-8** can be operated **common** with **all Digital plus components** which contain a feedback-report via the **RS-Bus** (e.g. RS-16-O, LS100, LR101). The **feedback address** is free **programmable** at the range of **1 to 128**.
Including a voltage monitor: is there **no voltage at the tracks** (e.g. after short circuit) the **occupied status will be "frozen" during the interruption**.
The Feedback Modules **RS-8** of the ***Digital-Professional-Series*** can be operated on your digital system without any problem. The RS-8 is **compatible to the used RS-feedback bus**.

Order code:

RS-8-B (Part-No.: 300211):
8-fold Feedback Module with integrated track occupancy report for the **RS-feedback bus** as a kit.

RS-8-F (Part-No.: 300212):
8-fold Feedback Module with integrated track occupancy report for the **RS-feedback bus** as a finished module.

RS-8-G (Part-No.: 300213):
8-fold Feedback Module with integrated track occupancy report for the **RS-feedback bus** as a finished module in a case.



GBM-8 For the **Roco feedback module 10787**

8-fold Track Occupancy Detector from our *Digital-Professional-Series!*

If you use the **Roco-Digital-System** together with the **Interface 10785** and the Software **Rocomotion**, you can use the **track occupancy detector GBM-8** as an **extension** of the **Roco feedback module 10787** to receive a **comfortable** and **low-cost track occupancy report system**.
There are **no more switch-rails 42518 required**. You **simply isolate one rail** at the track section to be monitored and connect this section with one of the **8 inputs of the Track Occupancy Detector GBM-8**.
The **monitored track section will receive digital current** via the **8-fold Occupancy Detector GBM-8**. As soon as a **current consumer (loc or a wheel set with resistance or conductive lacquer)** will be within **the monitored track section the GBM-8 reports the occupancy situation** to the **Roco feedback module 10787**.
The **GBM-8 recognizes current from 0,001 Ampere**. The **maximum digital current on each output** can be up to **3 Ampere (peak current up to 7 Ampere)**.

The **GBM-8 requires no additional voltage supply**. Therefore is a **minimum of wiring required**.

The **8-fold Track Occupancy Detector GBM-8** is **divided into two 4-fold Track Occupancy Detectors**. Therefore is it possible to **monitor tracks of two different booster sections**. The partition into two 4-fold Track Occupancy Detectors **simplifies the monitoring of terminal loops** as well.

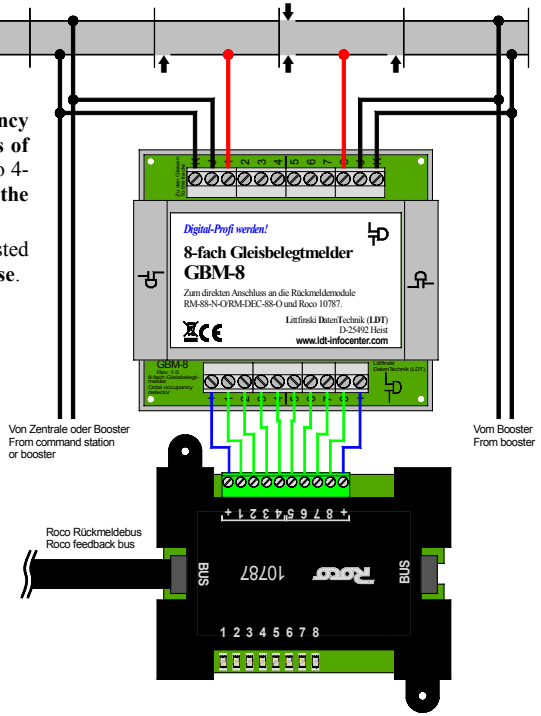
The **GBM-8** is available as a **low cost kit**, as tested **finished module** or as tested **finished module in a case**.

Order code:

GBM-8-B (Part-No.: 020001):
8-fold Track Occupancy Detector for the Roco feedback module 10787 as a kit.

GBM-8-F (Part-No.: 020002):
8-fold Track Occupancy Detector for the Roco feedback module 10787 as a finished module.

GBM-8-G (Part-No.: 020003):
8-fold Track Occupancy Detector for the Roco feedback module 10787 as a finished module in a case.



DB-2 Amplification of the data formats **Märklin-Motorola**, **mfx®**, **M4** and **DCC**.

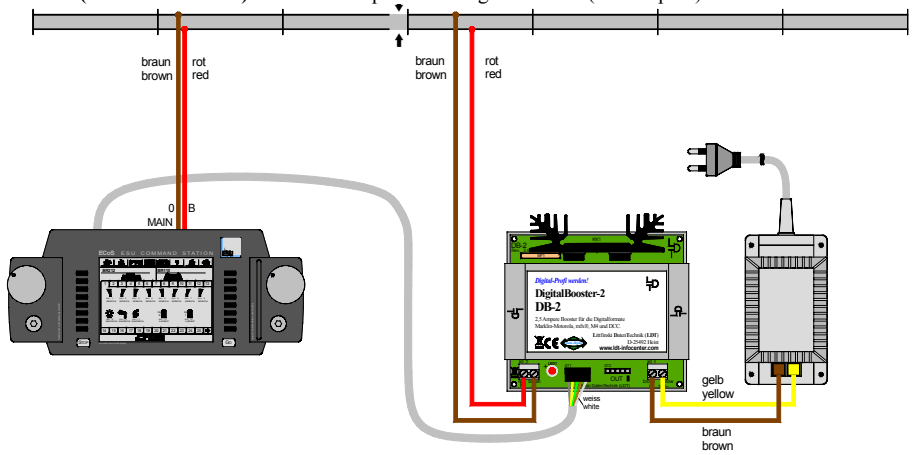
DigitalBooster 2.5 Ampere from our *Digital-Professional-Series!*

The **DigitalBooster DB-2** is a **short circuit protected** Power-Amplifier (Booster) for digital model railway layouts.
It supplies a **digital current** of **2.5 Ampere**.
The **DigitalBooster DB-2** is suitable for the data formats **Märklin-Motorola** mfx®, M4 and **DCC**.
The **DB-2** is **compatible** to the digital command stations Märklin **Central Station** and **Control Unit**, **Intellibox**, **TWIN-CENTER** (DCC-Format), **ECoS**, **EasyControl**, **KeyCom** and **DiCoStation**.
Each Power-Amplifier **DB-2** will be supplied with a **5-poles boosterbus-cable** (1m length). Via this cable will be the **DB-2** connected to the **command station or to another booster (e.g. DB-2, DB-4, 6015, 6017, Power 2, Power 3)**. The **first booster** shall be always **directly connected to the command station** via the **5-poles booster bus cable**. The **second booster** shall be connected **to the first booster** etc.

If you want to use the **DigitalBooster DB-2** on a digital command station which does not support the 5-poles booster bus but only the 3-poles **DCC-Boosterbus** (clamp marking CDE) (e.g. **Lenz Digital plus, IB-Basic and IB-COM**) you can use the **Booster-Adapter Adap-CDE**.
By implementation of the **booster adapter Adap-Roco** is the application of the **DigitalBooster DB-2** as well possible on **Roco- or Fleischmann digital command stations (Roco-Part No.: 10761 and 10764 / Fleischmann-Part No.: 680801) or with the multiZENTRALEpro**.

Order code:

DB-2-B (Part-No.: 080061): Short circuit protected DigitalBooster (2.5 Ampere) as a kit.
DB-2-G (Part-No.: 080063): Short circuit protected DigitalBooster (2.5 Ampere) as a finished module in a case.



DB-4 Amplification of the data formats Märklin-Motorola, mfx®, M4 and DCC.

DigitalBooster (for 2.5 or 4.5 Ampere) from our *Digital-Professional-Series!*

The **DigitalBooster DB-4 supplies** up to **4.5 Ampere digital current**. The **digital output is short-circuit protected** and with the **galvanic separated booster connections** is it possible to connect the DigitalBooster DB-4 to **several command stations**: Via the **5-poles boosterbus** e.g. with Märklin Control Unit, Central Station 1 and 2, ECoS 1 and 2, Intellibox 1 and 2, EasyControl, TWIN-CENTER, Commander, DiCoStation and KeyCom, via the **CDE-boosterbus** e.g. with Lenz Digital plus, Intellibox 1 and 2, TWIN-CENTER, EasyControl, ECoS 1 and 2 and Commander and via the **Roco-boosterbus** with Roco 10761/10764, Fleischmann 680801, multiZENTRALEpro, and z21/Z21.
The **DigitalBooster DB-4** will not get the power supply from a common model railway transformer but from the **DB-4 PowerSupply**. This power supply provides a **stabilized digital track current of 15 - 24 Volt** as required to the relevant track gauge.

Further special features will provide a **smooth operation** not only for PC and Model Railway Software controlled model railway layouts:

- With a **jumper "Short Report"** can be the **DigitalBooster DB-4** set to the function that a short circuit will be reported to the command station to initiate a switch-off of all boosters or switching off the single track section where the short circuit was reported from.

- With the **jumper "Auto Go"** can be the **DigitalBooster DB-4** set to the function that the booster will continuously check if a short circuit will be present. If the short circuit will be solved the **DigitalBooster DB-4** will supply the relevant track section with current again.

- With a further **Jumper** is it possible to set the **maximum digital output current** of **the DigitalBooster DB-4** to **2.5** or **4.5 Ampere**.

- The **DigitalBooster DB-4** provides the possibility to switch the current at the tracks around of the layout **OFF or -ON** by **external push buttons**. This can be helpful if the stop button of the command station will be located at a far distance by a critical situation.

- If the model railway layout will be controlled by a PC with a Model Railway Software is it possible to switch the digital track current **ON or Off** via the **Digital Booster DB-4** if required with the Märklin-Motorola- or DCC-Commands. The DigitalBooster-**DB-4** provides additionally a Feedback-Output for the **Booster Management** of the Model Railway Software for a report if presently voltage will be supplied to the tracks or if the tracks at the booster section will be voltage-free.

- **Integrated Watch-Dog Function**: If the Watch-Dog Function will be activated by the model railway software, the **DB-4** will **control** additionally the **PC** and the **command station**. If the PC or the model railway software will not get in contact to the **DB-4** every **5 seconds** with a switch command is the software of the PC- or the command station crashed and the model railway software has **no longer control** about the **model railway layout**. To avoid that **trains** will **travel non-controlled** at the layout the **DB-4** will **switch** in this case the **rails off from power supply** and **all trains will be stopped**.

- The **DigitalBooster DB-4** is able to create the **RailCom®**-cutout within the DCC-Operation provided that the jumper "**RailCom**" has been inserted.

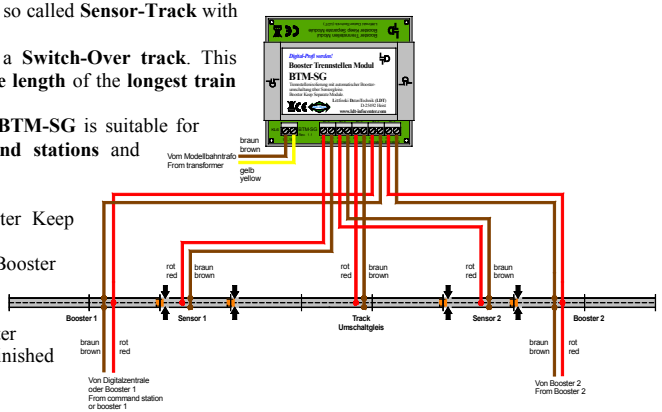
Order code:

DB-4-B (Part-No.: 080071): DigitalBooster DB-4 as a kit.
DB-4-G (Part-No.: 080073): DigitalBooster DB-4 as a finished module in a case.
DB-4 Power Supply (Part-No.: 000135): Power Supply for the Digital Booster DB-4.
***RailCom® is a registered trademark of Company Lenz Elektronik, Giessen/Germany.**

BTM-SG For Digital Formats: MM / DCC

Booster Keep Separate Module for a secure electrical separation of Booster Current Circuits.

Each **booster supplies** current for an **own rail section**. The rail sections have to be **isolated against each other** by means of separation sections. If a **common layout ground** will be used (**digital pole "brown" or "J"**) only one of the two digital poles will be isolated. At the **3-conductor rail system** will it be the **center conductor** which gets the supply from the **digital pole "red"**. At the **2-conductor rail system** will be only one of the two rails isolated at the separation section (**digital pole "red" or "K"**).
If a **locomotive passes a separation section** the **electrical isolation** will be **temporary cancelled**. At the **3-conductor rail** will this be caused by the **sliding contact** of the locomotive. At the **2-conductor rail** this will happen if the locomotive has **more than one axle** with **sliding contact**. A bypass of the **separation section** for a **longer period** will happen if the train s**tops** on the separation section or contains **conductive couplings** and has **sliding conductors** at the **train front and at the end**.
During the **electrical bypass** of a **separation section** some **balance current** can flow over the loc and via the conductive couplings through the whole train. This can be enhanced if at the **separation sections** are tracks separated which gets supply from **boosters of different brand**. The **amount** of **balance current** flow will be affected by the **different electrical properties** of the **boosters** such as **booster voltage** and **variances of the digital signal** (e.g. **edge steepness**) but as well **by different current load** at the two isolated track sections. The current flow can be influenced as well if one **booster** gets the supply from a **model railway transformer** and the **other** booster get the supply from a **switching power supply**.
Related to the **level** and **duration** of the **balance current** flow it can cause **damage** to the **boosters**, the **locomotives**, the **conductive couplings** and the **rails**. The first approach to avoid **high balance current** during passing the separation section is **using only boosters of one brand**.
A **comprehensive protection at the separation section** can be achieved only by installing a **complete isolation, independently** if a common layout ground has been installed or both digital poles at the separation section are separate isolated.
The **Booster Keep Separate Module BTM-SG** takes over this issue: The **switch-over track** w**hich is situated between two booster current circuits as separation section** will receive **digital current supply** from **one of the two boosters only**. **Corresponding to the driving direction** will be the **digital current supply** of the **switch-over track automatically** switched to the **competent booster circuit** under the traveling train.
The **Booster Keep Separation Module BTM-SG** will **monitor the direction of a train** between **two isolated track sections**. This isolated track sections are a so called **Sensor-Track** with an optimal **length of 5 to 20 cm**.
Between the Sensor-Tracks has to be a **Switch-Over track**. This Switch-Over track has to have at **least the length** of the **longest train on the layout**.
The **Booster Keep Separation Module BTM-SG** is suitable for **all digital formats**, **all digital command stations** and **boosters**.



Order code:

BTM-SG-B (Part-No.: 780501): Booster Keep Separation Module BTM-SG as a kit.
BTM-SG-F (Part-No.: 780502): Booster Keep Separation Module BTM-SG as a finished module.
BTM-SG-G (Part-No.: 780503): Booster Keep Separation Module BTM-SG as a finished module in a case.

DiCoStation (DirectCommandStation)

For the USB-Interface with the digital formats DCC and Märklin-Motorola plus three s88 feedback lines!

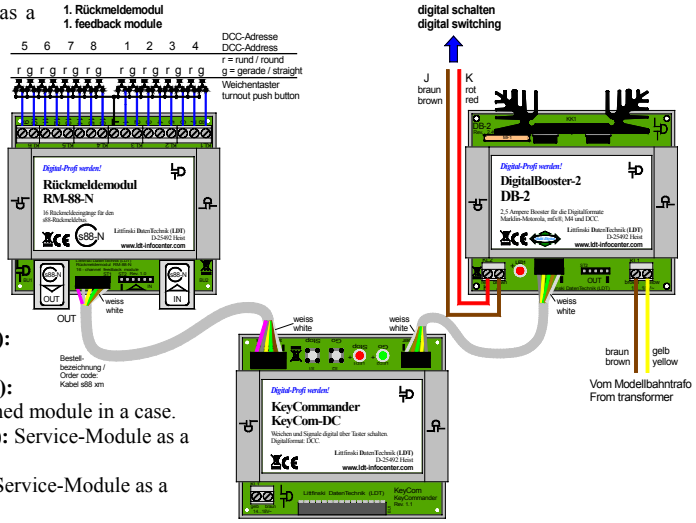
If you want to **monitor** and **control** your model railway with a **PC-Software** you require a digital command station with integrated PC-Interface or an additional external interface suitable to the digital command station.
The **DirectCommandStation (DiCoStation)** offers now a **low-cost command station** which will work **without any push-buttons and speed regulator** because this function will be taken over from the **PC-Model Railway Software**.
The **DiCoStation** contains a **1.1/2.0 Full Speed USB-Connection** to the PC.
Via the **5-poles Boosterbus-connection** is it possible that up to **10 DigitalBooster DB-2, DB-4** or compatible Booster can supply the **required capacity to the rails** and **supply digital information** to the **accessory decoders** such as **Turnout-Decoders**.
The **DiCoStation** creates as **multiprotocol-central-unit** the **data formats Märklin-Motorola** and **DCC** which can be available as **mixed formats** as well. The **DiCoStation** contains additionally the **connections** for **three s88-feedback lines** for up to **496 feedback contacts**.
The **DiCoStation** supports **up to 16127 DCC-Loc addresses** with up to **126 driving steps** and **28 functions**. For the **Motorola**-Operation there are with reference to the implemented decoder up to **255 addresses** with **28 driving steps** and **8 functions** possible.
The DiCoStation will support within the **DCC** format **2048 turnout addresses**. For the **Märklin-Motorola**-Data Format will be **320 turnout-addresses** supported.
Software-Updates for the **DiCoStation** can be carried out **directly from the PC via the USB-Interface**. The **DiCoStation** can be operated with **any Model-Railway-Software** which supports the data-protocol (P50) of the **Märklin-Interface 6051** (only **Märklin-Motorola**-Data Format) or even better the extended data-protocol (P50x) of the **Intellibox** (**Märklin-Motorola**- and/or **DCC**-Data Format).
The **DiCoStation** works faster than any other digital command stations because excessive calculation will be carried out by the **software of DIGITAL-S-INSIDE 2 (DSI 2)**. For the **first installation** will be the **demonstration software DSI 2** supplied together with the **DiCoStation**.
For the permanent operation of the **Software DSI 2** will be an **activation code required**. This code can be purchased from **Company modellplan** under **www.modellplan.de**.

Order code:
DiCoStation-G (Part-No.: 009903): as a finished module in a case plus Software DSI 2 in demonstration mode incl. USB- Connection Cable and USB-Driver CD for all Windows Operating Systems.

KeyCom For Digital Formats: MM / DCC

The KeyCommander creates a digital switch command by a key stroke!

With the **KeyCommander** can be as well **turnouts** and **signals** on **analogue layouts digital switched** via **push buttons**.
Greatest advantage: Remarkable **reduction** of **wiring efforts** and much better overview.
The **KeyCommander** translates a **key-stroke** into a **digital switch command** (data format **Märklin-Motorola** or **DCC**).
Just **two wires** will transmit the **digital information** to a turnout decoder installed **near the turnout** which will switch the turnout as required.
The key switch information will come via the **16-fold s88-Standard Feedback Module (RM-88-N)** to the **KeyCommander**. The **digital information created by** the **KeyCommander** will come via a **standard Digital Booster (DB-2)** to the turnout- and signal-decoder. With the **KeyCommander (KeyCom)** can be as well **up to 16 drive ways** with **16 switch commands** each controlled. For the **set-up of the drive ways** is the Service-Module GBS-Service required. This service module is included within the **starter-set**.
The **KeyCommander** is available as a **kit** or as checked **finished module in a case** for the Data format **Märklin-Motorola** or **DCC**.



Order code:
KeyCom-MM-B (Part-No.: 090301): KeyCommander for **MM** as a kit.
KeyCom-MM-G (Part-No.: 090303): KeyCommander for **MM** as a finished module in a case.
KeyCom-DC-B (Part-No.: 090201): KeyCommander for **DCC** as a kit.
KeyCom-DC-G (Part-No.: 090203): KeyCommander for **DCC** as a finished module in a case.
GBS-Service-B (Part-No.: 050041): Service-Module as a kit.
GBS-Service (Part-No.: 050042): Service-Module as a finished module.

Start-sets consisting of: **1 piece KeyCommander** and **1 piece Service-Module** (GBS-Service):
KeyCom-Startset-MM-B (Part-No.: 090351): Start-set for **MM** as a kit.
KeyCom-Startset-MM-G (Part-No.: 090353): Start-set for **MM** as a finished module in a case.
KeyCom-Startset-DC-B (Part-No.: 090251): Start-set for **DCC** as a kit.
KeyCom-Startset-DC-G (Part-No.: 090253): Start-set for **DCC** as a finished module in a case.

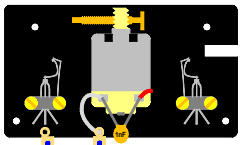
SupplyBox SB-4

Practical unit for the direct current supply from switched mode mains power supply.

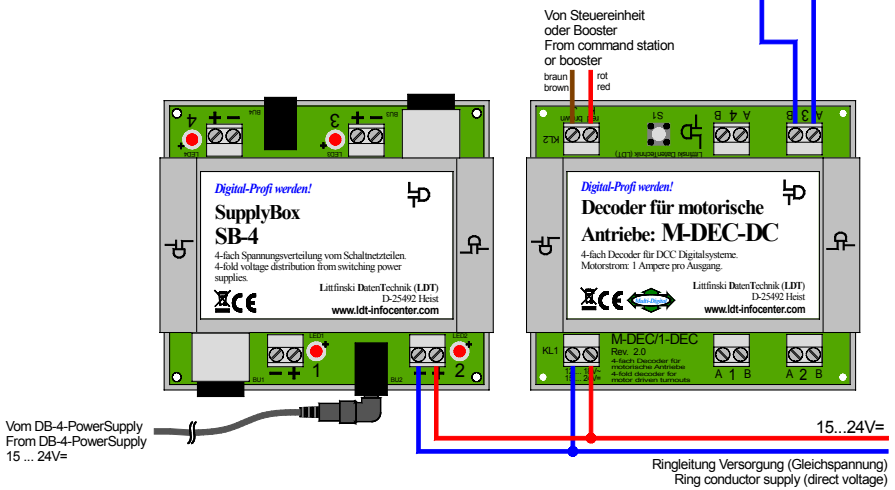
Nowadays the **classical model railway transformer** will not be **used anymore**. As a **replacement will now be switched mode power supply units** used. The **advantage** of these units: they have a **considerable higher efficiency** and supply an **electronic stabilized output voltage**.

The **handling** of these units is a **little more difficult** for the model rail roader. There is **no clamp for the simple installation** of the supply wires available at the switched power supplies. The switched mode power supplies have a connection plug which shall probably **not to be removed**.

The alternative will be **SupplyBox SB-4**. This unit contains two sockets suitable for the plugs of the **Märklin Switched Mode Power Supply 60061**. Two further sockets are available for the connection of **5.5×2.1 mm round plugs** of various switched mode power supplies. There is a **2-pole clamp** next to the sockets for the **direct voltage** of switched mode power supply units. Here can be the two poles of the supply wire **easily connected**. Therefore is it possible to connect here the different electric and electronic component of the model railway layout. The red LED next to the clamps will **glow** if the **switched mode power supply units will supply a voltage**. An **application sample** is the **direct current supply of the Decoder M-DEC** for **motor drives** from one **switched power supply unit DB-4-PowerSupply**. Therefore shall be the **drive voltage of the turnout drives** adjusted at the **voltage regulator** of the **DB-4-PowerSupply** between **15 and 24 Volt suitable for the motors**.



Order code:
SB-4-B (Part-No.: 600601) SupplyBox SB-4 as a kit.
SB-4-F (Part-No.: 600602) SupplyBox SB-4 as a finished module.
SB-4-G (Part-No.: 600603) SupplyBox SB-4 as a finished module in a case.

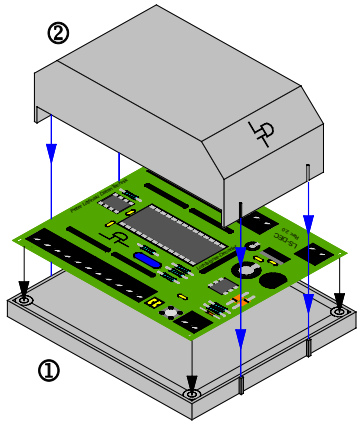


Accessories:

MON-SET

We supply under the order code of **MON-SET** a suitable **installation material** for the components of the ***Digital-Professional-Series!*** Each set consist of **four plastic spacers** (length 5mm) and **four matching wood screws** (13mm length). With these items you can assemble our entire digital component easily below your railroad layout.
Order code: MON-SET (Part-No.: 000103).

Case:



For **kits** and **finished modules** you can purchase from our product line a practical and nicely designed case. The case consists of a **lower** and an **upper cover**. The **printed circuit board** shall be placed into the **lower case**. The upper case can be easily closed over the pc-board by **snap locks**. The **connection clamps** and the **operating devices** (depending to the respective decoder: programming keys, plug connector or jumper) will be **free accessible**. There are **labels** for all relevant **LDT-Components** included within the **installation instruction** for **cutting out** and **sticking onto the case** for identification.

Case LDT-01

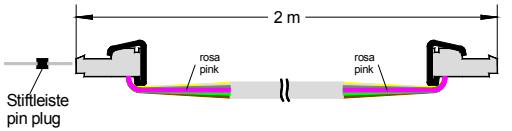
The **LDT-01 a practical and elegant case suitable for:**
COL-10, DB-2, DSW-88-N, GBM-8, HSI-88(-USB), KeyCom, KSM-SG, LS-DEC, RM-88-N, RM-88-N-O, RS-16-O, S-DEC-4, SA-DEC-4, 1-DEC-DC, TD-88, M-DEC, TT-DEC(-R), BTM-SG, SB-4, WD-DEC and **ZBM**.
Dimensions (L x B x H) 93 x 80 x 32 mm.
Order code: LDT-01 (Part-No.: 000104).

Case LDT-02

The **LDT-02 a practical and elegant case suitable for: DigitalBooster DB-4, Feedback Module RM-GB-8-N** and **Feedback Module RS-8** (from version 3.2).
Dimensions (L x B x H) 117.5 x 100 x 37.5 mm.
Order code: LDT-02 (Part-No.: 000134).

Cable s88 / Cable L@N

We supply under the order code: **Kabel s88 0.5m/1m/2m**, and **Kabel L@N 0.5m/1m/2m** a 0.5 meter, 1 meter respectively 2 meter long cable for s88-standard connections for the s88-feedback bus and the hardware of the PC-Light control Light@Night. With this connection-cables you can connect the Feedback Module **RM-88-N, RM-88-N-O** and **RM-GB-8-N** as well the Data-Switch **DSW-88-N** and s88 standard feedback module from Märklin or other supplier directly together. If you use the attached pin-bar you can extend the s88-connection of our modules by 0.5m, 1m respectively by 2 meters. If you do not want to connect the **Light-Display** or **Light-Power Modules** of the **PC-Light Control Light@Night** directly to each other but intend to **assemble** those at a **larger distance**, you can use the cable **Kabel L@N 0.5m** with a total length of 0.5 meters, the cable **Kabel L@N 1m** with a total length of 1 meters or the cable **Kabel L@N 2m** with a total length of 2 meters.



Order code: Kabel s88 0.5m (Part-No.: 000102), Kabel s88 1m (Part-No.: 000106), Kabel s88 2m (Part-No.: 000101).

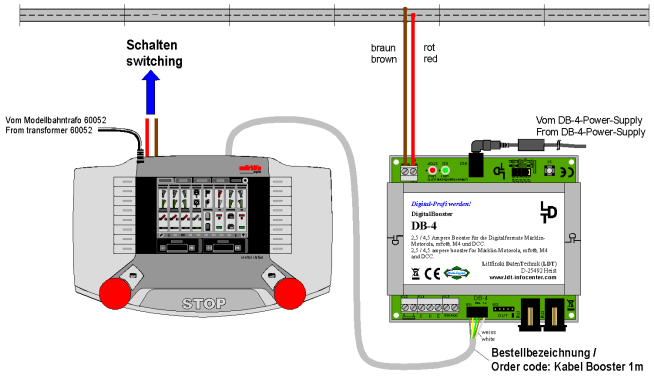
Cable Patch

Under the order code **Kabel Patch 0.5m, Kabel Patch 1m, Kabel Patch 2m** and **Kabel Patch 3m** are cables with two **RJ-45** plugs at a length of 0.5m, 1m, 2m or 3m for the **s88-connections according to s88-N** available. With this cables you can connect the Feedback Modules **RM-88-N, RM-88-N-O** or **RM-GB-8-N** and the Data switch **DSW-88-N** between each other or via the Adapter Adap-HSI-s88-N with the interfaces **HSI-88, HSI-88-USB** or the **DiCoStation** at a distance of 0.5m, 1m, 2m or 3m.
Light-Display-(from version 1.7) and **Light-Power-Module (from version 1.2)** of the **PC-Light-Control Light@Night** can be as well connected to each other by use of those cables.

Order code:
Kabel Patch 0.5m (Part-No.: 000130).
Kabel Patch 1m (Part-No.: 000131).
Kabel Patch 2m (Part-No.: 000132).
Kabel Patch 3m (Part-No.: 000133).

Cable Booster

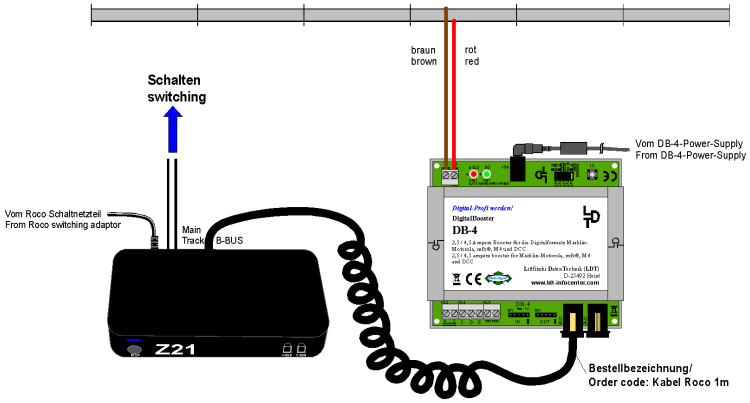
Under the order code **Kabel Booster 1m** we supply a 5-poles booster bus cable with twisted wires and therefore interference protected for the connection of digital command stations (e.g. **Märklin Control Unit**, **Central Station 1** and **2**, **DiCoStation** and **KeyCom** as well as **Intellibox**, **TWIN-CENTER**, **EasyControl**, **ECoS**, **Commander**) with boosters (e.g. **6015** / **6017**, **Power 3**, **TWIN-BOOSTER**, **DB-2**, **DB-4**) and for connecting boosters to each other at a length of 1m.



Order code:
Kabel Booster 1m
(Part-No.: 000123).

Cable Roco

Under the order code **Kabel Roco 1m** you receive a booster bus spiral cable with Western-Plugs RJ10 for the connection of the **DigitalBooster DB-4** via the **Roco-booster bus** with **Roco 10761/10764**, **z21**, **Z21**, **Fleischmann 680801**, **multiZENTRALEpro** and with further **DigitalBooster DB-4** with each other.



Order code:
Kabel Roco 1m
(Part-No.: 000136).

Light@Night

Comfortable PC-light control for analogue and digital model rail road layouts !

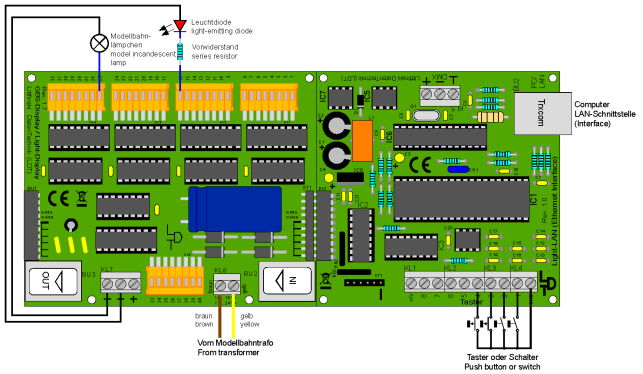
The **PC-Light Control Light@Night** is the **perfect solution** for the control of **Layout- and Ambient Room-light effects** of your **analogue** or **digital** model railway. **The PC-Light Control** has been developed as a **modular** system. This allows an optimal matching to **any layout size** and **any individual requirement** at **low cost**. Besides the **Layout- and Ambient Room-light control** offers **Light@Night** the possibility to release spontaneous **various effects at the layout via 64 push buttons**. Additionally is a **weather simulation including a 3D-sound** possible.

The Hardware description of the Layout Light-Control:

The **Light@Night hardware for the layout light control** consists of one **Light-Interface LI-LAN** or **LI-LPT** for the **network (LAN)- or parallel (LPT)-interface of a PC** and as a **minimum of one Light-Display**-Module or one **Light-Power**-Module which has to be connected to one of the **Light-Interfaces**. The **Interface LI-LAN** contains additionally a **DMX-connection** for the **ambient light control**.

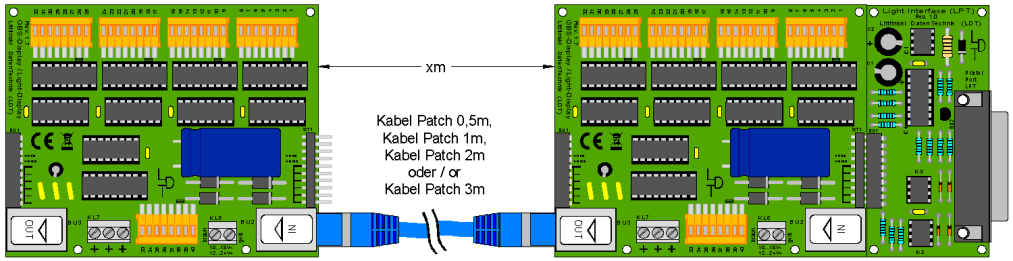
Light-Display-Modules contain **40 outputs** which can cover a **maximum load** of up to **0.5 Ampere** each. Therefore are the **Light-Display**-Modules especially suitable for the control of **single incandescent model lamps** or **light emitting diodes**.

Light-Power-Modules which contain **24 outputs** with a **maximum load of 2.5 Ampere** each should be preferred whenever **many incandescent model lamps** shall be switched together at the same time (**e.g. complete street- or train station-illumination**).



Up to 7 Light-Modules (Light-Display or Light-Power) can be connected to the **Light-Interface** and **combined as required**. Therefore are **between 168 and 280 light outputs** for the **layout light control** available.

The **Light-Modules** have to be **plugged directly to each other**. For connecting **Light-Modules** of the **PC-Light control Light@Night** at larger distances and therefore close to the light sources is it possible to use the **Kabel Light@Night** with the **length of 0.5m, 1m or 2m**. For the **interference protected transmittance of larger distances** is the module **Light-Display** from **version 1.7** and **Light-Power** from **version 1.2** equipped with **RJ-45 sockets** for the connection of the modules to each other via **interference protected Patch-Cable** (Computer network cable).



The **Light@Night PC-Software can also be used together with any model railway control software** on your PC. Which model railway software (e.g. **Railware**, **TrainController**, **WinDigipet** or **iTrain**) will be used is not important because the **PC-Light Control Light@Night** executes the light control **in the background** independently from the railway software.

The **Light-Interface LI-LPT** (suitable for Windows 32-Bit-Systems) will be supplied together with the **connection cable** (1.8m length) for the **parallel-interface** and with the **demonstration software version 1.0** of the **Light@Night PC-Software** for the **immediate start** of the system.

The **Light-Interface LI-LAN** (suitable for Windows 32- and 64-Bit operation systems) will be supplied together with a **connection-cable** (2m length) for the **Network-Interface** and the **demonstration software version 3.0** of the **Light@Night PC-Software** for the **immediate start** of the system.

The **demonstration software** version supplied together with the interface is **limited against the complete version 3** with the **following reduction**:

For **light effects at single outputs is only** "**Light ON/Off**" and "**Flash Light**" **available**. The **remote control of the layout light via push button**, the **ambient room light control** and the **weather simulation** including the **3D-sound is not possible**. **For implementing these functions is the complete software version 3 required**.

The complete version of the **PC-Software** for the light control Light@Night is available inclusive **manual** by Company **Railware** (www.light-at-night.com).

Order code:

LI-LPT-B (Part-No.: 050601): Light-Interface for the Parallel-Port (LPT) as a kit.
LI-LPT-F (Part-No.: 050602): Light-Interface for the Parallel-Port (LPT) as a finished module.

LI-LAN-B (Part-No.: 050701): Light-Interface for the Netzwork-Port (LAN) as a kit.
LI-LAN-F (Part-No.: 050702): Light-Interface for the Netzwork-Port (LAN) as a finished module.

Light-Display-B (Part-No.: 050031): Light-Display with 40 light outputs with each 0.5A as a kit.
Light-Display-F (Part-No.: 050032): Light-Display with 40 light outputs with each 0.5A as a finished module.

Light-Power-B (Part-No.: 050061): Light-Power with 24 light outputs with each 2.5A as a kit.
Light-Power-F (Part-No.: 050062): Light- Power with 24 light outputs with each 2.5A as a finished module.

Be a Digital-Professional!

Be a Digital-Professional

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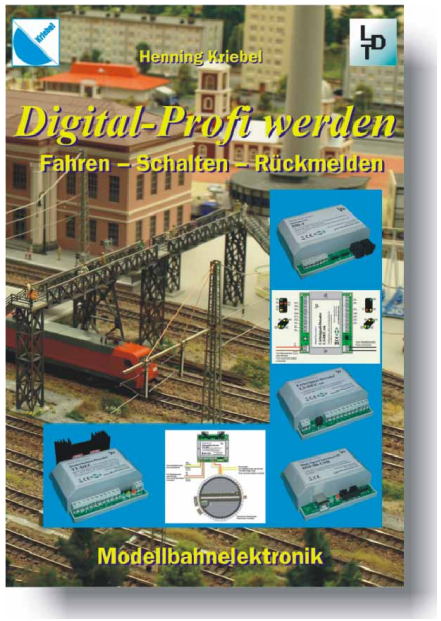
The unique digital book for the beginner and for the advanced model rail-roader.

The digital technique introduced a new age period for the controlling and operation of model railroad layouts.



But please don't be afraid. Everybody who operates a model railway layout will have the capability for the successful implementation of digital components. He will profit from the very simple wiring and from the nearly realistic operation of the layout components.

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