Littfinski DatenTechnik - LDT
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www.ldt-infocenter.com
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 Littfinski DatenTechnik (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.

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.
Digital-Professional-Series!

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

For digital control of:
- Up to 8 single-coil magnetic accessories (e.g. turnouts or signals).
- Up to 4 Permanent Power Switch Units [DSU] (e.g. for turnouts- 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.

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 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 turnouts-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).

Our Switch Decoder SA-DEC-4 is equipped with four bistable relays which can store the digital switch impulses. Consumers which are connected to the switch-over contacts of the relays will remain therefore permanently 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 Ampere.

One further operation feature is the switching of high-current sluggish 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 to18Volt) 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 your 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.

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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.

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

With the LS-DEC-DB Light-Signal Decoder it is 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 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 does 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.

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 as a finished module in a case (-G) Part-No.: 516013.

**Order code:**
- 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.

**Order code:**
- LS-DEC-DB: Light-Signal Decoder for LED assembled DB-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.

**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 DCC 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 these adaptors.

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 the Adapter **Adap-LS-K** suitable.

**Order code:**

**www.ldt-infocenter.com**
ZBM For Light-Signal Decoder LS-DEC

Train Influence Module from our Digital-Professional-Serivie!

With the Train Influence Module ZBM it is 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 watchdog 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.

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 booster bus (e.g. Märklin-Digital / Central Station, Intellibox, TWIN-CENTER, ECoS). If there are 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.
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 35000 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 Turntable 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 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.

The TurnTable Decoder TT-DEC-R is suitable for the digital control of the Roco H0 Turntable 42615. The Roco H0 turntable 42615 can be equipped with 4 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.

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.
Be a Digital-Professional!

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 to the switchboard 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.

Order code:
Littfinski DatenTechnik (LDT)
Rev. 1.1

www.ldt-infocenter.com
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 it is 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.: 050323): Master-Module for DCC as a kit.
GBS-Master-DC-F (Part-No.: 050324): Master-Module for DCC as a finished module.
GBS-Master-s88-B (Part-No.: 050325): Master-Module for s88-Mode as a kit.
GBS-Master-s88-F (Part-No.: 050326): Master-Module for s88-Mode as a finished module.
GBS-Display-B (Part-No.: 050351): Display-Module as a kit.
GBS-Display-F (Part-No.: 050352): Display-Module as a finished module.
GBS-Service-B (Part-No.: 050353): Service-Module as a kit.
GBS-Service-F (Part-No.: 050354): 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.: 050353): Startset for DCC as a kit.
GBS-Startset-DC-F (Part-No.: 050354): Startset for DCC as a finished module.
GBS-Startset-s88-B (Part-No.: 050355): Startset for s88-Mode as a kit.
GBS-Startset-s88-F (Part-No.: 050356): Startset for s88-Mode as a finished module.

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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-standard connections or “Kabel Patch” for connections according to s88-standard connections

Suitable s88-bus cables (“Kabel s88” for s88 standard connections or “Kabel Patch” for connections according to s88 standard connections or “Kabel Patch” for connections according to s88 standard connections or “Kabel Patch” for connections according to s88 standard connections or “Kabel Patch” for connections according to s88 standard connections or “Kabel Patch” for connections according to s88 standard connections or “Kabel Patch” for connections according to s88 standard connections or “Kabel Patch” for connections according to s88 standard connections or “Kabel Patch” for connections according to s88 standard connections or “Kabel Patch” for connections according to s88 standard connections or “Kabel Patch” for connections according to s88 standard connections or “Kabel Patch” for connections according to s88 standard connections or “Kabel Patch” for connections according to s88 standard connections.

Order code:

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 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-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.

www.ldt-infocenter.com
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 occupied 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 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.

www.ldt-infocenter.com

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 HS1-88(-USB), Commander, EasyControl, ECS1 and 2, DCoStation).

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 start 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.

www.ldt-infocenter.com
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.

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.

www.ldt-infocenter.com

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 interface 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 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 (loco or a wheel set with resistance or conductive lacquer) will be with 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, TwinCenter (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 first booster connected to the command station via the 5-poles booster bus cable. The second booster shall be always directly connected to the command station via the 5-poles booster bus cable. The second 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.: 608081) 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.
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 it is 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 z1/21/21. 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 in order to initialize 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 it is 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 it is possible to switch the digital track current ON or OFF via the DigitalBooster DB-4 if required with the Märklin-Motorela- 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 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.  
- 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.  
*RailCom® is a registered trademark of Company Lenz Elektronik, Giessen/Germany.

Be a Digital-Professional!

DB-4 Amplification of the data formats Märklin-Motorela, mfx®, M4 and DCC. DigitalBooster (for 2.5 or 4.5 Ampere) from our Digital-Professional-Series!

Be a Digital-Professional!

BTM-SG For Digital Formats: MM / DCC  
Booster Keep Separate Module for a secure electrical separation of Booster Currents.

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 this will 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 stops on the separation section or contains conductive couplings and has sliding connectors 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 switched 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 which 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:
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 it is 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 (PS0) of the Märklin-Interface 6051 (only Märklin-Motorola-Data Format) or even better the extended data-protocol (PS0x) 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.

www.ldt-infocenter.com

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. 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 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.

(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.

www.ldt-infocenter.com
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 the direct voltage of switched mode power supply units. Here can be the two poles of the supply wire easily connected. Therefore it is 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.

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 it is 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.

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

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 is 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, RS-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, multiZENTRAL-Epro 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 Network-Port (LAN) as a kit.
LI-LAN-F (Part-No.: 050702): Light-Interface for the Network-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.

The reader will make profit from the applied specialized knowledge.

Sample of contents:
Short and understandable: digital data transfer;
No problem: two- or three-rail conductor systems within the digital controlled operation;
Booster on small and bigger layouts;
Switching of turnouts, signals and illumination;
Control of turntables;
Feedback reports of two- and three-rail conductor systems;
Fast feedback reports via High Speed Interfaces (HSI);
Simple solutions of reverse loop problems.
And many more issues.

64 pages with 171 illustrations and 10 graphics (available in German language only!).

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