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Uhlenbrock-Seminars



Specialized knowledge first Hand

You will receive from us all necessary support from entry level to digital model railways to the many possibilities which the Uhlenbrock digital system opens up for you.

You will receive comprehensive instruction from operating the Intellibox right to automation of the model railway with LISSY or MARCo. There is also ample time for asking questions about individual problems. Ample play time is also provided.

Allow yourself to be seduced by the digital world of the Uhlenbrock components with a small group of participants. Learn many Tips and Tricks in handling the Uhlenbrock Digital system. Get to know new aspects to your Hobby.

Timetable and Reservations

You can find timetables, further information and Seminar reservations on our website:
www.uhlenbrock.de.

At present the following Seminars are offered:

Introductory Seminars

- Intellibox II & Co.
- Information all round the Intellibox II
- LocoNet, the Model Railway network

Advanced Seminars

- IB-Switch
- More functionality with Keyboard and Memory function
- LISSY, MARCo
- Automating the Model railway layout
- LocoNet-Tool, LISSY-MARCo-Creator
- Module programming by PC

Track-Control Seminar

- Track-Control - assembly, Programming and commissioning

Uhlenbrock on the Internet

Our Internet site contains the latest current information about Digital techniques. Besides our product range you will find:

- Our Price list
- Our Webshop
- A specialist dealer listing
- A Timetable for exhibitions, Seminars or Info-days at your dealer
- All Product manuals and descriptions in PDF Format
- A Sound library of the individual sound for Download
- FAQs to answer the frequently asked questions

Our Internet site is most definitely worth a visit.

www.uhlenbrock.de



Service

With a possible defect, please return the product to us for repair, along with proof of purchase and a short description of the fault.

Hotline 02045-858327

Your direct connection to a technician. We are there for you when you have questions.

Mondays	14:00–16:00
Tuesdays	14:00–16:00
Wednesdays	16:00–18:00
Thursdays	14:00–16:00
Fridays	14:00–16:00

E-mail: service@uhlenbrock.de

Premium Hotline 0900-1858327

For urgent advice, a technician can be reached on the Premium Hotline from Monday to Friday, between 10:00 and 16:00.

This hotline is subject to a charge (0,98E/min on land line and higher on mobile networks)

2 Year Guarantee

Our Products are covered by a two year guarantee.

Legend

For a better overview we have used the following symbols in this catalogue:

	Gauge N
	Gauge TT
	Gauge H0e
	Gauge H0m
	Gauge H0
	Gauge 0
	Gauge 1
	Gauge G, IIm (LGB)
	Direct current
	Alternating current
	LocoNet connection.
	With USB Interface
	Motorola format
	DCC format
	FMZ format
	TRIX format
	RailCom by Lenz Elektronik GmbH

Digital Centers

A



IntelliBox II

The Next Generation

Intellibox – The Digital Center from Uhlenbrock

When the first Intellibox appeared on the market ten years ago it was a unique digital center. Equipped at the time with features other manufacturers only dreamed about. And we promised that further additions could be implemented with simple updates. In this way the first Intellibox is still up-to-date. In the meantime a program was developed which leaves no Model railroader's desires unanswered.



What does the Intellibox offer?

Each Intellibox offers all digital driving and switching functions that you need on your model railway. It offers the DCC and Märklin-Motorola and partly Selectrix data format. And all mixed at the same time!

You can switch turnouts and signals and monitor feedback units. The computer connection for external PC control is standard with all Intelliboxes. With an integrated booster you only need to add a transformer.

You do not need anything else!

Further digital components are simply connected via LocoNet, the universal model railway network. For example, the LISSY System for automating a model railway layout, without using a computer.

Which Intellibox do you need?

You can select between three different variations.

Intellibox II

The first choice from the digital centers is the Intellibox II. With a large, high resolution display you can see all essential information at a glance. Setup and programming tasks become child's play.

The enormous functionality and capacity which no other center offers makes the Intellibox II an all round talent for every size of layout.

The Intellibox II still has the proven mechanical keys which can also be "blindly" operated.

We consciously decided against a colour display and Touch screen. These are not essential for easy layout control. That way some cash remains for other purchases.

Intellibox Basic

The cost effective entry level Intellibox. You can run up to 32 Locomotives simultaneously and naturally switch Signals and turnouts.

For PC-Driver who occasionally likes to drive manually, Intellibox Basic is also the correct choice.

An extension of the functionality, e.g. an Infrared remote control or simple connection to the LocoNet, is possible at anytime.

IB-Com

Would you like to control the layout by PC? Then the IB-Com is the right center for you. Without controls the IB-Com is the cost effective solution with high capability.

Intellibox IR

The Intellibox IR, is no longer deliverable but will nevertheless continue to be supported and is on the latest footing with Upgrade 2.0.

Several Centers working together

All Intelliboxes can be combined with one another. This way one Intellibox takes on the role of Center. All others function as speed controllers and Keyboard. Furthermore, the Intellibox Basic and Intellibox II can also be used as additional Boosters.

To install as additional speed controller and keyboard the Intellibox 650, 65000 and 65050 must have Software-Version 2.0.

Intellibox – all Variations in a Glance

Intellibox Basic, IB-Com, Intellibox IR and Intellibox II comparison

		Intellibox Basic	IB-Com	Intellibox IR*	Intellibox II
Track system	2-Rail	yes	yes	yes	yes
	3-Rail	yes	yes	Yes	yes
Data format/Addresses	Märklin-Motorola	255	255	255	255
	DCC	9999	9999	9999	9999
Speed steps	Selectrix	no	no	111	111
	Motorola	14	14	14	14
	DCC	128	128	128	128
Simultaneously controlled addresses	Selectrix	-	-	31	31
		32	32	119	119
Connection possibilities	Programming track	yes	yes	Yes	yes
	LocoNet	yes	yes	yes	yes
	Märklin-Devives (I ² C-Bus)	-	-	yes	-
	Computer Interface	USB	USB	Serial	USB
	Infrared receiver	-	-	Integrated	integrated
	s88 Feedback	-	yes	Yes	yes
	LocoNet Feedback	yes	yes	yes	yes
Special Functions	MARCo/LISSY control system	yes	yes	yes	yes
	Booster	3.5A	3.5A	3A	3.5A
	Keyboard	Integrated	-	Integrated	Integrated
	Loco Programmer	Integrated	Via Computer	Integrated	Integrated
	Virtual Locomotive Addresses	-	Via Computer	1-9999	Text and numbers
	Multi-traction	-	Via Computer	4 Locos	4 Locos
	DirectDrive-Function	yes	--	yes	yes
Updateable Software	Multilingual display	yes	-	yes	Yes
	Route Control	-	Via Computer	yes	Yes
		yes	yes	yes	yes
		yes	yes	yes	yes

*) The Intellibox IR is no longer available.

Upgrade Software 2.0

Extension of the Intellibox and Intellibox IR System software

The Upgrade 2.0 is an extension for all Intelliboxes with the part number 650, 65000 and 65050, which have a system software lower than 2.0. The following new features are available:

10 000 Loco Special functions

On particular DCC Decoders special functions f0–f9999 can be accessed.

Loco selection from Refresh Cycle

The Refresh cycle contains all locomotive addresses that are currently being supplied with digital information by the Intellibox. The new Software makes a selection list of these addresses available for directly selecting the desired locomotive.

Lokfind Function

As soon as a locomotive with a DCC Decoder is placed on the programming track the locomotive address of the decoder is automatically taken up on a speed controller.

Restoring the locomotive addresses

The locomotive addresses shown on the Intellibox display are saved at power down if desired and are available again at power up without having to reenter them.

Stop Mode

The Intellibox can be in stop mode with the STOP and GO keys. All locomotives are stopped by emergency stop and track power remains on. Turnouts and Signals can still be changed.

Use Intellibox as IB-Control

The Intellibox can be configured using the device configuration so it behaves like an IB-Control. That way it is possible to use two Intelliboxes together on one layout.

Route control

For all devices without route control the new System software adds the possibility of switching up to 48 routes.

mfx-Special functions

mfx-Locomotives are controlled by the Intellibox with the Motorola Data format. If a locomotive has more than four special functions, then special functions f5–f8 are automatically controlled by the following decoder address.

The Upgrade Software is available free of charge to owners of the Intellibox IR. For older devices the Software can be purchased.

Part No. 65 020 Upgrade-Software 2.0

Intellibox II

The next Generation



If you are familiar with the Intellibox or the TwinCenter, you will find it easy to operate the Intellibox II. The operating concepts have been retained – differing from many other Centers that have come on the market. The operation has become even simpler with the large display. Many new functions await you.

Technically the Intellibox II is a completely new device. Only the proven ergonomics remain. For us it is only natural that the previous devices can continue to be used.

The biggest innovation is the large high resolution Display. The display of the various parameters is done in plain text and function symbols. The representation is highly detailed and also readable from the side.

The additional keys on the left and right of the display are context sensitive and therefore suitable for quick access to menu options and functions.

The speed indication is not only in speed steps and percent but also in km/h. Up to 32768 special functions per locomotive can be switched.

A large locomotive database with text display of locomotive names can be individually set up.

Also new is the decoder programming in plain text, the detailed help function, a model time clock and USB computer connection.

The new Cool Power Technology means reduced heat and the heat sink is no longer required.

The Intellibox II is the successor to the legendary Intellibox, which has been the yard stick for all Digital centers for a decade. Tailored for model railroaders who want to drive for an attractive price and not play with a Computer.

Good Prospects

Familiar Functionality

- DCC, Motorola, Selectrix data format
- Up to 128 speed steps
- Up to 9999 Decoder addresses
- Multi-traction (Consisting)
- DirectDrive Function
- Switching of turnouts, Signals and routes
- Integrated Infrared receiver
- Connections for LocoNet, Transformer, Track, Programming tracks, Märklin Booster, DCC Booster, s88 Module and additional Infrared receiver
- Integrated 3.5 A Booster

New Characteristics

- Large, high resolution Display with backlight
- Detailed representation and readable from the side
- Information in plain text or as symbols
- Night design with backlit keys
- Context sensitive keys assignments
- Speed indication also in km/h
- Up to 32768 switchable special functions per locomotive
- Locomotive database with locomotive names
- Decoder programming in plain text
- Locomotive position display in conjunction with LISSY/MARCo
- Routes callable by feedback contacts
- Locomotive commands in routes, e.g. for shuttle traffic
- Help function
- Model Time clock
- USB Computer Interface
- Data security with a PC
- Cool Power Technology

As before: Everything in one Box

With the Intellibox II you are completely fitted out for digital operation.

Only one device puts the following digital system components at your disposal: Central processor unit, Booster, two speed controls, Keyboard, Programmer, Interface, feedback monitor, route control, model time clock und the LISSY/MARCo Mode with the Direct-Drive function.

The integrated Infrared receiver allows direct use of the Infrared remote control IRIS.

As a BUS System the Intellibox II uses the proven model railway network LocoNet. Data communication is rapid and reliable. Every accessory can be simply connected and problem free.

The installation of the Individual Loco control system LISSY or the RailCom based control system MARCo makes it possible to automate the layout without the need of a computer.

By using the DirectDrive function any locomotive that has passed a LISSY receiver can be taken over by a speed controller with the simple push of a button.

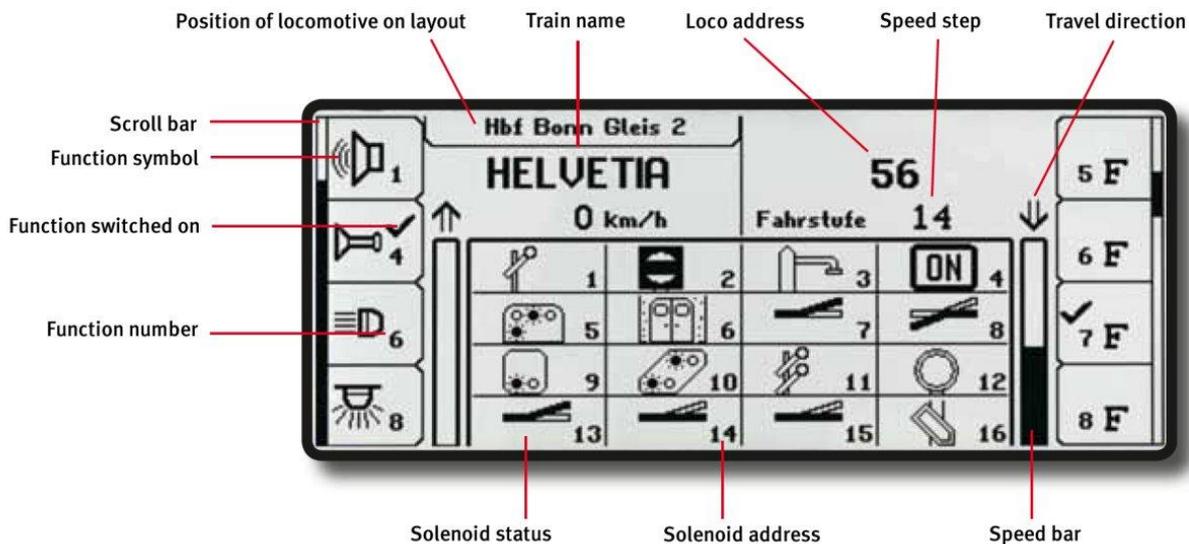
The integrated USB interface provides a fast connection to a PC. Any Software which supports the LocoNet protocol can automate the control of the layout.

LokPosi*



The locomotive position display with the help of LISSY or MARCo can tell you the location on the layout of a locomotive at any time. Call up your V200 for example with the name Helvetia and you will be shown that it is on track 2 of the Bonn central station. When you call up the BR50 you see it is on track 5 of the shadow station.

* Patent registered with the German patent and trademark office.



The Display is divided into three areas: left control desk, key block, right control desk. In the left part of illustration is a locomotive whose data are stored in the locomotive database. The special functions are shown as symbols. The speed display is in km/h. In conjunction with the Individual loco control system LISSY or MARCo, the locomotive's location is at the top of the display.

In the middle part there is 16'er switch panel with various switch symbols.

You can also display other information in this area. Among these you can count Routes, Feedbacks, IRIS remote controls, and model time, LISSY and Booster monitoring.

In the right driving panel you see the standard display for the locomotive with address 56. The special functions are shown as numbers. The speed is shown in speed steps.

The Intellibox II can control 119 locomotives simultaneously and up to 2048 turnout and signals.

Various Data formats

The Intellibox II can operate 2-rail or 3-rail layouts. Simultaneously controllable are: locomotive, function, turnout and signal decoders in Märklin Motorola, DCC and Selectrix Data formats from different manufacturers.

Connect what you wish

Additional digital components are quickly and simply connected to the LocoNet-sockets. You can find a detailed explanation of the LocoNet in the following pages.

Very clear Display

The backlit LCD display has a clearly arranged workspace. The following languages can be selected for the display: German, English, French, Italian, Spanish, Portuguese, Dutch, Swedish and Danish.

Central Processing Unit

The central processor serves to coordinate the individual digital components, processes the incoming data and generates various data signals.

Two Speed Controls

The two Speed Controllers with large handy knobs can control two locomotives independently of one another. The rotary controls, without end stops, automatically restore the previous speed when a new locomotive is selected.

The speed controller can operate in DC mode with middle stop or AC mode with reversing switch.

128 Speed steps – 9999 Decoder addresses

The number of available speed steps and addresses depends on the decoder type. The Intellibox II supports all speed steps and decoder addresses which the decoder offers in its respective data format.

32768 Locomotive Special functions

In DCC Mode the Intellibox II supports up to 32768 special functions per locomotive. Yes, you read correctly. The functions can be switched by key press or numerical entry.

Locomotive, Train Names

Each decoder, in addition to its programmed address, can additionally have a name assigned to it.

Multi-traction (Consist)

Eight combinations with up to 4 locomotives each can be administered by the Intellibox II. The entire consist is controlled by one speed controller under the address or name of the first locomotive.

Switch panel

The switch panel can switch 320 Märklin- i.e. 2048 DCC solenoids. The turnout or signal state is shown in the Display.

Route Control

The route control in the Intellibox II can administer up to 80 routes. Each route can have up to 24 switching instructions. Because of the capability for one route to call another route, routes can be flexibly extended. These routes can also be activated by a running train with feedback messages.

Furthermore locomotive instruction such as speed, direction and special functions can be embedded in a route e.g. to operate a shuttle section.

Locomotive Programmer

Decoder programming is easy in clear text thanks to the menu driven procedure.

Non-volatile memory

All settings that are carried out for Intellibox only need to be done once and are safely saved in non-volatile memory.

Infrared Receiver

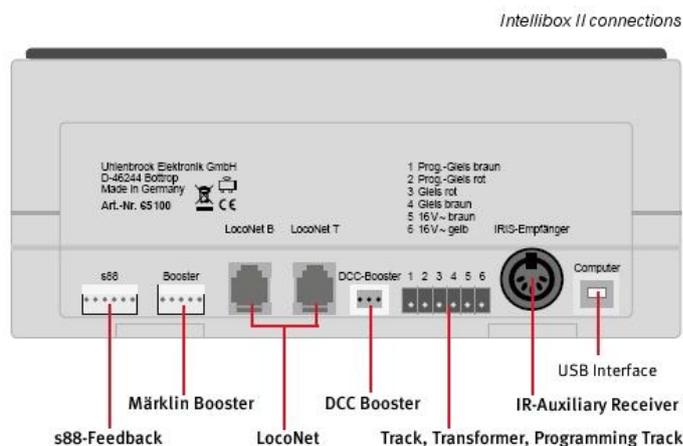
The Intellibox II has an integrated Infrared Receiver, so that the IRIS remote control can be used directly.

Interface

The integrated USB LocoNet Interface provides a fast connection to PC or MAC. For layout control any software that supports the LocoNet Protocol can be used.



The Intellibox II
night design



LISSY/MARCO Mode



In automatic operations just like with manual control you always have the question: "Which Locomotive is at which location on the layout at any particular time?" With LISSY or MARCO the Intellibox II can easily answer this question. In LISSY Mode it provides the following Information:

The identification of the receiver location, the locomotive address or locomotive name and train category of the passing locomotive as well as the travelling direction and the speed of the locomotive at the receiving point.

With the display it is possible to monitor Block sections and shadow stations. You know which locomotive is in which track section at any time.

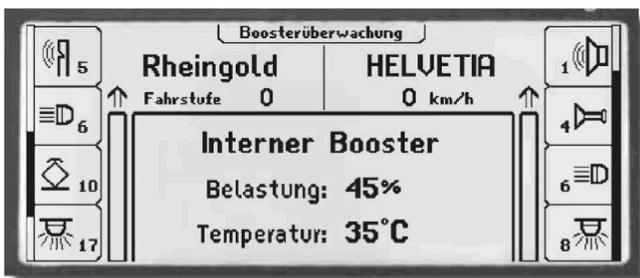
Feedback Monitor



The Intellibox II not only supports LocoNet Feedback modules, but also a maximum of 31 s88- Feedback modules.

In Feedback mode the occupied status of the connected feedback units can be monitored by various feedback symbols and freely configurable descriptions. By grouping, for example, the feedback from a shadow station under the name "Shadow station" you can always call them up by this name.

Booster



The integrated booster has a maximum current output of 3.5A. The output has overload and short circuit protection. The Booster mode in the display allows the permanent monitoring of the Intellibox II built-in booster and the Power 4 and Power 7 boosters connected to the LocoNet. The load, in percent, and the operating temperature of the booster being monitored are displayed. It is possible to assign an individual name to each and monitor the state of a layout area by entering these names.

Model Time Clock



A prerequisite for timetable operation is a model time clock. The Intellibox II has a model time which can be incorporated in the display. It shows the time and the week day. This model time can run at normal time or accelerated by a factor between 1 and 127. The clock in the Intellibox II can also be synchronized with other clocks connected to the LocoNet.

Updatable

The latest system software for the Intellibox II can be uploaded from a PC. It is available on the Internet free of charge. Future enhancements of Intellibox II can be obtained as an upgrade. So you will also profit in the future from our continued development.

DirectDrive

With the press of a button – without entering a locomotive address or locomotive name – the Locomotive that passes a designated LISSY or MARCO receiver can be taken over by a speed controller.

Part No. 65100 Intellibox II with connectors and manual

Accessories

- Part No. 20 075 70 VA-Transformer
- Part No. 61 060 Replacement plug set
- Part No. 61 070 USB cable



We recommend our 70 VA Transformer 20 075, as the power supply since it is optimally suited for the Intellibox II.

Intellibox Basic

Efficient and inexpensive

With the Intellibox Basic you fully setup for digital operation. It offers all digital functions that you require on your model railway layout.



- DCC, Motorola data format
- Up to 128 speed steps
- Up to 9999 Decoder addresses
- Up to 10000 switchable special functions per locomotive
- DirectDrive Function
- Switching of turnouts and signals
- Connections for LocoNet, transformer, track, programming track und DCC Booster
- Integrated 3.5 A Booster
- USB Computer interface
- Cool Power Technology

Everything in one Box

The Intellibox Basic is efficient and inexpensive and therefore an ideal center for model railroaders who wish to begin with digital technology and want the important functionality that digital control provides.

It can control 32 locomotives and switch up to 2048 turnouts and Signals.

Various Data formats

The Intellibox Basic can operate 2-rail or 3-rail layouts. Simultaneously controllable are: locomotive, function, turnout and signal decoders in Märklin Motorola and DCC Data formats from different manufacturers.

Connect what you wish

Additional digital components are quickly and simply connected to the Intellibox Basic via the LocoNet, the universel Network for model railways.

With very clear Display

The backlit LCD display has a clearly arranged workspace.

The following languages can be selected for the display: German, English, French, Italian, Spanish, Portuguese, Dutch, Swedish and Danish.

Central Processing Unit

The central processor serves to coordinate the individual digital components, processes the incoming data and generates various data signals.

128 Speed steps – 9999 Decoder addresses

The number of available speed steps and addresses depends on the decoder type. The Intellibox Basic supports all speed steps and decoder addresses which the decoder offers in its respective data format.

Two Speed Controls

The two Speed Controllers with large handy knobs can control two locomotives independent of one another.

The rotary controls, without end stops, automatically restore the previous speed when a new locomotive is selected.

The speed controller can operate in DC mode with middle stop or AC mode with reversing switch.

10,000 Locomotive Special functions

In DCC Mode the Intellibox Basic supports up to 10,000 Special functions per locomotive. Yes, you read correctly. Functions f0-f12 can be controlled directly and the additional functions are switched by entering their number.

LISSY Mode

Every LISSY/MARCo receiver can be monitored by an Intellibox Basic. If a locomotive with a LISSY transmitter is recognised the Intellibox displays the locomotive.

DirectDrive

With the press of a button – without entering a locomotive address or locomotive name – the Locomotive that passes a designated LISSY/MARCo receiver can be taken over by a speed controller.

Keyboard

The keyboard switches 320 Märklin or 2048 DCC solenoids. The turnout or Signal state is shown in the Display.

Feedback monitor

The Intellibox Basic can evaluate up to 2048 feedback messages. The state of the track section can then be read directly from the Intellibox Basic display.

Booster

The integrated powerful booster delivers a maximum current of 3.5A. The output is short circuit and overload protected.

Locomotive Programmer

The programming of Uhlenbrock Motorola or DCC compatible decoders is simple thanks to the menu driven method.

Non-volatile memory

All settings that are carried out for Intellibox Basic only need to be done once and are safely saved in non-volatile memory.

Interface

The integrated USB LocoNet Interface provides a fast connection to PC or MAC. For layout control any software that supports the LocoNet Protocol can be used.

Updatable

The latest Intellibox Basic system software can be updated directly from a PC. It is provided free of charge from the internet.

Part No. 65 060 Intellibox Basic

Accessories

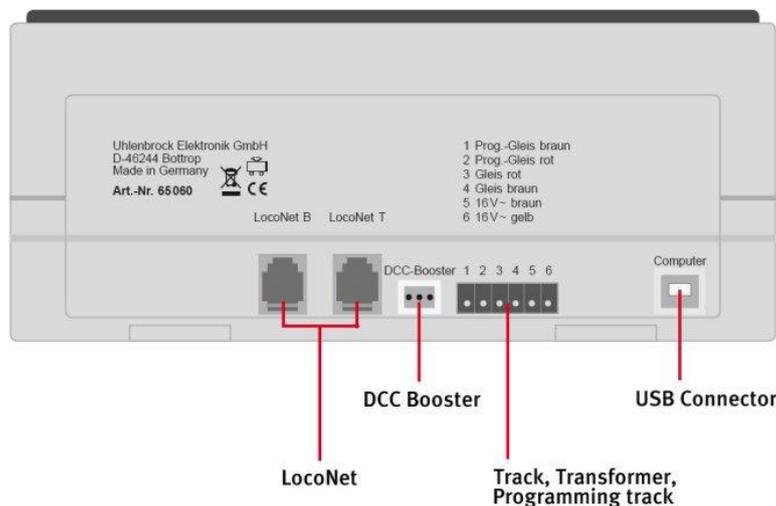
Part No. 20 075 70 VA Transformer

Part No. 61 060 Replacement plug set

Part No. 61 070 USB connecting cable



Intellibox® Basic Connections



The Intellibox Basic as auxiliary controller and Booster

The Intellibox Basic is not only useful as a complete digital center, but also as additional speed controllers, as Keyboard and as Booster.

In this Function, the Intellibox Basic can be connected to an Intellibox IR or an Intellibox II which will then act as a central unit.

In this way Intellibox Basic can replace an IB-Control and a Power 4 booster.



IB-Com – The Digital Center for the PC

The cost effective Solution for automating a layout

The control of a model railway layout with the help of a Computer is gaining popularity. Specifically designed for this purpose is the IB-Com., efficient and inexpensive.



- Data format DCC, Motorola
- Up to 128 speed steps
- Up to 9999 Decoder addresses
- Switch up to 32768 Special functions per locomotive
- Setting of turnouts and Signals
- Connection for LocoNet, transformer, track, programming track, s88-Modules and DCC Booster
- Integrated 3.5 A Booster
- USB Computer interface
- Connect external control devices via LocoNet
- Installable with any control software, that supports the LocoNet Protocol
- Cool power technology

Different Data formats

The IB-Com can be used with 2-rail or 3-rail layouts. Locomotive, functions, turnout and switching decoders in DCC and Motorola data format of most other manufacturers can be operated on the layout at the same time. It can run 32 locomotives simultaneously.

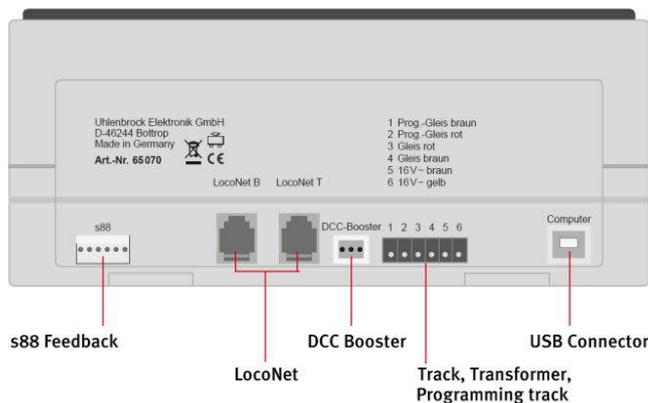
Connect what you like

Additional digital components are simply and easily connected to the IB-Com via LocoNet, the universal Network for model railways.

128 Speed steps – 9999 Decoder addresses

The number of the available drive positions and addresses depends on the respective decoder brand. In principle IB-Com supports all speedsteps and decoder addresses, which the decoders offer.

IB-Com Connections



32 768 Locomotive Special functions

In DCC Mode the IB-Com supports up to 32768 Special functions per locomotive.

Switches 2 048 Solenoids

In Motorola Data format up to 320 and in DCC up to 2 048 solenoids, such as turnouts and signals, can be switched.

2 048 Feedback addresses

The IB-Com can evaluate up to 2 048 feedback addresses from LocoNet or s88-Feedback modules.

Booster

The integrated efficient Booster delivers a maximum output current of 3.5A. The output is protected against short circuits and overload.

Interface

The integrated USB-Loconet interface gives a fast connection to PC or MAC. All Software that supports the LocoNet-Protocol can be used to control the layout.

Updatable

The newest System software can be uploaded directly from a PC. It is available free of charge from the internet.

Part No. 65 070 IB-Com with Utility Software and Win-Digipet Small Edition 2009

Part No. 65 071 IB-Com with Utility Software

Accessories

Part No. 20 075 70VA Transformer

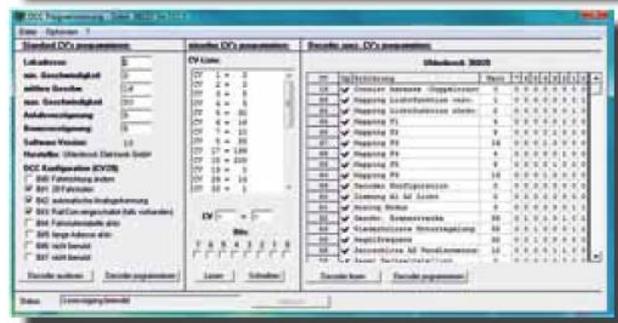
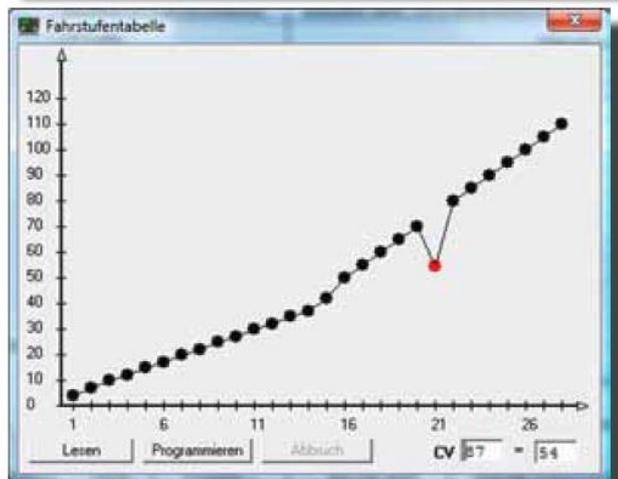
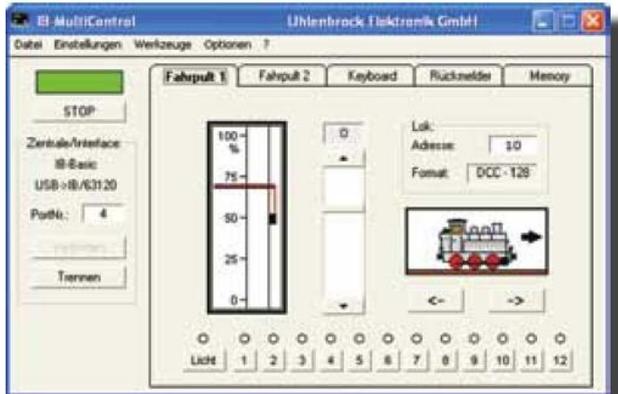
Part No. 61 060 Replacement plug set

Part No. 61 070 USB cable



IB-MultiControl

Decoder programming made easy and much more



- For all Intelliboxes and TwinCenter
- With 2 controllers, Keyboard and Feedback monitor
- Memory for 200 routes
- Routes triggerable by train via feedback messages
- Simple LocoNet programming
- Easy programming of DCC decoders
- With graphically configurable speed step characteristics
- Decoder configuration can be saved on PC
- Variety of text lists for manufacturer specific CVs
- All Uhlenbrock DCC and Multi-protocol decoders loadable as a list

Two controllers are available for controlling locomotives. All turnouts and signals are switched with the keyboard.

LocoNet feedback modules and s88-Feedback units can be monitored and feedback messages can be sent manually.

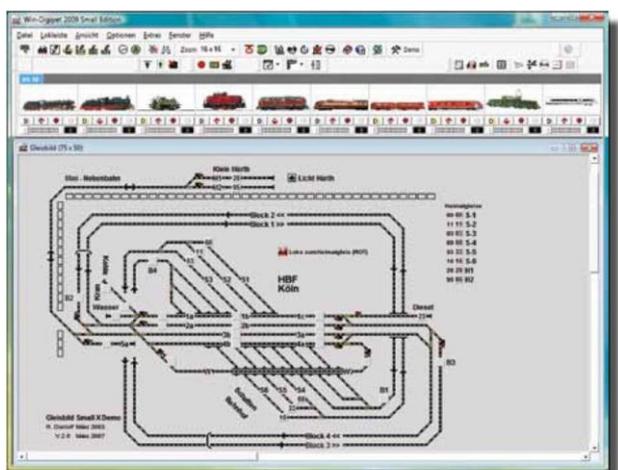
The integrated Route control with up to 200 routes of 50 instructions each can be employed independently of the center and also functions with the Intellibox Basic which has no route memory.

With the simple decoder programming workspace you can easily read and program decoder CVs. You can edit CV lists with descriptions for manufacturer specific CVs. All decoder data can be saved to computer and recalled at any time.

Recommended Operating System:
Microsoft Windows XP, Windows Vista or Windows 7.

Part No. 19 200 IB-MultiControl

Win-Digipet 2009 Small Edition



The cost effective version for entering the world of digital control of a model railway. With Win-Digipet Small Edition up to 20 locomotives and 50 solenoids can be operated.

Win-Digipet 2009 Small Edition is provided with an Online manual on CD. An update to the Win-Digipet 2009 Premium Edition is possible at any time.

Recommended Operating System:
Microsoft Windows XP, Windows Vista or Windows 7.

Further information on Win-Digipet is available from www.windigipet.de.

Part No. 19 900 Win-Digipet 2009 Small Edition

LocoNet: The Model Railway Network — fast and safe

The LocoNet bus is an inexpensive and safe way for connecting digital center, control devices, feedback modules, switch modules and other elements. Simply stated: the entire layout can be wired with LocoNet.

LocoNet was developed by Digitrax and has been widely adopted. It used by Uhlenbrock, Digitrax, Fleischmann, Piko and the other manufacturers.

All accessory devices are connected to the LocoNet. Devices from other manufacturers may also be used.

For setting up a network we offer a multiplicity of suitable, inexpensive, elements. Cable runs of up to 100 meters are absolutely no problem for the LocoNet.

The LocoNet uses a six way cable and is easily managed by using RJ-12 modular connectors. The ease of insertion and extraction of the connectors makes the design of modular layouts far simpler. In addition it does not matter where in the LocoNet a module is attached. Any vacant LocoNet socket can be used.

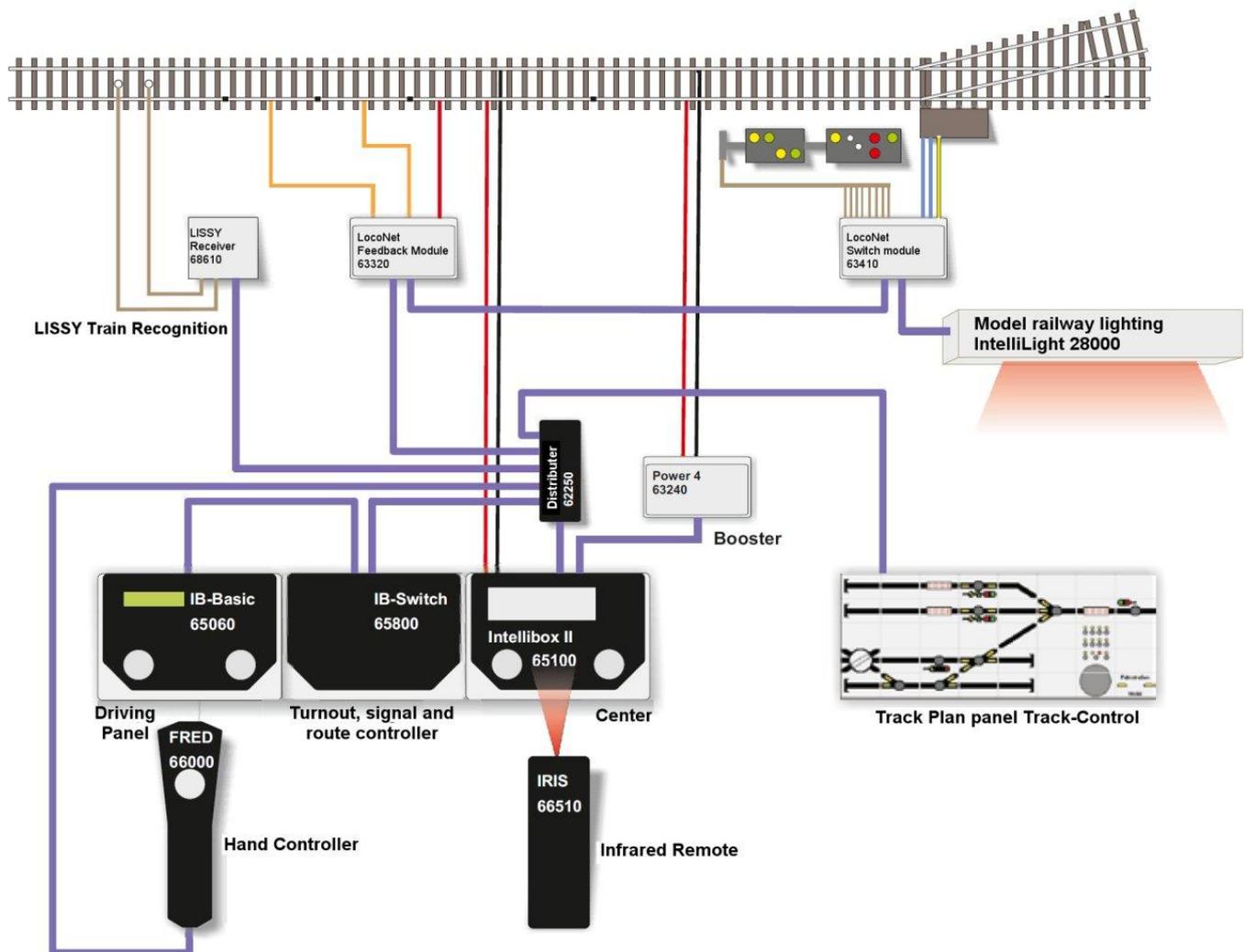
Most of the devices that are connected to the LocoNet draw their operating power from the LocoNet.

For mobile hand control one can plan sockets in the side panels of the layout to connect oneself at lightning speed to any location on the layout.

The necessary current is provided to the LocoNet by the digital center. When using an Intellibox this is 500 mA. If the current consumption of the attached devices exceeds the current supplied by the digital center, then an additional LocoNet Power feed unit is necessary.

The LocoNet Power Feed Unit (63 100) is equipped with a load indicator. A power plug pack is supplied.

A Layout with LocoNet



Here is a typical example of a layout setup with LocoNet cables. The LocoNet is represented in violet.

How does the LocoNet function?

That is the question we are frequently asked.

As you saw on the preceding page all the LocoNet devices can be connected i.e. Digital center, Hand controller, track controller's desk, feedback module and train recognition.

Every device can send or receive LocoNet instructions to/from other devices or simply dispatch information. Here are a few examples.

1. The button set to turnout 23 straight is pressed on a Hand controller. The Hand controller sends the instruction "switch 23 - straight" to the LocoNet. The digital

center receives this instruction and sends it via the rail signal to the turnout decoder.

2. The LISSY receiver 1 detects a locomotive with the number 220 on the track. It sends the information "locomotive 220 passed LISSY receiver 1". The train number display in the Track-Control detects this information. Question: Do I have to display this locomotive? If the train number display is set for this LISSY receiver, the "220" will appear on the display.

From the examples we see that the instructions and information run in all

directions. So obviously a computer can also operate as LocoNet device.

The only thing which you need is the LocoNet interface. Many digital centers, like the Intellibox, already have such an interface.

The individual LocoNet devices are often configurable. In example 2 the train number display must know to which LISSY receiver it is to react. This setting can be done with the Intellibox or much more easily with the "LocoNet Tool" program.

The Intellibox LocoNet Sockets

The Intellibox provides two different LocoNet Connections



LocoNet B

This socket outputs not only the LocoNet signals, but the rail signal is also available. Hence LocoNet boosters such as the Power 4 or the Power 7 can be connected to this socket. The LocoNet B connection can be loaded by up to 200 mA.

In principle all LocoNet devices can be connected here. However this should be reserved for LocoNet boosters.

LocoNet T

The Rail control signal is not available from this socket. Instead this socket has a DC voltage, which can be loaded by up to 500 mA. All LocoNet of devices, except boosters, should be attached to this socket.

Power consumption of LocoNet Devices

Part No.	Description	Power used from LocoNet
28 00	Intellilight	0 mA
38 000	Sound-Director	0 mA
63 200	Power 2	0 mA
63 240	Power 4	0 mA
63 270	Power 7	0 mA
63 320	Feedback module 2-Leiter	30 mA
63 330	Feedback module 3-Leiter	30 mA
63 340	Feedback module 2-Leiter	30 mA
63 350	Feedback module 3-Leiter	30 mA
63400	Switch-Control	30 mA
63410	LocoNet-Switchmodule	0 mA
63 440	LocoNet panel display	60 mA
63 450	LocoNet Display	150 mA
63 810	mobile station Adapter	0 mA
63 820	6021-Infrarot- & LocoNet-Adapter	LocoNet feed from the 6021

Part No.	Description	Power used from LocoNet
63 830	LocoNet IR Receiver	30 mA
63 840	Maus Adapter for three Lokmice	90 mA
63 880	s88-LocoNet-Adapter	25 mA
65 400	IB-Control	120 mA
65 410	IB-Control II	100 mA
65 500	Profi-Control	30 mA
65 800	IB-Switch	100 mA
66 200	FRED	25 mA
66 200	DAISY	50 mA
68 500	MARCo Receiver	25 mA
68 600	LISSY Receiver	25 mA
68 610	LISSY Receiver	25 mA
68 620	LISSY Single Receiver	15 mA
69 000	Track-Control	0 mA

Not all that looks like LocoNet is LocoNet!

The LocoNet sockets that we use are now also used in other systems as for example with the Xpress Net or RocoNet. These systems are not compatible with one another.

If they are connected with the LocoNet it can result in damage to individual devices.

Therefore only interconnect the devices with those labeled LocoNet.

LocoNet Components



LocoNet Cable

62 015	Cable 28 cm, Plug/ Plug
62 025	Cable 2.15 m, Plug / Plug
62 035	Spiral cable 3 m, Plug / Plug
62 045	Cable 60 cm, Plug / Plug
62 065	Cable 6 m, Plug / Plug
62 120	Branch 2.15 m, plug/double Socket
62 225	Coupling, Socket/ Socket
62 250	Distributor, Plug /5-way Socket

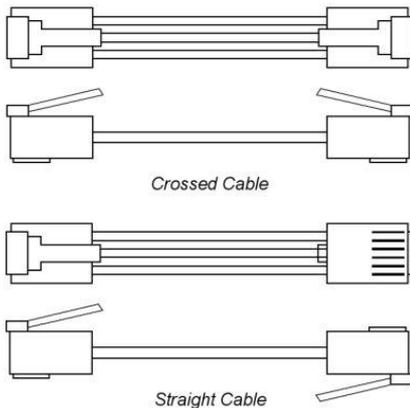


Please also note the following Products:

B.19 For monitoring the LocoNet: LocoNet-Tool

B.20 When the layout gets larger: LocoNet Power feed

New LocoNet Cables 62 015, 62 025, 62 035, 62 045, 62 065, 62 225



So far our LocoNet cables (62 010, 62 020, 62 030, 62 040, 62 060 and 62 220) with plug/plug and socket/socket were supplied in rotated implementation. This means: Pin 1 was connected with 6, Pin 2 with 5 etc. In future they will also be available in un-rotated (1:1) form, i.e. pin 1 connected with 1, pin 2 with 2 etc.

This has become necessary because of a new booster design. These cables will replace the old cable version.

Only if several Power 2 boosters are to be interconnected by LocoNet are the old rotated cables required. All other devices supplied so far (except Power 2) can be interconnected with both types of cable.

With branching and distributors nothing changes, since these were always supplied in un-rotated implementation.

LocoNet Cable Tester

The fast way to fault free LocoNet wiring



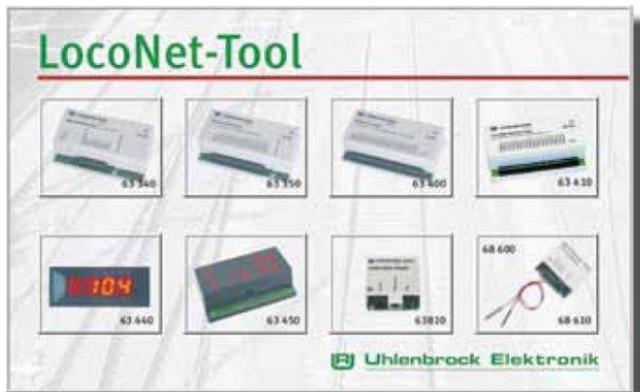
- Recognises short circuits
- Test cables for continuity
- Recognises crossed cables
- Testing of single or multiple cables

Contents: Cable tester, protective pouch, 9V battery, operating instructions, spiral LocoNet cable, LocoNet coupling.

Part No. 62 000 LocoNet Cable Tester

LocoNet-Tool

Simple configuration of all LocoNet Modules by Computer



- Easy programming of all LNCVs
- With ample explanatory texts
- Backing up of configuration for easy rollback
- With LocoNet Control monitor
- Usable with Windows

With the LocoNet Tool program LocoNet modules LNCVs (LocoNet configuration variables) are easily selected and programmed with a computer.

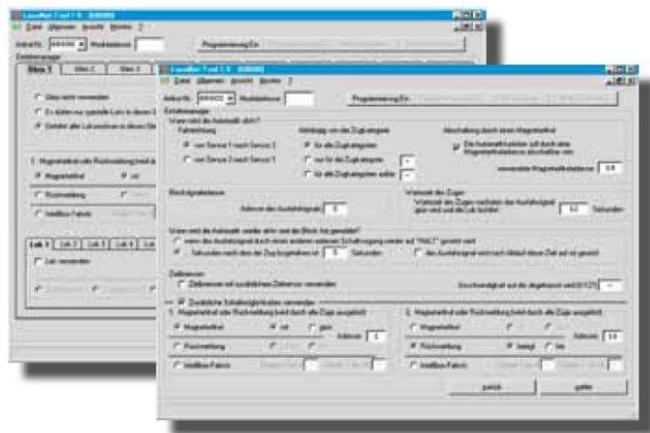
For most LocoNet modules there are special input masks. You get simple programming support with explanatory text, which describe all adjustment options so that many situations can be configured without the operating instructions for the module concerned.

A LocoNet monitor provides monitoring of the LocoNet and for easy error tracing in the programming of automated layouts.

System requirement: Windows 2000 or Windows XP together with a digital center equipped with LocoNet and a computer connection like the Intellibox or the LocoNet interface 63 120.

Recommended Operating System:
Microsoft Windows XP, Windows Vista or Windows 7.

Part No. 19 100 LocoNet-Tool



USB-LocoNet Interface with the LocoNet-Tool Software

The Connection between LocoNet and Computer



Supplied with: LocoNet interface, "LocoNet Tool" software, LocoNet and USB connecting cables, operating instructions

Part No. 63 120 USB LocoNet Interface

Part No. 61 070 Replacement USB Cable

- For programming of LocoNet modules
- For automatic layout control with Win-Digipet
- For Programming DCC Decoders with the IB-MultiControl Software

The LocoNet interface is suitable for all digital centers without a computer interface such as for a DAISY or Märklin control unit with 6021-Infrared & LocoNet adapters

The interface is connected to a USB socket of a computer. It is most suitable for automatic layout control. For control software such as Win-Digipet which can give LocoNet commands, is used.

Note: Feedback from s88 Modules, which are attached to Märklin devices (Memory, interface), cannot be conveyed to the computer.

Recommended Operating System:
Microsoft Windows XP, Windows Vista or Windows 7.

The LocoNet Power Injector

When the power output of the Center is insufficient on large layouts



If the total power requirement of the attached LocoNet devices is larger than the maximum output current of the center a LocoNet Power feed unit is required. The power feed unit puts a further 500mA at the disposal of the LocoNet.

It can be inserted at any place in the LocoNet.

The output of the Power feed unit is a LocoNet T output, so no booster can be connected to this output.

Part No. 63 100 LocoNet Power feed with plug pack



s88-LocoNet-Adapter

For connecting s88-Feedback modules to the LocoNet



- up to 31 Märklin compatible s88-Modules can be connected
- configurable base address for the connected Modules
- operation of a number s88-LocoNet Adapters in one LocoNet is possible

With the s88-LocoNet Adapter you can connect s88-feedback modules to any LocoNet Digital Center. Simply insert the Adapter between the s88-Bus and LocoNet and all Märklin compatible s88-feedback modules can be used.

A number of s88-LocoNet Adapters can be employed on one LocoNet to shorten the bus length on the s88-Module side. In this case each s88-LocoNet Adapter is assigned the base Address of the first s88-Modul in its group.

The feedbacks from s88-Modules can also be forwarded to a PC and IB-Switch with IB-Basic, IB-Com, DAISY and ProfiBoss. For Centers without a PC connection use the USB-Adapter 63120.

Part No. 63 880 s88-LocoNet Adapter



Maus Adapter

For the Roco Lokmaus 2 and the Roco *multi*MAUS



The Maus Adapter provides the interface between the Lokmaus and the LocoNet. With the Mouse Adapter it is possible to use the Roco Lokmaus 2 (Part No. 10760) or the Roco multiMAUS (Part No. 10810) together with DAISY, Intellibox, Twin-Center or other centers with LocoNet interface.

The adapter has three input sockets to drive 3 Lokmaus, as well as two LocoNet connectors.

The adapter and attached Lokmaus, are supplied with power by the LocoNet.

Part No. 63 840 Maus Adapter



Control Devices



Auxillary Control Devices

When the layout grows, whether your Intellibox is the first or second generation, you can connect various auxillary devices. These auillary devices can be used, for example, to control a

second station or simply to guide the locomotive to their route.

The following table outlines the capability of the individual devices:

Function	Intellibox II	Intellibox mit Software 2.0	Intellibox Basic	IB-Control II	FRED	IRIS	IB-Switch
Stationary Device	X	X	X	X	–	–	X
Wired Hand Controller	–	–	–	–	X	–	–
Wireless Hand Controller (IR)	–	–	–	–	–	X	–
Locomotive control	X	X	X	X	X	X	–
Turnout switching	X	X	X	X	–	X	X
Route Activation	X	–	–	X	–	X	X
Locomotive selection	X	X	X	X	4 Locos	X	–
DIsplay	400 x 160 Pixel	2 x 16 Characters	2 x 16 characters	400 x 160 Pixel	None	None	LED
Menu Guidance	Straight forward	Simple	Simple	Straight forward	–	–	–
Auxilliary functions:							
Locomotive database	X	–	–	X	–	–	–
Route buffer	X	–	–	X	–	–	X
Booster	X	–	X	–	–	–	–
LocoNet Power feed	X	–	X	–	–	–	–
PC Interface (USB)	X	–	X	–	–	–	–



IB-Control II

You are too far away from your shunting yard with your controller?

You would like more locomotives under permanent control?

You need more routes?

You need the IB-Control II



- Can be connected to an Intellibox, Intellibox IR, Intellibox Basic, Intellibox II, IBCom, TwinCenter und Piko Power-Box via the LocoNet
- Up to 128 Speed steps
- Up to 9 999 decoder addresses
- Multi-traction (Consist)
- DirectDrive function
- Switching of turnouts, Signals und Routes
- Large, high resolution display with backlighting

- Detailed representation makes for an easy overview
- Information in plain text or as Symbols
- Night design, backlit keys
- Context sensitive key assignment
- Speed indication also in km/h
- Up to 32768 switchable Special functions per locomotive
- Locomotive database with locomotive name

Good Prospects

The new IB-Control II, as an additional control device makes a modern control system with today's operating ease, from a LocoNet Center. It expands a Center with two additional controllers with locomotive selection by locomotive name, which are stored in a database, a switch panel with symbols for turnouts and signals and also monitoring capability for feedback units and LISSY/MARCO receivers and a Model time clock.

Every IB-Control II expands the digital control by 80 routes, which can be called up by key press or with feedback messages from trains.

The crystal clear LCD display and backlit keys in night design, the model railway fun really starts with the new IB-Control II for all LocoNet Centers.

- Locomotive position display in conjunction with LISSY or MARCO
- A further 80 routes callable by feedback messages
- Help function
- Model Time Clock

Part No. 65 410 IB-Control II



FRED

Digital Hand Control for 4 Locomotives

- Controls up to 4 Locomotives
- Switches light and up to 8 special functions
- Relocatable if running locomotive
- Connects via LocoNet up to 100 m from the control centre

The small light weight hand control has a large rotary speed control with end stop, a rocker switch for the change of driving direction and a stop key, in order to stop the locomotive at any time. With the function keys, the light and up to 8 special functions can be switched.

another place. Since the locomotive addresses are administered by the control centre, the information about speed and driving direction remains.

The Intellibox can administer up to 16 FREDs.

So you have everything at Hand!

The Name FRED stands for "Fremos einfacher Drehregler" (Fremos simple rotary regulator). It was developed by Fremo members for their Module layouts.

The address selection for up to 4 locomotives is made by the Intellibox or other centre with LocoNet connection.

FRED can be separated from the LocoNet at any time and relocated to

Part No. 66 000 FRED with 3 m Spiral Cable

Part No. 62 035 Replacement Spiral Cable



IRIS – The Infrared Intellibox Control

The wireless Remote control for the Intellibox

The infrared Intellibox control IRIS extends the Intellibox with an interior use wireless remote control with a range of up to 10m. With IRIS all locomotives on the digital layout can be selected to control their driving direction, speed, and special functions. IRIS can switch all solenoids and select all routes which are stored in the Intellibox.

- Direct control of up to 4 locomotives.
- Address range 1-9999.
- Special functions: function and F1 to F12.
- Changes turnouts in address range 1 to 2048
- Activates routes which are stored in the Intellibox.
- Supports all speed steps (14-128 drive positions).
- With 4 different channels, i.e. each Intellibox has 4 channels.
- Numerous external Receivers with 5 m Cable can be used

IRIS Transmitter

IRIS uses 4 different transmission channels, which can be selected with the A, B, C or D keys for controlling the Intellibox. Each transmission channel can select a locomotive address for control, fully independent of the other channels.

Furthermore each channel can have different solenoid device addresses assigned to the solenoid device keys. The addresses selected for each channel are stored in the Intellibox non-volatile memory and are therefore available after turning the power off and on.

If only one remote control is used, then the channel can be quickly changed with the help of the keys, between 4 locomotives or 4 groups of 4 solenoids.

If several remote controls are used, then each person can control a locomotive using a transmission channel, without affecting the locomotives of the others that are on different transmission channels.

The remote control has 4 different channels which makes it possible to use 4 transmitters in an area.

IRIS Receiver



IRIS receivers can be mounted anywhere in the room due to their 5 m long cables. If in a particular room arrangement more than one receiver is required, then three additional external infrared receivers can be connected, via the enclosed Y-Cable.

LocoNet IR- Receiver



Using the LocoNet IR-Set you can wirelessly control locomotives, turnouts and routes with any LocoNet-Digital center. These include IB-Basic, IB-Com, DAISY and the ProfiBoss.

Simply connect the LocoNet IR-receiver with the LocoNet and control the layout with up to four different IRIS remote controls.



Important: To use IRIS with the Intellibox it must have system software Version 1.5 or higher.

Part No. 66 500 IRIS Set with IRIS transmitter, IRIS receiver and Batteries, for Intellibox 650, 65 000 and Fleischmann Twin Center

Part No. 66 510 IRIS Transmitter with Batteries, as Replacement for the Sets and for Intellibox IR, Intellibox II and Piko Power-Box

Part No. 66 520 IRIS Receiver with Y- Cable

Part No. 66 530 Y-Cable single

Not usable in rooms in which a digital center with built-in or connected IRIS receiver is already in use.

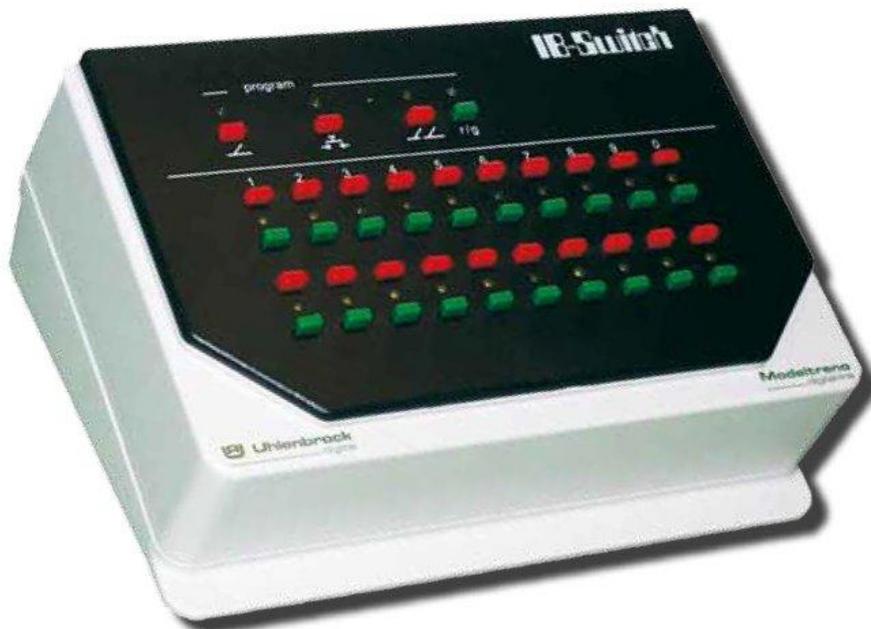
Part No. 64 830 LocoNet IR Set with IRIS Remote, LocoNet IR Receiver & Batteries, for Intellibox Basic & IB-Com

Part No. 63 830 LocoNet IR Receiver



IB-Switch

Keyboard and Memory functions in one Device



- Switches 40 turnouts or solenoid decoders or routes
- Routes can contain up to 19 entries
- Automatic operation with feedback modules is possible
- Available address range 1 - 2048

The IB-Switch can control turnouts and signals, arbitrary switch functions and switch routes. Each of the 20 key pairs can be doubly assigned, so 40 switching possibilities are available.

The address assignment to the pairs of keys is fully configurable. The data format from the center is used.

Each route can switch up to 20 items. Concatenations and sub-routes are permitted. Continuous loops are automatically recognized and prevented.

Routes can mutually block each other, to protect against crossing routes. The blocking can be calculated automatically by the equipment or specified manually.

The activation of turnouts and routes in the IB-Switch occurs in conjunction with the train recognition system LISSY/MARCo

the LocoNet or s88 feedback modules or by pressing the key on IB-Switch or a track control desk.

The state of the turnouts and routes are indicated by LEDs.

In order to protect the equipment from unintentional key actuation on an automatic layout, the keyboard can be deactivated completely. Alternatively only the programming keys can be deactivated.

Part No. 65 800 IB-Switch complete with 2.15 m LocoNet cable

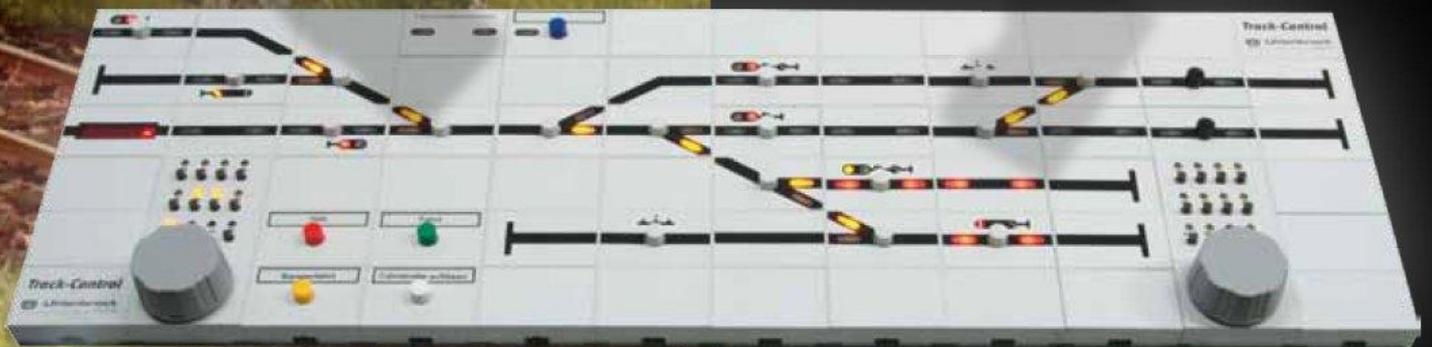
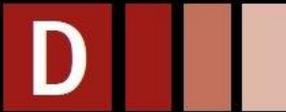


Track-Control

The Track Plan Control with the Plug System



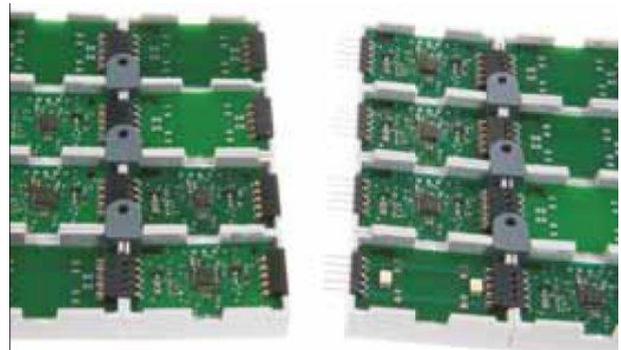
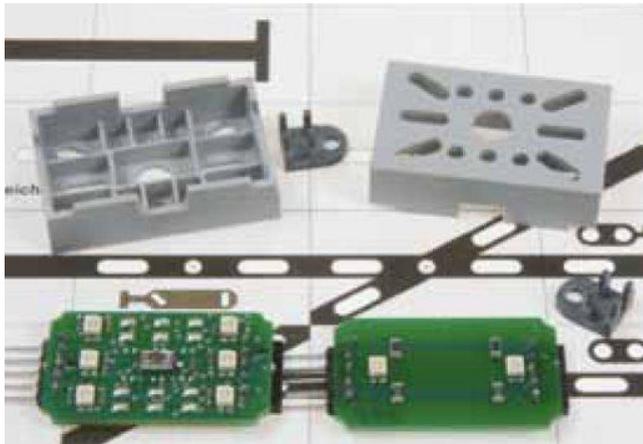
Track Diagram Control Panel



Track-Control – the Uhlenbrock Track Plan Panel

Efficient and Inexpensive

- Maximum flexibility with minimum expenditure: Each track controller's desk can be constructed from only a few different items.
- Frameless bench-mounting, only 12 mm high
- Plug system, no wiring required
- Switches digitized turnouts, signals, Uncouplers etc.
- Call up routes with start/end keys
- Illumination of routes
- Occupied indicator
- Control of multi-function signals on routes
- Pilot signals indicate the state of several multi-function main signals depending on the selected route.
- Simple programming and operation
- Includes planning and configuration software
- For connecting with all digital centers with LocoNet support, e.g. DAISY, Intellibox and identically constructed devices.
- For the power supply a 16V AC transformer is needed e.g. our 45 VA transformer, Part. No. 20 040.



This is how a complete wired Uhlenbrock control panel looks from underneath.

Track-Control – the Start

The Basic set contains all items which are needed for a basic setup and that are only required once per desk: a connecting module, a power lead, a LocoNet cable, CD with the planning program and manual.

In addition there are 30 segments with tinted diffusers and connecting plug, 10 key caps, 3 Turnout PCBs, 3 signal PCBs, 4 cross connection PCBs, 2 connecting PCBs without indicators and a foil set for the structure of a small control desk.

The layout grows – Track-Control too

The expansion set contains 30 segments with tinted diffusers and connecting plug, 32 key caps, four turnout PCBs, four signal PCBs, two cross connection PCBs, four connecting PCBs without indicators and four different foils.

This way the Track-Control can be extended as desired. On a large control panel as shown on page 30, it is possible that the power from a single connection module is not sufficient. Then a further connecting module 69 050 can be simply added.

The Basic Components

Part No. 69 000 Basic Set



Part No. 69 010 Expansion Set

Part No. 69 050 Connexion Module



Part No. 69 091 Foils Turnout and Crossing symbols

Part No. 69 092 Foils Track symbols

Part No. 69 093 Foils Signal symbols

Part No. 69 094 Foils Special symbols and blank fields

Part No. 69 095 Foils with 10 illuminated Track symbols and 15 blank fields

Part No. 69 100 6 Plastic segments with diffusers and connector clips

Part No. 69 110 5 each key caps in colours blue, yellow, green, red, black and white

Part No. 69 210 2 Cross connection PCBs

Part No. 69 212 4 Connecting PCBs without indicators

Part No. 69 214 2 Connecting PCBs with indicators

Part No. 69 220 Turnout PCB

Part No. 69 230 Signal PCB

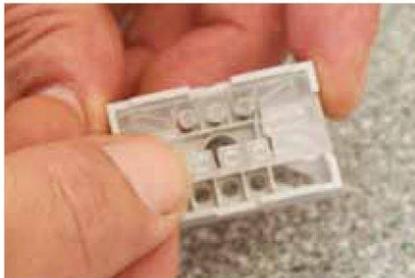
Step by Step to the Control Panel



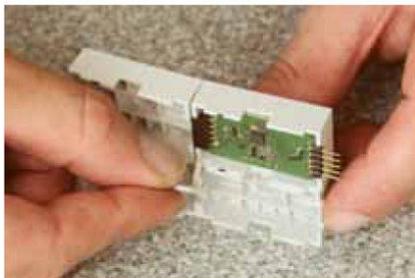
1. Plan your control panel with the provided planning software on the PC. Print the track plan, the connecting plan and the parts list.



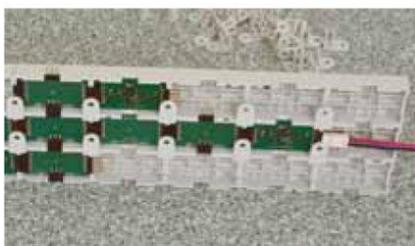
2. Stick the symbols provided onto the individual plastic segments according to your track plan.



3. Turn the segments over and put the tinted diffusers, and, if needed, the key caps and PCBs, into the segments.



4. Plug the segments together and fix them in place with the enclosed connector plug. Connecting PCBs with or without indicators connects turnout or signal PCBs within a segment row. Cross jointers connect the individual segment rows to each other.



5. Now your track control desk is complete and the cable can be connected to the LocoNet.

Programming – very simple

What till now, was achieved only via laborious wiring of the individual keys and lamps is very simple and fast with the new control desk.

1. Keep the key of the segment that you wish to program pressed for 8 seconds, until a symbol on the segment flashes.

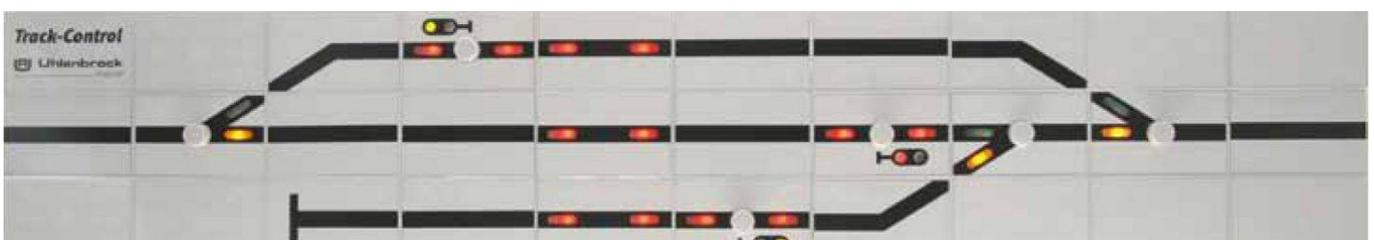
2. Press the key as often as needed till the desired symbol on the segment lights up.

3. On the digital center operate the turnout or the signal that you wish to control with this segment.

The simple programming of the segment is then complete. When all segments are programmed your desk is operational.

In order to program more complex desk functions use the configuration program. Among these functions are starting/end keys for routes, the automatic allocation of a pilot signal to the main signal as a function of the route, as well as setting of multi-function signals with auxiliary keys, occupied messages and route indication.

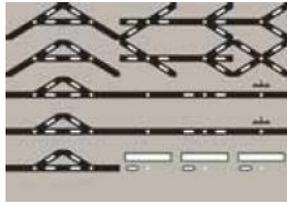
Videos describing the assembly and programming of the Track-Control are included in the Basic Set and are also available from our internet site for free download.



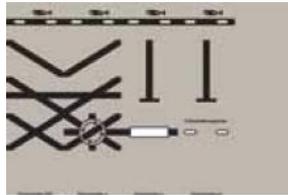
The control panel from the parts contained Basic Set in operational state.

Track-Control Foils

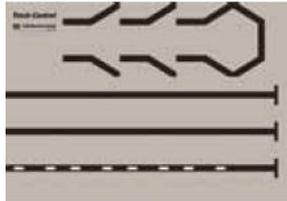
The Track-Control Foils from the Basic and Expansion sets are also available separately.



Part No. 69 091
Turnout and Crossing symbols



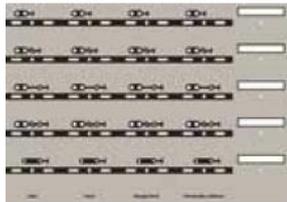
Part No. 69 094
Crossings, Blanks, Route buffer, Train number display, Turntable



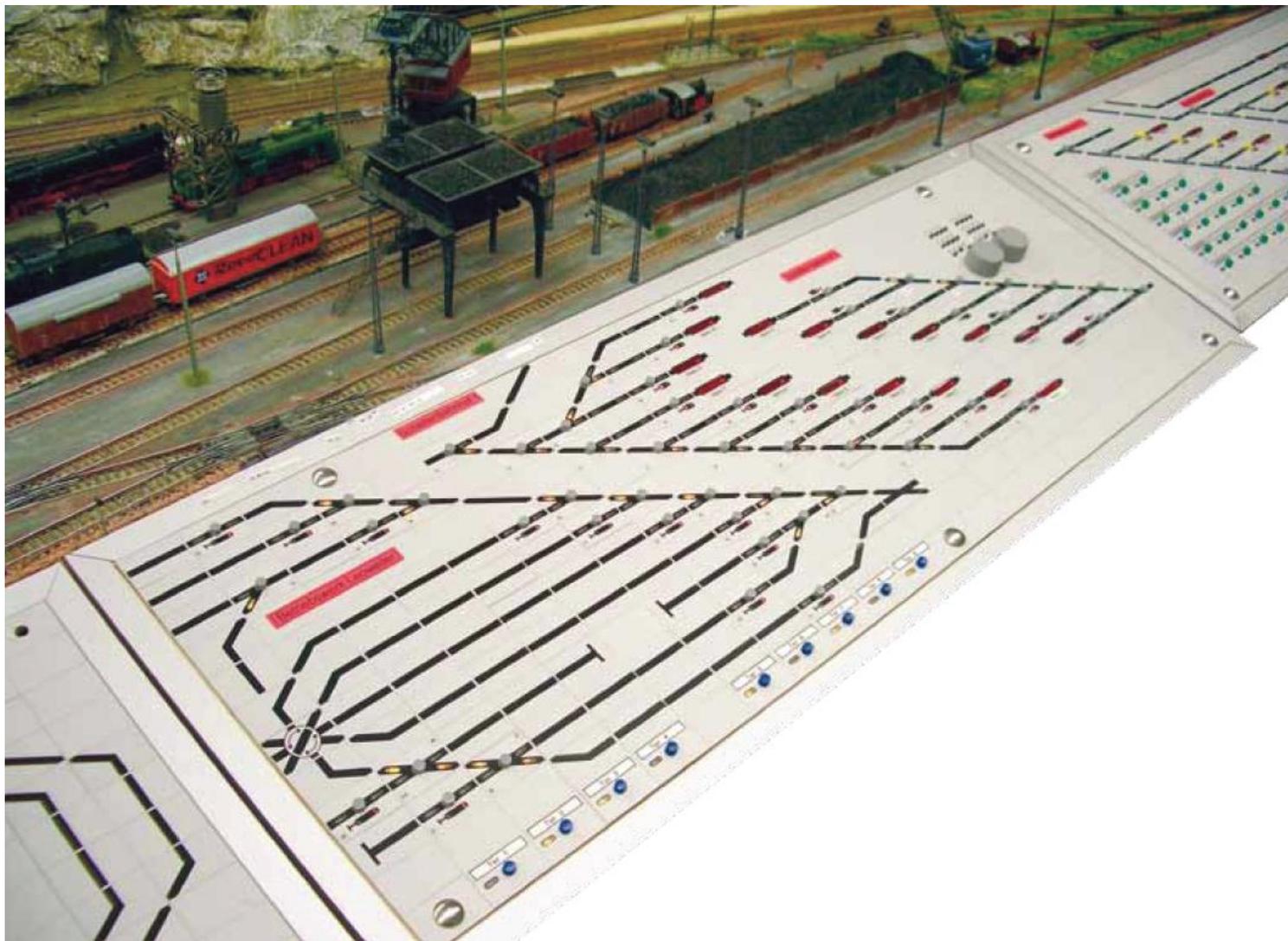
Part No. 69 092
Track symbols



Part No. 69 095
10 Track symbols with lighting and 15 blanks



Part No. 69 093
Signals



Track-Control Train Number Display



With installation of the individual locomotive control system »LISSY« or the modular automatic for RailCom »MARCo« the train numbers of the trains passing the designated LISSY sensor or the MARCo system track section are displayed, (e.g. at the exit track of the Shadow station).

Part No. 69 250 Track-Control
Train number display



The LISSY sensors are in the circle.

Track-Control-Joystick



- For controlling working models
- Occupies only one field position on the desk
- Replaces several key segments

The Joystick is used to control working models, for example our gantry crane or the water crane or working models of other manufacturers.

The Joystick can be moved in any direction so the switching functions up, down, right and left can be controlled. Special functions are switched by a slight pressure on the Joystick.

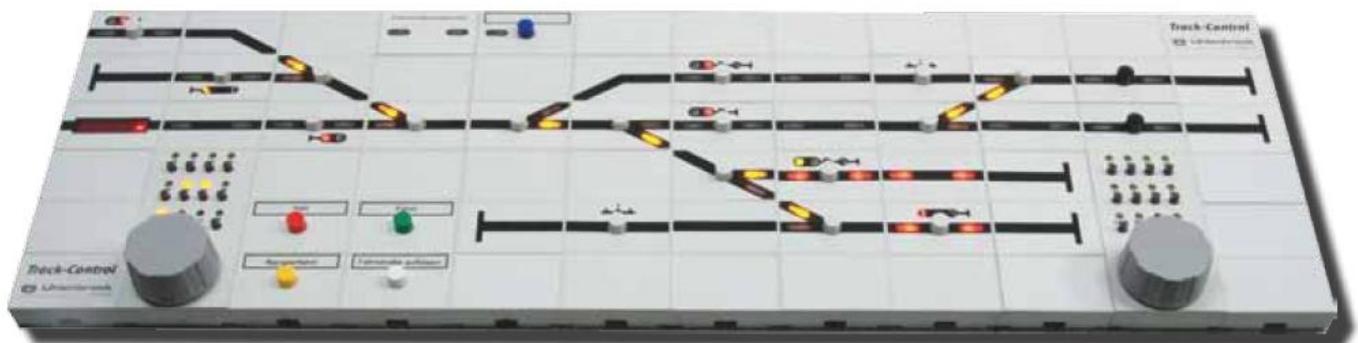
The segment produces instructions for locomotive or solenoid decoders.

Part No. 69 270 Track-Control Joystick



The Uhlenbrock Control Panel

The Track-Control is based on the Siemens Track Plan Panel DrS2, which has been in service for the DB since the 60s. Its Functionality has been adapted for the model railroader so they don't have to be a signaller in order to operate the panel



Track-Control Route Buffer

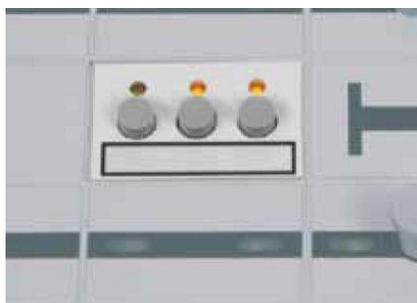


- Stores up to 2000 control instructions for routes which can be called up at the track control desk
- Switching of routes with start/end keys
- Trigger the routes via the LocoNet, like with Feedback modules



Part No. 69 240 Track-Control Route buffer

Track-Control 3-Key segment



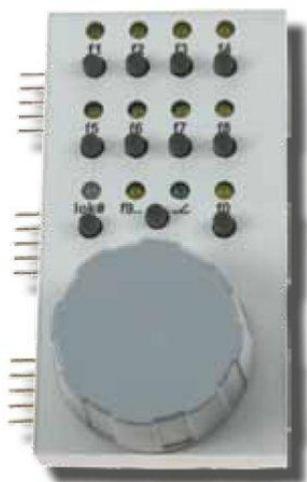
- For three switching possibilities
- For switching solenoids or Locomotive special functions
- To release feedbacks

By combining 3 keys in a segment you save space and have more flexibility in the organizing of the panel.

With the low priced module all additional functions in the model railway layout, such as lighting, boom gates, gate motors, the gantry crane lifting magnet, a water crane and much more can be controlled. Routes can also be set with these keys.

Part No. 69 260 Track-Control 3-key segment

Track-Control Speed Controller



- Running of Locomotives
- Switches 16 special functions and the light function
- With DirectDrive function
- Up to 9999 locomotive addresses
- Rotary controller without end-stop and with reversing switch, AC and DC operating mode
- Emergency stop

The speed controller is as large as three other desk segments and is easily integrated into the control desk. Up to 9999 locomotives can be selected and controlled with the figure keys f0 - f9.

The running speed is set with the continuous rotary knob. A press of the control knob changes the driving direction. The function keys control the light and switches up to 16 special functions.

Part No. 69 300 Track-Control Speed Controller

DirectDrive

Do you forget locomotive numbers and names? Those are no longer needed!

Take control of the locomotive which passed over a certain LISSY or MARCo receiver by the push of a button on the controller without entering the address.

The DirectDrive function, in combination with LISSY or MARCo, forms the most convenient function which modern model railway controls can offer. Assign a

LISSY or MARCo receiver to a controller on the Track- Control and you can take control of a locomotive that passes the LISSY or MARCo receiver by the simple push of a button without having to input the locomotive address or name.

Further, LISSY or MARCo receivers can be linked with signal sections so they

save the address of the locomotive which is awaiting clearance at the corresponding signal. Now control can be taken of this locomotive on the controller by pressing the key on that Signal section and a key on the controller.

Switching & Reporting

E

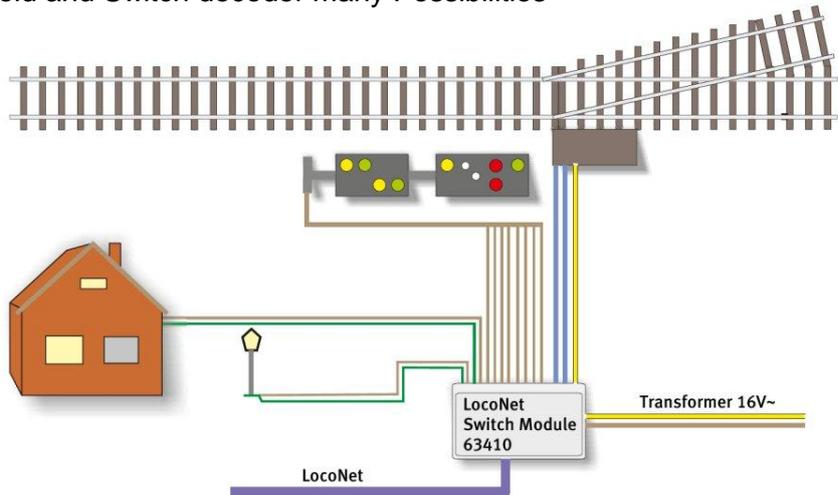


LocoNet-Switch module – the Universal genius

Cost effective replacement for Solenoid and Switch decoder many Possibilities

The LocoNet Switch module is a switch and solenoid decoder and switches up to ten turnouts or light signals - also multi-state with slow up and dimming of lights or 20 lights on your layout. And all this mixed in one module!

- With 20 switching outputs at 1A
- Each output can be independently configured for continuous output (for lamps) or momentary output (for turnouts or signals).
- Prototypical control of light signals with up to 4 signal functions
- Slow change over between light patterns
- All outputs can be switched by solenoid addresses or feedback commands



- 2 independently adjustable blinkers make many effects possible.
- Configurable via LocoNet CV from the center.
- Addresses are freely selectable for each output in the range 1-2048.
- Separate transformer connection, no load on digital driving current.



Our LocoNet Switch Module is a clever device. A single module which can achieve all switching processes on your layout. The Switch Module can switch lighting, turnouts, uncoupling tracks, semaphore signals, light signals, level crossings and effect lighting. All these switching tasks can be mixed with a single Module.

We attached particular importance to the prototypical control of light signals. The Switch Module switches up to 4 function main and pilot signals. And the best of the Signal control is the cross fading function. If you wish, the light change between signal states dissolves softly and is not a hard cut-over.

Level crossings (St.Andrews crosses) and other lighting effects are not a problem. With one blink of the generators and the dissolve function you can have a prototypical level crossing light. Or you combine both flashing generators to simulate a faulty street light.

With the module's 20 switching outputs you can switch either 10 turnouts, 5 multi-state signals or 20 switching functions. Each output can be loaded with up to 1A. However, the total power output must not exceed 3A.

The LocoNet Switch Module is powered from a transformer so has no load on the LocoNet or the digital center track supply.

Part No. 63 410 LocoNet Switch module



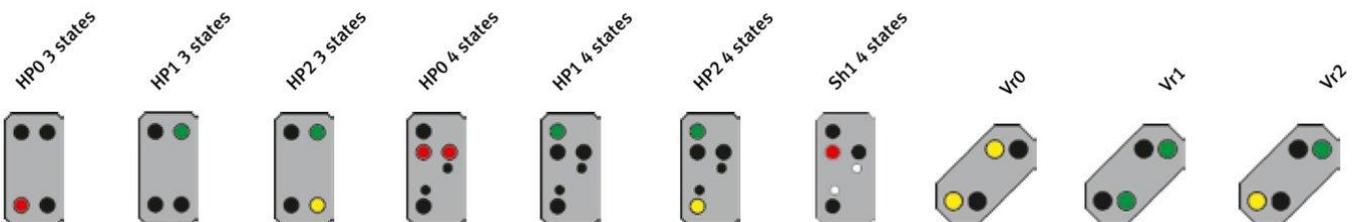
Polarity Changer NEW

for the LocoNet-Switch module. The outputs of the module switch against the common plus pole.

Some turnout and signal mechanisms use a common negative pole. For installation of these devices a polarity changer is needed.

It swaps the polarity for four outputs.

Part No. 63 415 Polarity Changer



Solenoid and Switch decoder



Easy Address assignment without Decoder defaults

Turnouts and signals with a solenoid drive, which are to be controlled digitally, must be connected to a solenoid decoder. Lamps, light signals or track sections, which are to be switched on and off digitally, are connected to a switching decoder.

- For Motorola and DCC Digital systems
- Each according to type for pulse or permanent current
- Large address range
- Free address choice
- address programming with the push of a button
- Potential free relay contacts
- High load: 1 A per output
- Simple connection
- Dimensions: 38 x 32 x 15 mm

Uhlenbrock solenoid and switching decoders can be used in Märklin, Motorola and DCC Digital system. In the Motorola mode addresses 1 to 320 can be addressed by the Intellibox.

With other control centers the addresses 1 to 256 can be addressed. In the DCC operations, addresses 1 to 2040 are possible. The addresses are not preset. They can be selected fully independently of one another.

Each module has two outputs. Depending on the decoder both outputs can be either addressed together under one address or independently by two addresses.

The relay contacts of the switching decoders have potential free outputs and can be connected as desired. Each output can have a 1A load.

Because the decoder is restricted to two connections, the cable runs remain short and the wiring of the layout is easy to manage. The connection is simple to do with screw connectors.

Address programming is extremely simple. First you press the decoder programming key and then the appropriate key at the control desk. The decoder simply notes the appropriate address.

The decoders are supplied with power and control information by the digital control center.



Solenoid decoder MD2



Pulse drive for solenoids via 2 independent addresses (turnout, signal) or devices are driven by two solenoids (three-way turnout, double crossing switch, signal with pilot signal). The decoder has short circuit protection.

Part No. 67 200 MD2

Switch decoder SD 1



Universal switching decoder has two separated two-way potential free contacts, which are addressed by one address. One contact can, for example, switch a light signal and the second, the track power.

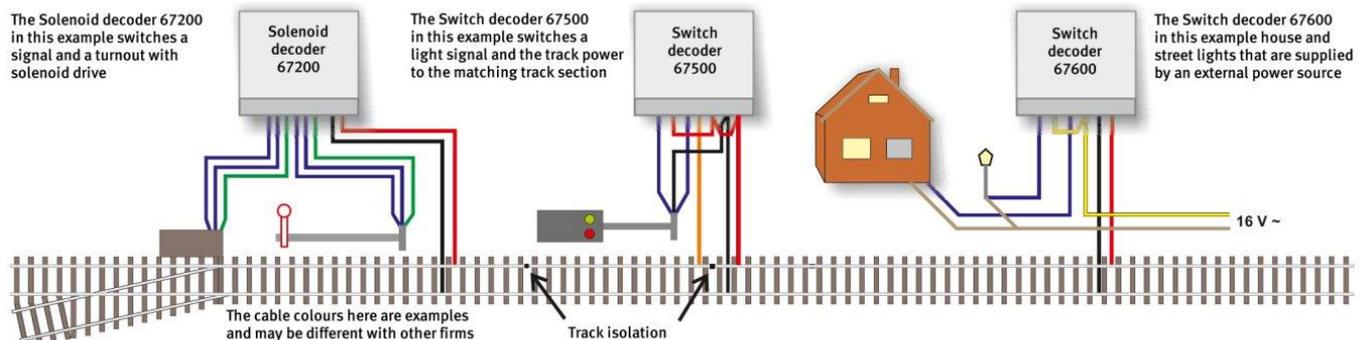
Part No. 67 500 SD1

Switch decoder SD 2



A universal switching decoder with two separated, two-way potential free contacts, addressed by two independent addresses. The decoder independently switches two different items, for example lamps or a motor, to operate a turnout.

Part No. 67 600 SD2



LocoNet Feedback Module with Automatic function

Reporting and Switching with one Module

- Connection via the LocoNet
- Choice of Adress in Range 1–2048
- Delay/Reactions time adjustable for each individual input
- Programmable by key action on the Intellibox or with the LocoNet-Tool
- Every input can control 2 solenoids, when a train enters the track section or 2 other solenoids, when a train leaves the track section.

In addition to the familiar operations the new Feedback modules provide direct switching of solenoids. With this function simple switching tasks can be implemented directly by the feedback module without a route from another device such as Intellibox or IB-Switches. Each track entrance can switch two solenoids when a train enters the attached track section and two further solenoids, when the train leaves the track section.

With this automatic function the feedback module can, for example, directly control a railway boom gate, a St Andrews cross or a signal.

3-Leiter Rückmeldemodul



- Occupation detectors for 16 track section, track contacts or keys
- A ground output for connecting reed or contact switches
- Processing of simple switching actions

Part No. 63 330 3-Rail Feedback module



Part No. 40 410 10ml Resistive Lacquer

2-Leiter Rückmeldemodul



- for 8 track sections
- Occupation detectors, feedbacks and power monitoring in one module
- Maximum Current 3 A
- Processing of simple switching actions

Part No. 63 320 2-Rail Feedback module



The Function of Feedback Modules

Automatic Operation with IB-Switch or Computer

Feedback components give the status of the track sections being monitored, whether sections are occupied or vacant, to the attached devices (e.g. IB-Switches or a computer with control program). These automatically implement the switching commands that were setup for this feedback. This can be switching of single solenoids or an entire route.

The 2-Rail version consists of an occupation detector, a Feedback Unit and a current monitor.

The occupation detectors monitor the track inputs. The current monitor registers every current flow in the track section larger than 2 mA. So locomotives, illuminated Wagon and conducting axles are detected.

The voltage monitor prevents erroneous vacant messages when the power is switched off.

The 3-Rail version works with an isolated and separate rail side which is attached to the reporting component and bridged to the other rail by the conducting axles of the vehicles.

The feedback unit reports each change in state "vacant" or "occupied" via LocoNet to the center or to other LocoNet devices.

Unlike other bus systems the LocoNet is for the transmission of data, e.g. feedbacks, and is extraordinarily reliable.

The address setting is done by means of the programming key, the programming menu of an Intellibox or, simply, with the "LocoNet Tool" software.

Signal building block SBS

For Installation of digital Brake Sections

Would you like your model trains to automatically brake gently before a red signal and to safely come to a stop? The signal building block makes this possible on digital layouts, using the Märklin Motorola format.



- Märklin Motorola compatible deceleration using a negative track voltage
- Suitable for all Märklin Motorola compatible locomotive decoders with integrated acceleration/brake control
- Separate braking and hold section
- Switchable by panel key, contact or switching tracks and switch decoders
- Suitable for light and semaphore signals

The signal building block is a combination of a reverse current relay and digital acceleration/brake module. It permits the installation of a braking section and the connection of a light signal and train control. Locomotives with digital decoders then stop slowly before a red signal. The braking behaviour of the locomotive is determined by the brake delay in its decoder.

The module can be triggered in different ways. It can be triggered by key or contact rail, to "red" or "green" state. Or a solenoid decoder can be attached and controlled by a digital system.

For safe stopping of a locomotive three isolated sections are installed. The first section is the transition section, which serves to avoid short-circuits at the digital center.

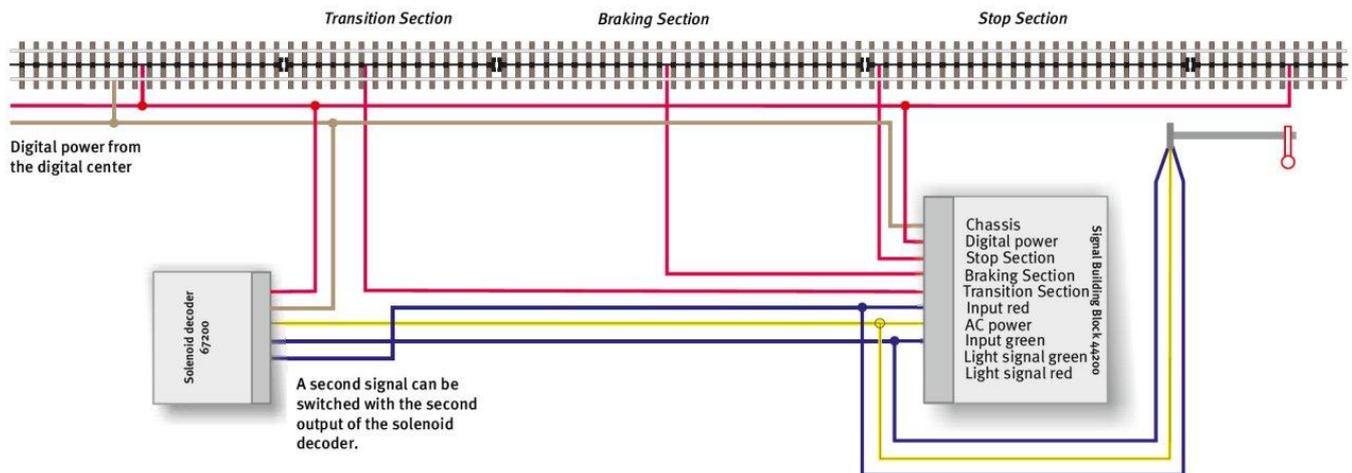
It should be the length of a pickup. In the second section (the braking section), the brake signal is applied to the track with a red signal. It should have a length of at least 40 to 50 cm. The locomotive's brake inertia is determined by its decoder settings. Within the following stop section the power is switched off and therefore prevents the locomotive from overrunning the signal if the braking inertia is set to too long. This section can be omitted if the space is limited.

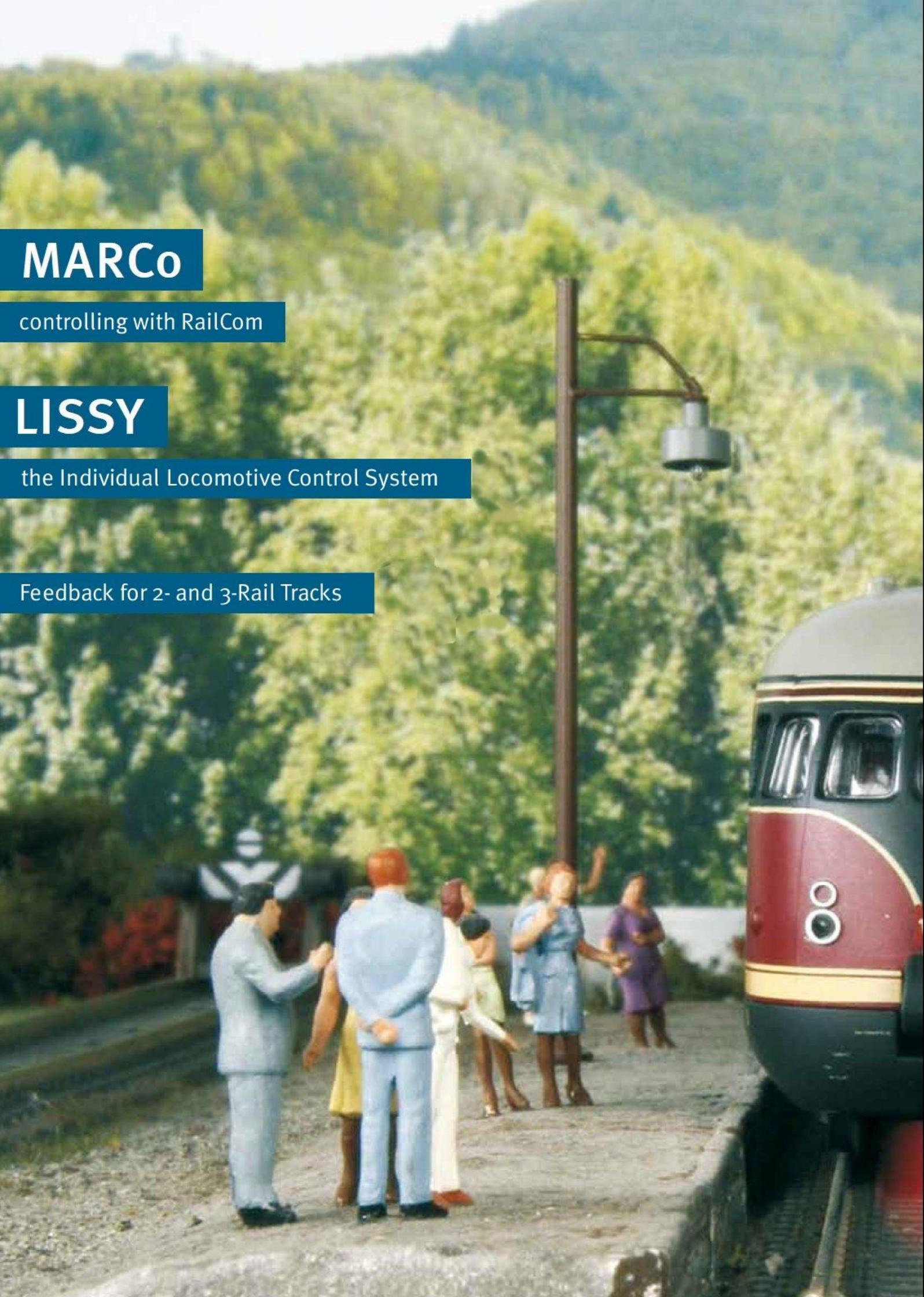
The signal building block has an additional output, in order to switch the lam of a light signal.

Part No. 44 200 Signal building block SBS



Example for connecting the Signal Building block with a solenoid decoder





MARCo

controlling with RailCom

LISSY

the Individual Locomotive Control System

Feedback for 2- and 3-Rail Tracks

Automation without PC

F



Automation of Trains on a Model Railway

For automation of trains there are a number of systems for model railways.

All are triggered by a train and activate various switching sequences and running commands.

Switch or reed contacts are the simplest building blocks to execute switching commands on a model railway. Without additional components these are only useful on analogue layouts.

Feedback Modules (Occupancy detectors)

are Electronic building blocks that are connected to track sections. They report when a locomotive or wagon containing a power load is located in the track section. In addition, our LocoNet Feedback modules 63 320 and 63 330 can execute switching commands. These feedback modules are a very economical option to realise simple automatic control.

LISSY the individual locomotive control system

With the LISSY System an infrared transmitter is fitted under the vehicles. This constantly transmits the locomotive address and train category (1-4). Small infrared receivers are installed in the track. They enable a precise identification and location of a LISSY fitted vehicle.

The receivers not only pass the locomotive address, train category and location to the digital center, but also numerous switching and locomotive commands, such as instructions to change the speed or a special function. The notification occurs at precisely the point at which the receiver is located. It is all about locational train control [PZB].

RailCom – the bi-directional feedback via the track.

The RailCom System has been in development for many years. Now a fixed specification is available. The vehicles in the RailCom System are fitted with a RailCom transmitter or a RailCom enabled Decoder. This sends the transferred data into the track. A MARCo receiver, which has two RailCom detectors, is connected to the isolated track sections.

RailCom allows information about a locomotive to go to the track for further processing. For this, a corresponding place in the track signal is used, so that the RailCom transmitter can send out the information. The track signal must have a blanking period (Cutout) that can be utilised. The technical cutout must be supported by every Booster, regardless whether it is stand alone or a digital center. That is the case in our Power 4 and Power 7 boosters. This technique allows the identification and location of the RailCom fitted vehicle.

The MARCo receivers not only pass the locomotive address and location to the digital center, but also numerous switching and locomotive commands, such as instructions to change the speed or a special function. Even Decoder CVs can be read and programmed with RailCom.

Differently to LISSY, the notification does not occur at a particular point but in a section of track. It is therefore a lineal train control [LZB].

Like all our other devices the MARCo receivers are connected to the LocoNet. A specialised RailCom-Bus is not required.

Compatibility of feedback systems

LocoNet feedback modules, LISSY and MARCo can be operated together on a layout. They complement each other and do not interfere with each other.

Train control of the Bundesbahn

The railway has two automation systems in use. On one hand a non continuous Train Control System [PZB], and on the other hand a continuous Train Control System [LZB].

In the PZB the information transfer and the monitoring point are at a particular point on the track. A well known PZB is the inductive train safety system INDUSI. On the model railway this is emulated by LISSY.

The LZB operates the rail network continuously. In this System a cable is placed between the rails. On the model railway this is emulated by the MARCo System.



Preparation for installing Feedback systems

	2-Rail Feedback module	3-Rail Feedback module	LISSY	MARCo
Special Locomotive and wagon installation	Fit wagons without power pickup, with low conductive axels or use the conductive lacquer 40 410	none	LISSY-transmitter or LISSY-Mini-transmitter fitted to the locomotive or wagon	Install a RailCom transmitter or RailCom equipped decoder into the locomotive. Wagons fitted with light globes without decoder must be fitted with a rectifier.
Essencial changes to the tracks	Single sided isolation of the track and connection of the isolated section to the module	Isolation of an outer rail and connecting the isolated section to the module or switching track.	3 mm-drill to accept the IR-Sensors in the middle of the rails	Single sided isolation of the track and connection of the isolated section to the MARCo receiver.
Device precondition	none	none	None	Booster with the ability to employ a »Cutout«, e.g. Power 4

Options for the various Systems

	LocoNet-Feedback	LISSY	MARCo
Data format	As desired	As desired	DCC
Train recognition by Locomotive address	-	-	x
Train recognition by train category	-	x	x
Locomotive position indication LokPosi	-	x	With Intellibox II
Indication of locomotive and wagon addresses of a passing train	-	x	x
Switching of turnouts and routes	-	x	Loco addresses
Change the speed of a passing locomotive	X	x	x
Change special functions of a passing locomotive	-	x	x
Switching of routes, changing of locomotive speed and special functions for a specific, programmable, locomotive address	-	x	x
Switching functions (Routes, speed, special functions) for a specific train category	-	x	x
Shuttle train traffic	-	x	With Inellibox II
Intermediate stops	-	x	x
Block section control	-	x	x
Shadow station control	X	x	x
Point accurate stopping at signals	X	x	x
Speed measurement	-	x	x ¹⁾
Read and program CVs	-	x	-
Train recognition by Locomotive address	-	-	x

¹⁾ Fahrzeug hält an, wenn es im zweiten Abschnitt ankommt.

LISSY — the individual Locomotive Control System

MARCo – the Way to automating Layouts with RailCom

Finally, your digital layout can have all the things that have been possible on analog layouts for a long time. LISSY or MARCo fulfils the demands of railway modellers, who wanted to have simple automatic control of their layout, with block systems and auto reversing, a digital system which up till now needed the aide of a computer. LISSY or MARCo is the same as the Fleischmann Train Navigation and offers interesting functionality.

- Train recognition
- Shuttle train control
- Automatic control of special functions and Locomotive speed
- Switching of solenoids and routs
- Digital Block control
- Shuttle train control
- Locomotive dependent shadow station control
- Speed measurement
- Point accurate stopping
- LISSY Works without track isolation

LISSY uses infrared to transfer its data from the locomotive to the digital system. For this an infrared transmitter is fitted to the vehicle. The infrared sensors for the receiver module are installed in the track.

LISSY and MARCo recognise the train and displays which train is on track 1 in the station.

LISSY and MARCo control the shuttle traffic in the terminus station of the branch line.

LISSY and MARCo manage your shadow station with passing loop, independently finds an individual track for each train and allows the trains to automatically leave at will. The passing loop can be used by particular locomotives or, with the push of a button, by all locomotives.

LISSY and MARCo are block systems for digital layouts and control the block sections on the layout automatically without installing a computer.

LISSY and MARCo slowly brakes every digital locomotive at a red signal with decoder's internal braking inertia.

LISSY and MARCo switch the sound of a locomotive according to a situation, for example the whistle before entering a tunnel or the signal horn at a level crossing before the whistle sign.

LISSY and MARCo fade out the sound of an »IntelliSound« equipped locomotive when running in invisible sections (Shadow station, Tunnel).

LISSY and MARCo switch the light of a selected locomotive after a particular time on or off, e.g. when the driver switches the locomotive off.

LISSY and MARCo control the locomotive's speed, e.g. when entering a station or in a slow section.

LISSY measures the speed of passing locomotives true to the scale.

LISSY works without track isolation and can therefore be easily retro-fitted into every model railway layout.

The display is achieved by the Intellibox or TrackControl display or on a connected PC.

LokPosi

LISSY delivers the information for the Loco position display of the Intellibox® II. So that you always know where your Locomotives are located.

DirectDrive

Control of a locomotive, which passed a defined LISSY or MARCo receiver, can be gained on the speed controller of an Intellibox or Track-Control speed controller, with a push of a button without inputting of locomotive address or locomotive name.

Automatic Registration of Locomotives

MARCo provides an automatic notification of locomotives to the center. When you first place the locomotive on the track you can enter its characteristics. Then you place your locomotive into the showcase again. The moment it is placed on the track again you can take control of the locomotive from the LISSY/MARCo Menu and all its settings are available again.

Building up a Layout with LISSY or MARCo

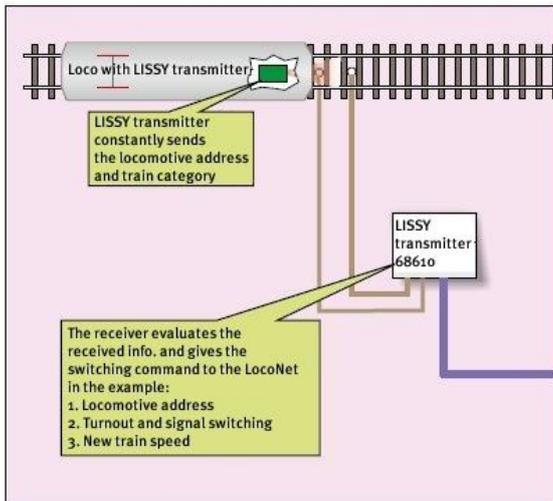
What is required?

For switching functions that depend on the locomotive address both sensors of the LISSY receiver, or the RailCom detectors of the MARCo receiver, can monitor two different tracks. If the driving direction is to be determined then both sections must be installed in the track behind each other. For a shuttle route a LISSY or MARCo receiver is installed at each endpoint.

In a block control system each block is fitted with a LISSY or MARCo receiver.

For fully automated control of a shadow station a LISSY or MARCo receiver is required for the exit track, also a LISSY or MARCo receiver per track is required in the shadow station.

To operate a MARCo feedback system RailCom boosters which support »Cutout« are required, such as e.g. our Power 4.

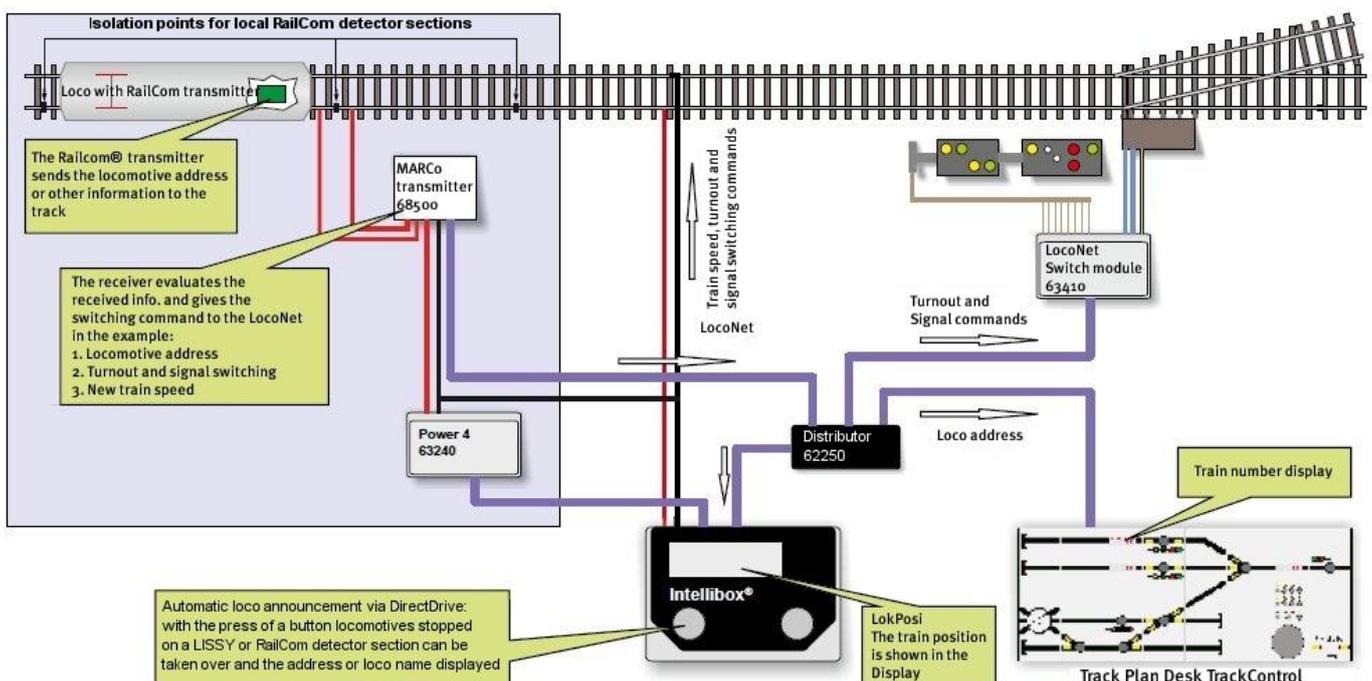


Control with LISSY



Barely noticeable:
LISSY receiver sensors in the track

Control with MARCo



LISSY-Receiver

- Train recognition
- Speed influence
- Auto. control of special functions and locomotive speed
- Switching of solenoids and routes
- Digital block control
- Speed measurement
- Shuttle train control
- Locomotive dependent shadow station control with passing track
- The passing loop can have individual locomotives entering or by push of a button
- Selective switching of tracks by Exit Manager e.g. for blocks in a shadow station.
- Up to 15 train categories in conjunction with the Intellibox II
- Individual locomotive stop times in automatic layouts

- In automatic layouts a number of locomotive special functions can be separately switched by delay times.
- Automatic feedback for Block »occupied« and »vacant«
- Startup time for an orderly system startup.

The LISSY receiver is a module with two small, hardly visible IR sensors with a diameter of 3 mm which are installed in the track one behind the other. Connection to the Intellibox is done using the LocoNet.

If the automatic functions are to be implemented independent of travel direction, the module can supervise two locations. Then only the address and train category of the passing locomotive are conveyed.



In places where a travel direction dependent automatic function is to be implemented, the two sensors of a receiver are installed in the track one behind the other. In addition to the address and train category the speed and travel direction can be determined.

Part No. 68 610 LISSY Receiver including Sensors

Part No. 68 690 LISSY Sensors (2 single pieces)

LISSY Mini Transmitter



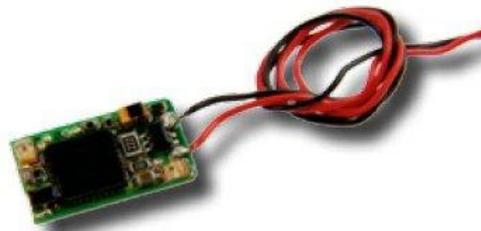
Original Size

The LISSY Mini-transmitter module is for connecting to decoders which generate the LISSY-Signal. It is suitable for locomotives, which are equipped with an Uhlenbrock Locomotive or Sound decoder with LISSY output. It constantly sends the decoder address. Equipped with a SUSI plug it can be plugged on directly into H0 decoders, and the N decoders 73400 and 73410 have solder pads for the connection.

With dimensions of only 7 x 5.1 x 1.7 mm it fits under an NEM coupling, for example.

Part No. 68 400 LISSY Mini-transmitter

LISSY-Infrared transmitter



Each vehicle which is to implement an automatic control function must be equipped with a LISSY Infrared transmitter. The small module sends addresses, within the range 1 to 16382 and four train categories, such as ICE, passenger train or goods train.

The transmitter, like DCC decoders, can be programmed. The address and train category are configured with CVs.

Dimensions: 13.5 x 8.4 x 2.5 mm

Part No. 68 300 Single LISSY Infrared transmitter

Part No. 68 301 LISSY Infrared Transmitter 5er Pack

LISSY Single Receiver



- Train recognition
- Speed influence
- Auto. control of special functions
- Switching of solenoids and routes
- Sending feedback messages

For simple switching functions the new LISSY Infrared receiver is now available. The sensor is integrated into the module. For installation a 4 mm hole is bored into the base plate between the sleepers and the receiver is inserted from underneath. The connection to the digital center is via a LocoNet cable.

Part No. 68 620 LISSY Single Receiver



LISSY Shuttle Train Control



- For single track shuttle tracks
- Pre-configured LISSY receiver for all terminuses
- Includes LISSY transmitters for 5 vehicles
- Usable with Intellibox, Twin-Center and Piko Power-Box

The first LISSY Special edition. The modules are pre-configured for a single track shuttle train so it can be installed in the layout without any extra programming. The special edition modules can be reprogrammed for different functions like all other modules.

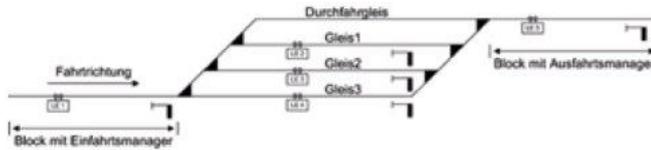
Shuttle Train control contents:

1 LISSY transmitter, 2 LISSY receivers, 2 LocoNet 2.15m cables, the LISSY Manual and a special guide for the structure and installation of the shuttle train track.

Part No. 68 010 LISSY Shuttle train control



LISSY Station Control



- For stations with digitized turnouts
- Pre-configured LISSY receiver for a 3-track station with a passing loop or as station extension for 5 auxiliary tracks
- Includes LISSY 5 transmitters
- Usable with Intellibox, TwinCenters and Piko Power Box

Two receivers have the tasks of entrance and exit manager, three receivers control the different tracks. The receivers can only be reprogrammed for use as a station control, e.g. as station extension for 5 auxiliary tracks.

Contents: 5 LISSY receivers, 5 LISSY transmitters, 2 LocoNet 2.15m cables, 3 LocoNet cables 28 cm, 1 LocoNet 5-way distributor, 1 LocoNet 2.15m extension (1 plug/2 sockets), the LISSY manual and a special guide for the construction and the start-up of the station control.

Part No. 68 020 LISSY Station control



This special edition the LISSY receiver is pre-configured for a 3-track station with passing loop, so that the station can be installed directly in the layout without having to spend any additional time on programming the receivers.

LISSY Component Overview

Complete sets – for a simple Start and for Extensions

Part No. 68 000 LISSY-Set
2 Transmitters,
1 Receiver,
LocoNet Cable,
Manual

Part No. 68 010 LISSY Shuttle Train Control
1 Transmitter,
2 Receivers,
LocoNet Cable,
Manual

Part No. 68 020 LISSY Station Control
5 Transmitters,
5 Receivers,
6 LocoNet Cable,
5-way Distributer,
Manual

Individual Components

Part No. 68 300 LISSY Infrared transmitter
13.5 x 8.4 x 2.5 mm

Part No. 68 301 LISSY Infrared transmitter
5-er Pack

Part No. 68 400 LISSY Mini transmitter
7.0 x 5.1 x 1.7 mm

Part No. 68 610 LISSY-Infrared Receiver
With two Sensors

Part No. 68 620 LISSY Single Receiver

Part No. 68 690 LISSY Sensoren, 2 Pieces

Part No. 19 300 LISSY/MARCo-Creator

MARCo-Receiver **NEW**



- Train recognition
- Reading and programming of CVs
- Affect speed
- Automatic control of special functions and locomotive speed
- Switching of solenoids and routes
- Shuttle train control
- Locomotive dependent shadow station control with passing loop
- The passing loop can be used by individual locomotives or all locomotives with the press of a button.
- Individual locomotive stopping time in automatic operation
- In automatic operation numerous locomotive functions can be separately switched with waiting time.

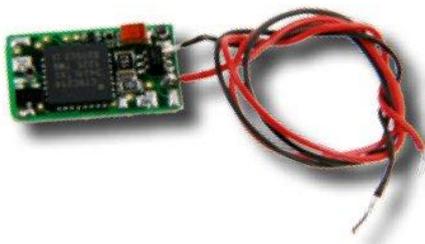
The MARCo receiver contains 2 RailCom® detectors for monitoring of a track section each with an intelligence to autonomously perform switching sequences. It is connected to the center via the LocoNet.

If simple direction independent switching sequences are to be carried out a single module can monitor two track sections. Then only the address of a passing locomotive is reported and simple switching operations are triggered.

At locations where direction dependent automation is required both track sections are connected then both sections on the one MARCo receiver are installed in the track immediately after each other. Then in addition to the address the travel direction is determined and the train in the second section can stop automatically.

Part No. 68 500 MARCo-Receiver

RailCom-Transmitter **NEW**



Every vehicle that is to be used in automatic operation or is to report its address is fitted with a RailCom transmitter. The transmitter is installed in addition to the locomotive decoder that is installed in the locomotive and is simply connected with power pickups of the locomotive. It can be programmed with all short or long addresses just like a DCC decoder. Additionally it is possible to connect a LISSY mini-transmitter module.

Part No. 68 320 RailCom Transmitter single
Part No. 68 321 RailCom Transmitter, 5er Pack

MARCo Set **NEW**

The quick Entry into the MARCo System

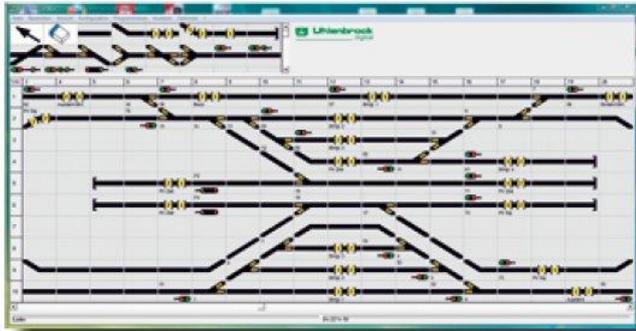
Contains two RailCom® transmitters, a MARCo receiver, a LocoNet cable and a manual.

Part No. 68 100 MARCo-Set



LISSY/MARCo-Creator

The quick way to a LISSY/MARCo controlled layout



- Plan a LISSY/MARCo controlled layouts on a PC
- Easy installation of LISSY and MARCo receiver on the layout
- Routes can be configured on the PC and programmed into the Intellibox® II
- Manage all addresses of the layout
- Save and print the layout configuration

LISSY/MARCo-Creator is the PC-program with which you can simply and easily plan a model railway layout using LISSY/MARCo and all LISSY and MARCo receivers with the required programming.

Shadow station or switching of special locomotive functions, all control sequences with the LISSY/MARCo control can be included in the layout planning with the LISSY/MARCo-Creator.

The program manages all address which are used on the layout, solenoid, feedback units, LISSY and MARCo receivers. Routes needed for station control can also be set and managed by program.

Route in the Intellibox II, IB-Control II and Track-Control route buffer can be directly programmed with the LISSY/MARCo-Creator. All layout data can be backed up and printed.

The licence registration is bound to the serial number of your digital center to which the software is connected. It cannot be transferred to another digital center. To use the software with further digital centers we offer additional licences at a reduced price.

Part No. 19 300 LISSY/MARCo-Creator

Part No. 19 310 LISSY/MARCo-Creator Zusatzlizens





Servos & Function Model decoder

G



Servo Driver

For Märklin and DCC Digital Systems

Servo-drives change turnouts, signals and railway crossing booms, swivel a water crane, open or close gates, Wagon doors, operate couplings on vehicles.

A servo moves the item which is to be moved via the provided control wire, for example turnout blades, semaphore signal, booms, water cranes or gates. It can be installed in many different situations with the enclosed mounting material.

We are offering you two variations of motorization. The low cost method with servos, which have been employed RC Modeling for decades. For the servos a servo decoder is essential. Our Servo decoder 67800 is designed for connecting four servos. There is also the 67810 variant with switch outputs, which make it possible to simultaneous have servo motion and carry out an electrical switching process. This can for example be used for polarization of a turnout frog while changing the turnout position.

For installing into vehicles when a small size or high precision is required, we recommend the Digital servo 81310. This also has an integrated digital decoder and is connected directly to the digital power. It is also possible to connect it to the track power.

Application Examples



HO Goods wagon with a digital servo that opens a wagon door and digital decoder for light and smoke.



HO Goods Wagon with servo controlled coupling

The Digital Motor drives a Windmill.

Digital Servo

Mini-Servo with integrated Digital Decoder



The Digital-Servo does not differ in form and size from the Mini-Servo 81410. Inside however, besides the Servo electronics there is also a digital decoder.

- For Märklin or DCC Digital systems and analogue operation
- No additional servo decoder required
- Switchable with Locomotive functions, via turnout addresses or proportional to speed control position
- Configurable rotation speed
- Configurable end positions
- Rotation angle 180°
- Intermediate positions possible
- Configuration by DCC CV programming or by a Motorola digital center
- mounting material, Setting levers and setting wire 2 x 0.4mm und 1 x 0.6mm, each 100mm long
- Torque 2 Ncm
- Dimensions 20.0 x 17.6 x 8.0 mm

The Digital-Servo can be installed in vehicles and static items. The silent and jerk free operation will spoil even the most fastidious model railroader.

The Servo drives the moving element with the inclosed setting wire. In vehicles, for example, it can be used to move pantographs and doors. Static items are e.g. driving turnouts, signal arms, booms, water cranes and gates are possible.

The servo can be installed in many varied locations and orientations using the included mounting materials.

Part No. 81 310 Digital Servo

[=DC](#) [-AC](#) [MOT](#) [DCC](#)

Digital Motor

Motor drive with integrated Digital Decoder



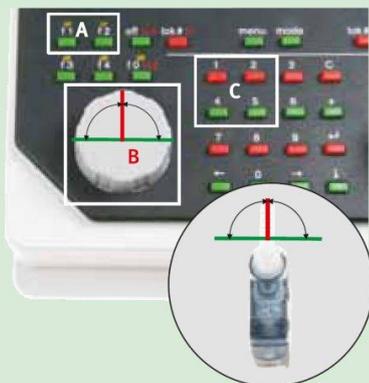
- For Märklin or DCC Digital systems and analogue operation
- 3 operating modes
- Configuration by DCC CV programming or by a Motorola digital center
- With mounting material, setting levers, twine drum and 1m twine
- Torque 2 Ncm
- Dimensions 20.0 x 17.6 x 8.0 mm

The Digital Motor is controlled either via an analogue DC current, as with a locomotive decoder (the Motor is switched by Special function and the speed by speed control) or like a solenoid decoder (the running direction is selected by key and the speed is configured by CV).

Part No. 81 210 Digital Motor

[=DC](#) [-AC](#) [MOT](#) [DCC](#)

The digital motor has no end positions. It is therefore suitable for endless turning motion. With the twine roll many types of twine drives can become reality.



Operating the Digital-Servo

Three possible control methods:

- Using any desired Locomotive function the Digital-Servo can travel toward two different positions.
- The Digital-Servo moves exactly like the speed controller indicates.
- Using the swithing keys the Digital-Servo is controlled like a solenoid. Four different positions can be reached by a key press.

Operating the Digital-Motor

Three possible control methods:

- Using any desired locomotive function the Digital-Motor moves forwards or backward.
- Using the speed controller the speed and the direction of the Digital-Motor can be controlled.
- Using the switching keys the Digital-Motor can be controlled like a solenoid. It can be moved forwards or backward.

Servo decoder

For Connecting 4 Servos



Up to 4 servos can be connected to a servo decoder.

- Configurable switching address
- Configurable End stops
- Configurable rotating speed
- Backlash function
- Configurable with turnout keys or by DCC CV Programming
- Connection to digital power
- Power supply from the track or a separate transformer
- Very low power consumption due to an integrated switching regulator
- Servo outputs with overload protection

With simple key programming, Motorola and DCC centers can configure the address, end stop and the rotating speed for each servo independently.

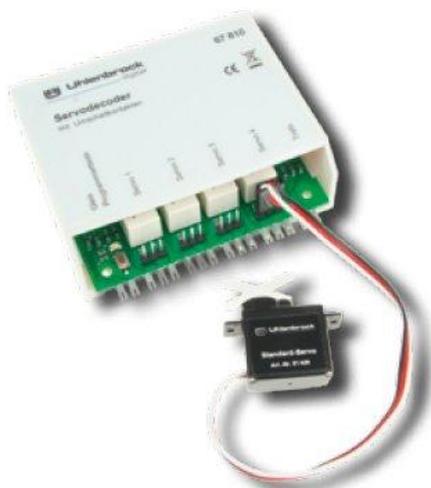
When using a DCC center, e.g. the Intellibox, all parameters can be adjusted by CV programming. So 2 addresses, their end stops, the rotating speed and the backlash function for each servo can be adjusted independently.

Part No. 67 800 Servodecoder



Servodecoder with Switch outputs – the modern 2-Rail turnout drive

For Connecting 4 Servos



Up to 4 servos can be connected to a servo decoder.

- Switch outputs for frog polarity change loadable to 3A
- Configurable switching address
- Configurable End stops
- Configurable rotating speed
- Configurable with turnout keys or by DCC CV Programming
- Connection to digital power
- Power supply from the track or a separate transformer

Four familiar RC modelling servos can be connected to the new Servo decoder to build a silent and inexpensive basis for many applications. The servos can be used by the railway modeller as drives for turnouts, signals and booms at level crossings, moving a water crane or opening a door.

The additional switch outputs can be used for changing the polarity of a turnout frog.

Using simple key programming, Motorola and DCC Centers can be used to set the address, the end positions and the turning speed for each servo. When using a DCC center such as the Intellibox you can configure all the Parameters with CV programming.

Part No. 67 810 Servodecoder



Example of Use



The Standard Servo operates a boom gate.

Servos

In two different Variations

Mini Servo



- With Accessories and mounting materials
- With setting wire, 2 x 0.4 mm and 1 x 0.6 mm, 100 mm each

Dimensions 20.0 x 17.6 x 8.0 mm
Torque 4 Ncm

Part No. 81 410

For use in confined spaces and where only low torque is needed.

Standard Servo



- With Accessories and mounting materials
- With setting wire, 2 x 0.4 mm and 1 x 0.6 mm, 100 mm each

Dimensions 22.2 x 20.0 x 11.1 mm
Torque 13 Ncm

Part No. 81 420

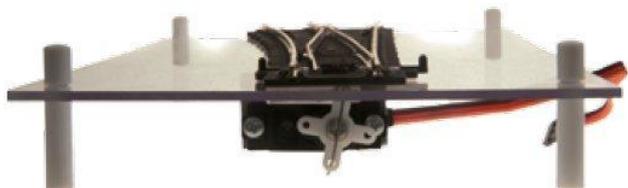
For general use e.g. turnouts.

Example of Use

The Mini servo operates engine shed doors.



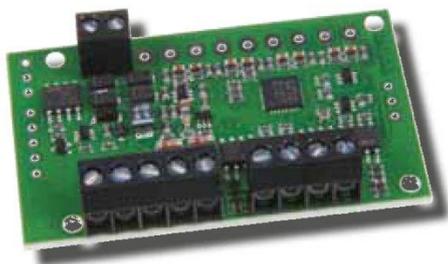
The digital servo opens a rubbish dumpster



The Mini servo operates a turnout.

Function model decoder

For 2-motorised Function models



- For Märklin or DCC Digital systems and analogue operation
- 14 or 28 Speed steps
- 2 Motor and 4 Function outputs
- Switch Functions with the function keys

All Function outputs configurable for timed operations, blinking and dimmable

- Configurable with DCC CV programming or with a Motorola Digital Center
- Loads up to 1 A

The stationary decoder for installing in functioning models (e.g. Crane models) has two outputs for motors and four additional switched outputs. Each motor output can be switched on and off by any desired special function. The speed can then be set by the speed controller.

Function models with more than two motors can be controlled by a number of decoders with the same locomotive address. This decoder is also used in our gantry crane.

Part No. 67 900 Function model decoder

Mot **DCC** **-AC** **=DC**

Example of use



*Uhlenbrock Gantry Crane,
Part No. 80 000*



Model Railway Lighting



IntelliLight

Don't remain in the Dark

IntelliLight — the Model Railway Lighting

Who doesn't know the beautiful model railway layouts which are illuminated by fluorescent or halogen lamps and do not show a correct impression of a landscape in the daylight? With IntelliLight you get realistic lighting for your model railway layout. IntelliLight illuminates your layout taking into account the time of day and the weather.

- Change between day and night
- Different lighting situations: clear sky, cloudy appearance, rain and thunderstorm
- With a photo-flash and IntelliSound module: "rain and thunderstorm"
- Usable in analog and digital layouts
- IntelliLight is powered with a normal model railway transformer
- The modular construction can be individually adapted to each layout

The day in the model railway layout begins with dawn. The sun then rises after a magnificent morning red. The sun then goes down after an eventful day, and the moon then washes the entire layout in a mysterious silvery light.

According to the weather conditions there is radiantly beautiful or gloomy weather. Now and then it rains or a thunderstorm develops and it flashes and thunders.

The day's routine is started when switching the layout on with an adjustable timer. The type of lighting depends on the time and cloudy appearance. Thunderstorms and rain appear according to a random number generator or by the push of a button.

Depending upon the programming, a day passes in 24 hours or up to 20 times faster, therefore in approximately 1¼

hours. The lighting can be switched manually or controlled automatically according to time.

All time periods are pre-programmed and can be changed in duration and intensity according to one's own wishes by LNCV programming.

For digital or analogue Layouts

Our IntelliLight lighting system is powered by a separate model railway transformer. In combination with a digitally controlled model railway facility, which is controlled by a digital center, with LocoNet interface (Intellibox, TwinCenter or Piko Power box), it is connected to the LocoNet. Then the day/night transitions, as well as the meteorological phenomena can be triggered by instruction via LocoNet. The lighting can be controlled by the push of a button from the control center. Furthermore it is possible for IntelliLight

to switch the road or house lighting that is installed on the layout, on and off at the correct time.

The configuration of the IntelliLight is programmed from the digital center using LocoNet programming. So all timing can be changed according to one's own wishes.

If IntelliLight is used with a model railway without LocoNet (analog or digital), then it is possible to attach key switches to the system with which it can be controlled. If such layouts are also fitted with LocoNet switch module 63 410 and the light system and the lighting for roads and houses are connected, then these can be switched on and off at the correct time.

Morning or Evening



The Components

Base Unit

Electronic controller, two white, one red and one blue CCFL tube and as well as a Halogen lamp. For connecting any number of expansion units.

Includes two end caps

Size (L x B x H): 600 x 105 x 66 mm.

Power consumption: approx. 28 VA.

Expansion unit white

Four white tubes and one Halogen lamp.

Includes joining pieces and cables

Power consumption: approx. 43 VA.

Expansion unit colour

Two white, one red and one blue CCFL tube and a Halogen lamp.

Includes joining pieces and cables

Power consumption: approx. 27 VA.

Expansion unit Lightning and Sound

One unit with strobe lamp and one unit with loud speaker and IntelliSound Module »Rain and Thunder«.

Includes joining pieces and cables

Power consumption: approx. 1 VA.

Expansion unit Empty channel

Three units for lengthening the lighting.

Includes joining pieces



Part No. 28 000 Base Unit, 60 cm



Part No. 28 010 Expansion unit white, 60 cm
Part No. 28 020 Expansion unit colour, 60 cm



Part No. 28 110 Expansion unit Lightning & Sound, 2 x 20 cm
Part No. 28 150 Expansion unit Empty channel, 3 pieces at 20 cm



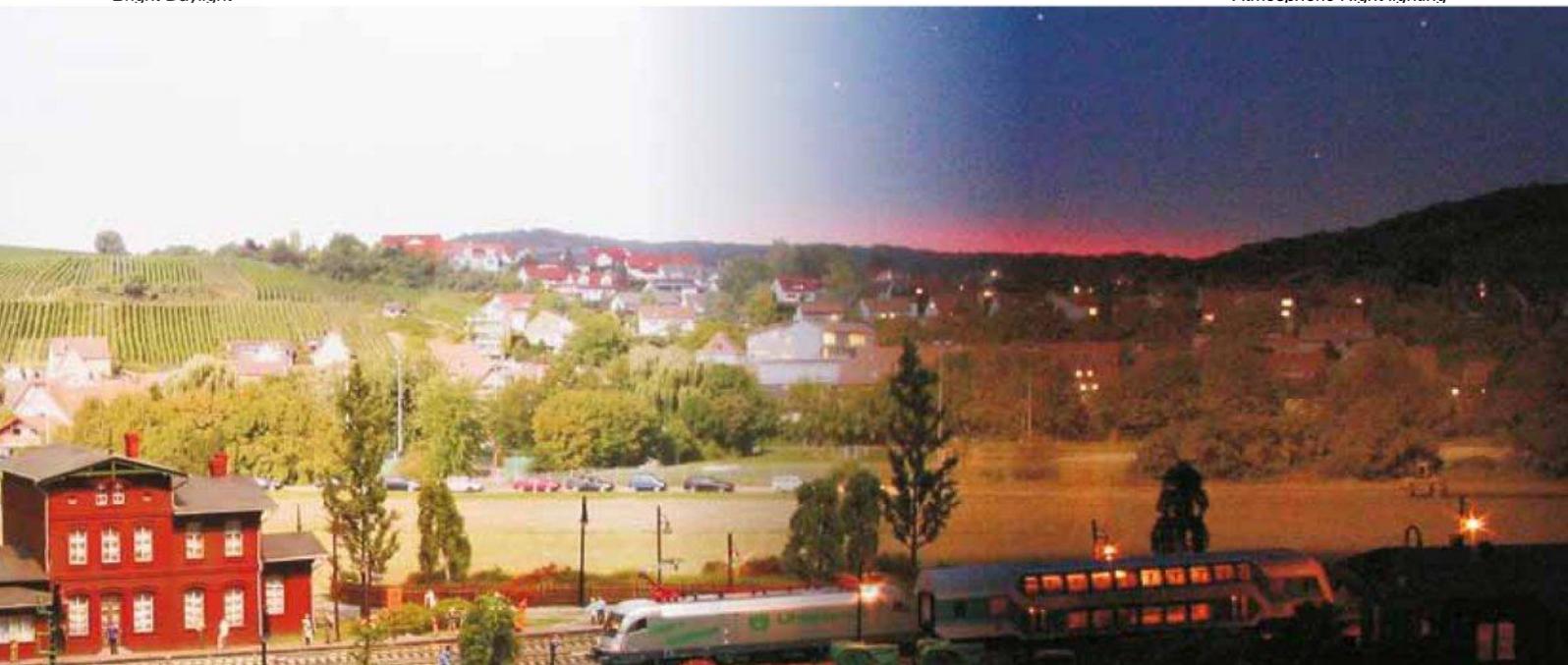
Part No. 28 190 End caps, 2 pieces



Lighting unit from the layout photographed below. All units were connected together and mounted at a height of 1 m above the layout at an angle of 45°. That way not only the layout is illuminated but the background is optimally lit also. For the layout of approx. 2.5 x 1 m a Basic unit and two Expansion units white with an Expansion unit »Lightning & Sound« were combined. As a power supply a 150 VA-Transformer (Part No. 20 150) was used.

Bright Daylight

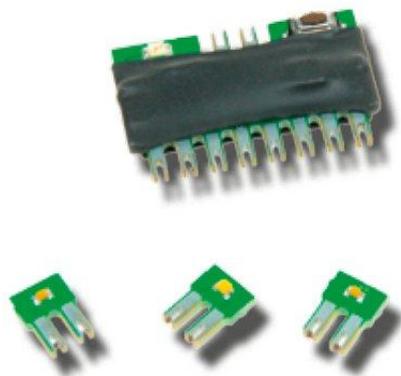
Atmospheric Night lighting



LED-Effect Lighting

Provides meaningful lighting scenes

Previously, lighting lamps in houses and layout scenes was very static. With our modern LED technology you can now light up your scenes realistically



- Control electronics with 4 warm-white LEDs
- for digital and analog operation
- 4 outputs for up to 5 LEDs in each case
- each output is separately digitally controlled by solenoid instruction
- DCC and Motorola
- Random number generator for each output

- Welding light effect
- Flicker lighting for televisions, fires and fire-place
- Blinking light
- Fluorescent lamp simulation
- Flow control for all outputs
- Also switchable with IntelliLight
- Simple plug system for connection

LED Effect Lighting for complete houses or individual windows. Control electronics with four outputs for up to five LEDs. Naturally you can also attach individual lanterns which are equipped with LEDs.

Each output can be separately switched in the DCC/Motorola Digital operations and by a random number generator, a blink generator or a welding light generator. Simple Plug system for connecting the LED boards, in each case populated with one LED, to control electronics.

The LED Effect Lighting is for the lighting of model railway houses, individual office floors or single rooms.

With its high luminosity and thinness the LED Effect Lighting is also well suited for illuminating half relief buildings like those available from JOWI.

The electronics included switch the lights on and off in random pattern in the individual areas.

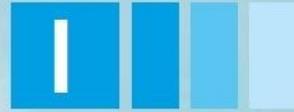
With the optionally available auxiliary PCBs with red, blue and white LEDs and the integrated effect generator it is possible to reproduce chimney fire and welding light.

Also the bluish glow of current TV equipment can be represented for the amateur craftsman who will surely think of many more application possibilities.

Aluminum foil can be used as a reflector and for additional lighting effects.

- Part No. 67 400 LED Effect lighting with 4 LED PCB warm white
- Part No. 67 410 4 LED-PCB weiß (fluorescent tube)
- Part No. 67 411 4 LED PCB warm white (Light globe)
- Part No. 67 412 4 LED- PCB blue (welding light)
- Part No. 67 413 4 LED PCB red (Fire)





When the Power goes off

Booster and Transformers for powering the Model Railway layout

A model railway layout with a lot of train traffic quickly reaches the transformer's capacity. In order to operate a larger number of vehicles, a booster which is powered by its own transformer is used.

Power 2

The small Booster



The Power 2 can be used as an additional booster in a digital system, which is controlled by an Intellibox or TwinCenter.

Power 2 can also be used as booster with LocoNet devices and is controlled via LocoNet.

- Booster for Digital centers with LocoNet or Märklin connection
- Control system for conventional DC locomotives together with a driving desk or a hand control with LocoNet interface e.g. DAISY, FRED or IB-Control

- Auxiliary amplifiers for a further electric circuit in the analog system
- Booster for operating turnouts and signals in DCC data format
- Power output 2 A
- Adjustable output voltage 15-18V

Together with the DAISY hand control, the Power 2 builds a system which can control conventional analog layouts. In the digital system it provides all the functions of a digital system,

The connection of transformers and track output is simple using screw connectors.

Part No. 63 200 Power 2

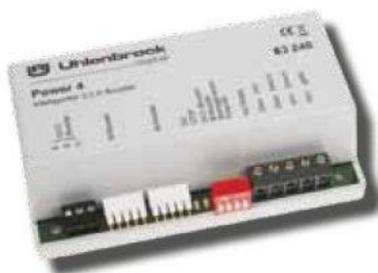
Part No. 62 010 Replacement LocoNet cable



Together with a IB-Switch or a Switch-Control, the Power 2 can switch turnouts and signals in a DCC system without a digital center (see page 33) and makes an easy to wire turnout and signal controller for an analog or digital layout.

Power 4

The universal Booster for almost all Digital systems



The LocoNet capable power 4 is higher performance multi-protocol booster. Multi-protocol means it can be installed in the 2-rail and 3-rail operations for DCC, Motorola, mfx, Selectrix and FMZ.

It makes a further 3.5 A output current available to the layout. The output of the device is protected against overload.

- Genuine multi-protocol booster for the DCC, Märklin-Motorola, mfx, Selectrix and FMZ data formats
- Compatible with centers from Uhlenbrock, Märklin, Fleischmann, Piko, Lenz, ESU, Viessmann etc.
- Maximum output current 3.5 A
- Switchable to DCC brake generator mode

- With output for reversing loop relay
- LocoNet capability which makes it particularly suitable for modular layouts
- Short circuit overload protected
- Connections: LocoNet B, DCC Booster, Märklin Booster
- Configuration by switches and vwith LocoNet CV programming

The Power 4 can be configured with the built-in switches. More options are available when configuring via the LocoNet.

In DCC systems the Power 4 can be used as a brake generator. Depending upon the preset delay and the decoders used, the locomotives brake in the section true to the prototype. As many brake sections as desired can be connected.

If the Power 4 is operated in conjunction with an Intellibox II error messages are displayed in the plain language on the Intellibox display.

One or more reversing loop modules (presently under development) can be connected to the Power 4.

Part No. 63 240 Power 4



Where do I take all the power from?

Every model railroader who uses the larger track gauges knows this question. The solution is called Power 7! Small, powerful, price effective and highly intelligent!

Power 7

The Power pack for large track gauges



- Genuine multi-protocol booster for DCC, Motorola and mfx data format compatible with Centers from Uhlenbrock, Märklin, Fleischmann, Piko, Lenz, ESU, Viessmann etc.
- Maximum output current 7 A
- Configurable to DCC brake generator mode
- With reversing loop output
- LocoNet capable, therefore particularly suited to module layouts
- Short circuit and overload protection
- Connections: LocoNet B, DCC booster, Märklin Booster
- Configured by switches and LocoNet CV programming

The LocoNet equipped Power 7 is a high performance multi-protocol booster for scales O-IIm and is suitable for the DCC, Motorola, mfx data formats.

It provides a further 7A output current for the layout. The device's output has short circuit and overload protection.

The Power 7 can be configured with the built-in switches, but you have greater flexibility, however, when programming the settings via the LocoNet.

If the Power 7 is used in conjunction with an Intellibox II, error messages are shown in the plain text on the Intellibox display.

In DCC systems the Power 7 can be used as **brake generator**. Depending upon the preset characteristics of the locomotive decoder brake settings the locomotives will slow and stop in prototypical fashion in the braking section. As many brake section as desired can be connected.

One or more reversing loop relays can be connected to a Power 7.

We recommend our 150VA Transformer (Part No. 20 150) for powering the unit.

Part No. 63 270 Power 7



Important Note

Power 7 and the 150VA transformer are only suitable for operating layouts of the large scales O-G and are not to be used with smaller scales under any circumstances!

Reversing Loop Relay



To operate several reversing loops you can connect several reversing loop relays to a Power 4 or Power 7. The reversing loops can then also be separately monitored by feedback modules 63320 or 63340.

Part No. 61 080 Reversing Loop Relay

70 VA Transformer



Universal transformer for Digital systems and DC or AC layouts. Three quick connect terminals on the low voltage side provide for simple connection.

With electronic protection against feedback to avoid dangerous contact voltages on the primary side.

- Output voltage 12V~ and 15V~
- Max. 4.66 A
- Reverse voltage protection
- Over temperature and overload protections

Part No. 20 075 70 VA Transformer

150 VA Transformer



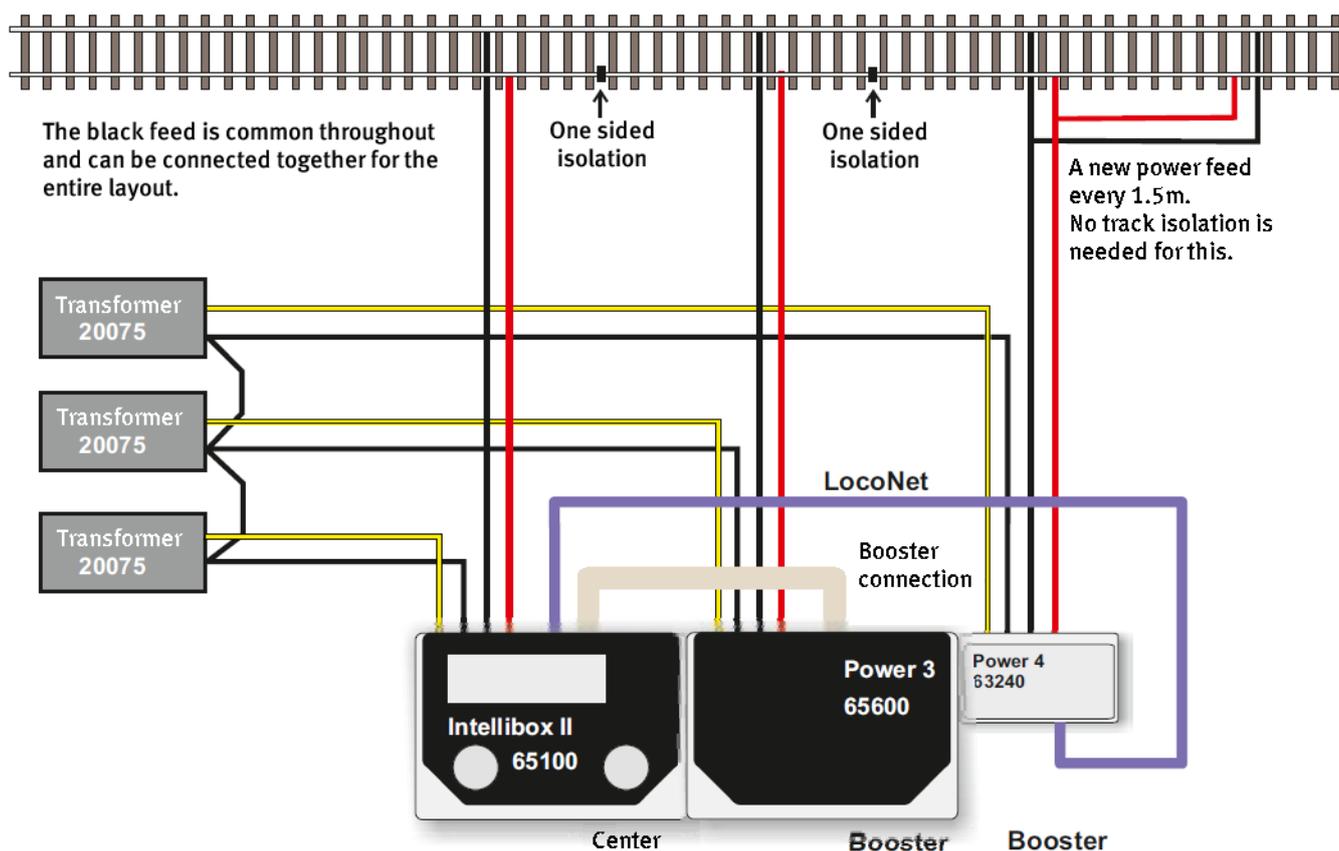
Transformer for large Scales, for connecting of Power 6, Power 7 and IntelliLight. Connection is done with screw terminals.

With electronic protection against feedback to avoid dangerous contact voltages on the primary side.

- Output voltage 17V~
- Max. 8.8 A
- Reverse voltage protection
- Electronic over temperature and overload protections
- Power switch with light

Part No. 20 155 150 VA Transformer

Connection example: Digital layout with a number of Transformers



Decoder



IntelliDrive

Experience pays!

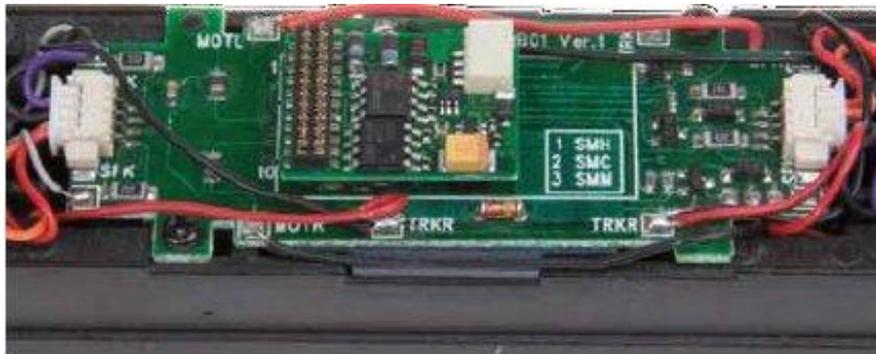
Intelli Drive - Digital decoder

The digital decoder is the brain of your locomotive. It determines the handling characteristics and switching possibilities. A cheap decoder can quickly ruin enjoyment of the train. Intellidrive decoders are at the peak of technology and guarantee you optimal handling characteristics.

In our extensive program you will find a suitable decoder for your locomotive. The pin allocation of the MTC and PluX interfaces are found on page 57 of this catalog.



The Decoder 76 425 in a Piko BR 119 DR



The inside of a Hobbytrax DE3650 with a 76 330 Decoder

Uhlenbrock digital decoders can be used with all manufacturers' DCC centers of and all Märklin centers. The exception is the 75 000 decoder which is made specifically for Märklin.

In the DCC operation the decoders can be run with 14, 27, 28 or 128 speed steps. They can be set to long addresses, having an address range from 1 – 9999.

In the Motorola operation the decoders have an address range from 1 – 255, whereas with the Märklin centers 6020 and 6021 only 80 addresses are available.

The decoders are programmable with Motorola and DCC centers in all common programming modes.

The decoders control the locomotive motor with load regulation using a motor voltage modulated with a high frequency of 18.75kHz. This results in extremely smooth engine running and makes operation of bell armature motors possible. Minimum speed, maximum speed and starting brake delay are programmable. On some decoders the direction dependent light outputs are dimmable and so are the special function outputs. An adjustable shunting mode makes very fine speed control in the low-speed operating range possible. Ranking mode and start/stop brake inertia can be switched on and off with function keys.

For an automatic deceleration in signal sections the Märklin brake section or the DCC compliant brake signal can be used, which for examples the Boosters Power 4 and Power 7 generate.

All decoders with SUSI interface, 4 way mini socket allow the connection of sound modules and LISSY mini transmitter.

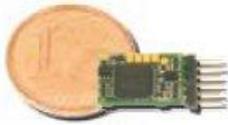
All H0 decoders can be used on analogue DC or AC systems. The used DCC data format conforms to the NMRA DCC standard and is compatible with all NMRA compliant DCC systems.

Address, driving direction and speed are permanently stored in the digital operations. All decoders can be programmed once installed.

Uhlenbrock decoders have updatable Flash Memory. They are protected from overheating and the multi-protocol decoders also have short circuit protection.

The latest chip technology provides for a very low heating factor and for trouble-free running even with short power interruptions such as dirty track and on turnouts.

Intelli Drive - Digital decoders for N, TT, H0e and small H0 Locos

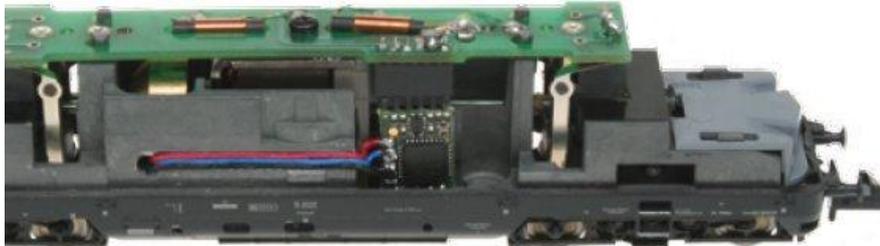


73 410 with 6 way NEM 651 plug

Our decoder 73400, and connecting cables and 73 410 and the 6-way NEM 651 connector, are suitable for the smallest locomotives.

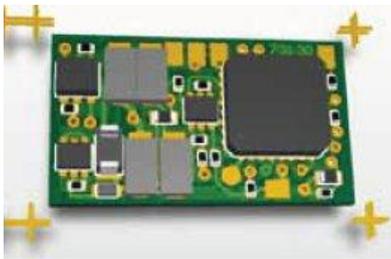
They are characterised by high efficiency and a small size. With the integrated protection mechanisms these decoders are robust in spite of their small size.

The standard decoder for small rail gauges is the 73 100 series. Here additional functions can also be realized. A variant with the new PluX-12 interface is also available. This can be used to modify Tillig locomotives, for example.

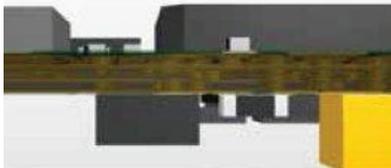


The 73 100 decoder during the Construction phase:

The 73 410 in a Fleischmann N V 200



Here, the components with size 0.5 x 0.3 mm, which are barely visible with the naked eye, can be clearly seen. Also the tracks of 1/8 mm and 0.3 mm drilling are particularly small.



A look into the circuit board illustrates its complexity. The 0.6 mm thick circuit board has 4 layers with plated holes. The holes can be through holes or blind holes or even only in the inner layers.



73 100 as finished product

Part Number	73100	73110	73140	73400	73410
Suited for					
Guage	N-TT-H0e-H0m	N-TT-H0e-H0m	N-TT-H0e-H0m	N-TT-H0e-H0m	N-TT-H0e-H0m
Data Format	DCC/Mot.	DCC/Mot.	DCC/Mot.	DCC/Mot.	DCC/Mot.
DC operation	yes	yes	yes	yes	yes
Outputs					
Constant current	0.7A	0.7A	0.7A	0.5A	0.5A
Motor peak current	1.5A	1.5A	1.5A	1.0A	1.0A
Light & Special functions	0.4A	0.4A	0.4A	0.25A	0.25A
Dimmable light outputs	yes	yes	yes	yes	yes
Additional function outputs	2	no	2	no	no
Time controlled function outputs	no	no	no	no	no
Function Mapping	no	no	no	no	no
SUSI Sound Interface	Solder pads ¹⁾	Solder pads ¹⁾	Solder pads ¹⁾	Solder pads ¹⁾	Solder pads ¹⁾
LISSY Outputs	Solder pads ¹⁾	Solder pads ¹⁾	Solder pads ¹⁾	Solder pads ¹⁾	Solder pads ¹⁾
Characteristics					
Addresses DCC/Mot	9999/255 ²⁾	9999/255 ²⁾	9999/255 ²⁾	9999/255 ²⁾	9999/255 ²⁾
Speed steps DCC/Mot	128/14	128/14	128/14	128/14	128/14
Load regulation	yes	yes	yes	yes	yes
Programmable motor characteristics	no	no	no	no	no
Shunting gear	yes	yes	yes	yes	yes
Start/brake Inertia	yes	yes	yes	yes	yes
Short circuit protection	yes	yes	yes	yes	yes
Over temperature protection	yes	yes	yes	yes	yes
Updatable	yes	yes	yes	yes	yes
Error buffer	75mm cable	6 way plug	PluX-12	75mm cable	6 way plug
Dimensions	14.7x8.6x2.4	14.7x8.6x3.9 ³⁾	14.7x8.6x3.2 ³⁾	10.8x7.5x2.4	12.5x7.5x2.8 ³⁾
Notes	Solder pads for sound modules and LISSY mini receiver.	Solder pads for sound modules and LISSY mini receiver.	Solder pads for sound modules and LISSY mini receiver.	Super small. With solder pads for sound modules and LISSY mini receiver.	Super small. With solder pads for sound modules and LISSY mini receiver.

¹⁾ SUSI and LISSY can be used

²⁾ With the Märklin centers 6020 and 6021 only 80 addresses can be used

³⁾ Size without connector

Intelli Drive - Digital decoders for H0 Locomotives

We offer a suitable decoder for all applications. Irrespective of the interface that is used, inexpensive basic decoders are also in the range, like decoders which offer all options of a digital system. Many are with SUSI Interface to which a sound module can be connected.

Many Märklin locomotives are fitted with a universal motor which can be recognised by the field coil. These motors can not be driven by a normal decoder without motor conversion. We have two decoders in the range (red columns) which can drive these motors without conversion. The 76 200 is even equipped with load regulation.

Part Number	75 000	76 150	76 200	76 320	76 330	76 425	76 560	77 500
Suitable for								
Data format	Mot.	DCC/Mot.	DCC/Mot.	DCC/Mot.	DCC/Mot.	DCC/Mot.	DCC/Mot.	DCC/Mot.
Track gauge	H0	TT-H0e-H0m-H0	H0	N-TT-H0e-H0m	H0	N-TT-H0e-H0m	N-TT-H0e-H0m	0-I-II
Motor type	Märklin Universal	DC Bell armature	Märklin Universal	DC Bell armature	DC Bell armature	DC Bell armature	DC Bell armature	DC/Bell
Analogue Operation	~	=/~	=/~	=/~	=/~	=/~	=/~	=/~
Outputs								
Motor power load	1.2A	1.0A	1.2A	1.0A	1.0A	1.0A	1.0A	3.0A
Motor Peak current	1.0A	2.0A	2.0A	1.0A	1.0A	2.0A	2.0A	50A
Light and Special functions	0.95A	0.25A	1.0A	0.65A	0.65A	0.4A	0.4A	1.0A
Dimmable lighting	no	yes	yes	yes	yes	yes	yes	yes
Aux. special function outputs	no	2	2	no	2	2	7	yes
Time controlled special function	no	no	no	no	no	from Ver. 24	n.a.	yes
Function mapping	no	no	yes	no	no	yes	yes	yes
SUSI connector	no	Via Socket ¹⁾	yes ¹⁾	no	yes ¹⁾	yes	Via Socket ¹⁾	yes
LISSY output	no	Via Socket ¹⁾	yes ¹⁾	no	yes ¹⁾	yes	Via Socket ¹⁾	yes
Characteristics								
Addresses Märklin/Uhlenbrock	-/255 ²⁾	9999/255 ²⁾	9999/80 ²⁾	9999/255 ²⁾	9999/255 ²⁾	9999/255 ²⁾	9999/255 ²⁾	9999/255 ²⁾
Speed steps Motorola/DCC	-/14	128/14	128/14	128/14	128/14	128/14	128/14	128/14
Load regulation	no	yes	yes	yes	yes	yes	yes	yes
Programmable motor character.	no	no	yes	no	no	yes	yes	yes
Shunting mode	no	yes	yes	yes	yes	yes	yes	yes
Start/stop inertia	no	no	yes	yes	yes	yes	yes	yes
RailCom	no	no	no	no	no	yes	yes	no
Motor frequency	normal	high	high	high	high	high	high	high
Short circuit protection	no	yes	yes	yes	yes	yes	yes	yes
Updatable Flash memory	yes	yes	yes	yes	yes	yes	yes	yes
Error buffer	yes	yes	yes	yes	yes	yes	yes	yes
Connection	cable	PluX 16	cable	8 way plug	21 MTC	Cable/8way plug	PluX 22	Screw terminal
Dimensions in mm.	35x19x5	20x11x3.8 ³⁾	33.5x19x5.5	19x16x5	20.5x15.4x5	22x12.5x5	22x15x3.8 ³⁾	68.5x28 x12
Note	Reversing switch and Decoder for the original Märklin motor with field coil.	Fits on the Pick-up Switch 71 750.	Decoder with load regulation for the original Märklin motor with field coil.	Low priced. With load control.	Low priced. with load regulation. For locos with 21-pin MTC interface	Small H0 decoder.		Large train decoder with 8 special functions and built-in shuttle train control.

1) SUSI and LISSY can be used

2) With the Märklin centers 6020 and 6021 only 80 addresses can be used

3) Size without connector



Märklin BR 012 with a 76 200 decoder

IntelliDrive - Digital decoders for Locos of Gauge 0, I and II m

The small strength package



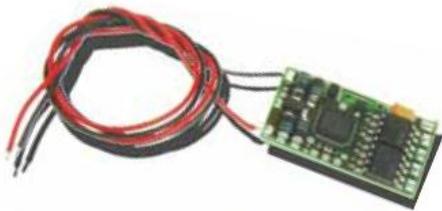
77 500

The compact dimensions and high efficiency are its strength. The technical data is in the table on the previous page. Additional features:

- All Special functions can also be switched with an LGB control device.
- It is also possible to connect the older LGB sound modules by the output of the LGB pulse train from output A1
- Shuttle operation and intermediate stop or INDUSI using a locomotive reed contact and track magnets
- Adjustable: travel direction or time limited switching of outputs A1 to A8

Part No. 77 500 Large Gauge Decoder

IntelliDrive Function – Function decoders



76 900



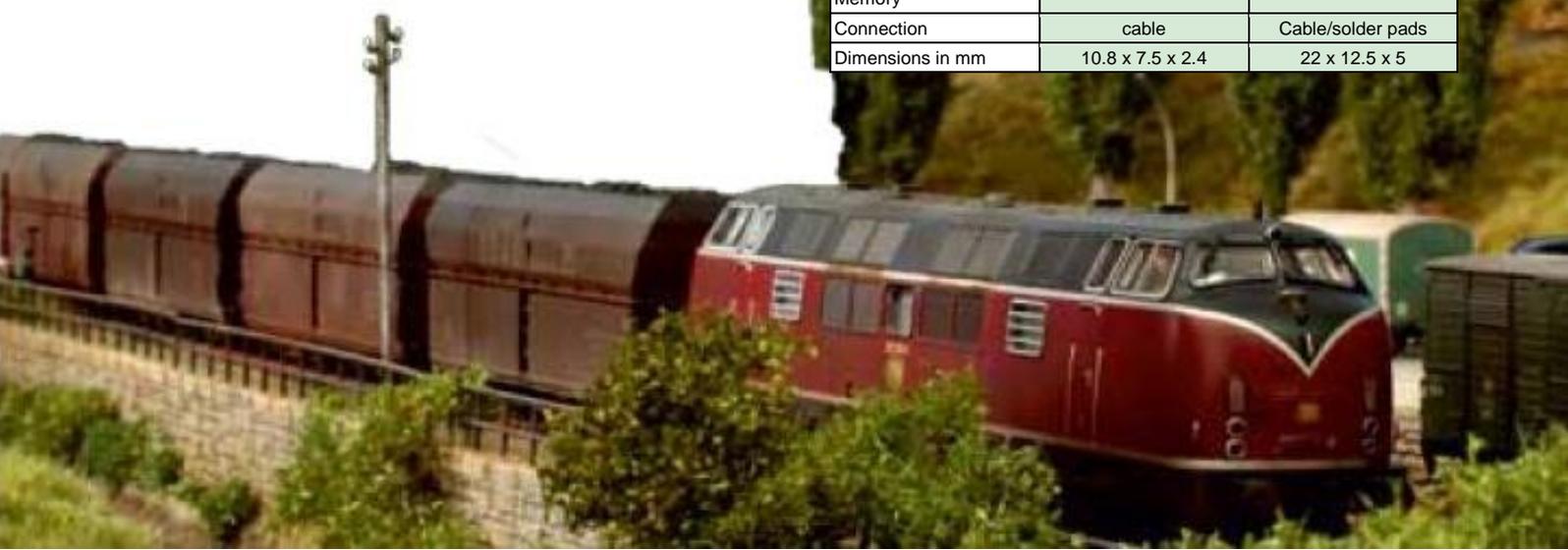
73 900

Uhlenbrock function decoders have 4 function outputs for Motorola and DCC. They support the Function Mapping of 32000 functions.

All outputs can be direction of travel dependent, flash or dimmed. Flash frequency and level of Dimming are adjustable.

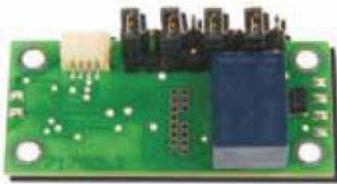
Art.-Nr. 73 900 Mini-Funktionsdecoder
Art.-Nr. 76 900 Funktionsdecoder

Part Number	73 900	76 900
Suitable for		
Data format	DCC/Mot.	DCC/Mot.
Track gauge	N-TT-Hoe H0m-HO	HO-II m
Outputs		
Maximum Current load	0.6A	1.2A
Function outputs	4	4
Selectable Direction dependant outputs	yes	yes
Dimmable Outputs	yes	yes
Function Mapping	yes	yes
Number of possible functions	32000	32000
Blink generator	1	1
Characteristics		
Addresses Märklin/Uhlenbrock	80/9999	80/9999
Analog operation	=	=
Short circuit protection	yes	yes
Updatable Flash Memory	no	yes
Connection	cable	Cable/solder pads
Dimensions in mm	10.8 x 7.5 x 2.4	22 x 12.5 x 5

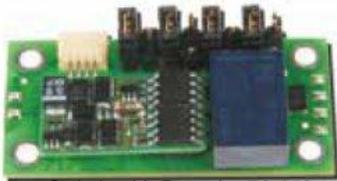


Pickup Switch

For Railcars with two Pickups



71 750 Picku Switch



Pickup Switch with Decoder 76 150

With rail cars that have two pickups it is essential to always take power from the front pickup otherwise the correct stopping at a red signal will not happen.

The Pickup Switch 76 150 ensures that the power always comes from the front pickup, as seen from the travel direction.

The Pickup Switch is intended for space saving installations in vehicles with solder connections for front and rear pickups, motor, front and rear light and f1, f2.

Decoder 76 150 is used and can be simply fitted onto the pickup switch.

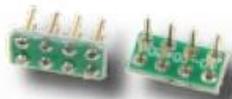
Part No. 71 750 Pickup Switch

Digital-Schnittstelle

For rapid Decoder change



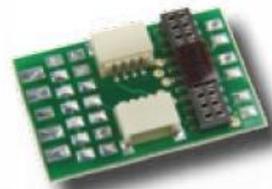
71 621



71 651



71 641



71 680

A digital interface turns the digitization of locomotives into child's play.

The sockets are installed into the vehicles. The plugs are soldered on to the module, e.g. a digital decoder or a reversing switch. So later, a repair or the conversion to digital is simple and is literally done in seconds. Our interface plugs and sockets conform to the NEM 652 standard.

For the retrofit of PluX-Decoders the new interface board 71 680 is available. It offers a SUSI socket as well as a PluX-22 socket and pads for soldering the connecting wires.

Part No. 71 621 5 pieces 8-pin Socket with 175 mm Cables

Part No. 71 651 5 pieces 8-pin plug

Now also for PluX-Decoder

Part No. 71 680 PluX-22 interface board

PluX 22 Decoder mounted on PluX Interface board 71 680

Motor Suppressor Kit

To remove motor EMI in digital locomotives

In principle all electric motors cause interference, which can change the data communication in such a way that normal operation is no longer possible.

With new locomotives the motor is screened as a rule. Older makes must be re-tooled with the appropriate electronics construction units.

The engine screening kit consists of one capacitor, 2 induction coils and fitting instructions and can be used with all H0 locomotives.

Part No. 71 500 Motor Suppressor kit

Small Lexicon for Digital decoders

Digitaldecoder

Digital decoders are electronic building blocks that are installed inside the vehicles, which receive and decode the digital signal that is sent by a digital control centre via the rail, and then carry out the command. So that you find the best decoder for your model train, our decoders come in various styles and sizes.

Vehicle decoders: are built into locomotives. They control the motor, and in some cases, other functions as well, e.g. light or sound. Function decoders control special functions such as light, sound or smoke.

The selection of a decoder depends on the center used (Motorola or DCC), the motor type used (AC or DC motor) and the current required.

Function decoders: in contrast to vehicle decoders, function decoders do not control the movement of the vehicle. They control auxiliary functions like horn, whistle, light, smoke and electrical couplings. The outputs of function decoders can be direction of travel dependant, dimmable or flashing. Newer function decoders support the Function Mapping of 32000 functions.

Stationary decoders are switch or solenoid decoders with which turnouts, crossing barriers or signals can be controlled (see page 32). The selection of a decoder depends on the operating mode used (2- or 3-rail), which center is used (Motorola or DCC), the motor type used (AC or DC motor) and the necessary current.

Data format

The data format is the language which the decoder understands. Märklin uses the »language« Motorola and MFX, whereas in 2-Rail systems (Roco, Fleischmann, Trix, Rivarossi, Arnold, Lenz) the DCC Format is prevalent. Additionally the Data formats FMZ and Selectrix should be mentioned - they were developed and used by Fleischmann and Trix respectively earlier on.

If a decoder understands at least two data formats, it is known as a Multi-protocol decoder.

Track Gauge + Decoder

The indication of the track gauge is only a general indication. Decoders are not for a gauge but for a particular current load. Small gauge usually also means lower power consumption. Decoders indicated for a certain gauge can also be used in other gauges if the locomotive motor does not exceed the maximum permissible current of the decoder.

Motor type

Universal motors are found in locomotives from Märklin or Hag in the 3-Rail AC systems. The motors possess drum or disk commutators. A change of the motor technology is not necessary with the use of our decoders, because these work with the original field coil.

Direct current motors are distinguished by magnets which produce a constant magnetic field independent of the operating voltage. By a change of the two (DC voltage) potentials in the rails a change of the rotation direction is produced. One finds this type of motor in nearly all 2-Rail systems.

Bell armature motors strictly speaking are DC motors. To optimize performance the iron core of the armature windings was replaced by plastic. Therefore it is also called an "ironless" bell armature engine.

For control of this type of motor, a higher frequency is needed. It therefore runs more quietly and has a longer life.

Motorstrom See Track Gauge.

Light and Special function outputs

The light and special function outputs of a decoder are switched by the function keys on the digital center. In DCC Systems up to 32 000 Special functions per locomotive are possible.

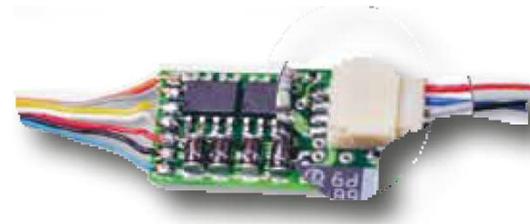
Each output may be loaded up to the stated value. However, ensure that the entire load of the special function outputs does not exceed the maximum load of the decoder.

Function Mapping

With older decoders the special function keys are permanently assigned to certain outputs. With the help of Function Mapping individual allocation can be made.

SUSI Interface

Sound modules or modules for auxiliary functions can be connected to a digital decoder with the SUSI interface. The IntelliSound modules can be attached here.



LISSY Output

Decoders with LISSY output produce the signal for the individual locomotive control system LISSY. The LISSY mini transmitter module 68 400 can be directly connected to such decoders.

Address Range

Uhlenbrock decoders operated in the Märklin Motorola format extend the address range to 255 addresses when used with the DAISY system and the Intellibox for almost all decoders. With Märklin centers only the usual system-limited 80 addresses are usable.

In the DCC operation an address range from 1 to 9999 can be used.

Speed Steps

The more speed steps a decoder has the finer the speed can be controlled. Märklin Motorola (old and new) always works with 14 speed steps. DCC decoders can be adjusted to 14, 27, 28 or 128 speed steps.



Load Regulation

Decoders with load control retain locomotives at a constant speed on long runs, independent of upward gradients and track curves or the number of attached railroad cars.

Programmable Motor Characteristics

Advanced Model railroaders can adapt the locomotive speed control by individually adjusting the motor characteristic as needed.

Shunting Mode

The so-called shunting gear of the locomotive is activated at will by the function key and causes a halving of the speed in the entire control range. Sensitive shunting control is thereby ensured.

Acceleration/Braking Delay

On take off and/or during the brake application the inertia control can easily be adjusted. That means that the vehicle accelerates or brakes slowly. The

behaviour of the model then simulates real life moving of large masses of trains.

f4 is programmed to switch start/stop inertia on and off, so that, e.g. when shunting, the vehicles can be controlled directly.

Analogue Operation

All Uhlenbrock decoders are able to automatically recognize a DC or AC voltage and are therefore able to operate on analog layouts as well. The different vehicles cannot be addressed separately. Functions like e.g. light, smoke, sound or telex coupling cannot be controlled from the control panel.

Short Circuit Protection

All Uhlenbrock decoders are protected from overheating and with the multi-protocol decoders all outputs are short-circuit protected.

Updatable Flash Memory

Uhlenbrock decoders are updatable by the Flash Memory.

Connection

The connection of the decoders is either by soldering connections or a plug connector. An overview of usable interface connectors is in the table below.

Memory function

All driving states, like driving direction, speed and the state of the function outputs, are stored in non-volatile memory so that the locomotive can overcome short power interruptions without having to start again.

NMRA Compliance

All DCC decoders conform to the NMRA DCC Standard. They can therefore be used with all NMRA compliant DCC Systems without reservation.

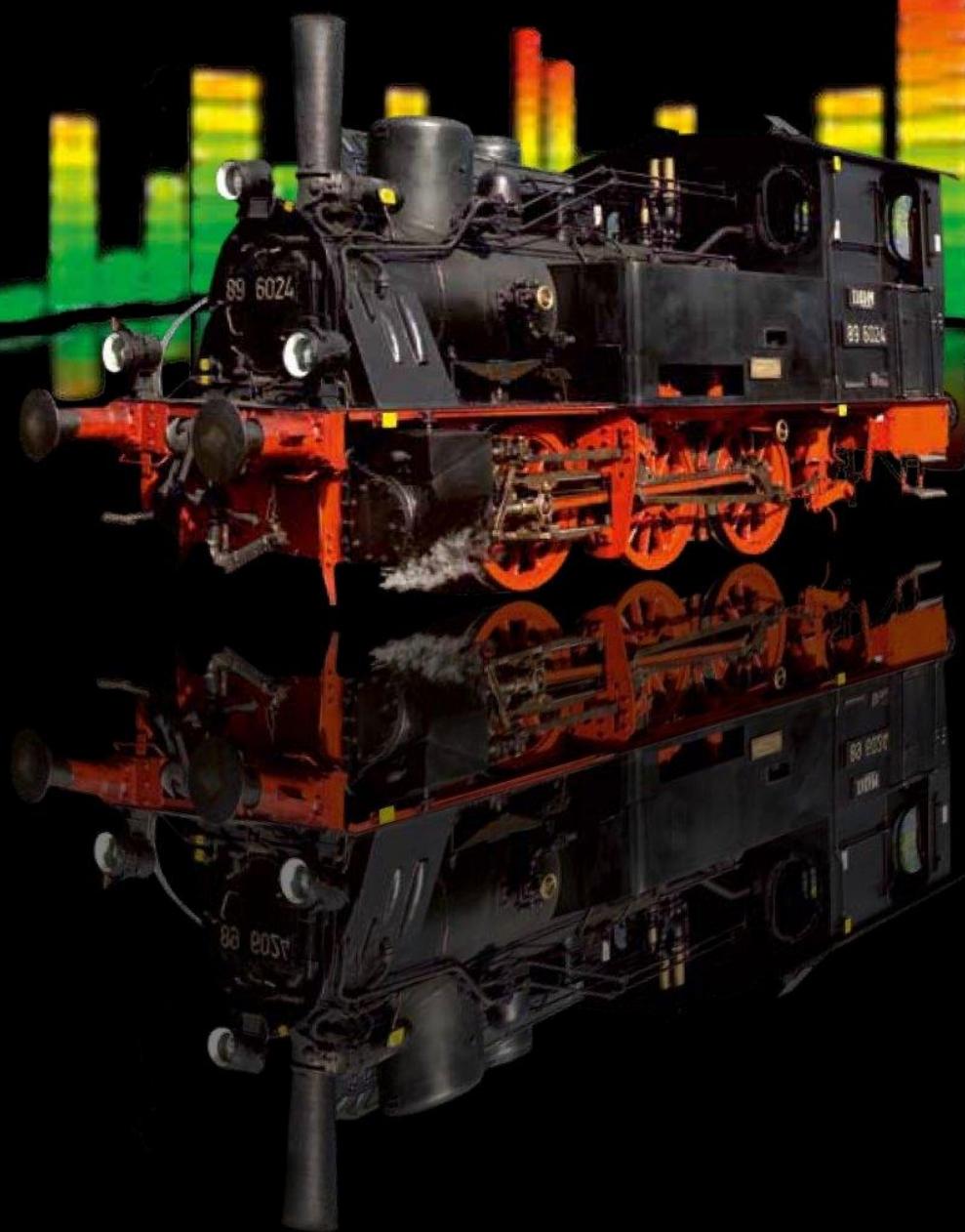
The Pin assignment of the various Decoder Connectors

Pin	NEM 651 6 way	NEM 652 8 way	MTC 21	Plux 8, 16, 22 (Description of the interface is on page 60)
1	Motor right	Motor right	Hall Sensor 1	General purpose input / output
2	Motor left	Rear light	Hall Sensor 2	Special function output 3
3	Right wheel	Auxiliary or vacant	Hall Sensor 3	SUSI Clock
4	Left wheel	Left wheel	Pick-up switch Control	SUSI Data Line
5	Front light	Motor left	SUSI Clock	Decoder GND (behind rectifier)
6	Rear light	Front light	SUSI Data Line	20V (behind rectifier)
7		20V (after rectifier)	Rear light	Front light
8		2 rail:Right Wheel/3 rail:Pickup	Front light	Motor Output 1
9			Loudspeaker Terminal A	20V (behind rectifier)
10			Loudspeaker Terminal B	Motor Output 2
11			Not used – Coding	Not used – Coding
12			Controller internal VCC	2 rail: right rail/ 3 rail: pickup
13			Special function output 5	Rear light
14			Special function output 4	2 rail: Left rail/ 3 rail: rails
15			Special function output 3	Loudspeaker Terminal A
16			20V (behind rectifier)	Special function output 1
17			Motor Output 3	Loudspeaker Terminal B
18			Motor Output 2	Special function output 2
19			Motor Output 1	Special function output 4
20			Controller GND (behind rectifier)	Special function output 5
21			2 rail: Left rail/ 3 rail: rails	Special function output 6
22			2 rail: right rail/ 3 rail: pickup	Special function output 7

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Locomotive Sound

K



IntelliSound

IntelliSound – how real the train sounds!

IntelliSound is the digital Sound System from Uhlenbrock/DIETZ.

IntelliSound is available as digital decoder with integrated Sound module and as Sound module for connecting to a SUSI interface of digital decoders.

The separation of decoder and sound into two very small units and in addition the extremely efficient small loudspeaker with metal diaphragm make IntelliSound also suitable in cramped space conditions.

The noises of the sound module are combined from three independent sound channels. The module can store up to 40 seconds of digitized original sound. An intelligent sound control gives a rich driving experience, just like a real train, by playing the separately stored original

sounds according of the different driving conditions.

The module can differentiate between the situations stop, acceleration, normal running, idle, deceleration, uphill and downhill driving.

Depending upon the situation the correct sounds are played automatically. e.g. on steam locomotives, coal shoveling and while stationary the hissing of steam cylinders and the injector can be heard. When starting, enormous steam chuffs are audible, in the no-load running, the noise of the free running connecting rods is heard. If the locomotive is braked then naturally the brake squeal is heard. When switching the locomotive on and

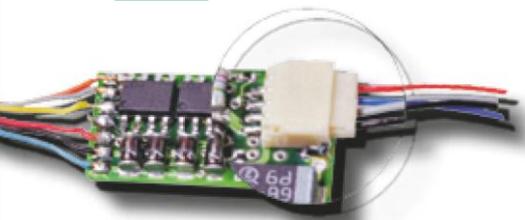
off the start up sounds are played e.g. with a diesel, the running up of the motor.

When switching the locomotive on and off the then starting of the engine and/or running out of the engine is heard with a diesel locomotive for example.

With each module three further sounds for dynamic driving are switchable. Depending upon vehicle type it could be a whistle, a bell, a horn or a pantograph lifter with an E-Loco.



SUSI – The universal Interface



SUSI - Serial User Standard Interface - is the new interface concept for the connection of auxiliary components to digital decoders, and is supported by several manufacturers. Locomotives, which have decoders with SUSI, can be easily fitted problem-free with sound and further special functions.

The separation of locomotive decoder and sound module can make it easier to fit into the (usually) small space in a locomotive.

SUSI Distributor Cable

A SUSI distributor cable is available with which 2 sound modules can be connected to one Decoder. The distributor can be used also as an extension cable.

Furthermore a locomotive can be fitted with sound at a later time, without having to change the locomotive decoder.

Our Multi-protocol decoders are fitted with a SUSI interface and are therefore prepared for the connection of the new IntelliSound modules.

Part No. 71 100 SUSI Distributer 70 mm,
1 Plug/2 Sockets

SUSI Interface in action:
Piko Talent 2with decoder 76425,
Sound module 32 300 and
Loudspeaker 31 180

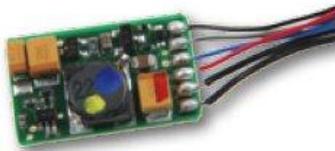


IntelliSound - Modules and Decoders

- 320 Second Sound buffer
- Own sounds can be added
- Sound dependant special function outputs
- 4 Channels can play simultaneously
- Function mapping to F28
- Hall sensor for wheel synchronization of puffs
- With SUSI interface
- Connection for storage capacitor



Voith Maxima mit
PluX22 Decoder, Soundmodul 32 300 und
Lautsprecher 31 140



Soundmodul 32 300



Sounddecoder 33 150



Sounddecoder 36 360



Sounddecoder 35 330

The new IntelliSound 3 modules and decoders are particularly characterized by their large sound buffer and their small dimensions. Now it is much simpler to convert small H0 locomotives or even N and TT scale with Sound.

You process your own sounds with some PC sound software, save them as WAV File and load them into the module with our SUSI-Sound-Manager. So a station announcement could be played by pressing a function key. Up to 4 additional personal Sounds can be loaded into a module in and assigned to any desired function key.

Up to four additional custom Sounds can be loaded into the module and configured with up to function keys F1–F28.

Except for the IntelliSound 3 mini decoder, all modules and decoders have two sound dependant special function outputs which open up new dimensions:

- the engineer shovels then the firebox flickers
- the chuffs work harder then the smoke unit develops more smoke
- the Elok drives over the layout, the pantograph sparks
- the freight train brakes hard the brakes linings begin to glow

The modules and decoders provide a connection for a Hall sensor, which is useful for wheel synchronization of cylinder chuffs or wheel squeaking in curves.

Part No. 32 300	IntelliSound 3-Module
Part No. 32 304*	IntelliSound 3-Module with Sound
Part No. 33 100	IntelliSound 3-Minidecoder
Part No. 33 104*	IntelliSound 3-Minidecoder with Sound
Part No. 33 110	IntelliSound 3-Minidecoder, with 6-way Interface
Part No. 33 114*	IntelliSound 3-Minidecoder, with 6-way Interface with Sound
Part No. 33 150	IntelliSound 3-Minidecoder, with PluX-16 Interface
Part No. 33 154*	IntelliSound 3-Minidecoder, with PluX-16 Interface with Sound
Part No. 35 330	IntelliSound 3-Decoder, with 21 MTC Interface
Part No. 35 334*	IntelliSound 3-Decoder, with 21 MTC Interface with Sound
Part No. 36 320	IntelliSound 3-Decoder, with 8-way Interface
Part No. 36 324*	IntelliSound 3-Decoder, with 8-way Interface with Sound
Part No. 36 360	IntelliSound 3-Decoder, with PluX-22 Interface
Part No. 36 364*	IntelliSound 3-Decoder, with PluX-22 Interface with Sound

*Note

When ordering IntelliSound modules or decoders with a particular Sound please supply the order number of the desired Sound. You will find a list of the available Sounds on Page 77.

The right way to satisfying Sound

Intellsound 3-Modules deliver, with the right loudspeakers, a sound capability and quality, which has no equal.

The selection and especially the installation of the loudspeakers are the deciding factors for the sound quality of the locomotive.

In principle, the larger the loudspeaker the better. Larger membranes reproduce to low frequencies better.

A stable installation is important. Ensure that the loudspeaker is firmly mounted in the locomotive and that it can radiate through an opening.

They must not be locked up in the housing as then you cannot hear anything outside.

The loudspeaker can be mounted to face downwards for example, through the opening in the bogies. You can also use the ventilator openings of the vehicle. Small holes that are barely visible can be drilled in the coal insert of a tender locomotive.

A further criterion for a good sound is the resonance area behind the loudspeaker membrane. If you enclose a loudspeaker model with a resonance body it must be stuck together with a hermetically sealed resonance body.

Otherwise you could have an acoustic short-circuit which leads to a bad sound. If you wish to use a suitable resonator in a locomotive (e.g. the boiler of a steam engine), then the sound resonator should be attached in such a way that the back is hermetically connected with the edge of the resonator.

You should only use a loudspeaker without resonators if the locomotive has provision for fitting a loudspeaker, ex factory, or you provide your own resonance body.

Despite all the tips, only once the conversion is completed will you know if it was a success.



Sound decoder 35 330 and two 31 101 Loudspeakers installed in a Roco BR 10

Part Number empty/with Sound	32300/32304	33100/33104	33110/33114	33120/33124	33150/33154	35330/35334	36360/36364	25330/35334
Suitable for								
Data Format	Decoder dependant	DCC/Mot.	DCC/Mot.	DCC/Mot.	DCC/Mot.	DCC/Mot.	DCC/Mot.	DCC/Mot.
Analogue Operation		=	=	=/~	=	=/~	=/~	=/~
Scale	N-Ilm	N-TT-H0e-H0m	N-TT-H0e-H0m	TT-H0e-H0m-H0	N-TT-H0e-H0m	H0	TT-H0e-H0m-H0	H0
Motor Type		DC	DC	DC	DC	DC	DC	DC
Connection	SUSI	Cable	NEM561 (6 way)	NEM562 (8 way)	PluX 16	21 MTC	NEM562 (8 way)	PluX 22
Outputs								
Continuous Maximum Load		0.7A	0.7A	0.7A	0.7A	1.2A	1.2A	1.2A
Peak Motor current		1.5A	1.5A	1.5A	1.5A	2.0A	2.0A	2.0A
Light and Special Functions		0.4A	0.4A	0.4A	0.4A	0.4A	0.4A	0.4A
Dimmable Light Outputs		yes	yes	yes	yes	yes	yes	yes
Special Function Outputs		2	2	2	2	6	7	7
Sound dependant Special Function Outputs		2	-	-	-	2	2	2
SUSI Sound Interface	Socket	plug	plug	plug	PluX	plug	plug	PluX
LISSY Output		no	no	yes	no	yes	yes	yes
Sound Characteristics								
Sound Buffer	320s	320s	320s	320s	320s	320s	320s	320s
Simultaneously playable channels	4	4	4	4	4	4	4	4
Function Mapping	yes	yes	yes	yes	yes	yes	yes	yes
Loading of own sounds	4	4	4	4	4	4	4	4
Decoder Characteristics								
Addresses DCC/Motorola		9999/255 ²⁾	9999/255 ²⁾	9999/255 ²⁾	9999/255 ²⁾	9999/255 ²⁾	9999/255 ²⁾	9999/255 ²⁾
Speed Steps DCC/Motorola		128/14	128/14	128/14	128/14	128/14	128/14	128/14
Function Mapping		yes	yes	yes	yes	yes	yes	yes
Load Regulation		yes	yes	yes	yes	yes	yes	yes
Programmable Motor characteristics		no	no	no	no	yes	yes	yes
Shunting Mode		yes	yes	yes	yes	yes	yes	yes
Start/brake Inertia		yes	yes	yes	yes	yes	yes	yes
RailCom		no	no	no	no	yes	yes	yes
Short Circuit Protection	yes	yes	yes	yes	yes	yes	yes	yes
Updatable Flash Memory	yes	yes	yes	yes	yes	yes	yes	yes
Dimensions in mm	17.8 x 11.0 x 4.0	25 x 11 x 4.3	25 x 11 x 4.3	25 x 11 x 4.3	25 x 11 x 4.4 ¹⁾	30 x 15 x 4.3	30 x 15 x 4.4	30 x 15 x 4.0 ¹⁾
Notes	Sound Module	Mini Sound decoder	Mini Sound decoder	Mini Sound decoder	Mini Sound decoder	Sound Module	Sound Module	Sound Module

¹⁾ Dimensions without connector pins

²⁾ With the Märklin centers 6020 and 6021 only 80 addresses can be used

IntelliSound - Loudspeaker



31180



31181



Example: Decoder 76 425, Sound module 32 300 and loudspeaker 31 110 installed in a PIKO BR94.



31182



31183

The loudspeakers, which we offer in the H0 range, especially for Uhlenbrock IntelliSound modules and decoders, are characterised by their smallest dimensions. In addition, there is the possibility that a loudspeaker can be built into a "ghost car", directly behind the locomotive.

In the range are two new small rectangular loudspeakers with resonance body, which deliver excellent sound for the size. They are particularly suitable for N, TT and H0 vehicles with little space.

In the H0 range we offer various loudspeakers with a resonance body. When selecting a loudspeaker remember: the larger the loudspeaker, the stronger the sound.

For vehicles in which the loudspeakers with a resonance body has insufficient space, we offer flat loudspeakers without resonance bodies. The 23 and/or 28 mm loudspeakers are meant for vehicles which are equipped with a corresponding loudspeaker recess.



31101



31102



31110



31130



31140

Part Number	31101	31102	31110	31130	31140	31180	31181	31182	31183	31150	31160	31170
Suited for												
Scale	N-TT	N-H0	N-H0	H0-O	H0-O	N-TT	N-TT	H0	H0	O-Ilm	O-Ilm	O-Ilm
Dimension in mm	16x12x9	20x14x10	25x15x12	40x20x12	28x28x12	13.5x19.5x4	18x3.7	28x5.4	23x3.6	34x34x15.5	46x46x22	57x57x39
Power	0.35W	0.7W	0.5W	1.5W	2W	1W	0.9W	0.5W	0.4W	3W	3W	10W
Impedance	8Ω	8Ω	8Ω	8Ω	8Ω	8Ω	8Ω	8Ω	8Ω	4Ω	8Ω	8Ω
Resonance shell	X	X	X	X	X	-	-	-	-	-	-	-
Membrane shape	Rectangle	Rectangle	Oval	Oval	Round	Oval	Round	Round	Round	Round	Round	Round
Metal membrane	X	-	-	-	X	-	X	-	-	-	X	-



31150



31160



31170

IntelliSound - Loading Adapter

For IntelliSound Modules and Decoders with SUSI Interface



- Loading of sound
- Tests all functions
- Running simulation

With the sound loading adapter sounds can be loaded from the PC into the IntelliSound modules. All functions can be tested and with a driving simulation the sound can be heard. In addition all CV's of the sound modules can be programmed.

The sound loading adapter is connected directly, or with a cable, to the Com port of a PC's (9-pol. Sub D socket) and to 16V~ transformer. The sound module is connected to the strip socket of the adapter.

The program for the adapter and 16 different sounds of steam, Diesel and Electric locomotives, a tram (streetcar) and tractor are on the provided CD.

- Sound testing
- Program CV's
- With SUSI interface

Recommended Operating System:
Microsoft Windows XP, Windows Vista or Windows 7.

Contents:

Sound loading adapter, the program CD for Windows (Windows 95 or later), operating instructions, sound loading cable for IntelliSound Decoder and SUSI/21 way adapters for IntelliSound decoder with 21 way interface.

- Part No. 31 010 Sound Load adapter
- Part No. 31 020 Sound Load cable 70 mm
for Sound decoder
- Part No. 31 030 SUSI/21-way Adapter
for IntelliSound Decoder
with 21-way Interface



IntelliSound - SUSI SoundManager

in combination with the Sound Load adapter and the IntelliSound 3



- Loading of up 4 sounds
- Sound configurable 1x /on/loop/off

With the SUSI-SoundManager up to 4 additional Sounds of your own can be add to the Sound data in the IntelliSound 3 Modules.

For preparing the Sounds in wav Format the Windows Audio Recorder or another Sound Program can be used.

Recommended Operating System:
Microsoft Windows XP, Windows Vista or Windows 7.

- Part No. 31 060 SUSI SoundManager
Program addon for
the Loading Adapter
31 010



Identifier	Sound	Land
Steam Locomotives		
DL-001	Steam Loco BR 01	D
DL-005	Steam Loco BR 05	D
DL-011	Steam Loco BR 01.10 coal fired	D
DL-012	Steam Loco BR 01.10 oil fired	D
DL-S36	Steam Loco bay. S 3/6	D
DL-018201	Steam Loco 18201	D
DL-023	Steam Loco BR 23	D
DL-024	Steam Loco BR 24	EU
DL-038	Steam Loco BR 38	EU
DL-041	Steam Loco BR 41	D
DL-041-OEL	Steam Loco BR 41 oil fired	D
DL-042	Steam Loco BR 42	D
DL-043	Steam Loco BR 44 oil fired	D
DL-044	Steam Loco BR 44 coal fired	D
DL-050	Steam Loco BR 50	EU
DL-052	Steam Loco BR 52	D
DL-052-KON	Condenser tender Steam Loco BR 52	D
DL-055	Steam Loco BR 55	D
DL-057	Steam Loco BR 57	D
DL-058	Steam Loco BR 58	D
DL-064	Steam Loco BR 64	EU
DL-070	Steam Loco BR 70	D
DL-075	Steam Loco BR 75	D
DL-078	Steam Loco BR 78	D
DL-080	Steam Loco BR 80	D
DL-086	Steam Loco BR 86	EU
DL-089-T3	T3 Steam Loco BR 89 / T3	D
DL-091	Steam Loco BR 91	D
DL-094	Steam Loco BR 94	D
DL-096	Steam Loco BR 96	D
DL-098.7	Steam Loco BR 98.7	D
DL-Challenger	Steam Loco 4-6-6-4 Challenger	US
DL-EB33	Steam Loco Tigerli SBB	CH
DL-UNI1	Steam Loco, large, european	EU
DL-UNI2	Steam Loco, small, european	EU
DL-USA	Steam Loco "american"	USA
DL-Mikado-us	Steam Loco 2-8-2	USA
DL-Mikado F	French Steam Loco 1D1	F
DL-Climax	Small train Steam Loco	USA
DL-E-DK	Steam Loco type E (Danish Railways)	DK
DL-F-SE	Steam Loco type F (Swedish Railways)	SE
DL-Heisler	Small train Steam Loco	USA
DL-Shay	Small train Steam Loco	USA
DL-Shay-Öl	Small train Steam Loco oil fired Shay	USA
DL-USA-Holz	Holz Steam Loco holzgefeuert	USA
DL-UINTAH	US Mallet Steam Loco Uintah Railway	USA
DL-Wn12	Steam Loco 12 of the "Härtsfeldbahn"	D
99-UNI	Narrow Gauge Steam Loco, universal	EU
99-193	Steam Loco Ts5- 99 193	D
99-222	Steam Loco 99 222 of the HSB	D
99-1067	Rack Rail 1067 'Brünig' train	CH
99-4652	Steam Loco 'Nicki' + French Swiss	D
99-5906	Mallet Steam Loco of the HSB	D
99-6001	Steam Loco 99 6001 of the HSB	D
99-7243	Steam Loco 99 72. of the HSB	D
99-ELIAS	Steam Loco "Elias"	D
99-G45	Steam Loco 107/108 RhB Type G4/5	CH

Identifier	Sound	Land
99-HEIDI	Narrow gauge Steam Loco	CH
99-HG23	Narrow gauge Steam Loco	D
99-Spreewald	Steam Loco "Spreewald"	D
99-IVk	Narrow Gauge Steam Loco IVk	D
99-Mh3	Pinzgauer Local train	A
99-MH53	Narrow Gauge Steam Loco Ruegen	D
99-U43	Steam Loco Zill Valley Railway	A
99-Xrot	Steam snow plough RhB	CH
E-Loccos		
EL-101	E-Loco 101	D
EL-103	E-Loco103 / E03	D
EL-110	E-Loco110 / E10	D
EL-120	Modern DB E-Loco	D
EL-141	E-Loco141 / E41	D
EL-143	E-Loco 143	D
EL-150	E-Loco150 / E50	D
EL-155	E-Loco 155	D
EL-169	E-Loco 169 / E69	D
EL-182-V1	E-Loco 182/Taurus	D
EL-182-V2	E-Loco 182/Taurus	D
EL-182-V3	E-Loco 182/Taurus	D
EL-191	E-Loco 191 / E91	D
EL-194	E-Loco 194 / E94	D
EL-461	E-Loco Ge 4/6-I of the RhB	CH
EL-662	E-Loco Ge 6/6-II of the RhB	CH
EL-AE47	E-Loco Ae 4/7	Ch
EL-AE66	E-Loco AE 6/6 of SBB	CH
EL-CE68	E-Loco Ce 6/8 Crocodile	CH
EL-GE24	E-Loco 2/4	CH
EL-GE44-2	Rack rail E-Loco Ge 4/4-II	CH
EL-GE44-3	E-Loco Ge 4/4-III (RhB)	CH
EL-GE44-3-J	E-Loco Ge 4/4-III (RhB Jubi Edition)	CH
EL-KROKO	E-Loco Ge 6/6-I Crocodile (RhB)	CH
EL-HGE22	Rack Rail Hge 2/2	EU
EL-HGE44-2	Rack rail E-Loco	CH
EL-NEU	Modern E-Loco	EU
EL-RE425	E-Loco RE 425	CH
EL-Taurus	E-Loco BR 182 "Taurus"	D
ETA-176	Limburger Cigar	D
ET-515	Akku Rail car ETA 515	D
ET-ATW	Electro Rail car, historic	EU
ET-ICE	Electro Rail car ICE	D
ET-STW	Control Wagon	EU
Zahnrad E-lok	Rack Rail E-Loco He 4/4-II	CH
Diesel Locos		
VL-0600DA-V1	Romania Diesel 0600DA KEG 2100	EU
VL-0600DA-V2	Romania Diesel 0600DA KEG 2100	EU
VL-110	Diesel Loco V 100 / 110	D
VL-120-TT	Diesel Loco 120 "Taigatrommel"	D
VL-188	Diesel Loco V188	D
VL-212	Diesel Loco 212 / V 100	D
VL-218	Diesel Loco 218 / V 160	D
VL-220	Diesel Loco 220 / V 200	D/C H
VL-232	Diesel Loco 232 / Ludmilla	EU
VL-236	Diesel Loco 236 / V 36	D
VL-251	Narrow Gauge Diesel BR261/ V51	D
VL-260	Diesel Loco 260 / V60	D
VL-265	MAK Diesel Loco V 65	D

Identifier	Sound	Land
VL-290	Diesel Loco V 290 / V 90	D
VL-320-1	Diesel Loco 232 / V 320 DB	D
VL-320-2M	Diesel Loco 232 / V 320 DB (2 Motors)	D
VL-BlueTiger	Diesel Loco "Blue Tiger"	D
VL-G2000	Vossloh Diesel Loco G 2000	D
VL-2091	Diesel Loco 2091 ÖBB	A/D
VL-2095	Diesel Loco 2095 ÖBB	A
VL-F-LKM	Field work Diesel Loco	EU
VL-F-STD	Field work Diesel Loco	EU
VL-GMF44	Diesel Loco Gmf 4/4 (RhB)	CH
VL-Koe-II	Diesel Loco Kö 2	D
VL-KOEF3-V1	Diesel Loco 323 / Köf III	D
VL-KOEF3-V2	Shunting Diesel Loco 323 / Köf III	D
VL-Kof-FW	Fire Dept. Diesel Loco LGB	EU
VL-TM22	Shunting tractor Tm 2/2 RhB	CH
VL-US1	Diesel Loco, large, American	USA
VL-US2	Diesel Loco, middle, American	USA
VL-alco535wp	ALCO Diesel Loco 535	USA
VL-alco-greece	ALCO Diesel Loco	GR
VL-emdgp40	EMD/GM GP 40-2	USA
VL-V29	Diesel Loco V29 Nagold-Altensteig	D
VL-VR-T	Diesel T-Class Victorian Railways	AU
VT-11.5	Rail Car VT11.5	D
VT-18.16	Rail Car VT18.16	D
VT-18.16	Rail Car VT18.16	D
VT-128	Rail Car "Regio Shuttle"	D
VL-137	Historic Rail Car	D
VL-187	Modern Diesel Rail Car	D
VT-601	Diesel Rail Car	D
VT-610	Rail Car "Pendolino"	D
VT-628	Diesel Rail Car VT 628	D
VT-642	Modern Rail Car "Desiro"	D
VT-772	Rail Bus VT 772	D
VT-795	Rail Bus VT 795	D
VT-AWS	Shunting Diesel SWITCHER	USA
VT-BM35	Motor-Draisine from ÖBB	A
VT-Goose	Rail Bus "Goose"	USA
VT-HSB-T3	Diesel Rail Car T3 of the HSB	D
VT-RAM	Diesel Rail Car VT-Ram	CH/N L
VT-SKL	Red Diesel Wagon SKL	D
VT-TCA	Historical Rail Car TCA (SKLGB)	A
VT-WSB	Wismarer rail bus	D
Draisine	Motor-Draisine	D
Road vehicles and sundry		
Bremsgeräusch	Braking noises	EU
Drehscheibe	Turntable BW Heilbronn	D
Feuerwehr	Fire engine	D
Hilfswagen	Help vehicle	-
VW-Käfer	VW beetle with Martin horn	D
K-LANZ-H	Lanz Bulldog, historical	EU
K-MAGIRUS	Magirus LF 16	EU
K-UNIMOG	Unimog	EU
SB-ALT	Tram, historical	EU
SB-NEU	Tram, modern	EU
Straßenbahn	Tram HEAG 66	EU
Straßenbahn	Wuppertal Tram type 107	D
Gewitter	Rain and thunder noises	-

Status: October 2012

Sound Library on www.uhlenbrock.de

Looking for a sound for a special locomotive, a streetcar or a tractor? Then visit the Sound Library on our Internet site.

Here you always find the up-to-date available sound files for proof hearing and to download.

A detailed miniature model railway scene. In the foreground, a red steam locomotive is stopped at a platform. A conductor in a blue uniform stands by the front of the train, waving. On the platform, several other figures in period clothing are gathered, including a man in a blue suit and a woman in a red coat. The background features a large brick building with arched windows and a street lamp. The scene is set on a gravel bed with tracks.

L

Layout Sound

Sound-Director

Realistic Sounds to complete the Picture

Sound-Director

Sound on the Model railway layout is like salt in soup.

Whether station announcements, traffic noises or church-bells, without everyday noises something is missing.



Part No. 38 000

- Controller, USB stick and 2 Loudspeakers for administration and playing of MP3 files
- Background noises in a continuous loop play
- With 10 contacts for triggering situation-dependant sounds by key, Switching contact or reed contact
- With LocoNet connection, triggering of situation-dependant sounds by feedback, switch instructions or by LISSY or MARCo system
- In combination with LISSY or MARCo each train can trigger its own announcement
- With random event generator (e.g. for dog barking)
- With model clock (e.g. for the church bells)
- Rendition list for more than 600 files
- USB stick with 68 minutes playing time per 64MB storage space with a sample rate of 128 Kbit/s
- Software for module configuration and administration of the MP3 files on the USB stick
- For analogue and digital model trains
- No interface or Programmer required

Included:

Sound-Director, USB stick, 2 loudspeakers and 60 cm a LocoNet cable.

Part No. 38 000 Sound-Director



Part No. 38 010 USB-Stick

Now you can have background sound-scapes on your layout irrespective of it being analogue or digital.

Using your computer, save the relevant MP3 files on the USB stick provided.

As soon as the USB stick is plugged into the Sound-Director the individual sounds can be played.

Background noises, such as station announcements, traffic and building noise or animal 'voices' are played in a continuous loop.

Noises like church-bells, emergency vehicles or station announcements, can be separately triggered by key, switching or reed contact, or by the random event generator or at particular times.

When connected to the LocoNet the noises can also be triggered by a driving train with feedback, switch instructions or the LISSY or MARCo system. In the LISSY or MARCo System a train can even do its own station announcement.

With a model railway which is controlled by a LocoNet center, more than 600 sounds from the rendition list can be called up. With all other systems and in analogue operations over 400 sounds are available. These can run in continuous loops or called up by contacts, the random event generator or the model clock.

The Sound-Director is supplied complete with two small loudspeakers. Alternatively PC loudspeaker boxes can be connected directly to the audio jack.

The USB stick provided has a large selection of immediately playable noises.



Here the Loud speakers were mounted under the platform roof on an N-Scale layout.

Analogue Running

M



Infrared Remote Control

Enjoy the new freedom!

Easily control your DC or Märklin Model train with our Infrared Controller.

- Infrared remote control for all DC or Märklin locomotives
- Outstanding, realistic running properties
- Range up to 10 m
- Adjustable acceleration and brake inertia
- Shunting gear
- Extremely low speeds are possible by means of pulse width tension
- 10 speed steps are directly selectable by key press
- Up to four different electric circuits are controllable with one remote control
- Simple connection between the transformer's AC output and the rails
- 2A output current
- Automatic shutdown in the event of a short-circuit

With the infrared remote controller DC or AC locomotives can be controlled in conventional model railway layouts, without the annoying wiring to the control desk. The system consists of the infrared remote control IRIS and a receiver.

Each IRIS remote control has four channels. Each receiver can be set up to react only to its special channel or to all channels. It is therefore possible to control four different circuits using four different independent receivers and a single IRIS remote control.

With the IRIS remote control you can change a locomotive's driving direction and speed. The speed can be continuously increased or decreased in 10 different speed steps by pressing keys directly. The increment of the speed steps is adjustable. Pressing a key can engage a shunting gear, with which the locomotive is controlled with particularly fine speed steps, up to half the maximum speed. Hence slow and precise shunting can be implemented.



26 210/26 310



66 510

The increment size of the speed regulation can be configured. The press of a key can select the shunting mode with which the locomotive can be controlled in half steps. That way slow precise stunting driving is possible.

The infrared remote controller has acceleration/brake inertia available, with four different settings.

The stop key on the remote control switches the track power off and stops the locomotive immediately.

For normal operation a transformer 14-16V with 2A is sufficient.

The infrared remote controller is the locomotive controller for all dedicated railway modellers.

Technical Data

Max. current: 2 A
Effective range: 10 m

Part No. 26 200 Set contains IRIS Remote controller and Receiver for DC

Part No. 26 300 Set contains IRIS Remote controller and Receiver for AC

Part No. 66 510 IRIS Remote controller

Part No. 26 210 Receiver for DC

Part No. 26 310 Receiver for AC

Part No. 20 075 Transformer 70 V

N TT HOe HOm HO =DC -AC

Acceleration-Brake Component ABBS

To prevent your engine driver from falling out of the compartment when braking.

- Adjustable acceleration and braking distance
- Short-circuit and overload proof
- Simple installation
- Power supply from the track
- Easy connection with screw terminals

Technical Data

Running voltage: 0-16 V

Max. current: 1.4 A

Connection made easy

An isolation section of approximately 1m length (with H0) is installed. The module is inserted between signal and rails. The connection is made by a solder-free screw terminal. No electrical changes to the layout are necessary.

The delay is adjustable over a large range by means of a potentiometer.

Since the module is powered by the running power, no additional power supply is necessary.

Perfect Technology

The module is fully electronic and with short circuited protection. In a stopping section the drive current is limited to 1.4A, so even in the event of a short-circuit on the track the module is safe from damage.

ABBS 41 200



- Slow stop at a red signal
- Train stop in both directions

For signals on single-track sections, the trains stop in both directions. Acceleration and braking distances are adjustable by a potentiometer.

With an Hp0 acceleration/brake module the train drives slowly and stops before the signal. With GO signal it accelerates slowly again to its adjusted speed. With Hp1 the train passes the signal without change of speed.

With Hp1 the train passes the Signal section without reducing speed.

Part No. 41 200 ABBS



ABBS 41 300



- Slow stopping at a red signal
- Integrated slow section
- In reverse the section can be passed

Should a train enter the first two isolated sections before a stop signal the isolation module slows it down. This partial speed can be adjusted with a potentiometer.

Only in the second isolated section the train decelerates to a complete stop. Since the speed of the train is already quite low, fast express trains as well as slow heavy trains and also push-pull trains will stop at the same place,

The isolated sections are passable in the reverse direction.

Part No. 41 300 ABBS with partial speed



Application Examples

Terminus Station without Signal

With DC systems the stopping section is passable in the reverse direction. So the 41 300 is particularly well suited to terminus stations and siding, in which the trains enter slowly to stop and then depart in the reverse direction. Signal switches or signal relays are then redundant.

In a Construction site Area

If with the 41 300 only the first isolation section is connected, it results in a section with adjustable speed, used for construction site areas or downward grades. If the second isolation section is used it would react like the 41 200.

Entrance Signal with Hp2

The slow section from 41 300 can also be used for passage through with "Hp2". The module provides for a realistic movement of your trains, if the station has a passing section or the train is to switch track with the signal pattern Hp0, Hp1 or Hp2.

Track Occupation Detector GBM

Have you ever been in a signal tower? On the switchboard every train is represented by a bright strip. On your model railway this is also possible with our track-occupied detector. In a shadow station or on the visible part of the layout, everywhere the question arises: Can I enter this track or is it occupied by another train? The GBM gives you the answer.



- With floating relay contacts
- For a reporting section
- Also for digital layouts Reacts to locomotives or lit cars
- Reacts to locomotives or illuminated wagons
- Very safe indication
- Contact rails are redundant
- High output current
- Up to 1.5A driving current
- Simple installation
- Power supply from the track
- Easy connection with screw terminals
- Simple Block section control

The Operation

The module serves as a reliable detector of stationary and travelling trains on a section of track. In addition it is suitable for use as an electronic switch.

The occupied status is detected from a current flow of 1mA in the section which it monitors. It detects all locomotives and cars with lighting. It can switch lamps, LEDs, signals, turnouts, relays or other modules, e.g. sound modules.

Installation

The most frequent use for this module is to provide a reliable track plan panel so that you know at any time which track is already occupied and which is vacant.

A simple block section can be constructed very quickly, by equipping several sections one behind the other with track occupation detectors.

The triggering of switch processes, timers or other modules by another module is a pleasantly simple task.

Connection

The track is divided into sections that can be monitored. The track occupation detector is attached to the rail that is to be monitored, to the AC output of a transformer or to digital power and to the item that is to be switched.

The wires are simply connected to the screw terminals.

This occupation detector monitors a track section and with the integrated relay permits numerous switching possibilities without additional units. So it can directly drive the red/white indicators on a control desk and simultaneously give a vacant signal. The long-life relay has two two-way potential free contacts, which may be loaded with 1A.

Technical Data

max. Driving Current: 1 A
 min. Measuring Current: 1 mA
 Connection Voltage: 12–16 V ~

Part No. 43 400 Track Occupation Detector



Things to Note!

Part No. 40 311 20 Coupling resistors
 1.5 Kohm for track sections that can be turned off

Part No. 40 410 10 ml Resistive lacquer

For DC operation we recommend that the isolated section be inserted into the common side of the track. Thus you don't only avoid short-circuits, but the individual sections are also independent of the feed of the track power.

The track occupation module 43 500 is not suitable for connection to an s88-Feedback module.

Make it a habit to always have tail lights on the end car then the track occupation detector will be reliable. Also unlighted cars are detected by the GBM, if the wheel isolation is bridged with resistive lacquer.

Reversing switch FRU

Would you like a jerk-free reversing switch without flashing of locomotive lighting?

The uncomplicated installation without additional electronic components makes the change from DC to AC possible for the layman.

- Extremely small
- Safe and jerk-free switching
- Unchanged running properties
- No flashing of locomotive lighting
- No additional modules needed
- Simple installation
- No battery, so unlimited life

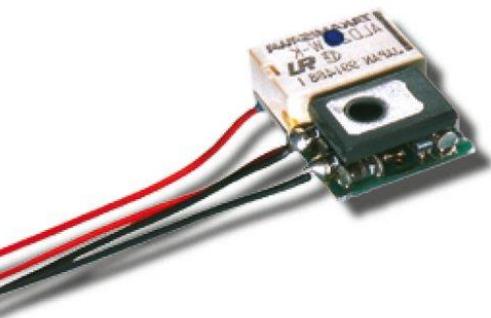
With a change over switch a DC locomotive can be converted to AC.

Due to its small dimensions our change over switch fits easily into almost any vehicle.

Technical Data

max. Current: 0.8 A
 short term: 1.5 A
 Running voltage: 0–18 V ~
 Switching voltage: 22–30 V ~

FRU for DC locomotives



The extremely small module is for converting DC locomotives to AC power system with guaranteed jerk-free reversing. The locomotive lighting can be connected for direction dependent operation.

By using power transistors there is only a minimum voltage drop and therefore also low heat dissipation. The drive voltage type is irrelevant.

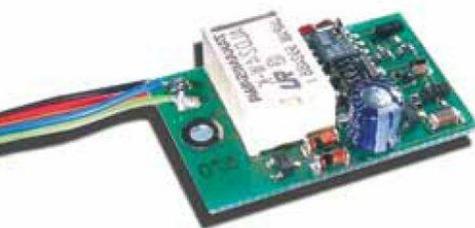
The change over switch is extremely interference-proof against voltage spikes and power interruptions. Its good handling properties permits millimetre-precise shunting.

On the market since 1988 it is still the smallest change over switch available.

Dimensions: 18 x 14 x 7.5 mm

Part No. 55 500 with solder connections
 Part No. 55 520 with plug interface

FRU-M for All power locomotives



The FRU-M replaces the mechanical change over switch in AC locomotives. Its size corresponds to that of the mechanical change over switch, so that no mechanical changes need to be made to install the unit into a vehicle.

The integrated electronic transmission makes it possible to reduce the maximum speed output and have slow starting, even when the power is switched on suddenly.

Dimensions: 29 x 20 x 7.5 mm

Part No. 55 700 with solder pads



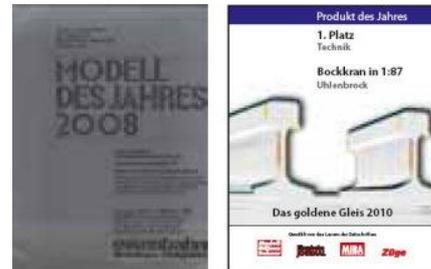
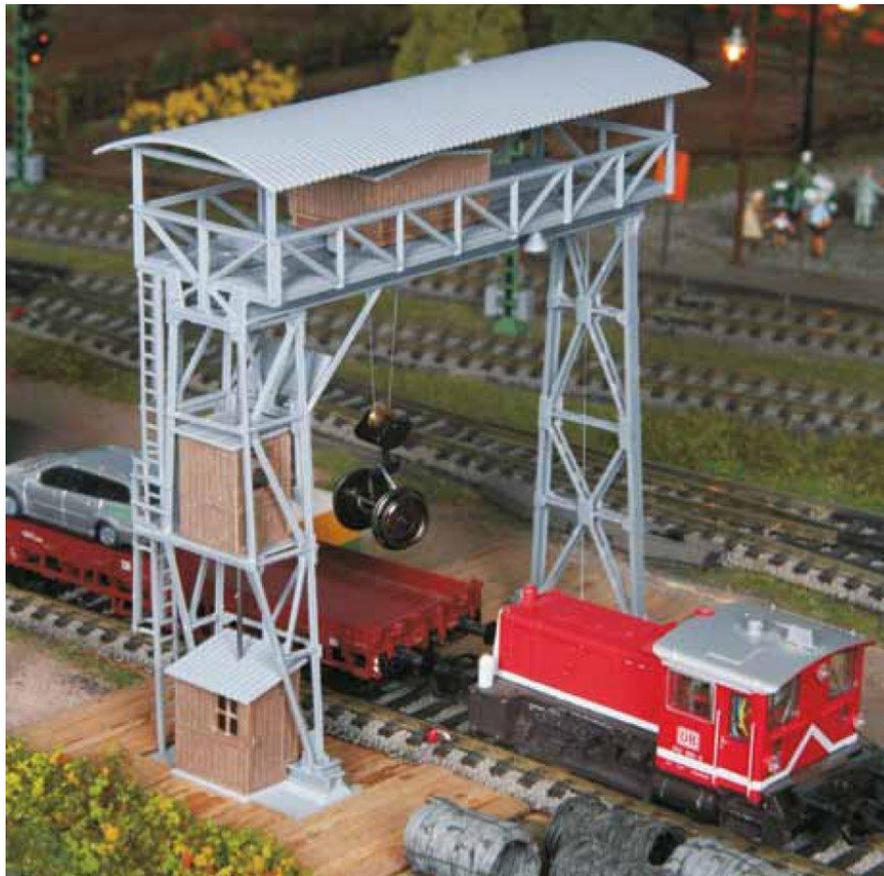
Models & Accessories

N



Gantry Crane in Scale 1 : 87

Functional finished model for Analogue and Digital Operation



The Model

Our finished model is developed in co-operation with the Kibri company. It is based on the finely detailed plastic model of the gantry crane. The drive components are manufactured in metal.

Quiet miniature motors lift and lower the crane hook and move the trolley with safely guided rope drives

The Operation

The model is equipped with a digital decoder.

There are programmable outputs for a lifting magnet or grip and for additional lighting.

Dimensions: 128 x 50 x 132 mm

Part No. 80 000 Finished gantry crane

H0 µMot µDCC -AC =DC



The Prototype

This gantry crane was built in large quantities and is still seen in many loading tracks.



A gantry crane with two motors brings more movement to your layout.

All functions can be controlled equally in analogue operations and by all DCC or Märklin/Motorola Digital centers.



Connecting socket for the lifting magnet or gripper

Water Crane

H0-Function model for Analogue and Digital Operation



Water cranes for refilling steam locomotives can be seen in steam engine works. Often they are also at small stations at the end of the platform for refilling.

A finished functional model of the popular Kibri water crane with integrated Digital-Servo 81310 provides a prototypical turning movement.

The Water Crane can be operated in analogue and also with all DCC or Märklin/Motorola Digital centers.

With the LISSY/MARCo system or the new feedback units it is also possible to control it automatically with the locomotive.

With rotation 180° two parallel tracks can be served. The middle position is then the rest position.

The operation is effected as described with the Digital-Servo 81310 (page 37). Different intermediate positions can be set.

Part No. 80 100 Water crane

H0 **LiSSyMot** **LiSSyDCC** **-AC** **=DC**

Load lifting Magnet

True to the Original H0 Function model



Model of Load lifting magnet BvM L34-170 from the J. Braun GmbH. Company.

Till now the load lifting magnets on offer for model railways were pure fantasy. For the first we now have an original controlled, functioning model available.

	Original	Model
Diameter	1700 mm	19.5 mm
Weight	7000 Kg	6.5 g
Lifting capacity (Scrap metal)	2700 Kg	75 g
Power	19.0 KW	0.6 VA

The load lifting magnet is powered by 16V DC or AC current. It is fitted with a plug for our gantry crane. Naturally it is also suitable for all other models. It can also be connected to a function output decoder. Thus the load lifting magnet can be universally applied to stationary cranes and crane wagon.

Part No. 80 020 Load Lifting magnet

H0 **=DC** **-AC**

BvM-Round magnets are used for moving bulk materials e.g. pig iron, splinters, scrap iron and casting scrap, and also for transporting massive loads, such as steel slabs, billets, wrecking balls and steel mats.

They are usually used on mobile cranes and cranes with larger lifting capacity.

REPA Uncoupler

The Original



- Uncoupler with magnetic drive for commercial or do-it yourself track
- Problem free retro-fitting
- Reliable, silent, almost invisible
- The space requirement under the baseplate is only 43 mm.

REPA Uncoupler 2-Rail

For H0 couplings from Trix, Fleischmann, Märklin or Märklin-like, and the new Fleischmann and Roco short couplings. Drill template included.

Part No. 83 100

REPA Uncoupler 3-Rail

For PIKO track, Märklin or Märklin-like couplings. With small uncoupler beam.

Part No. 83 200

REPA Uncoupler TT and narrow gauge

With Uncoupler-beam for TT, H0e, H0m. includes drilling templates for both track widths.

Part No. 83 300

REPA Uncoupler N

With Uncoupler-beam for the international N-coupling and for the short coupling from Fleischmann and Roco.

Part No. 83 400

Replacement Parts

5 replacement beams per packet

Part No. 83 111 2-Rail

Part No. 83 211 3-Rail

Part No. 83 311 TT, H0e, H0m

Part No. 83 411 N

Part No. 83 611 Fits all uncouplers



Literature – digital Model Railway

Digital Practices for Model Trains



Rolf Knipper
 Digitalpraxis für die Modellbahn
 160 Seiten, 2. aktualisierte Ausgabe,
 mit 245 Abbildungen und Zeichnungen,
 komplett in Farbe, 17 x 24 cm, gebunden

Eisenbahn Fachbuch Verlag
 ISBN 3-9807748-3-X

Part No. 16 010 Digital Practices,
 Volume1

Every railway modeller will be confronted with very complex problems during the digitization of his model railway layout. The well known author and layout builder Rolf Knipper brings practical examples and knowledge to these topics. His solutions are shown at fairs. Using the two layout projects Elberfeld (DCC) and Kottenforst (Motorola) the professional digitization of model trains is explained.

The book provides numerous photographs of the building of the layouts as well as many designs and sketches, so that individual steps can be easily followed. In addition the author explains the use of digital modules, like Intellibox, IB-Switch, Motorola and DCC decoders, SUSI sound interface and IntelliSound, the standard Digital 2 and the decoder installation.!

Operating Practices for Digital Model Trains



Harry Kellner
 Betriebspraxis für die digitale
 Modellbahn

Eisenbahn Fachbuch Verlag
 ISBN 3-9807748-6-4.

152 pages 252 illustrations full colour,
 17 x 24 cm Format.

Art.-Nr. 16 020 Betriebspraxis für die
 digitale Modellbahn

In "Betriebspraxis für die digitale Modellbahn" the author Harry Kellner concerns himself particularly with various components of digital control and their meaningful interaction.

Control of a model railway with software interests many model railroaders. On the basis of programmes Railroad & Co (Train-Controller) and WinDigi-Pet, practical solutions are discussed with simple track plans and with many drawings and "Screenshots".

Firstly current centers are discussed, then Intellibox II is described in detail as well as numerous model railway control possibilities. The infrastructure of booster etc. is an important building block in the power supply of a layout. The correct installation of boosters and connection problems, such as earth "binding" problems are discussed. Locomotive decoder and their standardised interfaces, and also actual developments are treated in the same manner as the basics of the LocoNet and suggested practical solutions. The basics of automatic operation with LISSY are presented.

The Book comes with a CD containing Software so that interested model railroaders can try the described possibilities immediately.

Small Model Railway Lexicon

Analog Operation

In the analog layout all locomotives on the track are controlled together via a speed controller. The different vehicles can not be addressed individually. Functions like light, smoke, sound or the telex coupling cannot be operated from the control panel.

CV-Programming

Configurations Variables (CV) determine the characteristics of decoders for digital locomotives, such as address, maximum speed etc. The CV values, and thus the characteristics of the decoder can be changed by CV programming.

Data format – the Language of Digital systems

The data format is the language with which the Digital Center “speaks” with the decoders. Märklin uses the “languages” Motorola and MFX, whereas in 2-rail systems (Roco, Fleischmann, Trix, Rivarossi, Arnold, Lenz) the DCC format is the leader. Additionally data formats FMZ and Selectrix which earlier were developed and used by Fleischmann and Trix should be mentioned.

If a decoder understands at least two data formats it is described as a Multi-protocol decoder.

The most important data formats are:

Motorola: the first digital format on the market. Only used by Märklin.

DCC: the NMRA standardized data format, which became generally accepted with DC trains. Used by Fleischmann, Lenz, Roco and Tillig amongst others.

FMZ: Old Fleischmann data format. Now replaced by DCC.

Selectrix: The data format from Trix.

mfx: The new data format from Märklin.

Decoders, Digital Decoder, Locomotive Decoder

Decoders are built into model train locomotives. They decode the digital information which is sent by digital centers. They control speed and driving direction of the motor, the lighting and the special functions of the locomotive.

Digital Operation

In digital systems different locomotives on the same track can be controlled independently from each other. Each locomotive receives its own driving and control instructions, which are conveyed to the inserted decoder by the digital center. Functions like light, smoke, sound or the telex couplings can be controlled from the control desk.

Lamps, light signals or track sections can be switched off by stationary digital decoders. Turnouts and signals with an electromagnetic drive can be controlled digitally.

Digital Centers

These are controllers for digital layouts. They generate the digital signal, which is decoded by the decoders that receive them in the digital system.

Bell Armature Motors

DC motors, which run very quietly and have good handling characteristics. Suppliers are Faulhaber, Escap and Maxon.

Pulse Width Modulation

A kind of driving power in the analog layouts, with which the locomotives have very good slow handling characteristics.

Conventional Locomotive

A locomotive without decoders for driving in the analog systems.

LNCV Programming

As with CV Programming of DCC Decoders, the operating characteristics of many LocoNet devices can be configured by LNCVs (LocoNet Configuration variables).

Programming is done from a special Menu in the LocoNet Digital Center or very simply with out LocoNet-Tool Software.

LocoNet

The LocoNet is a very reliable and inexpensive model railway network. It can be built up quickly and simply.

Memory Function

The feature which durably stores the status.

Multi-Protocol System

A digital system, which understands several data formats (languages). Multi-protocol centers address the different decoders in their respective language. This way, locomotives with decoders from different manufacturers can be used on a track simultaneously.

Multi-Protocol Decoders

understand several data formats. Locomotives with these decoders drive on layouts with different manufacturers' systems.

Register Programming

Whilst with newer decoders the characteristics are programmed using CV programming, with older decoders the values are saved in 8 different registers. This programming type is accordingly called register programming.

Switching Decoders

Stationary decoders with which lamps, light signals or track sections can be digitally switched on and off.

Special Functions

The locomotives' special functions are e.g. light, smoke, sound or the telex coupling.

Solenoid Decoders

Stationary decoders with which turnouts and signals with electromagnetic drive can be digitally controlled.

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Fair Dates

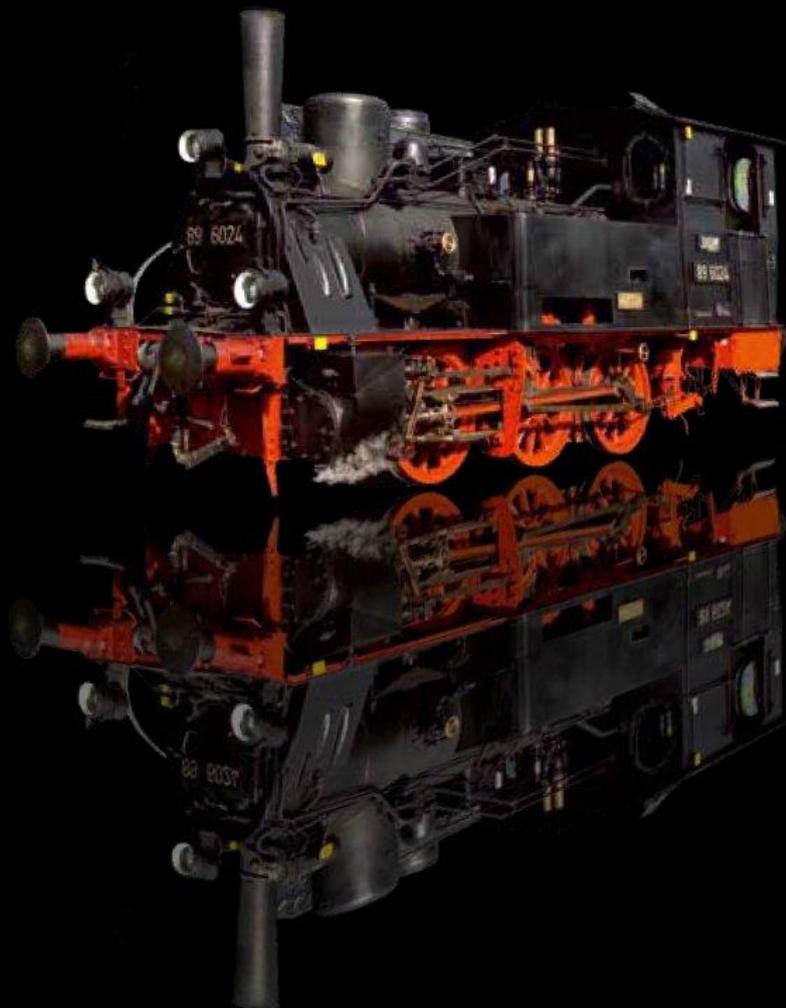
Intern. Modellbahnausstellung, Köln
22.11.2012 – 25.11.2012

ONTRAXS, International Model Railway
Event, Utrecht
08.03.2013 – 10.03.2013

Intermodellbau, Dortmund
10.04.2013 – 14.04.2013

Modell & Hobby, Leipzig
03.10.2013 – 06.10.2013

Further dates can be found on our
internet site www.uhlenbrock.de



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