

Decoder & Sound

Uhlenbrock
digital

Autumn New Items 2013



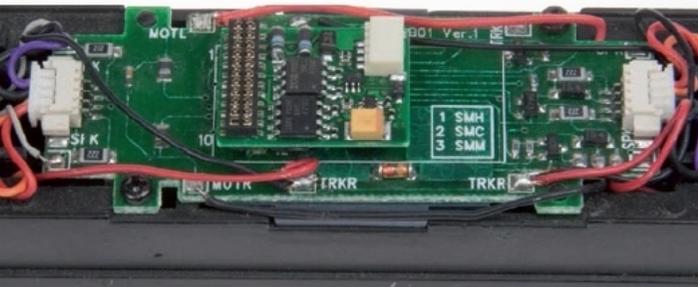
Experience pays off!

IntelliDrive - Digital decoders

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 product range you will find a suitable decoder for your locomotive.



The Decoder 76 425 in a Piko BR 119 DR



The inside of a Hobbytrade DE2650 with a 75 330 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 8 generate.

All decoders with SUSI interface, 4 way mini socket, allow the connection of sound modules and LISSY mini transmitter. LISSY transmitter modules can be connected to the SUSI interface on some decoders and on the mini decoders they can be connected to the solder pads on the circuit board.

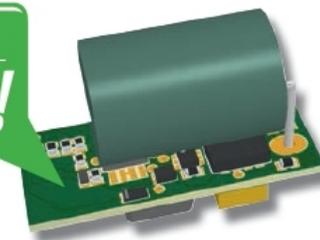
All Ho decoders can be used on analogue DC or AC systems. The used DCC data format conforms to the NMRA DCC standard and is compatible with all NMRA compliant DCC systems. Uhlenbrock decoders have updatable Flash Memory. They are protected from overheating and the multi-protocol decoders also have short 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.

IntelliDrive - Energy buffer NEW

For all HO decoders.

Built in Intelligence:
Usable with all the usual decoders!



The new IntelliDrive Energy Buffer reliably bridges all power interruptions. It will prevent rough running on dirty track or while running over turnouts. The Sound will be uninterrupted also.

Because of built-in intelligence the Energy Buffer can be used with all decoders.

It is connected (red and black) with four wires and is very straight forward. Two wires are connected to the vehicle's power pickups, two further wires serve to connect the decoder's power.

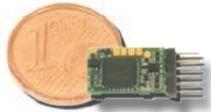
Programming of the locomotive decoders is also possible without any problem with the installed Energy Buffer.

The Energy Buffer has a charging circuit which is controlled by a microprocessor. So it cannot come to overloading of Boosters, even if many locomotives with Energy Buffers are used.

All Parameters are configured by CV-Programming.

Part No. 71 800 Energy Buffer Ho
20 x 11.5 x 9 mm
Available from December 2013

IntelliDrive - Digital decoder for N, H0e and small H0 Locomotives



73 410 with 6 way NEM 651 plug



The 73 410 in a Fleischmann N V 200

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.



These decoders are *not* suitable for use in Märklin AC analogue layouts.

					
Suited for	N-TT-Hoe-Hom	N-TT-Hoe-Hom	N-TT-Hoe-Hom	N-TT-Hoe-Hom	N-TT-Hoe-Hom
Guage	N-TT-Hoe-Hom	N-TT-Hoe-Hom	N-TT-Hoe-Hom	N-TT-Hoe-Hom	N-TT-Hoe-Hom
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⁾				
LISSY Outputs	Solder pads ¹⁾				
Characteristics					
Addresses DCC/Mot	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

IntelliDrive - Digital decoder for HO - IIm Scales

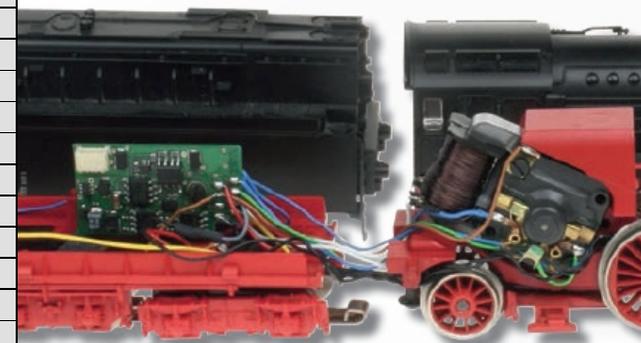
NEW

Suitable for									
Track gauge	Ho	Ho	Ho	N-TT-Hoe-Hom	N-TT-Hoe-Hom	TT-Hoe-Hom-Ho	N-TT-Hoe-Hom	Ho-O-IIm	o-I-II
Data format	Mot.	DCC/Mot.	DCC/Mot	DCC/Mot.	DCC/Mot.	DCC/Mot.	DCC/Mot.	DCC/Mot.	DCC/Mot.
Motor type	Märklin Universal	Märklin Universal	DC Bell armature	DC Bell armature	DC Bell armature	DC Bell armature	DC Bell armature	DC Bell armature	DC Bell armature
Analogue Operation	~	=/~	=/~	=/~	=/~	=/~	=/~	=/~	=/~
Connection	cable	cable	21 MTC	8 way plug	8 way plug	PluX 16	PluX 22	Cable	Screw terminal
Outputs									
Motor power load	1.2A	1.2A	1.0A	1.0A	1.0A	1.0A	1.0A	1.8A	3.0A
Motor Peak current	1.0A	2.0A	1.0A	1.0A	2.0A	2.0A	2.0A	3.0A	50A
Light and Special functions	0.95A	1.0A	0.65A	0.65A	0.4A	0.25A	0.4A	0.4A	1.0A
Dimmable lighting	no	yes	yes	yes	yes	yes	yes	yes	yes
Aux. special function outputs	no	2	2	no	2	2	7	5	yes
Time controlled special function	no	no	no	no	from Ver. 24	no	yes	yes	yes
Function mapping	no	yes	no	no	yes	no	yes	yes	yes
SUSI connector	no	yes ¹⁾	yes ¹⁾	no	yes	Via Socket ²⁾	Via Socket ²⁾	yes	yes
LISSY output	no	yes ¹⁾	yes ¹⁾	no	yes	Via Socket ²⁾	Via Socket ²⁾	yes	yes
Characteristics									
Addresses Märklin/Uhlenbrock	-/255 ³⁾	9999/80 ³⁾	9999/255 ³⁾	9999/255 ³⁾	9999/255 ³⁾	9999/255 ³⁾	9999/255 ³⁾	9999/255	9999/255 ³⁾
Speed steps Motorola/DCC	-/14	128/14	128/14	128/14	128/14	128/14	128/14	128/14	128/14
Load regulation	no	yes	yes	yes	yes	yes	yes	yes	yes
Programmable motor character.	no	yes	no	no	yes	no	yes	yes	yes
Shunting mode	no	yes	yes	yes	yes	yes	yes	yes	yes
Start/stop inertia	no	yes	yes	yes	yes	yes	yes	yes	yes
Train side switching of lights	no	no	yes	no	yes	no	yes	no	no
RailCom	no	no	no	no	yes	no	yes	no	no
Motor frequency	normal	high	high	high	high	high	high	high	high
Short circuit protection	no	yes	yes	yes	yes	yes	yes	yes	yes
Updatable Flash memory	yes	yes	yes	yes	yes	yes	yes	yes	yes
Error buffer	yes	yes	yes	yes	yes	yes	yes	no	yes
Dimensions in mm.	35x19x5	33.5x19x5.5	20.5x15.4x5	19x16x5	22x12.5x5	20x11x3.8 ³⁾	22x15x3.8 ³⁾	24x20x5.4	68.5x28 x12
Part Number	75 000	76 200	75 330	76 320	76 425	76 150	76 560	77 100	77 500
Note	Reversing switch and Decoder for the original Märklin motor with field coil.	Decoder with load regulation for the original Märklin motor with field coil.	Low priced. with load regulation. For locos with 21-pin MTC interface	Low priced. With load control.	Small Ho decoder.	Fits on the Pick-up Switch 71 750.		Universal decoder for old HO locos with high power use Scale o, small Scale 1 and IIm	Large train decoder with 8 special functions and built-in shuttle train control.

The new decoder 77 100, is particularly suitable for old Ho-Locomotives with higher power needs; naturally also for small locomotives of larger gauges.

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 and HAAG 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 and offers a Sound module connection.



Märklin BR 012 with Decoder 76 200

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

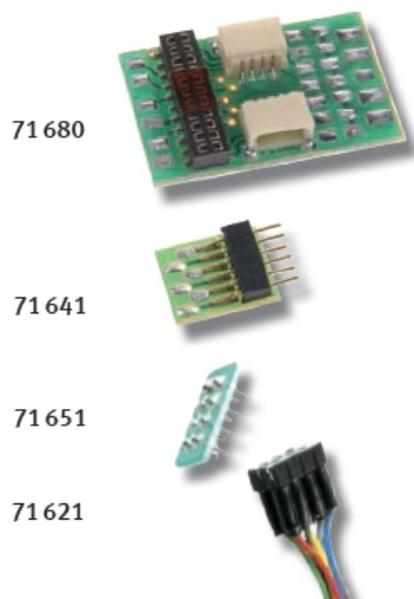
Digital Interface

For fast Decoder swapping

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.

With this PCB and our 76 560 Decoder you can fit out a locomotive with up to seven functions.

- Part No. 71 641 5 of 6-pole Plug, NEM 651
- Part No. 71 621 5 of 8-pole Socket with 175 mm cable, NEM 652
- Part No. 71 651 5 of 8-pole Plug, NEM 652
- Part No. 71 680 PluX-Connector PCB, NEM 658 24.1 x 15.7 x 4.0 mm



71 680

71 641

71 651

71 621

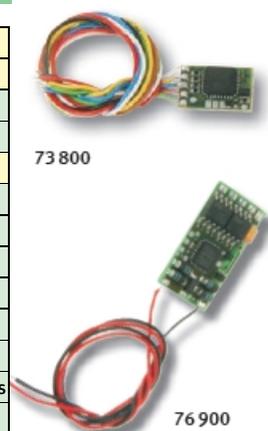
Intelli Drive Function - Function decoder

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 is adjustable. The new decoder 73 800 replaces the 73 900. It is more cost effective and has better performance.

- Part No. 73 800 Function Mini **NEW**
- Part No. 76 900 Function Ho

Intellidrive Function decoder	Function Mini NEW	Function Ho
Suitable for		
Data format	DCC/Mot.	DCC/Mot.
Track gauge	N-TT-Hoe-HOm-HO	HO-Ilm
Characteristics		
Maximum Current load	0.6A	1.2A
Function outputs	4	4
Blink generator	1	1
Addresses DCC/Märklin	9999/80	9999/80
Analogue operation	=	=/~
Short circuit protection	yes	no
Connection	cable	Cable/solder pads
Dimensions in mm	*	22 x 12.5 x 5
Part Number	73 800	76 900

**Not available at time of printing*



73 800

76 900

Intelli Drive - Pickup Switch

For Railcars with two pickups

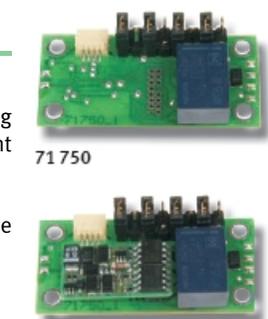
With rail cars that have two pickups it is essential to always take power from the front pickup otherwise the correct stopping at a red signal will not happen.

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 40 x 20 x 10 mm



71 750

71 750 Pickup Switch with Decoder 76150

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 Ho locomotives.

- Part No. 71 500 Motor Suppressor Kit

LISSY – the individual Locomotive Control System

MARCo – the Way to automating Layouts with RailCom

At last, your digital layout can have all the things that have been possible on analogue 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 to solenoids and routes
- 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.

MARCo consists of a RailCom Transmitter or a RailCom capable Decoder in the locomotives, and a MARCo receiver, which is connected to a track section. The RailCom data is transmitted via the track. The track section must be powered by a RailCom capable Booster, such as Power 4. RailCom functions only in DCC data format.

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

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 slowly brake 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).

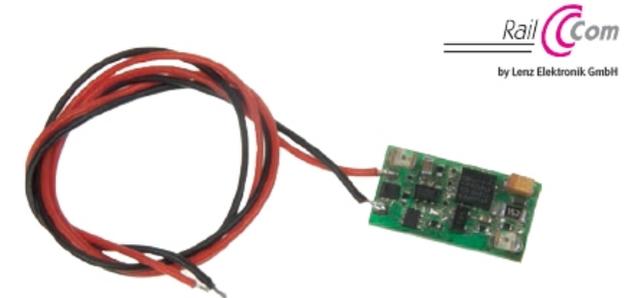
LISSY and MARCo switch the light of a selected locomotive after a particular time on or off, e.g. when the driver switches the locomotive off.

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.

LISSY/RailCom® Transmitter



RailCom
by Lenz Elektronik GmbH

For MARCo and LISSY there is only one transmitter that can send both signals. Both systems can be operated together on a model railway layout. Every vehicle that is to trigger automatic control functions or whose address is to be reported is fitted with a LISSY/RailCom® transmitter. The transmitter is installed in addition to the locomotive decoder and connected together to the locomotive power pickups. It can be programmed like a DCC decoder with all short or long DCC addresses. In addition it is possible to connect a LISSY Mini-transmitter which can be used when space is tight under the vehicle. The new LISSY/RailCom® transmitter combines the transmitters of both systems.

With dimensions of only 13 x 7 x 1.8 mm it is certainly smaller than the transmitters that were available till now and will fit under most vehicles.

Part No. 68 330 LISSY/RailCom® Transmitter single

Part No. 68 331 LISSY/RailCom® Transmitter, 5 pieces



IntelliSound - how the real train sounds!

IntelliSound is the digital Sound System from Uhlenbrock/DIETZ for the digital Model Railway.

IntelliSound is available as a digital decoder with integrated a 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 also make IntelliSound 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 to 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 then the, for example, starting of the engine and/or running out of the engine is heard with a diesel locomotive.



Voith Maxima with Decoder 76 560, Sound-Module 32 300 and Loud speaker 31 140

Sound Module 32 300

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.

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.

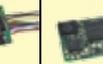
Despite all the tips:

only once the conversion is completed will you know if it was a success.



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. All our Sound Modules and Decoder are fitted with a SUSI interface.

IntelliSound 3- Module und Decoder

Suitable for									
Data Format	Decoder dependant	DCC/Mot.	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	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	1.2A
Peak Motor current		1.5A	1.5A	1.5A	1.5A	2.0A	2.0A	2.0A	2.0A
Light and Special Functions		0.4A	0.4A	0.4A	0.4A	0.4A	0.4A	0.4A	0.4A
Dimmable Light Outputs		yes	yes	yes	yes	yes	yes	yes	yes
Special Function Outputs		2	2	2	2	6	7	7	7
Sound dependant Special Function Outputs	2	-	-	-	-	2	2	2	2
SUSI Sound Interface	Socket	plug	plug	plug	PluX	plug	plug	PluX	
LISSY Output		no	no	yes	no	yes	yes	yes	yes
Sound Characteristics									
Sound Buffer	320s	320s	320s	320s	320s	320s	320s	320s	320s
Simultaneously playable channels	4	4	4	4	4	4	4	4	4
Function Mapping	yes	yes	yes	yes	yes	yes	yes	yes	yes
Loading of own sounds	4	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⁾	9999/255 ²⁾
Speed Steps DCC/Motorola		128/14	128/14	128/14	128/14	128/14	128/14	128/14	128/14
Function Mapping		yes	yes	yes	yes	yes	yes	yes	yes
Load Regulation		yes	yes	yes	yes	yes	yes	yes	yes
Programmable Motor characteristics		no	no	no	no	yes	yes	yes	yes
Shunting Mode		yes	yes	yes	yes	yes	yes	yes	yes
Start/brake Inertia		yes	yes	yes	yes	yes	yes	yes	yes
RailCom		no	no	no	no	yes	yes	yes	yes
Short Circuit Protection	yes	yes	yes	yes	yes	yes	yes	yes	yes
Updatable Flash Memory	yes	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⁾	30 x 15 x 4.0 ¹⁾
Part Number empty/with Sound	32300/32304	33100/33104	33110/33114	33120/33124	33150/33154	35330/35334	36320/36324	25360/35364	
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

- 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 (470-2200 µF/16V)

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 Ho 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 and assigned to any desired function key.

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 and 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.



When ordering IntelliSound modules or decoders with a particular Sound please supply the order number of the desired Sound. Note our separate part numbers for un-programmed and programmed sound modules

and decoders with your desired sound. *With* programmed sound the decoders and modules have the part number 3x xx4. *Without* programmed sound the part number is 3x xx0.

IntelliSound - Loud Speakers

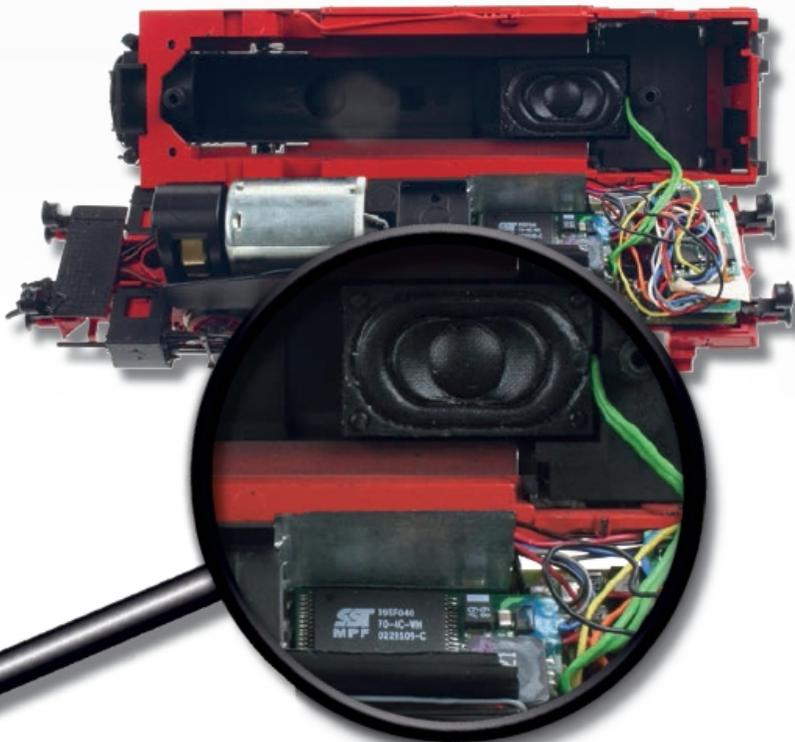
NEW

The loudspeakers which we offer in the Ho 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 their size. They are particularly suitable for N, TT and Ho vehicles with little space.

The new loud speaker 31 141 stands out particularly because of its high volume.

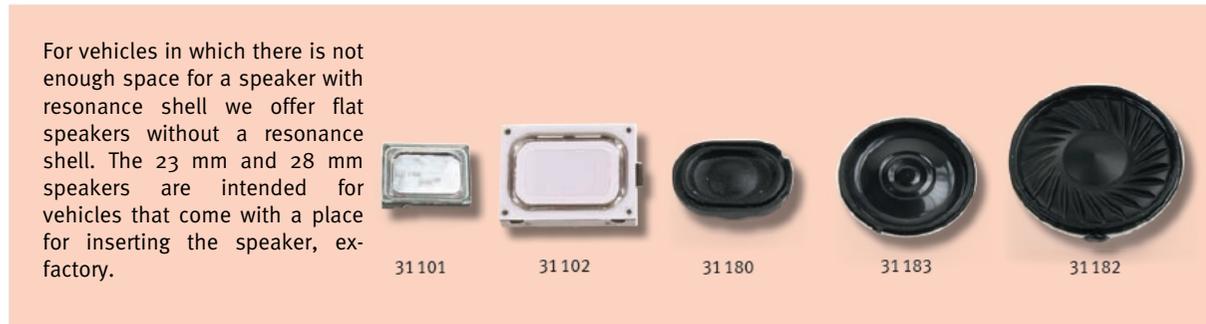
Example: Decoder 76 425, Sound module 32 300 and loudspeaker 31 110 installed in a PIKO BR94.



For scales O to IIm we use three larger loud speakers in our range. You can also use two of the 4 Ohm loud speakers 31 150 in series.



For the Ho range we offer various loud speakers with resonance shells. The important point when selecting a loud speaker is: the larger the speaker the fuller the sound.



For vehicles in which there is not enough space for a speaker with resonance shell we offer flat speakers without a resonance shell. The 23 mm and 28 mm speakers are intended for vehicles that come with a place for inserting the speaker, ex-factory.

Suited for					NEW						
Scale	N-TT	N-H0	N-H0	H0-O	H0-O	N-TT	H0	H0	O-IIm	O-IIm	O-IIm
Dimension in mm	16x12x9	20x14x10	25x15x12	40x20x12	28x28x x	13.5x19.5x4	28x5.4	23x3.6	34x34x15.5	46x46x22	57x57x39
Power	0.35W	0.7&	0.5W	1.5W	0.5W	1W	0.5W	0.4W	3W	3W	10W
Impedance	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
Metal membrane	X	-	-	-	X	-	-	-	-	X	-
Part Number	31 101	31 102	31 110	31 130	31 141	31 180	31 182	31 183	31 150	31 160	31 170

IntelliSound - Loading Adapter

For IntelliSound Modules and Decoders with SUSI Interface



- Loading of sound
- Tests all functions and Sound
- Running simulation
- Program CV's
- With SUSI interface

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.

Recommended Operating System: Windows XP, 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 Loading Adapter 31 010 for IntelliSound 3 Modules and Decoders

- Loading of up to 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: Windows XP, Windows 7.

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

e.g. for a locomotive with 2 motors like the V 320 or rail car VT 18.16. The distributor can also be used a connection extension.

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

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 up-to-date available sound files for proof hearing and to download.

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-536	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-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
99-222	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

Identifier	Sound	Land
99-ELIAS	Steam Loco "Elias"	D
99-G45	Steam Loco 107/108 RhB Type G4/5	CH
99-HEIDI	Narrow gauge Steam Loco	CH
99-Spreewald	Steam Loco "Spreewald"	D
99-IVk	Narrow Gauge Steam Loco IVk	D
99-MH53	Narrow Gauge Steam Loco Ruegen	D
99-U43	Steam Loco Zill Valley Railway	A
99-Xrot	Steam snow plough RhB	CH
DL-039	Steam Loco BR 39	DE
DL-085	Steam Loco BR 85	DE
DL-96	Steam Loco BR 96	DE
DL-98.7	Steam Loco BR 98.7/BB II bay. "Zuckersusi"	DE
DL-CHALLENGER	US Steam Loco 4-6-6-4	US
DL-ELNA-6	Steam Loco ELNA TYP 6	DE/FF
DL-USA-Oe	Steam Loco oil fired	US
99-193	Steam Loco 99 193 of the Nagold-Altensteig Narrow gauge	DE
99-HG23	HG 2/3 from the Visp rack rail train	CH
99-MH3	Pinzgauer Local train	AT
E-Locos and Railcars		
EL-101	E-Loco 101	D
EL-103	E-Loco103 / Eo3	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-AE66	E-Loco AE 6/6 of SBB	CH
EL-CE68	E-Loco Ce 6/8 Crocodile	CH
EL-KROKO	E-Loco Ge 6/6-1 Crocodile (RhB)	CH
EL-HGE22	Rack Rail Hge 2/2	EU
EL-GE44-3	E-Loco Ge 4/4-III (RhB)	CH
EL-GE44-3-I	E-Loco Ge 4/4-III (RhB Jubi Edition)	CH
EL-461	E-Loco Ge 4/6-1 of the RhB	CH
EL-662	E-Loco Ge 6/6-II of the RhB	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
EL-H6E44-2	Rack rail E-Loco	CH
EL-AE47	E-Loco Ae 4/7	CH

Identifier	Sound	Land
EL-GE24	E-Loco GE 2/4 of the RhB	CH
EL-GE44-2	E-Loco Ge 4/4-II of the RhB	CH
Diesel Locos and Railcars		
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-212	Diesel Loco 212 / V 100	D
VL-218	Diesel Loco 218 / V 160	D
VL-220	Diesel Loco 220 / V 200	D/CH
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
VL-290	Diesel Loco V 290 / V 90	D
VL-320-1M	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-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
VL-F-LKM	Field work Diesel Loco	EU

Identifier	Sound	Land
VT-HSB-T3	Diesel Rail Car T3 of the HSB	D
VT-RAM	Diesel Rail Car VT-Ram	CH/NL
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
VL-110-HK	Diesel Loco V 100 DR / 110	EE
VL-188	Diesel Loco 188	DE
VL-2091-V2	Diesel Loco 2091 ÖBB	AT/DE
VL-210	Diesel Loco BR 210 DB	DE
VL-218-V2	Diesel Loco 218 / V160	DE
VL-220-V2	Diesel Loco 220 / V 200 DB	DE
VL-Am44	V 200 SBB	CH
VL-AMTRAK	Diesel Railcar american type	US
VL-D14	Gmeinder D 75 BB-SE	AT
VL-Dash9	General Electric Dash 9	US
VL-DR-UNI	Diesel Loco V 180 (118) DR	DE
VL-GP38-2	EMD GP38	US
VL-GP9	EMD GP9	US
VL-HGm44-2	HGm 4/4	CH
VL-MT DSB	Diesel Loco DSB Litra MT	DK
VL-Nohab	Diesel Loco Nohab	DK EU
VL-T478-1-CZ	Diesel Loco T478/750 "Taucherbrille"	CZ
VL-T478-2-CZ	Diesel Loco T478/750 "Taucherbrille"	CZ
VL-V3	Diesel Loco V22 Euskirchner ring rail	DE
VL-V60-DR-V1	Diesel Loco V60/BR 362 DR	DE
VL-V60-DR-V2	Diesel Loco V60/BR 362 DR	DE
VT-11.5	Diesel Rail Car VT11.5	DE
VT-11.5-GT	Diesel Rail Car VT11.5 Gas turbine/BR 602	DE
VT-5090	Diesel Rail car BR 5090/Vts 11-16	AT
VT-612	Diesel Rail Car BR 612	DE
VT-646	Diesel Rail Car BR 646/Stadler	DE/EU CH
VT-648	Diesel Rail Car BR 648, LINT 41	DE/EU
VT-TW1SH	Diesel Rail Car No. 1 Selters Hachenburg small train	DE
Road Vehicles and Others		
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	-
Am Bahnhof	At the Station	-

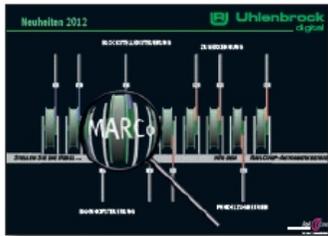
LISSY + Track-Control



Product overview of the LISSY Feedback system and picture control panel Track-Control

Part No. 13 090 Prospectus, 8 Pages,
DIN A4 Landscape

New Items 2012: MARCo



Concept of the MARCo-Systems with RailCom

Part No. 11120 Prospectus, 8 Pages,
DIN A4 Landscape

New Items 2013: DAISY II + Universal Control



New item overview: Wireless Hand Controller DAISY II and Universal Control for Block sections and Shadow stations.

Part No. 11130 Prospectus, 8 Pages,
DIN A4 Landscape

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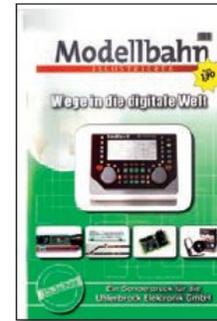
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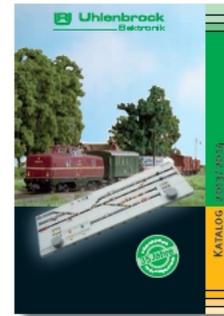
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89 Page, DIN A4

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