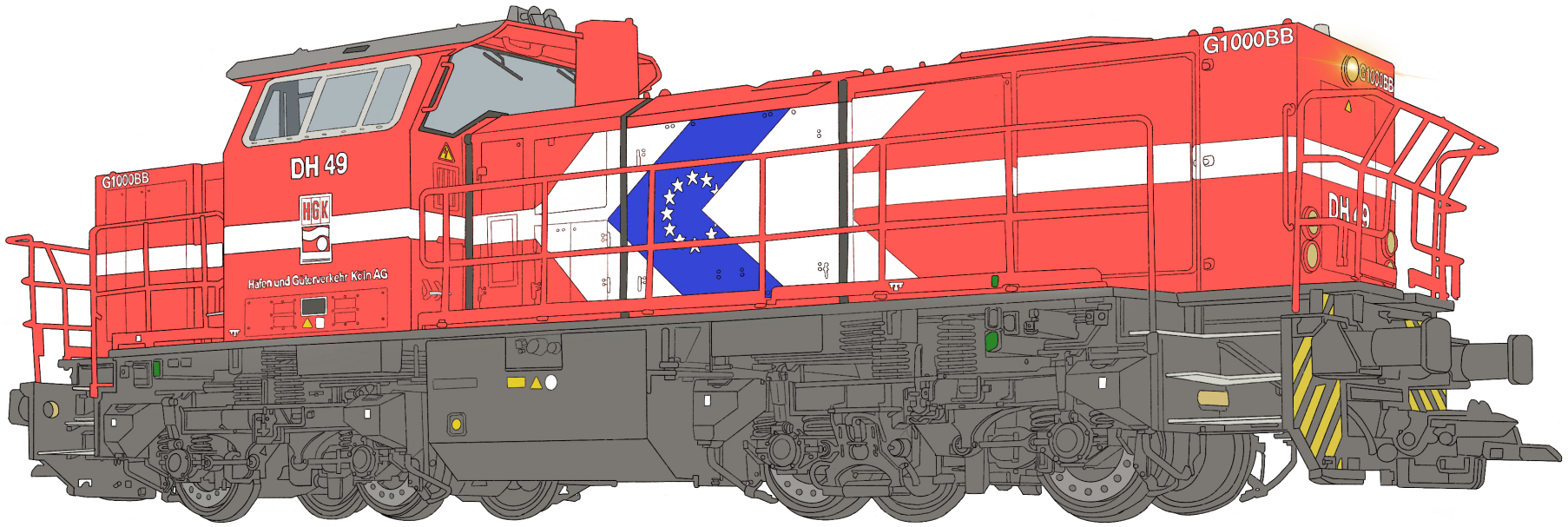
Spring 2021
Locomotives / Digital



LokPilot 5 – One for everything, all in one!

Since their release in 2001, LokPilot decoders have been widely used by thousands of satisfied customers worldwide and have earned an excellent reputation: their high reliability in hard use of the system, the wide range of applications thanks to multi-protocol properties, the unmatched flexible function key mapping and the careful production in our ISO 9000 certified plant in Pilsen / Czech Republic are just some of the reasons that speak for a real LokPilot decoder.

With the LokPilot 5, this success story will be continued. Completely newly developed with a modern 32-bit processor as a »heart«, digital decoders are becoming even more »intelligent« than before.

LokPilot 5 decoders are offered in all common interface versions and always as pure DCC or multiprotocol version. A suitable LokPilot 5 decoder is available for each application. This year, the lokPilot 5 decoder line will be further added.

LokPilot 5 Basic

LokPilot 5 Basic decoders are intended for users of the H0 gauge who are looking for a modern decoder with a reasonable range of functions at a fair price. With a size of 25.5 x 15.5 mm, it should be seated in most locomotives.

LokPilot 5 Basic decoders are »pure« DCC decoders in a suitable environment. Of course, RailComPlus is also on board. In addition, they can be operated on analogue DC systems.

The LokPilot 5 Basic decoder comes with an 8-pole or 21MTC interface. 4 amplified radio outputs as well as 8 logic level function outputs (21MTC version) for servo control or the connection of an external PowerPack are available.

Thanks to its engine output power of 0.9A, it is an ideal all-rounder for locomotives with non-switchable functions and limited power consumption.

LokPilot 5 Fx

LokPilot 5 Fx decoders are intended for all locomotives of gauge H0 and 0, where light functions are to be controlled, but no engine is installed. With a size of only 16.5 x 15.5 mm base area, they are very small and should be spaced everywhere.

The LokPilot 5 Fx Decoder is a true multi-protocol decoder and understands DCC with RailComPlus, Motorola® and Selectrix®. In addition, it can be operated on analog DC power systems.

The LokPilot 5 Fx decoder comes with an 8-pole, 21MTC or PluX22 interface. 10 amplified function outputs as well as 4 logic level outputs (21MTC version) for servo control or the connection of an external PowerPack are available.

LokPilot 5 Fx DCC

LokPilot 5 Fx DCC decoders are intended for all locomotives of gauge H0 and 0, where light functions are to be controlled, but no engine is installed. With a size of only 16.5 x 15.5 mm base area, they are very small and should be spaced everywhere.

LokPilot 5 Fx DCC decoders are »pure« DCC decoders in an appropriate environment. Of course, RailComPlus is also on board. In addition, they can be operated on analogue DC systems.

The LokPilot 5 Fx DCC decoder comes with an 8-pole, 21MTC or PluX22 interface. 10 amplified function outputs as well as 4 logic level outputs (21MTC version) for servo control or the connection of an external PowerPack are available.

LokSound 5 - Sound...superdetailed!

Our fifth LokSound generation intelligently combines a sound module with a multiprotocol digital decoder. With LokSound decoders, your model not only drives like the prototype, they also sound exactly the same. This is made possible by our award-winning LokSound technology - since its introduction in 1999 the reference for good sound on the model railway. From the inventor, ESU.

What's behind the sound

All LokSound 5 decoders have been built around a powerful 32-bit processor. This is complemented by a sound memory that contains the sounds. The sound is finally given by specially developed high-performance loudspeakers and a powerful audio amplifier. With a LokSound 5 decoder, the sound quality and dynamic range of your locomotive will be almost perfectly matched to the original.

The built-in 128 Mb4 flash memory absorbs up to 1096 seconds of noise data that will be passed to the power amplifier via a polyphonic 16-bit mixer stage. With optimized special loudspeakers, this ensures a rich sound. LokSound 5 decoders play back 12 noise channels at the same time. Each sound channel achieves HiFi quality with 31250 Hz sampling frequency.

Our unparalleled flexible sound engine with its schedule without rigid rules enables the simulation of all conceivable models. These can be, for example, steam locomotives with two, three or four cylinders. With acceleration, the Exhaust steam becomes harder, while when the controller is closed, only rod clank can usually be heard! The playback is so genuine that you can of course hear the typical rhythm of a two-, three- or four-cylinder locomotive.

Diesel locomotives, on the other hand, are available in various versions, all of which are given as a model: Diesel-hydraulic locomotives howl after driving off before they start moving. The speed of the motor sound is determined by the speed. When you are under load or acceleration, the sound becomes more intense, while the motor falls back on the stand gas when you close the controller. Diesel-electric locomotives, on the other hand, keep the speed of the diesel almost constant, but you can hear the quiet howling of the electric motors.

But electric locomotives are also a feast for the ears: in addition to the fan noises, the compressors or oil coolers, you can hear the electric motors howling, main switches popping or switchgear clacking.

In addition to this soundscape, they can trigger sounds at any time with a function key and thus whistle, honk or trigger the bell in front of level crossings or tunnels to your heart's content. At the background, you can hear how randomly controlled compressed air is drained, the heater re-releases coal or the overpressure valve drains steam. The decoder can also copy all this with function outputs, so that it really flickers in the fire box when coal is being snipped!

Variety of sounds

ESU, as a market and technology leader in the sound field, takes your sound demands very seriously. More than 400 different noise variants are available for the LokSound 5 decoder. ESU is constantly expanding this sound library and offers all sounds on the homepage for free download.

LokSound 5 - The decoder

LokSound 5 decoders feature excellent engine load control with up to 50 kHz clock speed and noise-optimized motor control, so that bell anchor or track 1 motors with ex-cell slow driving characteristics also drive silently.

Depending on the control panel, up to 32 functions are possible, which can be assigned any special functions with the uniquely flexible ESU Function Mapping. Three individually adjustable brake controllers as well as a two-stage heavy-duty simulation provide additional playfulness as well as random functions, with the help of which light effects can also be controlled randomly.

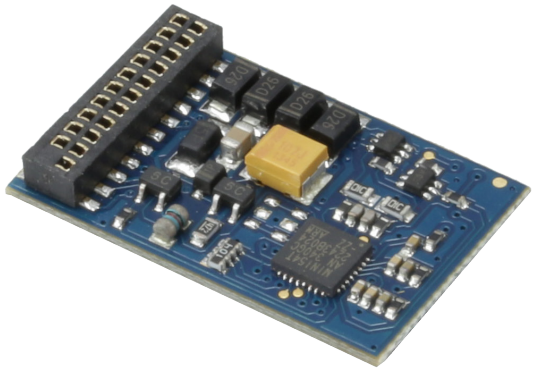
Future built-in

LokSound 5 decoders are firmware update-enabled. This means that the internal software of the decoder can be replaced with new versions if necessary. All you need is the ESU LokProgrammer and a PC.

LokPilot 5 Basic

27,40 € RRP *)

Icon representation



While LokPilot 5 decoders can undoubtedly meet all imaginable requirements of even the most demanding experts, many model railway eras are looking for a robust, high-quality DCC decoder for your standard requirements, which should also be affordable.

The LokPilot 5 Basic was developed with the aim of offering a modern decoder with a reasonable range of functions at a reasonable price.

The LokPilot 5 Basic comes in two versions: In addition to a version with an 8-pin NEM interface, a version with 21MTC interface is also available. This makes the LokPilot 5 Basic particularly suitable for use in track H0 vehicles.

Modes

The LokPilot 5 Basic is a »pure-bred« DCC decoder. 14 to 128 driving steps are as self-evident as 2- and 4-digit addresses. Up to 20 functions can be triggered. Thanks to RailComPlus®, the decoders log in fully automatically to a suitable digital center.

It masters all DCC programming modes and thanks to RailCom® the CV values can be read out on the main track with suitable control panels. Auxiliary registers exist for control panels that can only program the CVs from 1-255.

The LokPilot 5 Basic Decoder detects the Märklin® brake distances as well as the Lenz® ABC system. Braking with DCC brake blocks or dc voltage is also possible.

The LokPilot 5 Basic Decoder can be used on analog DC webs. The maximum speed can be set separately.

The decoder switches »on-the-fly« fully automatically between operating modes. Most of the time, nothing needs to be adjusted.

Functions

The LokPilot 5 Basic has 4 reinforced function outputs in each version. In the 21MTC interface, there are 8 logic-level outputs at the interface, two of which are also suitable for controlling servos. All important lighting functions are available. The brightness of each output can be set separately.

Motor

The motor control of the LokPilot 5 Basic delivers up to 0.9A continuous current. A variable PWM clock frequency from 10kHz to 50kHz ensures super-quiet operation, especially for bell anchor motors – The typical »hum« is a thing of the past. The load control can be adapted to difficult cases with up to 10 CVs. The unique »Autotune« function allows the decoder to be automatically measured against the motor.

Operational reliability

On request, a PowerPack can be connected to the LokPilot 5 Basic to bridge dirty rail cuts.

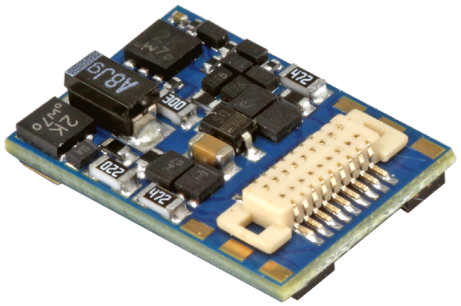
Protection

Of course, all function outputs as well as the motor output are protected against overload. We want you to enjoy your decoder for as long as possible.

59020, LokPilot 5 Basic, 8-pin NEM652, gauge H0, 0	27,40 € RRP *)
59029, LokPilot 5 Basic, 21MTC NEM660, gauge H0, 0	27,40 € RRP *)

LokPilot 5 Fx micro DCC

ab 37,40 € RRP *)



The LokPilot 5 Fx micro and its »twin« LokPilot 5 Fx micro DCC are versatile decoders with a Next18 interface on a footprint of 13.0 mm x 9.2 mm. They are used in all vehicles of nominal sizes N to H0, which do not have an engine output, but should still be able to switch light effects.

Modes

The LokPilot 5 Fx micro is a multi-protocol decoder. It masters the DCC data format as well as Motorola® and Selectrix®. In DCC format, 14 to 128 driving steps are as self-evident as 2- and 4-digit addresses and up to 32 functions. With the help of RailComPlus® technology, the decoders register fully automatically at a suitable digital center.

It masters all DCC programming modes and can be both driven and programmed with compatible digital centers: Thanks to RailCom®, it is possible to read out the CV values on the main track with suitable control panels. Auxiliary registers exist for control panels that can only program the CVs from 1-255.

Motorola® users benefit from up to 28 driving steps at 255 addresses. Three additional Motorola® addresses enable the triggering of 16 functions. A built-in programming mode also makes reprogramming possible with the venerable Control Unit 6021.

The LokPilot 5 Fx micro DCC speaks »only« the DCC protocol, but can also be automatically registered with RailComPlus® at appropriate control centers.

The LokPilot 5 Fx micro decoder detects the Märklin® brake distances as well as ZIMO® HLU / ZACK commands or the Lenz® ABC system. Braking with DCC brake blocks or with equal voltage is also possible. In addition, it also stops with a Selectrix® brake diode. An automatic ABC pen train allows automatic commuting between two stations. Although this decoder does not have an engine output, this is also important for a function decoder in order to be able to synchronize control cars and motor cars.

The LokPilot 5 Fx micro decoder can be used on analog DC and ac current webs; the LokPilot 5 Fx micro DCC on analog DC webs.

The decoder switches »on-the-fly« fully automatically between operating modes. Most of the time, nothing needs to be adjusted.

Functions

The LokPilot 5 Fx micro or LokPilot 5 Fx micro DCC has been equipped with an astonishing number of function outputs. Thus, 6 reinforced function outputs with 180mA output current each as well as two logic level outputs for servos or Susi are available. The brightness of each output can be set separately.

Interaction

LokPilot 5 Fx micro are designed for interaction with the LokSound 5 and the LokPilot 5 decoders: for example, it is possible to equip the locomotive of a multiple unit with a LokSound 5 micro decoder and the control car with a LokPilot 5 Fx micro. Provided the same address, both are absolutely identical. The identical arrangement of the CVs facilitates the tuning of the two decoders.

Operational reliability

On request, a PowerPack can be connected to the LokPilot 5 Fx micro and LokPilot 5 Fx micro DCC for overbreeding dirty rail sections.

Protection

Of course, the outputs are protected against overload. We want you to enjoy your decoder for as long as possible.

59118, LokPilot 5 Fx micro DCC/MM/SX, Next18, gauge N, TT	39,40 € RRP *)
59128, LokPilot 5 Fx micro DCC, Next18, gauge N, TT	37,40 € RRP *)

*) Recommended retail price including 19% German VAT.

LokPilot 5 Fx

27,40 € RRP *)

The LokPilot 5 Fx is a function decoder without motor output and therefore perfect for installation in control cars or function models. Because it talks DCC with RailCom® as well as Motorola® and Selectrix, it can be used with all common digital centers. He shares his flexible radio-onskey assignment and the manifold lighting effects with the other LokPilot 5 decoders from ESU.

The LokPilot 5 Fx is supplied in three variants: In addition to the »classic« version with 8-pin NEM 652 harness, a variant for the 21MTC interface and with PluX22 interface is also available.

Modes

The LokPilot 5 Fx is a multi-protocol decoder. It masters the DCC data format as well as Motorola® and Selectrix®. In DCC format, 14-128 driving steps are as natural as 2- and 4-digit addresses. Up to 28 functions can be triggered. Thanks to RailComPlus® the decoders register fully automatically at a suitable digital center (e.g. ECoS).

It masters all DCC programming modes and can be used and programmed with all DCC-compatible digital centers: RailCom® also allows the CV values to be read out on the main track with suitable control panels. Auxiliary registers exist for control panels that can only program the CVs from 1-255 (e.g. ROCO® multi-mouse).

Motorola® users benefit from up to 28 driving steps at 255 addresses. Three additional Motorola® addresses enable the triggering of 16 functions. A built-in programming mode also makes reprogramming possible with the venerable Control Unit 6021.

The LokPilot 5 Fx micro decoder detects the Märklin® brake distances as well as ZIMO® HLU / ZACK commands or the Lenz® ABC system. Braking with DCC brake blocks or with equal voltage is also possible. In addition, it also »stops« with a Selectrix® brake diode.

An automatic ABC commuter train allows automatic commuting between two stations. Although this decoder does not have an engine output, this is also important with a function decoder in order to be able to synchronize control cars and motor cars.

The LokPilot 5 FX decoder can be used on analog DC and AC webs.

The decoder switches »on-the-fly« fully automatically between operating modes. Most of the time, nothing needs to be adjusted.

Functions

The LokPilot 5 Fx has been equipped with an astonishing number of function outputs. Depending on the cutting version, each LokPilot 5 Fx decoder offers at least 10 reinforced function outputs with 250mA output current each. In the versions with PluX22 or 21MTC interface, 4 outputs for controlling servos or logic level outputs are added. All important lighting functions are available. The brightness of each output can be set separately.

Interaction

The LokPilot 5 Fx is designed for an interaction with the LokSound 5 and the LokPilot 5 decoders: for example, it is possible to equip the locomotive of a multiple unit with a LokSound 5 decoder and the control car with a LokPilot 5 Fx. Provided the same address, both behave absolutely identically. The identical arrangement of the CVs facilitates the tuning of the two decoders.

Operational reliability

On request, a PowerPack can be connected to the LokPilot 5 Fx to bridge dirty rail cuts.

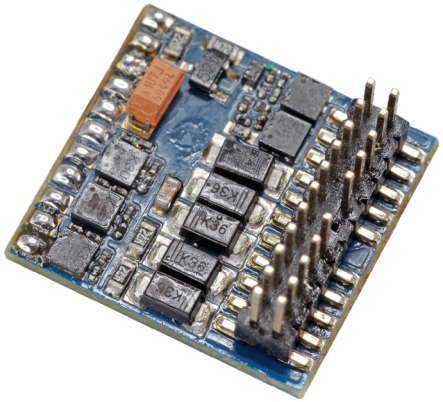
Protection

Of course, the outputs are protected against overload. We want you to enjoy your decoder for as long as possible.

59210, LokPilot 5 Fx DCC/MM/SX, 8-pin NEM652, gauge H0, 0	27,40 € RRP *)
59212, LokPilot 5 Fx DCC/MM/SX, PluX22 NEM658, gauge H0, 0	27,40 € RRP *)
59219, LokPilot 5 Fx DCC/MM/SX, 21MTC NEM660, gauge H0, 0	27,40 € RRP *)

LokPilot 5 Fx DCC

25,40 € RRP *)



The LokPilot 5 Fx DCC is a function decoder without motor output and is therefore perfect for installation in control cars or function models. As the »twin brother« of the LokPilot 5 Fx, it shares its characteristics and also the basic characteristics of all other LokPilot 5 decoders, but is a pure DCC decoder.

The LokPilot 5 Fx DCC is supplied in three variants: In addition to the »classic« version with 8-pole NEM 652 wiring harness, a variant for the 21MTC interface and with PluX22 interface is also available.

Modes

The LokPilot 5 Fx DCC is a »pure-bred« DCC decoder. 14 to 128 driving steps are as self-evident as 2- and 4-digit addresses. Up to 32 functions can be triggered. Thanks to RailComPlus®, the decoders register fully automatically at a suitable digital center.

It masters all DCC programming modes and thanks to RailCom® the CV values can be read out on the main track with suitable control panels. Auxiliary registers exist for control panels that can only program the CVs from 1-255.

The LokPilot 5 Fx DCC decoder detects the Märklin® brake distances as well as ZIMO® HLU / ZACK commands or the Lenz® ABC system. Braking with DCC brake blocks or with equal voltage is also possible. In addition, it also stops with a Selectrix® brake diode. An automatic ABC pen train allows automatic commuting between two stations. Although this decoder does not have an engine output, this is also important for a function decoder in order to be able to synchronize control cars and motor cars.

The LokPilot 5 Fx DCC decoder can be used on analog DC webs.

The decoder switches »on-the-fly« fully automatically between operating modes. Most of the time, nothing needs to be adjusted.

Functions

The LokPilot 5 Fx DCC has been equipped with an astonishing number of function outputs. Depending on the cutting position design, each LokPilot 5 Fx DCC decoder offers at least 10 reinforced function outputs with 250mA output current each. For the versions with PluX22 or 21MTC interface, 4 outputs are added for controlling servos or logic level outputs. All important light radios are available. The brightness of each output can be set separately.

Interaction

The LokPilot 5 Fx DCC is designed for interaction with the LokSound 5 and the LokPilot 5 decoders: for example, it is possible to equip the locomotive of a multiple unit with a LokSound 5 decoder and the control car with a LokPilot 5 Fx DCC. Provided the same address, both behave absolutely identically. The identical arrangement of the CVs facilitates the tuning of the two decoders.

Operational reliability

On request, a PowerPack can be connected to the LokPilot 5 Fx DCC to bridge dirty rail cuts.

Protection

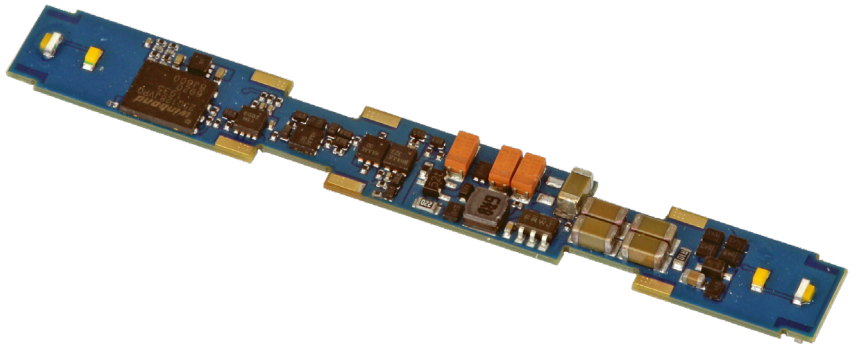
Of course, the outputs are protected against overload. We want you to enjoy your decoder for as long as possible.

59220, LokPilot 5 Fx DCC, 8-pin NEM652, gauge H0, 0	25,40 € RRP *)
59222, LokPilot 5 Fx DCC, PluX22 NEM658, gauge H0, 0	25,40 € RRP *)
59229, LokPilot 5 Fx DCC, 21MTC NEM660, gauge H0, 0	25,40 € RRP *)

*) Recommended retail price including 19% German VAT.

LokSound 5 micro DCC Direct

109,99 € RRP *)



The LokSound 5 micro DCC Direct has been specially developed for installation in gauge N vehicles of the Atlas and Intermountain brands: it can be inserted directly instead of the analog board installed there as standard. However, the decoder can also be used for similar models from other manufacturers at your own discretion.

The LokSound 5 micro DCC Direct with its dimensions of 66.0 mm x 8.2 mm is a pure DCC decoder and comes without a loudspeaker.

Modes

The LokSound 5 micro DCC Direct is a »pure-bred« DCC decoder. 14 to 128 driving steps are as self-evident as 2- and 4-digit addresses. Up to 32 functions can be triggered. Thanks to RailComPlus®, the decoders log in fully automatically to a suitable digital center.

It masters all DCC programming modes and thanks to RailCom® the CV values can be read out on the main track with suitable control panels. Auxiliary registers exist for control panels that can only program the CVs from 1-255.

The LokSound 5 micro DCC Direct decoder detects the Märklin® brake distances as well as ZIMO® HLU / ZACK commands or the Lenz® ABC system. Braking with DCC brake blocks or DC voltage is also possible. In addition, it also stops with a Selectrix® brake diode. An automatic ABC commuter train allows automatic commuting between two stations.

The LokSound 5 micro DCC Direct can be used on analog DC webs.

The decoder switches »on-the-fly« fully automatically between operating modes. Most of the time, nothing needs to be adjusted.

Sound

The LokSound 5 micro DCC Direct decoder can play up to 12 channels simultaneously. Each channel can be resolved with up to 16 bits / 31250 kHz and offers hi-fi quality on your system. There is virtually no difference to the original audible anymore. A Class-D audio output stage with up to 3W output power controls the speakers, which have between 4 ohms and 32 ohms impedance. A 128 Mbit sound memory provides enough capacity.

All individual noises can be adjusted individually in the volume. The super-flexible sound engine without a rigid schedule allows the exemplary simulation of all conceivable rail tracks.

Functions

The LokSound 5 micro DCC Direct has 10 directly soldered LEDs. Two of them are intended for front and rear head lighting, two more are connected to the AUX3 and AUX4 outputs to switch e.g. number boards. A further 6 LEDs on the bottom are intended for ditch lights, but can also be used for other lighting purposes on request. All important lighting functions are available. The brightness of each output can be set separately.

Motor

The motor control of the LokSound 5 micro DCC Direct has a variable PWM clock frequency from 10kHz to 50kHz, which ensures super-quiet operation, especially for bell anchor motors – the hitherto typical »hum« is a thing of the past. The load control can be adapted to difficult cases with up to 10 CVs. The unique »Autotune« function allows the decoder to be automatically measured against the motor. The LokSound 5 micro DCC Direct decoder delivers up to 0.75A motor power.

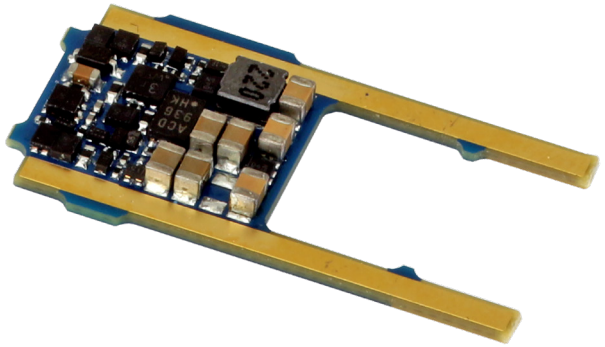
Protection

Of course, the outputs are protected against overload. We want you to enjoy your decoder for as long as possible..

58721, LokSound 5 micro DCC Direct »Blank decoder«, gauge: N 109,99 € RRP *)

LokSound 5 micro DCC Kato

109,99 € RRP *)



The LokSound 5 micro DCC Direct Kato Japan has been specially developed for installation in Kato-branded track N vehicles: in many European and Japanese locomotives of this manufacturer, the decoder can be installed directly below the engine instead of the analog board installed as standard. Finally, these models can also be easily retrofitted with a LokSound decoder.

The LokSound 5 micro DCC Direct Kato Japan with its dimensions of 27.6 mm x 14.1 mm x 3 mm is a pure DCC decoder and comes without a loudspeaker.

Modes

The LokSound 5 micro DCC Direct Kato Japan is a »pure-bred« DCC decoder. 14 to 128 driving steps are as self-evident as 2- and 4-digit addresses. Up to 32 functions can be triggered. Thanks to RailComPlus®, the decoders log in fully to a suitable digital center.

It masters all DCC programming modes and thanks to RailCom® the CV values can be read out on the main track with suitable control panels. Auxiliary registers exist for control panels that can only program the CVs from 1-255.

The LokSound 5 micro DCC Direct Kato Japan decoder detects the Märklin® brake distances as well as ZIMO® HLU / ZACK commands or the Lenz® ABC system. Braking with DCC brake blocks or DC voltage is also possible. In addition, it also stops with a Selectrix® brake diode. An automatic ABC commuter train allows automatic commuting between two stations.

The LokSound 5 micro DCC Direct Kato Japan can be used on analog DC webs.

The decoder switches »on-the-fly« fully automatically between operating modes. Most of the time, nothing needs to be adjusted.

Sound

The LokSound 5 micro DCC Direct Kato Japan decoder can play up to 12 channels simultaneously. Each channel can be resolved with up to 16 bits / 31250 kHz and offers hi-fi quality on its system. There is virtually no difference to the original audible anymore. A Class-D audio output with up to 3W output power controls the speakers, which can have between 4 ohms and 32 ohms impedance. A 128 Mbit sound memory provides enough capacity.

All individual noises can be adjusted individually in the volume. The super-flexible sound engine without a rigid schedule allows the exemplary simulation of all conceivable rail tracks.

Functions

Although the LokSound 5 micro DCC Direct Kato Japan is normally installed in the motor car of a drive car set, three reinforced function outputs for lighting are available at their own discretion. All important lighting functions are available. The brightness of each output can be set separately.

Motor

The motor control of the LokSound 5 micro DCC Direct Kato Japan has a variable PWM clock frequency from 10kHz to 50kHz, which ensures a super-quiet drive, especially for bell anchor motors – the typical »hum« is a thing of the past. The load control can be adapted to difficult cases with up to 10 CVs. The unique »Autotune« function allows the decoder to be automatically measured against the motor. The LokSound 5 micro DCC Direct Kato Japan decoder delivers up to 0.75A motor power.

Protection

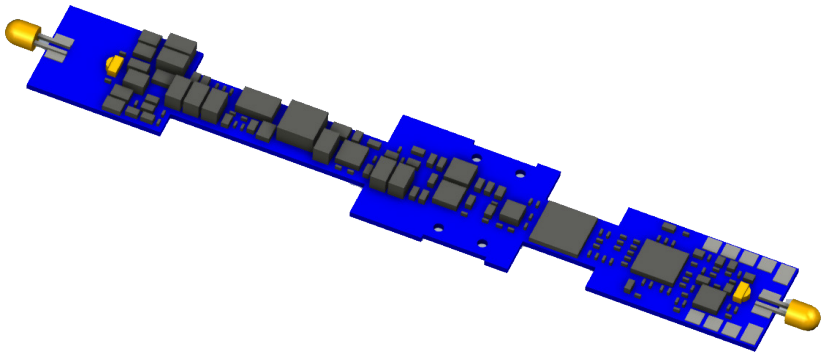
Of course, the outputs are protected against overload. We want you to enjoy your decoder for as long as possible.

58731, LokSound 5 micro DCC Direct Kato Japan »Blank decoder«, gauge: N 109,99 € RRP *)

*) Recommended retail price including 19% German VAT.

LokSound 5 micro DCC Kato USA

109,99 € RRP *)



The LokSound 5 micro DCC Direct Kato USA has been specially developed for installation in track N vehicles of the Kato USA brand: Most diesel locomotives of this manufacturer are installed in the American model of these decoders instead of the analog board installed as standard. Finally, these models can also be easily retrofitted with a LokSound decoder.

The LokSound 5 micro DCC Direct Kato USA with its dimensions of 60.0 mm x 10.1 mm is a pure DCC decoder and comes without a loudspeaker.

Modes

The LokSound 5 micro DCC Direct Kato USA is a »pure-bred« DCC decoder. 14 to 128 driving steps are as self-evident as 2- and 4-digit addresses. Up to 32 functions can be triggered. Thanks to RailComPlus®, the decoders log in fully to a suitable digital center.

It masters all DCC programming modes and thanks to RailCom® the CV values can be read out on the main track with suitable control panels. Auxiliary registers exist for control panels that can only program the CVs from 1-255.

The LokSound 5 micro DCC Direct Kato USA decoder detects the Märklin® brake distances as well as ZIMO® HLU / ZACK commands or the Lenz® ABC system. Braking with DCC brake blocks or DC voltage is also possible. In addition, it also stops with a Selectrix® brake diode. An automatic ABC commuter train allows automatic commuting between two stations.

The LokSound 5 micro DCC Direct Kato USA can be used on analog DC webs.

The decoder switches »on-the-fly« fully automatically between operating modes. Most of the time, nothing needs to be adjusted..

Sound

The LokSound 5 micro DCC Direct Kato USA decoder can play up to 12 channels simultaneously. Each channel can be resolved with up to 16 bits / 31250 kHz and offers hi-fi quality on its system. There is virtually no difference to the original audible anymore. A Class-D audio output with up to 3W output power controls the speakers, which can have between 4 ohms and 32 ohms impedance. A 128 Mbit sound memory provides enough capacity.

All individual noises can be adjusted individually in the volume. The super-flexible sound engine without a rigid schedule allows the exemplary simulation of all conceivable rail tracks.

Functions

Despite its compact dimensions, the LokSound 5 micro DCC Direct Kato USA is equipped with an enormen number of function outputs. Two directly soldered SMD LEDs are designed for front and rear front and rear head lighting. For older models, two wired LEDs can alternatively be soldered and switched separately. Three further reinforced function outputs are also available. All important lighting functions are available. The brightness of each output can be set separately.

Motor

The motor control of the LokSound 5 micro DCC Direct Kato USA has a variable PWM clock frequency from 10kHz to 50kHz, which ensures super-quiet operation, especially for bell anchor motors – the typical »hum« is a thing of the past. The load control can be adapted to difficult cases with up to 10 CVs. The unique »Autotune« function allows the decoder to be automatically measured against the motor. The LokSound 5 micro DCC Direct Kato USA decoder delivers up to 0.75A motor power.

Operational reliability

A PowerPack can be connected to the LokSound 5 micro DCC Direct Kato USA on request to bridge dirty rail sections.

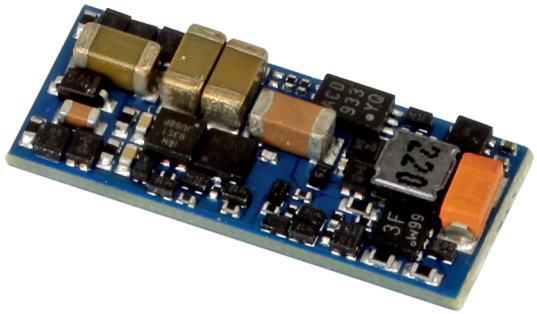
Protection

Of course, the outputs are protected against overload. We want you to enjoy your decoder for as long as possible.

58741, LokSound 5 micro DCC Direct Kato USA »Blank decoder«, gauge: N 109,99 € RRP *)

LokSound 5 Nano DCC

109,99 € RRP *)



With the LokSound 5 Nano DCC, ESU has succeeded in developing an even smaller LokSound decoder: With only 19.6 mm x 8.5 mm x 3.2 mm, it is the smallest LokSound decoder we have ever built. Thus, it should really be used in all vehicles of nominal sizes N and TT.

The LokSound 5 Nano DCC decoder is a pure DCC decoder with open cable ends for free wiring and comes with an 11 x 15 mm »sugar cube« speaker along with sound capsule kit.

Modes

The LokSound 5 Nano DCC is a »pure-bred« DCC decoder. 14 to 128 driving steps are as self-evident as 2- and 4-digit addresses. Up to 32 functions can be triggered. Thanks to RailComPlus®, the decoders register fully automatically at a suitable digital center.

It masters all DCC programming modes and thanks to RailCom® the CV values can be read out on the main track with suitable control panels. Auxiliary registers exist for control panels that can only program the CVs from 1-255.

The LokSound 5 Nano DCC decoder detects the Märklin® brake distances as well as ZIMO® HLU / ZACK commands or the Lenz® ABC system. Braking with DCC brake blocks or with equal voltage is also possible. In addition, it also stops with a Selectrix® brake diode. An automatic ABC pen train allows automatic commuting between two stations.

The LokSound 5 Nano DCC can be used on analog DC webs.

The decoder switches »on-the-fly« fully automatically between operating modes. Most of the time, nothing needs to be adjusted.

Sound

The LokSound 5 Nano DCC decoder can play up to 12 channels simultaneously. Each channel can be resolved with up to 16 bits / 31250 kHz and offers hi-fi quality on your system. There is virtually no difference to the original audible anymore. A Class-D audio output with up to 3W output power controls the speakers, which may have between 4 ohms and 32 ohms impedance. A 128 Mbit sound memory provides enough capacity.

All individual noises can be adjusted individually in the volume. The super-flexible sound engine without a rigid schedule allows the exemplary simulation of all conceivable rail tracks.

Functions

Despite its small size, the LokSound 5 Nano DCC has 6 reinforced function outputs as well as a logic level output as a solder pad. All important lighting functions are available. The brightness of each output can be set separately. The decoder controls the automatic start-up and disconnection when uncoupling for ROCO®, Krois® and Märklin telex® couplings.

Motor

The motor control of the LokSound 5 Nano DCC has a variable PWM clock frequency from 10kHz to 50kHz, which ensures super-quiet operation, especially for bell anchor motors – the typical »hum« is a thing of the past. The load control can be adapted to difficult cases with up to 10 CVs. The unique »Autotune« function allows the decoder to be automatically measured against the motor. The LokSound 5 Nano DCC decoder delivers up to 0.75A motor power.

Operational reliability

On request, a PowerPack can be connected to the LokSound 5 Nano DCC to bridge dirty rail sections.

Schutz

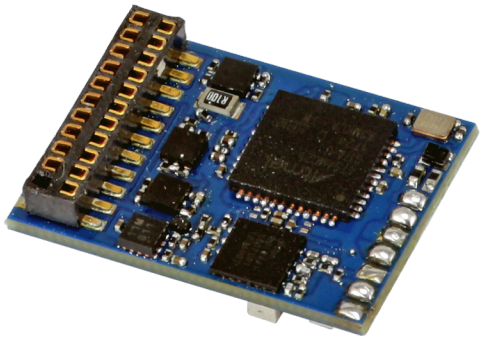
Of course, the outputs are protected against overload. We want you to enjoy your decoder for as long as possible.

58923, LokSound 5 Nano DCC »Blank decoder«, single wires, with loudspeaker 11x15 mm, gauge: N, TT 109,99 € RRP *)

*) Recommended retail price including 19% German VAT.

LokSound 5 Fx

69,99 € RRP *)



The LokSound 5 Fx is a special feature of the LokSound family: it has no output and is specially designed for use in control cars or drive heads, which require a sound but do not have a model drive themselves. By omitting the engine part, it can still offer all the sound features of the other LokSound 5 members on a size of only 21.5 mm x 15.5 mm.

LokSound 5 Fx decoders are offered with an 8-pole interface according to NEM652 or a 21MTC cutting point and always come with an 11 x 15 mm »sugar cube« loudspeaker and sound capsule kit.

Modes

Like all family members, the LokSound 5 Fx is a true multi-protocol decoder. It masters the DCC data format as well as Motorola®, Selectrix® and M4. In DCC format, 14 to 128 driving steps are as self-evident as 2- and 4-digit addresses and up to 32 functions. With the help of RailComPlus® technology, the decoders register fully automatically at a suitable digital center.

It masters all DCC programming modes and can be both driven and programmed with compatible digital centers: Thanks to RailCom®, it is possible to read out the CV values on the main track with suitable control panels. Auxiliary registers exist for control panels that can only program the CVs from 1-255.

Motorola® users benefit from up to 28 driving steps at 255 addresses. Three additional Motorola® addresses enable the triggering of 16 functions. A built-in programming mode also makes reprogramming possible with the venerable Control Unit 6021.

The M4 protocol allows automatic login to mfx®-compatible control panels.

The LokSound 5 Fx decoder detects the Märklin® brake distances as well as ZIMO® HLU brake commands or the Lenz® ABC system. Also the »brakes« with DCC brake blocks or with DC voltage is possible. It also stops with a Selectrix® brake diode. An ABC commuter train system allows automatic commuting between two stations.

The LokSound 5 decoder can be used on analog DC and AC webs.

The decoder switches »on-the-fly« fully automatically between operating modes. Most of the time, nothing needs to be adjusted.

Sound

The LokSound 5 Fx decoder can play up to 12 channels simultaneously. Each channel can be resolved with up to 16 bits / 31250 kHz and offers hi-fi quality on your system. There is virtually no difference to the original audible anymore. A Class-D audio output stage with up to 3W output controls the speakers, which may have between 4 ohms and 32 ohms impedance. A 128 Mbit sound memory provides enough capacity.

All individual noises can be adjusted individually in the volume. The super-flexible sound gine without a rigid schedule allows the exemplary simulation of all conceivable rail vehicles.

Functions

There are also some lights to turn on in the control car or drive head. That's why we have equipped the LokSound 5 Fx with 6 reinforced function outputs. In the version with 21MTC interface, 6 outputs are added for controlling servos or logic level outputs. All important lighting functions are available. The brightness of each output can be set separately.

Motor

Although the LokSound 5 Fx itself does not have an engine output, it still »simulates« one. This is used for synchronization with the motor car, where ideally a »full-fledged« LokSound 5 decoder performs its service. In the train bandage, this ensures that the brake squeak takes place at the same time or that the lamps also switch the direction of travel at the same time.

Operational reliability

A PowerPack can be connected to the LokSound 5 Fx on request to bridge dirty rail sectionsn.

Schutz

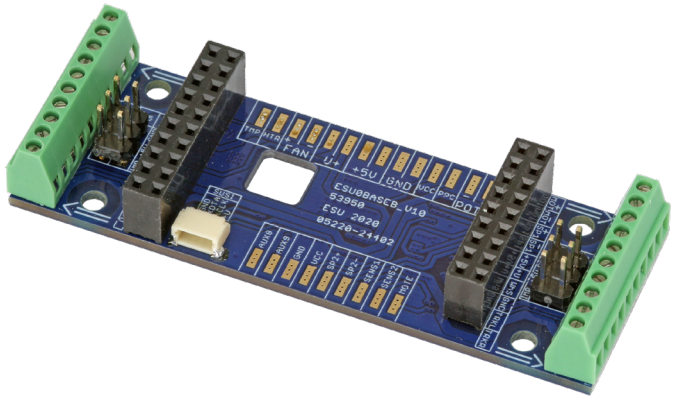
Of course, the outputs are protected against overload. We want you to enjoy your decoder for as long as possible.

58210, LokSound 5 Fx DCC/MM/SX/M4 »Blank decoder«, 8-pin NEM652, with loudspeaker 11x15mm, gauge: H0, 0 — 69,99 € RRP *)

58219, LokSound 5 Fx DCC/MM/SX/M4 »Blank decoder«, 21MTC NEM660, with loudspeaker 11x15mm, gauge: H0, 0 — 69,99 € RRP *)

Adapter board LokSound/LokPilot L

22,95 € RRP *)



This adapter board ensures the convenient connection of your LokSound 5 L or LokPilot 5 L decoders. The decoder is inserted directly into the socket strips. On the output side, the most important connections can be contacted directly on robust screw terminals – without soldering! A socket for the optional connection of a SUSI module as well as pin headers for the direct connection of four RC servos complete the equipment.

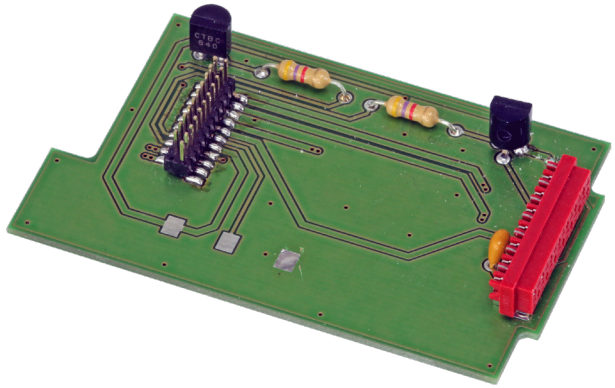
This adapter board allows professional, clean cabling of your locomotive and the decoder can be easily replaced in case of emergency.

The adapter board is fastened with screws in the model.

53950, Adapter board for LokSound L / LokPilot L, with screw terminals 22,95 € RRP *)

Adapter board Hübner railbus

29,95 € RRP *)



This adapter board is for owners of a Hübner railbus in track 1 (Art. No. 4070 or 4071) thought. There, a LokSound 2 decoder was installed in the motor car on a special adapter, and in the control car a specially made light change decoder was installed. With the help of this adapter you can finally replace these old decoders with a modern LokSound 5 or LokPilot 5 Fx decoder. Insert a decoder with 21MTC into the adapter board and then install it in the railbus. Nothing needs to be rewired, all lamps will work correctly.

Note: Not suitable for the new edition of the railbus under Märklin® direction.

53951, Adapter board for Hübner railbus, 21MTC interface 29,95 € RRP *)

*) Recommended retail price including 19% German VAT.

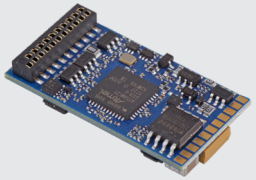
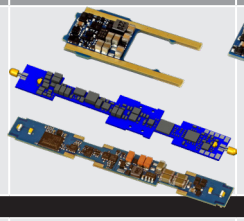
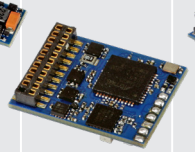
ESU decoders: Overview LokPilot

	LokPilot 5 Basic	LokPilot 5 FX	LokPilot 5 Fx DCC	LokPilot 5 Fx micro (DCC)	LokPilot 5	LokPilot 5 DCC	LokPilot 5 micro Kabel	LokPilot 5 micro Next18/PluX16	LokPilot 5 micro DCC Kabel	LokPilot 5 micro DCC Next18/PluX16	LokPilot 5 L
											
Modes											
DCC 14, 28, 128 Fahrstufen	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
DCC kurze und lange Adressen	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
DCC Traktionsadresse (Consist Mode)	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
DCC LGB Kettensteuerung	OK	OK	OK	Ok	OK	OK	OK	OK	OK	OK	OK
Automatische Fahrstufenerkennung	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Lenz® LG 100, ROCO Bremsgenerator	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Lenz® ABC Bremsstrecke	OK	OK	OK	Ok	OK	OK	OK	OK	OK	OK	OK
Lenz® ABC Pendelzugsteuerung	-	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
ZIMO HLU-Befehle, ZIMO ZACK-Befehle	-	OK	OK	Ok	OK	OK	OK	OK	OK	OK	OK
DC Analogbetrieb	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Motorola® 14 Fahrstufen	-	OK	-	(OK)	OK	-	OK	OK	-	-	OK
Motorola® 28 Fahrstufen	-	OK	-	(OK)	OK	-	OK	OK	-	-	OK
Motorola® Adresse 1 - 80	-	OK	-	(OK)	OK	-	OK	OK	-	-	OK
Motorola® Adresse 1 - 127	-	OK	-	(OK)	OK	-	OK	OK	-	-	OK
Motorola® Adresse 1 - 255	-	OK	-	(OK)	OK	-	OK	OK	-	-	OK
M4 Datenprotokoll (mfx kompatibel)	-	-	-	-	OK	-	OK	-	-	-	OK
Selectrix®	-	OK	-	(OK)	OK	-	OK	OK	-	-	OK
Märklin® Bremsstrecke	OK	OK	OK	OK	OK	-	OK	OK	-	-	OK
AC-Analogbetrieb	-	OK	-	-	OK	-	-	OK	-	-	OK
Automatische Erkennung der Betriebsart	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Motor control											
Gleichstrom-, Glockenanker-, Wechselstrommotor mit Magnet	OK	-	-	-	OK	OK	OK	OK	OK	OK	OK
Taktfrequenz	10 kHz bis 50 kHz						10,00 kHz bis 50,00 kHz, variabel einstellbar				
Lastregelung im Digitalbetieb	OK	-	-	-	OK	OK	OK	OK	OK	OK	OK
Lastregelung im Analogbetrieb	OK	-	-	-	OK	OK	OK	OK	OK	OK	OK
Einstellb. Anfahr- & Höchstgeschw. im Analogbetrieb	OK	-	-	-	OK	OK	OK	OK	OK	OK	OK
Massensimulation für 14 Fahrstufenbetrieb	OK	-	-	-	OK	OK	OK	OK	OK	OK	OK
"Autotune" Funktion für Lastregelung	OK	-	-	-	Ok	Ok	OK	Ok	Ok	Ok	Ok
Enstellbare EMK Meßperiode und Meßlücke	OK	-	-	-	Ok	Ok	Ok	Ok	Ok	Ok	Ok
Motorstrom (Dauer)	0,9A	-	-	-	1,5A	1,1A	1,1A	0,75A	0,75A	0,75A	4,0A
Kurzschlussschutz, Motorbremse, Motorüberlastschutz	OK	-	-	-	OK	OK	OK	OK	OK	OK	OK
Programming											
DCC-Servicemode Programmiermodi	OK	OK	OK	OK	OK	OK	OK	OK		OK	OK
DCC POM (Programming On the Main)	OK	OK	OK	OK	OK	OK	OK	OK		OK	OK
Programmiermodus für Märklin 6021	-	OK	-	OK	-	OK	OK	OK		-	OK
M4®-Konfiguration auf dem Hauptgleis	-	-	-	-	-	OK	-	-		-	OK

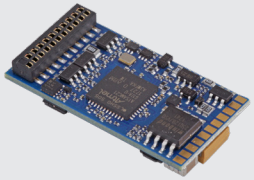
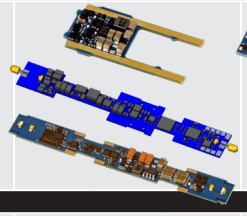
ESU decoders: Overview LokPilot

	LokPilot 5 BASIC	LokPilot 5 Fx	LokPilot 5 Fx DCC	LokPilot 5 Fx micro (DCC)	LokPilot 5	LokPilot 5 DCC	LokPilot 5 micro Kabel	LokPilot 5 micro Next18/PluX16	LokPilot 5 micro DCC Kabel	LokPilot 5 micro DCC Next18/PluX16	LokPilot 5 L
											
Special features											
M4® Feedback System	-	-	-	-	OK	-	-	OK	-	-	OK
RailCom® Feedback System	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
RailComPlus® Automatische Anmeldung	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Speicherung des Betriebszustandes (Memory)	-	OK	OK	-	OK	OK	OK	OK	OK	OK	OK
Motorola®-Falschfahrbit	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Function output											
Dimmen der Ausgänge	separat	separat	separat	separat	separat	separat	separat	separat	separat	separat	separat
Lichteffekte wie Blinklicht, Blitzer, Marslight, Feuerbüchse etc.	OK	OK	OK	OK	OK	OK	OK	OK	OK		OK
Zeitgesteuerte Funktionsausgänge	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Function Mapping ESU Standard (F0 - F20)	-	-	-	-	-	-	-	-	-	-	-
Function Mapping V4.0 ESU (F0 - F28)	-	-	-	-	-	-	-	-	-	-	-
Function Mapping V5.0 ESU (F0 - F31)	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Schaltbarer Rangiergang	OK	-	-	-	OK	OK	OK	OK	OK	OK	OK
Schaltbare Abschaltung der ABV	OK	-	-	-	OK	OK	OK	OK	OK	OK	OK
Serielles Protokoll (SUSI)	-	-	-	OK	OK	OK	OK	OK	OK	OK	OK
Schaltbare, separat einstellbare Bremsregler	-	-	-	-	-	-	-	-	-		-
Alternative Last und Optionale Lastsimulation	-	-	-	-	-	-	-	-	-		-
»PowerPack« Energiespeicher	optional	optional	optional	optional	optional	optional	optional	optional	optional	optional	integriert
Belastbarkeit je Funktionsausgang (Power)	250mA	250mA	250mA	180mA	250mA	250mA	180mA	180mA	180mA	180mA	250mA
Anzahl der verstärkten Funktionsausgänge	4	10	10	6	10	10	4	6	4	6	11
Anzahl der Logiklevelausgänge (mit SUSI-Pins)	8 (21MTC)	4 (21MTC)	4 (21MTC)	2	4 (21MTC, PluX)	4 (21MTC, PluX)	2	2	2	2	4
Anzahl der Servoausgänge (Statt Susi)	2	2	2	2	2	2	2	2	2	2	2
Anzahl der Servoausgänge (Dedicated)	-	-	-	-	-	-	-	-	-	-	2
Item numbers											
8-Pin Kabelbaum NEM652	**59020**	**59210**	**59220**	**59110** **59120 (DCC)**	**59610**	**59620**	**59810**		**59820**		
6-Pin Kabelbaum NEM651					**59616**	**59626**	**59816**		**59826**		
6-Pin Direktanschluss							**59817**		**59827**		
6-Pin Direktanschluss gewinkelt 90 Grad							**59837**		**59857**		
PluX16								**59814**		**59824**	
PluX22		**59212**	**59222**		**59612**	**59622**					
Next18				**59118** **59128 (DCC)**				**59818**		**59828**	
21MTC NEM660 (AUX3, AUX4 Logiklevel an Schnittstelle)	**59029**	**59219**	**59229**		**59619**	**59629**					
21MTC »MKL« (AUX3, AUX4 verstärkt an Schnittstelle)					**59649**	**59659**					
Stiftleisten mit Adapter											**59315**
Dimensionen	25,5x15,5x4,5	16,50x15,5x4,5	17,5x15,5x4,5	8,0x7,0x2,4 13,0x9,2x2,9 (N18)	21,4x15,5x4,5	21,4x15,5x4,5	8,0x7,0x2,4	13,0x9,2x2,9	8,0x7,0x2,4	13,0x9,2x2,9	25,4x51,8x14,0

ESU decoders: Overview LokSound

	LokSound 5	LokSound 5 micro	LokSound 5 micro DCC	LokSound 5 Nano DCC	LokSound 5 Fx	LokSound 5 L	LokSound 5 XL
							
Modes							
DCC 14, 28, 128 Fahrstufen	OK	OK	OK	OK	OK	OK	OK
DCC kurze und lange Adressen	OK	OK	OK	OK	OK	OK	OK
DCC Traktionsadresse (Consist Mode)	OK	OK	OK	OK	OK	OK	OK
DCC LGB Kettensteuerung	OK	OK	OK	OK	OK	OK	OK
Automatische Fahrstufenerkennung	OK	OK	OK	OK	OK	OK	OK
Lenz® LG 100, ROCO Bremsgenerator	OK	OK	OK	OK	OK	OK	OK
Lenz® ABC Bremsstrecke	OK	OK	OK	OK	OK	OK	OK
Lenz® ABC Pendelzugsteuerung	OK	OK	OK	OK	OK	OK	OK
ZIMO HLU-Befehle, ZIMO ZACK-Befehle	OK	OK	OK	OK	OK	OK	OK
DC Analogbetrieb	OK	OK	OK	OK	OK	OK	OK
Motorola® 14 Fahrstufen	OK	OK	-	-	OK	OK	OK
Motorola® 28 Fahrstufen	OK	OK	-	-	OK	OK	OK
Motorola® Adresse 1 - 80	OK	OK	-	-	OK	OK	OK
Motorola® Adresse 1 - 127	OK	OK	-	-	OK	OK	OK
Motorola® Adresse 1 - 255	OK	OK	-	-	OK	OK	OK
M4 Datenprotokoll (mfx kompatibel)	OK	OK	-	-	-	OK	OK
Selectrix®	OK	OK	-	-	OK	OK	OK
Märklin® Bremsstrecke	OK	OK	OK	OK	OK	OK	OK
AC-Analogbetrieb	OK	OK	-	-	OK	OK	OK
Automatische Erkennung der Betriebsart	OK	OK	OK	OK	OK	OK	OK
Motor control							
Gleichstrom-, Glockenanker-, Wechselstrommotor mit Magnet	OK	OK	OK	OK	-	OK	OK
Taktfrequenz			10,00 kHz bis 50,00 kHz, variabel einstellbar				
Lastregelung im Digitalbetieb	OK	OK	OK	OK	-	OK	OK
Lastregelung im Analogbetrieb	OK	OK	OK	OK	-	OK	OK
Einstellb. Anfahr- & Höchstgeschw. im Analogbetrieb	OK	OK	OK	OK	-	OK	OK
Massensimulation für 14 Fahrstufenbetrieb	OK	OK	OK	OK	-	OK	OK
"Autotune" Funktion für Lastregelung	Ok	OK	OK	OK	-	Ok	Ok
Einstellb. EMK Meßperiode und Meßlücke	Ok	OK	OK	OK	-	Ok	Ok
Motorstrom (Dauer)	1,5A	0,75A	0,75A	0,75A	-	3,0A	4,0A
Kurzschlussschutz, Motorbremse, Motorüberlastschutz	OK	OK	OK	OK	-	OK	OK
Sound							
LokSound 5 Soundengine	12 Kanäle, 16 Bit HiFi Qualität, 31250 kHz Samplingrate, 128 MBit Flash Memorychip						
Leistung Endstufe (Sinus)	1.5W Mono. 4 -32 Ohm	1.5W Mono. 4 -32 Ohm				3,0W (Dual Output) 4-32 Ohm	6W (Dual Output) 4-32 Ohm
Programming							
DCC-Servicemode Programmiermodi (Register Mode, Address Only, Direct Mode)	OK	OK	OK	OK	OK	OK	OK
DCC POM (Programming On the Main)	OK	OK	OK	OK	OK	OK	OK
Programmiermodus für Märklin 6021	OK	OK	-	-	OK	OK	OK
M4®-Konfiguration auf dem Hauptgleis	OK	OK				OK	OK

ESU decoders: Overview LokSound

	LokSound 5					LokSound 5 micro				LokSound 5 micro DCC			LokSound 5 Nano DCC	LokSound 5 Fx		LokSound 5 L	LokSound 5 XL	
																		
Special features																		
M4® Feedback System	OK					OK				-			-	-		OK	OK	
RailCom® Feedback System	OK					OK				OK			OK	OK		OK	OK	
RailComPlus® Automatische Anmeldung	OK					OK				OK			OK	OK		OK	OK	
Speicherung des Betriebszustandes (Memory)	-					-				OK			OK	OK		-	-	
Motorola®-Falschfahrbit	OK					OK				-			-	OK		OK	OK	
Function output																		
Dimmen der Ausgänge	separat					separat				separat			separat	separat		separat	separat	
Lichteffekte wie Blinklicht, Blitzer, Feuerbüchse etc.	OK					OK				OK			OK	OK		OK	OK	
Zeitgesteuerte Funktionsausgänge	OK					OK				OK			OK	OK		OK	OK	
Function Mapping nach ESU (F0 - F15)	-					-				-			-	-		-	-	
Function Mapping LokSound 5 ESU (F0 - F31)	OK					OK				OK			OK	OK		OK	OK	
Function Mapping M4® kompatibel	-					-				-			-	-		-	-	
Schaltbarer Rangiergang	OK					OK				OK			OK	OK		OK	OK	
Schaltbare Abschaltung der ABV (Mit Lastsimulation)	OK					OK				OK			OK	OK		OK	OK	
Serielles Protokoll (SUSI)	OK					OK				-			-	OK		OK	OK	
Schaltbare, separat einstellbare Bremsregler	3					3				3			3	3		3	3	
Alternative Last und Optionale Lastsimulation	Ok					OK				OK			OK	OK		OK	OK	
»PowerPack« Energiespeicher	optional					optional				-			optional	optional		integriert 2x 1F/2.7F	integriert 2x 5F/2.7V	
Artikel-Nummer	**58410**	**58416**	**58419**	**58449**	**58412**	**58810**	**58816**	**58818**	**58814**	**58721**	**58731**	**58741**	**58923**	**58210**	**58219**	**58315**	**58513**	**58515**
Anschluss	8-pin	6-pin	21MTC	21MTC MKL	PluX22	8-pin	6-pin	Next18	PluX16	SlideIn	SlideIn	SlideIn	Offene Litzen	8-pin	21MTC	Stiftleiste	Schraubklemmen	Stiftleisten
	Kabelbaum	Kabelbaum	Direkt	Direkt	Direkt	Adapter	Adapter	Direkt	Adapter	Direct	Direct	Direct		Kabelbaum	Direkt	Adapterplatine		Adapterplatine
Funktionsausgänge	10x Power 1x Logiklevel oder PowerPack 1x Logiklevel oder Radsensor	10x Power 1x Logiklevel oder PowerPack 1x Logiklevel oder Radsensor	10x Power 1x Logiklevel oder PowerPack 1x Logiklevel oder Radsensor 2x Logiklevel statt Susi AUX3, AUX4 Logiklevel	10x Power 1x Logiklevel oder PowerPack 1x Logiklevel oder Radsensor 2x Logiklevel statt Susi AUX3,AUX4 Power	10x Power 1x Logiklevel oder PowerPack 1x Logiklevel oder Radsensor 2x Logiklevel statt Susi	6x Power 1x Logiklevel oder PowerPack	6x Power 1x Logiklevel oder PowerPack	6x Power 1x Logiklevel oder PowerPack 2x Logiklevel statt Susi	6x Power 1x Logiklevel oder PowerPack 2x Logiklevel statt Susi	10x Power mit LEDs	3x Power	5x Power davon 2 mit LED 1x Logiklevel	6x Power 1x Logiklevel	6x Power	6xPower 1x Logiklevel oder Power-Pack 1x Logiklevel oder Radsensor 2x Logiklevel statt Susi AUX3,AUX4 Logiklevel	11x Power 1x Logiklevel statt Radsensor 2x Logiklevel statt SUSI 2x Logiklevel statt Servo3/Servo4 1x Smokeunit Heizung 1x Smokeunit Motorcontrol	12x Power 1x Logiklevel 2x Logiklevel statt SUSI 4x Logiklevel statt Servo 1-4	12x Power 1x Logiklevel 2x Logiklevel statt SUSI 4x Logiklevel statt Servo 1-4
Belastbarkeit Power-Funktionsausgänge	jeweils 250mA					jeweils 180mA				jeweils 180mA oder LED			jeweils 180mA	jeweils 250mA		jeweils 500mA	jeweils 500mA	
Eingänge	1x Radsensor (oder Logiklevel-Ausgang)					-									1x Rad-sensor	1x Radsensor, 2x Sensoreingang 1x Motor-Aus („Vitrinenmo-dus“) 1x Smokeunit Temperatursensor	1x Radsensor 2x Sensoreingang	
Servoausgänge	2x statt SUSI	2x statt SUSI	2x statt SUSI	2x statt SUSI	2x statt SUSI			2x statt SUSI	2x statt SUSI							2x fix, 2x statt Susi	4 fix, 2x statt Susi	
Abmessungen in mm	30.5x15.5x5.5					21.0x10.6x4.0							19.6x8.5x3.2	21.5x15.5		25,4x51,8x14,0	51,0x40,0x14,0	

SWITCH PILOT

SwitchPilot – third!

Today we can introduce you to the third generation of our SwitchPilot decoders. Like the most popular predecessors, the SwitchPilot 3 decoders are also intended for stationary use on your system. Usually installed under the system, you can reliably switch points, decoupling tracks, shape signals, street lamps, railway barriers or other elements typically installed on the system.

Depending on the application, different SwitchPilot 3 decoders are available:

The SwitchPilot 3 is mainly optimized for switching dual coil drives. Up to 4 drives can be switched with a decoder. The built-in power electronics can also cope with power-hungry drives. The SwitchPilot 3 is equipped with feedback inputs in order to be able to report the actual turnout position to the ECoS control panel. A SwitchPIlot Extension module can be docked sideways and used, for example, for centerpiece polarization. The ABC brake range adapter 51808 or the signal adapter 51809 can also be connected directly to the SwitchPilot 3.

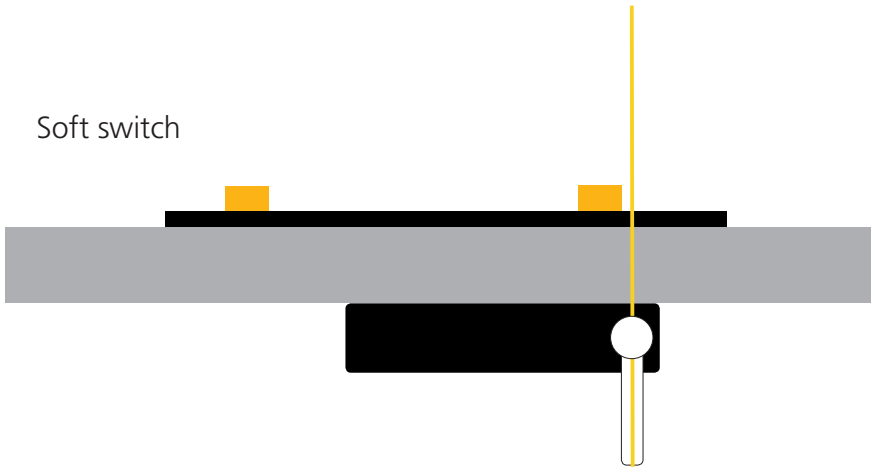
The SwitchPilot 3 Plus is a new member of the family. Like the SwitchPilot 3, it is primarily intended for switching magnetic coil drives in switches but can also take over general ventilation tasks. The SwitchPilot 3 Plus does not use the feedback inputs but adds 16 outputs to switch a total of eight points. Two SwitchPilot Extension modules can be docked sideways and used for center piece polarization.

The SwitchPIlot 3 Servo is designed to drive eight RC servo drives and is ideal for moving points, shape signals, level crossing scale gates, water cranes and all moving parts on your system. The new proportional mode allows the servos to stop at any point on request and allows even better control over movement. Two SwitchPilot Extension Modules can be docked sideways and used for centerpiece polarization.

The SwitchPilot 3 Servo can also be used as a special feature without a digital system: Buttons can be connected to 16 inputs to directly select the servo positions. This makes the SwitchPilot 3 Servo perfect for general servo tasks off the model railway.

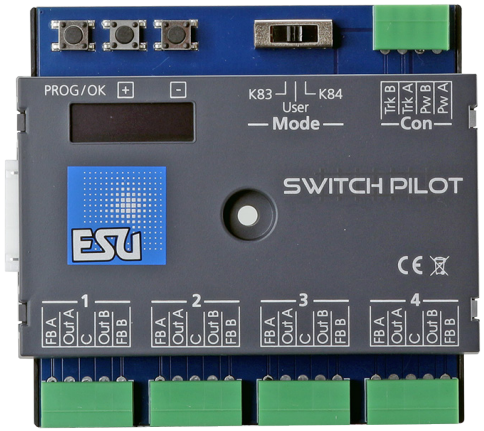
All SwitchPilot 3 decoders share the completely new operating and programming concept: Instead of having to handle various programming steps at your control panel or hand controller, all SwitchPilot 3 decoders have an OLED display with programming buttons. With its help, you can set settings directly on the module. The decoder address can also be read in plain text at any time. The configuration of a stationary decoder has never been easier, without expensive external programming devices.

SwitchPilot 3 decoders can be supplied with new firmware and thus new functions at any time with the help of the ESU LokProgrammer. All SwitchPilot 3 decoders come in a well-known, robust housing and are equipped with removable terminal blocks for easy wiring. The new housing now also allows the »stacking« of several decoders on top of each other to save space under the system.



SwitchPilot 3

41,99 € RRP *)



SwitchPilot 3 decoders are optimized for stationary use on your system and can switch conventional double coil switch drives, light signals, magnetic uncouplers, light bulbs or other stationary consumption.

In order to facilitate the rather cumbersome configuration of magnetic article decoders, the SwitchPilot 3 has an innovative operating concept consisting of a 4-line, illuminated OLED display and three input buttons.

Modes

The SwitchPilot 3 is multi-protocol and can be used with workstations according to the Märklin® Motorola® system (e.g. 6021, Central Station® or Mobile Station®) as well as DCC-enabled control panels. The configuration can take place on both the main track and the programming track. Thanks to RailCom®, CVs can also be read out.

Functioning

The SwitchPilot 3 can be supplied directly from the digital system or from an external DC or change voltage source. It has a total of 8 transistor outputs, which are grouped in the 4 exit pairs 1 to 4. Each output pair contains two outputs (OutA and OutB) and can be configured individually for the desired use case:

In pulse mode, the output is switched on as soon as a switching command is received. The fact that the output automatically switches off again as soon as the time stored in the decoder has elapsed prevents the burning of magnetic article drives.

At the moment (K83-compatible) the output remains active as long as the button on the control panel is pressed. This operating mode is suitable for turnout drives with final shutdown or for de-caps.

In bi-stable continuous operation (k84-compatible), the two outputs are switched on and off: When pressing the first button (red) on the control panel, the output Out A is switched on. It remains active until pressing the assigned button (green) activates the output Out B of the same output group. Out A and Out B behave like a change switch.

In alternating flasher mode, the outputs Out A and Out B of an output pair are switched on alternately with an adjustable flashing frequency. The change indicator is started with the command »Straight/Green« of the assigned button and stopped again with the command »Branching/Red«.

Optionally, the output can also be slowly dimmed and dimmed (so-called »zoom« for glow lam pen simulation).

With the switch 3 mode switch, you can switch all output pairs together to the »k83« or »k84« modes at lightning speed, regardless of how they are configured.

Feedback

Since the SwitchPilot 3 is RailCom®-capable, all settings can be read out and changed directly in the built-in state on request. In combination with an ECoS as an ideal »partner«, the SwitchPilot 3 can record and display the actual turnout setting with appropriately prepared turnout drives. Finally, you have the certainty that your switch has switched correctly!

Set

The SwitchPilot 3 can be flexibly adjusted either on the programming track with DCC control panels or on the main track with POM (»Programming on Main«) or can also be read out via RailCom® CVs. On request, he also learns the addresses directly via a programming button. The easiest way to set is, of course, with the integrated OLED display and the three input buttons: All (!) Settings can be checked directly on the decoder and changed on request. A »Programming« with the help of your control panel is not required. It really can't be any easier. The ESU LokProgrammer can be used for firmware updates.

Protection

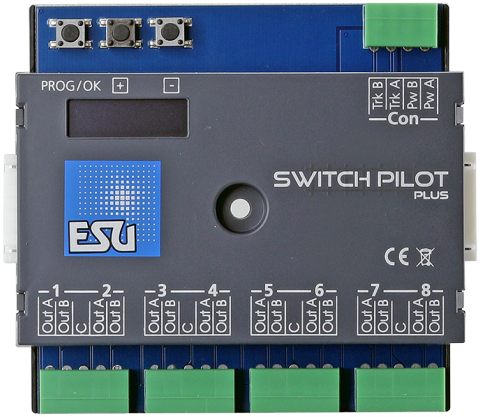
As with our locomotive decoders, the outputs of the SwitchPilot 3 are largely protected against overload. We want you to enjoy your decoder for as long as possible.

51830, SwitchPilot 3, 4x accessory decoder, DCC/MM, OLED, with RC-Feedback 41,99 € RRP *)

*) Recommended retail price including 19% German VAT.

SwitchPilot 3 Plus

69,99 € RRP *)



SwitchPilot 3 Plus decoders are optimized for stationary use on your system and can switch conventional double coil switch drives, light signals, magnetic uncouplers, light bulbs or other stationary consumption.

In order to facilitate the rather cumbersome configuration of magnetic article decoders, the SwitchPilot 3 Plus has an innovative operating concept consisting of a 4-line, illuminated OLED display and three input buttons.

Modes

The SwitchPilot 3 Plus is multi-protocol and can be used with control panels according to the Märklin® Motorola® system (e.g. 6021, Central Station® or Mobile Station®) as well as DCC-enabled control panels. The configuration can take place on both the main track and the programming track. Thanks to RailCom®, CVs can also be read out.

Functioning

The SwitchPilot 3 Plus can be supplied directly from the digital system or from an external DC or change voltage source. It has a total of 16 transistor outputs, which are grouped in the 8 exit pairs 1 to 8. Each output pair contains two outputs (OutA and OutB) and can be configured individually for the desired use case:

In pulse mode, the output is switched on as soon as a switching command is received. Since the output automatically switches off again as soon as a time stored in the decoder has been reached, a burn-through of magnetic articles is prevented.

At the moment (K83-compatible) the output remains active as long as the button on the control panel is pressed. This operating mode is suitable for turnout drives with final shutdown or for de-caps.

In bi-stable continuous operation (k84-compatible), the two outputs are switched on and off: When pressing the first button (red) on the control panel, the output Out A is switched on. It remains active until pressing the assigned button (green) activates the output Out B of the same output group. Out A and Out B behave like a change switch.

In alternating flasher mode, the outputs Out A and Out B of an output pair are switched on alternately with an adjustable flashing frequency. The change indicator is started with the command »Straight/Green« of the assigned button and stopped again with the command »Branching/Red«.

Optionally, the output can also be slowly dimmed and dimmed (so-called »zoom« for incandescent lamp simulation).

Feedback

Since the SwitchPilot 3 Plus is RailCom®-capable, all settings can be read out and changed directly in the built-in state on request. In combination with an ECoS as an ideal »part-ner« the SwitchPilot 3 Plus can detect and display the actual turnout with appropriately prepared turnout drives. Finally, you have the certainty that your switch has switched correctly!

Set

The SwitchPilot 3 Plus can be flexibly adjusted either on the programming track with DCC control panels or on the main track with POM (»Programming on Main«) or can also be read out via RailCom® CVs. On request, he also learns the addresses directly via a programming button. The setting is, of course, the simplest with the integrated OLED displays as well as the three input buttons: All (!) settings can be checked directly on the decoder and changed on request. »Programming« with the help of your headquarters is not required. It really can't be any easier. The ESU LokProgrammer can be used for firmware updates.

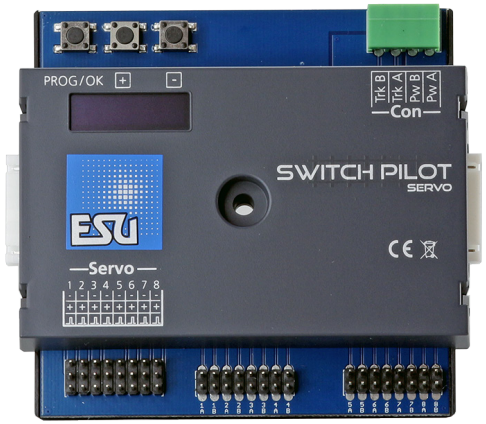
Protection

As with our locomotive decoders, the outputs of the SwitchPilot 3 Plus are protected against overload. We want you to enjoy your decoder for as long as possible.

51831, SwitchPilot 3 Plus, 8x accessory decoder, DCC/MM, OLED 69,99 € RRP *)

SwitchPilot 3 Servo

54,99 € RRP *)



SwitchPilot 3 Servo decoders are optimized for stationary use on your system and can control up to eight RC servo drives.

In order to facilitate the rather cumbersome configuration of magnetic article decoders, the SwitchPilot 3 Servo has an innovative operating concept consisting of a 4-line, illuminated OLED display and three input buttons.

Modes

The SwitchPilot 3 Servo is multi-protocol and can be used with workstations according to the Märklin® Motorola® system (e.g. 6021, Central Station® or Mobile Station®) as well as DCC-enabled central. The configuration can take place on both the main track and the programming track. Thanks to RailCom®, CVs can also be read out.

Functioning

The SwitchPilot 3 Servo can be supplied directly from the digital system or an external DC or AC voltage source. The SwitchPilot 3 Servo has eight outputs for the control of RC servo drives. In doing so, it can control these drives so precisely that, in addition to switching switches, any other slow movement sequences can be controlled. The SwitchPilot 3 Servo has a built-in power-on pulse suppression to eliminate or reduce the system-related »twitching« of RC servos when applying the supply voltage. Furthermore, the power supply to the servo can be interrupted to prevent a »hum« of some inexpensive servos.

Each of the eight servos can be operated either in »digital mode« or in the »proportional mode« introduced for the first time with the SwitchPilot 3 Servo:

In digital mode, the servo can start two end positions »A« and »B«, depending on the switching position on the control panel. The position of the two end positions as well as the speed at which the servo moves in the desired direction, can be individually set on the SwitchPilot 3 Servo. The digital mode is perfect for switching switches or signals that should always remain in a fixed position.

In proportional mode, the servo can move and stop in any position within the end positions »A« and B. The servo only runs as long as the control panel sends a command. If you release the button, the servo stops. In this way, a servo can be stopped in any desired position. The servo speed can be adjusted individually. The proportional mode is ideal for (water) cranes or engine shed gates or any other application, for which intermediate positions are also required.

For each servo, in addition to the end positions and the rotational speeds, it can be determined whether it should rock up when reaching the final position. Furthermore, the generation of the servo pulse can be influenced to adapt to the different RC servos on the market or the power supply of each servo can be switched off individually. In this way, cheap so-called so-called analogue servos as well as modern digital servos (with microcontroller) optimally controlled.

Analogue Operation

The SwitchPilot 3 Servo can be used as a special feature without a digital control panel: On request, up to 16 buttons can be connected for direct switching of the servos.

Set

The SwitchPilot 3 Servo can be flexibly adjusted either on the programming track with DCC control panels or on the main track with POM (»Programming on Main«) or can also be read out via RailCom® CVs. On request, he also learns the addresses directly via a programming button. The setting is, of course, the simplest with the integrated OLED displays as well as the three input buttons: All (!) settings can be checked directly on the decoder and changed on request. »Programming« with the help of your headquarters is not required. It really can't be any easier. The ESU LokProgrammer can be used for firmware updates..

Protection

As with our locomotive decoders, the outputs of the SwitchPilot 3 Servo are protected against overload. We want you to enjoy your decoder for as long as possible..

51832, SwitchPilot 3 Servo, 8x servo decoder, DCC/MM, OLED, with RC-Feedback 54,99 € RRP *)

*) Recommended retail price including 19% German VAT.

Innovation G1000BB

31300, Diesel loco, H0, G1000, 500 1578 MRCE, black, Era VI, Sound, DC/AC

419,00 € RRP *)

Prototype

At the beginning of the 2000s, the Austrian Federal Railways ÖBB ordered 90 Class 2070 shunting locomotives from the Kiel MaK mechanical engineering department. Caterpillar's 12-cylinder diesel engine produces 738 kW at 2100 rpm. The top speed is 100 km/h. These locomotives, which MaK refers to as type G 800 BB, are the basis of the manufacturer's 4th type program. The locomotive construction in Kiel was taken over by Vossloh and further developed. As a more powerful version of the G800, the G1000, equipped with an MTU eight-cylinder diesel engine, was launched on the same chassis. The 1100 kW (at 1860 rpm) and 100 km/h fast locomotive can be ordered for axle loads from 18 to 20 t and with country packages for right and left traffic. Between 2002 and 2016, Vossloh delivered 103 copies to railways in Germany, France, Italy, Luxembourg and Switzerland. Deutsche Bahn was also interested in the four-axle and rented locomotives from various landlords for several years. The locomotives reliably provided freight services in almost all federal states. The locomotives are used in heavy shunting service, but also in front of local freight trains. Some G1000 belong to locomotive rental companies such as Northrail in Germany or Ferrotract in France and are employed within the respective national borders, for example, in all sectors of medium-heavy local freight transport, but also in the factory traffic of large industrial enterprises or in sea and inland ports. Various owners such as Spitzke Logistik (D) or Colas Rail (F) use the reliable four-axle axles in construction train traffic. Even after delivery of the Voith Gravita, DB occasionally uses borrowed G1000 in the event of vehicle bottlenecks.

Model

- **Form innovation**
- Structure and frame made of metal
- Detailed fan grilles in the front body
- Elaborately detailed cab
- Multi-part bogie apertures
- Separately attached handle bars
- Detailed steps
- Country-specific arrangement of the control panels and exhaust systems
- Digital coupling in NEM shaft
- Five-pole motor with two flywheels
- Drive via gimbal/worm gearbox on all axles, two adhesive tyres
- LokSound 5 decoder for DCC, Motorola ®, M4 and Selectrix operation
- Self-registration at control panels with RailComPlus® or mfx functionality
- PowerPack storage capacitor for uninterruptible power supply
- Loudspeaker with large sound capsule for maximum sound enjoyment
- Universal electronics for switching between two-rail and three rail operation
- Digitalized original noise of a Vossloh G1000 BB
- Sensor-controlled curve noise during slow cornering
- Direction-dependent light change, switch-off peak signal on the side, shunting, cab and driver's cab lighting, ECR locomotive with high beam
- Switchable step lighting
- Brake sparks when braking sharply
- Navigable minimum radius = 360 mm
- Length over buffer = 161 mm

31301, Diesel loco, H0, G1000, DH 708 RheinCargo, silver, Era VI, Sound, DC/AC

419,00 € RRP *)

31302, Diesel loco, H0, G1000, DH 49 HGK, traffic red, Era VI, Sound, DC/AC

419,00 € RRP *)

31303, Diesel loco, H0, G1000, 1271 026-7 Northrail, orange, Era VI, Sound, DC/AC

419,00 € RRP *)

31304, Diesel loco, H0, G1000, FB 1487 ECR, light grey, Era VI, Sound, DC/AC

419,00 € RRP *)

31305, Diesel loco, H0, G1000, Am 842 102-6 SBB Cargo, red/blue, Era V, Sound, DC/AC

419,00 € RRP *)

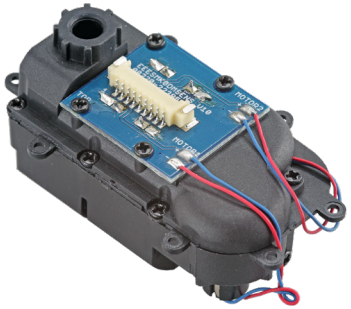
31306, Diesel loco, H0, G1000, 1271 002 Vossloh, light grey, Era VI, Sound, DC/AC

419,00 € RRP *)

*) Recommended retail price including 19% German VAT.

Smoke generator Dual Mini

99,99 € RRP *)



Our smoke generator »Dual Mini« is suitable for vehicles of the nominal sizes gauge G, and 1 but also for smaller vehicles in gauge 0. Both exhaust steam and cylinder steam are integrated in a compact housing. This means that you can finally retrofit your older locomotives with a realistic cylinder steam. The »Dual Mini« smoke generator has a common tank that can be filled from above. Two separate fan motors with separate heating and temperature elements ensure a strong steam output. The required control electronics is housed on a separate board, only 36 mm x 19 mm x 5 mm in size, and controls both the amount of smoke and the fan speed regardless of the level or rail voltage. A burn-through in the case of an empty tank is preventable. The control electronics are simply placed between the smoke generator and the locomotive sound decoder in a suitable location in the vehicle. Our LokSound 5 L and LokSound 5 XL are ideal for control, but the previous versions LokSound XL V4.0 or LokSound L V4.0 can also be used. The »Dual Mini« smoke generator is 51.5 mm long, 27.5 mm wide (with mounting tabs: 35 mm) and 33 mm high and is made of temperature-resistant plastic. Thanks to various, cut-off fastening tabs, it should be possible to install in many locomotives.

54676, Smoke generator Dual Mini (Exhaust + Cylinder) (Gauge 0), for LokSound XL device with electronic board 99,99 € RRP *)

ESU electronic solutions ulm GmbH & Co. KG
Edisonallee 29
D-89231 Neu-Ulm
Germany
Phone.: +49 (0) 731 - 18 47 80
Fax.: +49 (0) 731 - 18 47 82 99
info@esu.eu

www.esu.eu

USA & Kanada
ESU LLC
1304 Jordan Ave
Montoursville, PA 17754
USA
Phone +1 (570) 980-1980
Fax +1 (866) 591-6440
info@loksound.com

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