

The StEin finally arrived in the digital model railway

2018 the ZIMO StEin will conquer the hearts of every model railroader. The slogan says:

A StEin is more than a pure synergy of elements

Every single StEin (stationary set-up; German: **StationärEinrichtungs-Modul**) replaces a number of smaller components, being, various accessory decoders such as track occupancy sensors, RailCom detectors, connections for detectors of point contacts and photoelectric sensors, as well as sometimes stationary sound-generators.

At first glance, the StEin is not inexpensive. Not even after looking at it twice. Nonetheless it is worth the money, as far as the layout has certain dimensions and the user certain demands. This begins with 30 switches, 15 blocks and/or station tracks and the corresponding signals; even more, if you work with more power as in bigger scales or a lot of sound and light.

The concept of the StEin is easy; the realisation (hardware- and software-development) however was very complex. The task was: a singular module shall be able to cope with everything that can be available on a model railroad layout. To ensure the necessary flexibility, there will be expansion boards and connection boards (connected via I²C-Bus), there are variations of assembly and there will be variations in layout. The main principle states: the StEin is doing it.

What is the StEin?

On the one hand it is a combination of many features, on the other hand it is ZIMO technology – partly old, partly new. This is a selection:

ZIMO HLU:

HLU – also known as “ZIMO signal controlled speed influence” is a specialty with a history of 35 years, imitated but never reached. The 7 Speed Limits (including stop) slow down every loco (with an appropriate decoder) to the maximum speed of the track section or even stop it.

Connections for point machines and responses of every kind:

Coils, motor or servo: You connect the StEin or accessory boards of the StEin to motors, there are numerous parameters for an optimum of configuration. Limit switches or independent position contacts are used to show the loco's position.

Track occupancy sensor without voltage drop, configurable if necessary:

The track occupancy sensor works without the usual diodes (which waste a part of the running voltage), but with precise current measurement. You can adjust the threshold individually, beginning with 1 mA, furthermore you can switch between normal operation (dry) and operation in humide environment (usually for the outside).

Complete local RailCom-Detection:

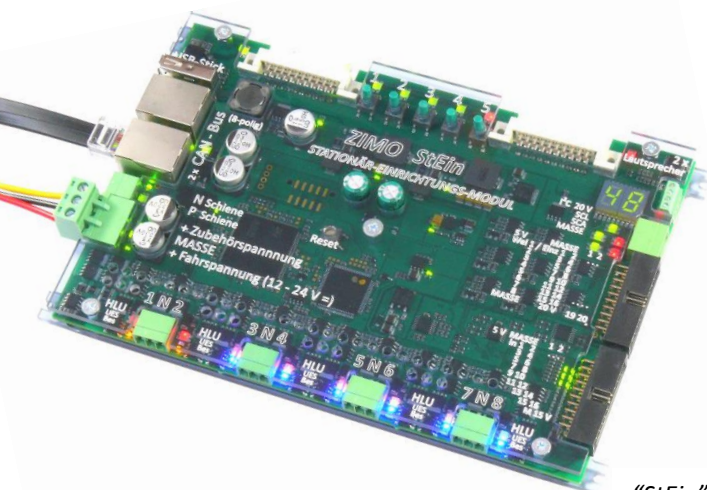
Every RailCom message (Channel 1 & Channel 2) coming from the train is evaluated by the StEin (not only the decoder's address like elsewhere) and forwarded to the CAN-Bus. On a single track section there are less disturbances than on an extended layout.

Signaling boards at the I²C-Bus: full featured but affordable

Light signals of every kind of construction are connected to I²C-boards that are best located right next to them. The boards have 16 LED outputs directly off an I²C-chip, they neither need a microcontroller nor a software, so production costs are low. The “intelligence” is in the StEin itself.

Variants for Multiplex-signals are planned.

The types of signals are predefined, or have to be defined individually in the configuration-sheets.



“StEin” in fully equipped (without extensions): STEIN88V 180 x 120 x 20 mm

Connection (pin connector)
for extension PCB 1

Buttons and control LEDs for
local operation and adjustment
of configuration parameters

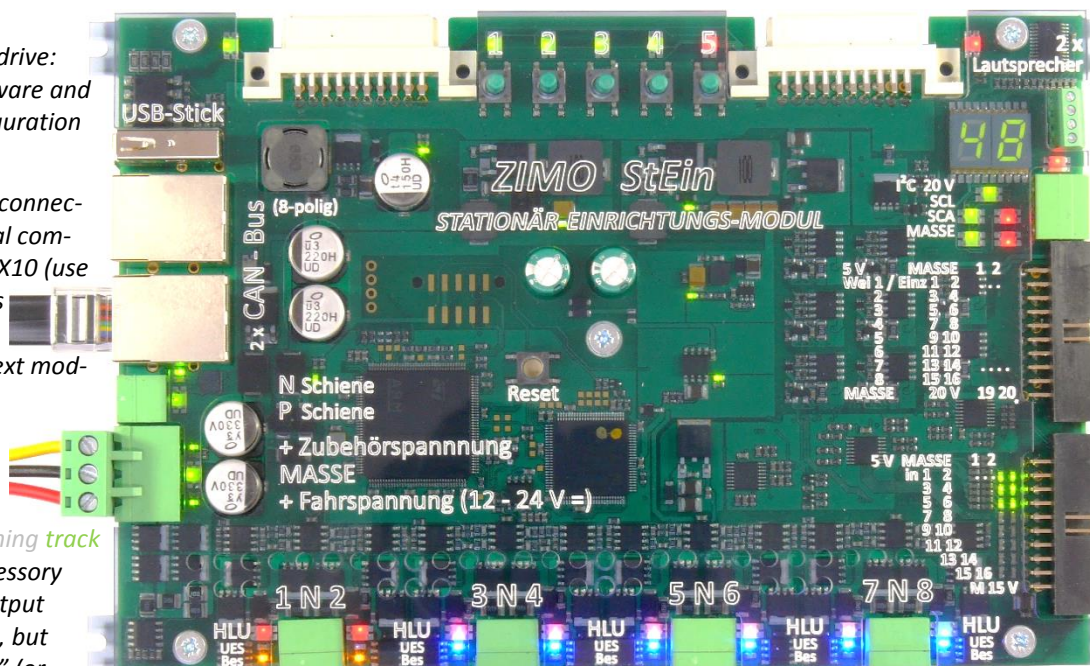
Connection (pin connector)
for extension PCB 2

Socket for flash drive:
update the software and
load/save configuration
data

2 x CAN-socket: connec-
tion to the digital com-
mand station MX10 (use
MX10's CAN-Bus
socket on the
back) and the next mod-
ule.

Only if NOT
MX10: track

Supply with **running track**
voltage and accessory
voltage: NOT output
"track" of MX10, but
outputs "DC out" (or
power supply units, max.
24 V)



Outputs for speakers

Display for number
of module and oper-
ation (buttons)

5V auxiliary voltage
for accessories

Outputs for
8 switches (twin
coils, motor, EPL) or
16 individual con-
sumers

16 inputs and
LED-indicators for
rail contacts, photo-
electric sensors,
point position con-
tacts, etc.

Outputs to the 8 track sections, each time 2 „P-poles“ and one „N-connection“ together on one terminal;
Per section: HLU indicator (red/yellow nuances/green), occupancy sensor (yellow), short circuit indicator (blue).

StEin will be delivered in the first months of 2018; connection configuration in full version **STEIN88V**:

- 8 connections for track sections, resilient until 8 A), track occupancy detection with min. 1 mA, RailCom, ZIMO HLU Speed Limits
- 8 connections for point machines (twin-coil motors, ...) or 16 individual consumers
- 16 logic level inputs for sensors of all kinds: track contacts, photoelectric sensors, position detectors, etc.
- 1 I²C Bus connection for 16 (light) signal PCBs next to the signals (signal PCBs supply 16 LEDs)
- 2 speaker outputs for StEin's 2-canal sound generator for train station announcements etc.
- 2 pin connectors for extension PCBs (e.g. more switch connectors, servos, etc.)

You can connect additional switches or signals using pluggable extension PCBs and connection boards via I²C-Bus.

STEIN88V	stationary set-up module fully equipped (8 track sections, 8 switches, 16 inputs, etc.)	UVP 585,00 EUR
STEIN80G	stationary set-up module with track section equipment (8 track sections, 16 inputs, etc.)	UVP 385,00 EUR
STEINE8W	extension board for 8 point machines (coils, motor), 16 inputs, pluggable to STEIN88	UVP 85,00 EUR
STEINE8S	extension board for 8 servo machines, 8 outputs for relays, 16 inputs, pluggable to STEIN88	UVP 85,00 EUR
ICA16LP	signal PCB (connection board for 2 to 8 signals, in total 16 LEDs as signal lights) with solder pads	UVP 22,00 EUR
ICA16KL	signal PCB (connection board for 2 to 8 signals, in total 16 LEDs as signal lights) with terminals	UVP 29,00 EUR

NOTES:

- The 8 track sections all are fully equipped and can be used independently: occupied, overcurrent, RailCom, HLU. This is a very important difference to the "predecessor" MX9, which had 16 track outputs, but paired with 8 "main sections": HLU and recognition of the train number (one for both), only the occupancy detection is separated into two sections.

According to current estimations, this and the inputs for point detectors (see below), make it considerably cheaper to equip your layout with the StEin as it was with MX9 (for track sections module) and MX8 (for switches and signals module).

- The 16 logic level inputs for point detectors (contact tracks, photoelectric sensors etc.) save costs on track sections for example by: installing a "detector point" instead of a "stop section", which causes small to no costs.
- The 8 switch outputs are worth about 100 EUR (compared with typical accessory decoders); but they have numerous advantages over those decoders. Further "cheap" switch outputs can be achieved by connecting extension boards.
- The I²C-Bus for light signals and other consumers saves users (depending on utilization) about 100 to 300 EUR.
- The included configuration possibility for terminal loops replaces – usually cheaper – external modules for terminal loops like MX7, and has advantages for occupancy detectors (no phantom messages) and RailCom ability.

„StEin“-Configuration-Sheets

„StEin“-Configuration-Sheets

OBJKL	OBJTYP	WEISYSNR	ANTRART	POSLOG	SCHIMPZT	SCHIMPPVUM	REDANPVUM	SERVPOST	SERVPOS2	SERVUMLAU	STELLERK	TSTIMPLNG	TSTIMPNV	TSTIMPPSA	ZVAKREF	HERZPOLVUM	
1	1	360	1	1	0,1 s	100	100%	255	0	0	0	1 ms	10	1 s	10	0	0
1	1	361	1	2	0,2 s	200	80%	204	0	0	0	0,5 ms	5	2 s	20	0	1
1	1	1	0	3	0,4 s	400	60%	153	10%	25	0	0	0	0	0	0	30%
1	1	1	1	4	800	40%	102	10%	25	0	0	2	10 ms	100	5 s	50	50%
1	1	1	1	1	3000	20%	51	0	0	0	0	3	1 ms	10	1 s	10	0
1	1	1	1	1	1500	10%	25	0	0	0	0	3	5 ms	50	5 s	50	20%
1	1	1	1	1	1500	10%	25	0	0	0	0	1	0	0	0	0	51
1	1	1	1	1	1500	10%	25	0	0	0	0	1	0	0	0	0	0
20	DEHVHSP	1	5	0	500 ms	200 ms	700 ms	80%	40%	4	Hp0	Hp0	Hp1	Hp2	Sh1		
20	DEHVBLS	2	3	0	300 ms	400 ms	1000 ms	70%	50%	3	Hp0	Hp0	Hp1	Hp2	Sh1		
20	DEHVVS	3	4	0	300 ms	400 ms	1000 ms	70%	50%	3	Hp0	Hp0	Hp1	Hp2	Sh1		
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

OBJKL	OBJTYP	GASYSNR	BEFORM	HLUFIX	PUFFIX	FUNFIX	POSFIX	GLEINF	BESMNOR	BESMFEU	BESMNAS	GKMINZT	GKPARAM	UESLAMP	UESLAZT	UESLEZT
1000	1	350	0	4	F/H	0	0	0	1	20	50	50	0	30	5000	5000
1000	1	351	0	0	0	0	0	0	10	50	100	0	0	10	500	1000
1000	1	1	0	0	F/H	0	0	0	20	100	200	100	0	50	2000	2000
1000	1	1	0	0	0	0	0	0	50	200	500	0	0	60	1200	3500
1000	1	20	0	1	0	0	0	0	10	50	100	0	0	70	1000	4000
1000	1	155	0	6	0	0	0	0	10	50	100	150	40.35	80	800	4500
1000	1	156	0	2	L/U/H	0	0	0	10	100	50	0	0	100	600	500
1000	1	34567	0	7	0	0	0	0	10	50	100	0	0	100	600	500
1000	1	56789	0	3	0	0	0	0	10	50	100	0	0	100	600	500

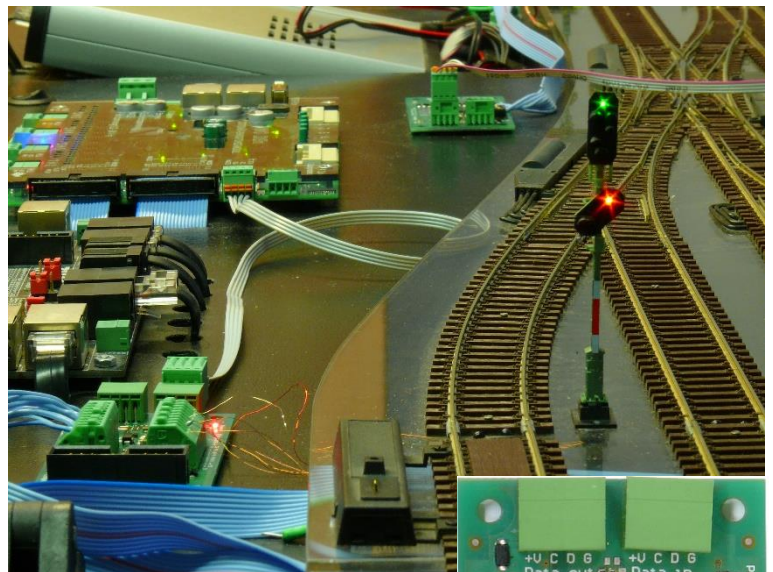
„StEin“ has a lot of possibilities of adjustment to different usages, because of parameters in the configuration tables, which were written in Excel (or modified from existing templates) and then loaded into the module(s) via flash drive. Those are organized „**object-oriented**“, i.e. the principle of arrangement are not addresses or numbers, but „objects“, like for example switches or track sections. Every object has parameters for one or more connection points, and settings as switching pulse and intensity, type of response and test impulses (for switches), or thresholds of occupancies and over current in various grades, entry in a track section identified by point detectors. Signals are defined in a table structure of 3 levels: the signals, types of signals, and signal aspects.

Signals at the I²C-Bus of „StEin“

The wires (single LEDs and common positive pole) of the light signals are connected to signal boards that are equipped optionally (depending on the type) with solder pads or spring clips. This is similar to the connections on the accessory decoders, but **cheaper**:

- Because the signal boards are designed relatively simple (no microcontrollers, no software; the intelligence is located in the StEin),
- Because the outputs are current controlled (not fixed voltage), and so the LEDs don't need resistors in the wiring. Depending on the manufacturer of the signals, lower prices can be negotiated.

Because of the low price of the signal boards, it is not that important that not all outputs are used completely, and the boards can usually be placed right next to the signals that shall be connected.



The signal boards are connected over a 4-pole I²C-Bus in a „Daisy-Chain“ with each other and the StEin. All the configuration data is saved in the StEin.

„**High end**“ - decoders:
cheaper in the future!

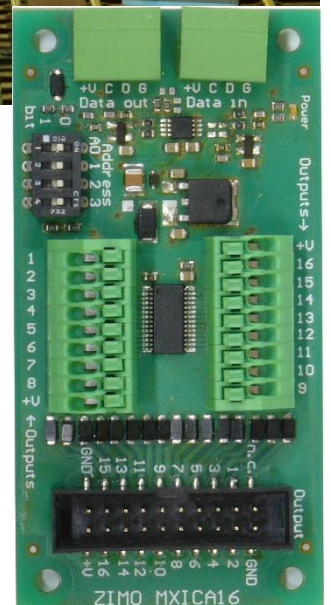
MX633 new price: 38,00 EUR
until now 43,00

MX633P22 new price: 37,00 EUR
until now 42,00

Now the price is independent of
whether it is a PluX-22 or a 21MTC
decoder.

Above: signal board IQC16KL (front left, with spring clips) and connected signal (without resistors!) on the ZIMO H0 Demo-layout; the StEin in the background, with which's I²C socket the signal board is connected via the I²C-ribbon cable.

Right: signal PCB IQC16KL



The new mfx-capable*) ZIMO Sound-decoder „MS450P22“

*) mfx is a brand of Märklin.

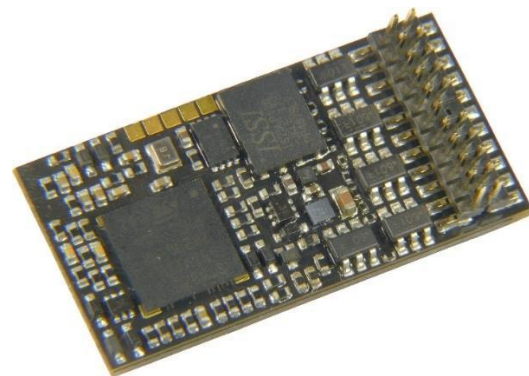
Shortly we will begin the series production of the new ZIMO decoder creation; there is just some final testing to do. For the first time in history, a ZIMO decoder is capable of „mfx“, of course additionally to **DCC** and **MM**, and **analog** (as every other ZIMO decoder).

In the beginning, the delivery is **restricted** to buyers of the **Roco locomotive class 85 (BR85)** that were equipped with the substitutional decoder type MX645P22. Those Roco clients get / got a special side letter and are / were able to register for the exchange operation on the ZIMO website www.zimo.at (homepage right upper corner).

For everyone, the decoder type MS450 will be available in **2018**. Other types (miniature, MTC, etc.) and non-sound-types will follow.

The naming „MS450“ does not remind of the well-known „MX645“ by accident: same dimensions (30 x 15 x 4 mm), same type and number of function outputs, same sound performance (3 Watt on 4 Ohm), same interface (PluX22), etc.

Additionally to „mfx“, there is more news: the decoder is able to play **16 bit - Sound-Samples**, which is already used in the BR85 project.

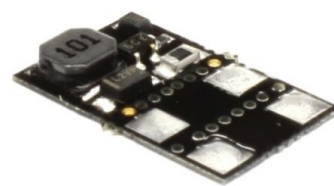


30 x 15 x 4 mm

Energy storage circuits

a useful complement to decoders

WITHOUT direct capacitor connector (for smaller types)



Produced by and to be bought from: **fischer-modell**

<https://www.fischer-modell.de/zubehoer/elektronik/lok-und-anschlussplatinen/ladeschaltung-fuer-speicher-kondensatoren/-pufferspeicher>

various diverse variations (e.g. with assembled Tantals or for a free connection of Elkos) are available in the Web-shop of fischer-modell.



Insolvency report



November 29th, 2017

As we already stated three weeks ago, in November, the social security company filed for insolvency because of accidental arrears and missed appointments, although the sum had already been paid. Of all things this happened 2017, the year ZIMO had the best business year of all times, and shortly after completing the balance sheet of 2016.

The current situation (November 29th, 2017): ZIMO Elektronik GmbH is now under insolvency administration, but the company operates completely in every aspect and as planned. In association with a renowned lawyer who specializes on insolvency law, and our long-standing business consultant, we prepare a recovery plan (although there is not much need for it), which will be presented at court in January. Our bank supports us by releasing all incoming payments for us to stay solvent. It also showed willingness to institute the "old" credit lines after the insolvency proceedings. We made arrangements over further material supply with our providers.

ZIMO Elektronik GmbH will be under insolvency administration for about 2 more months, and get back to "normal mode" at the beginning of 2018. During and after this time there should not be considerable impairments for our clients.

We are very happy that the insolvency news of our company did not deter many of the model railroaders and our distributors and business partners. On the contrary, we now experience a boom of purchase orders and willingness to use ZIMO products more often in the following years.

We thank you for all the "get-well-wishes" and positive reactions we receive or you post on various forums and our facebook page. Statements like:

„I wouldn't know whose decoder I would use instead;

"reliable, exceptional functionality and transparent to program";

„ZIMO means innovation" / „good technology, good assortment, good service";

"Thumbs up ;-)".

show that our work is appreciated.

A French manufacturer closes with the words:

„Longue vie à ZIMO" ("Long live ZIMO")