

Newsletter - April 2013

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ZIMO at the Intermodellbau Dortmund, Westfalenhallen, Stand 4-C26, 10 to 14 April 2013

New ZIMO Exhibition Layout (N Scale)



This photo comes from ZIMO booth at the "Faszination Modellbau" in March 2013.

The layout was built in the second half of 2012 and first shown at the "International Model Railway Exhibition" in Cologne. The main work of the planning of the wiring and programming was done by Heinz-Willi Grandjean, the creator and supplier of the layout control program ESTWGJ. Busy with commissioning, maintenance, ongoing construction, transport, etc. were Wolfgang Marschmann, the owner of the tablet and mobile app RailManager, and Heinrich Schild who organized the exhibition in addition to sales activity for ZIMO in Germany.

The main technical data: dimensions 200 x 130 cm, track material from Fleischmann, vehicles from Roco, Fleischmann, Brawa, 80 monitored sections (blocks) of track, 30 turnouts, and 20 signals in the form of specially prepared ZIMO signal gantries (new in Dortmund, 2013, see next page).



Technical Equipment:

ZIMO MX10 Command Station, ZIMO MX32 Controllers (Number as required),

6 MX9 Track section Modules, 2MX8 Accessory Modules,

1 MX7 Reverse Loop Module

These modules will be replaced (as soon as possible) by the newly developed stationary setup modules (StEin), probably in time for the Autumn 2013 Exhibitions.

7 Signal gantries with integrated accessory decoders.

ESTWGJ layout control program with touch screen (see photo on left),

Rail Manager App on Android Tablet,

ZIMO Decoders MX621 and MX622 in the vehicles.



Signal gantries with Decoders for Exhibition Layout

The reason for the construction of the signal gantries and the associated signal heads in several versions was the requirements of the ZIMO Exhibition Layout (see page 1 of this newsletter). Demonstrating the computer controlled operation depends less on model fidelity and the mechanical design, but more on the need for good visibility. Genuine N-gauge scale signals do not meet this requirement, because they are very small scale and only easy to read in one direction. The ZIMO signal gantry and its signal lights, however, are oversized (measured against N-scale standards), and clearly visible from a wide angle.

Power and control technology of the ZIMO signal gantry is based on the new accessory decoder MX820 (see below), and in particular the 8 or 16 "extra light outputs" of the X-, Y-and Z-types. For the signal gantry, this concept was further expanded to up to 16 signal heads, each with up to 8 lamps. In each signal gantry there is an integrated accessory decoder (a microcontroller, power supply, etc.) and the components are assembled on board the mast, so that the individual signal head contains an 8-way multiplexer and provide the necessary LEDs. The connectors for the signal heads can be positioned freely on the bridge plate and adapted to the distance between tracks.

A signal bridge "needs" up to 16 accessory addresses which are preferably controlled by predefined signal images (Hp00, Hp1, etc.) that are stored in the microcontroller of the gantry (or specified manually by writing CVs).

Currently, the signal gantry is not realistic, but just a "naked" board for demonstration purposes. The extension of the concept to a scale and optically correct design would be quite possible. It is not yet known if it comes to that as this all depends on the interest of the railway modelling community.

Types MX820E, -D, -V have been available since the start of April 2013: New Accessory Decoder Family MX820

The most important common data for all variants of the decoder family MX820: DCC + RailCom,

Dimensions: 19 x 11 x 2 mm (one sided types MX820E, MX820X)

or 19 x 11 x 3 mm (other types), or 19 x 12 x 3 mm (sealed type MX820D),

1 A total current for all outputs (3 A peak),

4 Switching inputs for feedback contacts or "forced circuits" *Pictures:*



M820E Upper Side



M820V Upper Side





MX820Y Lower Side MX820Z Lower Side (with solder pads for 16 signal lights or LEDs)

The types and MX820E MX820V are shipped with shrink tubing (but not sealed); the types MX820X,-Y,-Z without shrink tube (so that the solder pads remain accessible)



MX820D (sealed version of MX820E), top and bottom Compared to the previous version MX82D, improved by resin AND shrink tubing; easily distinguishable by the red colour from the other types.

RailCom is a Trade Mark of Lenz Elektronik GmbH.

List of the types of decoder family MX820:

Type *MX820E:* for a turnout (coil, motor, or LGB-EPL drive) or double-headed signal (lamps, LEDs) use in the same way as the previous type *MX82E*

Type *MX820D:* like MX820E, but sealed against water (with resin and shrink tubing) use in the same way as the previous type MX82D

Type **MX820V**: for 2 turnouts (drives as above) or double-headed signals use in the same way as the previous type MX82V

Type *MX820X:* like MX820E (therefore 1 turnout), but also 8 light outputs (open collector, 100 mA) for signal lights Type *MX820Y*: like MX820V (therefore 2 turnouts), but also 16 light outputs (open collector, 100 mA) for signal lights Type *MX820Z*: without normal outputs, "only" 16 light outputs (open collector) for signal lights

The decoder MX820 family of switches are used to switch double coil, motor and LGB-EPL drives, and for signals with bulbs or LEDs. The MX820 with its compact design (as with the predecessors MX82) are particularly suitable for installation in a switch cabinet or for placement in the track bed. Many other features of the MX820 as the same as the MX82, but there are still some important improvements:

- + Withstand voltage up to 40 V;
- + two to four inputs, which are used to automatically switch turnouts and set by track contacts or feedback, are now equipped with an internal filter, so that no external smoothing elements (capacitors) are required;
- + Extremely cost-effective connection for 8 or 16 signal lamps or LEDs (e.g. 8 double-headed signals or 2 signals with 8 lights) in the case of the types MX820X,-Y,-Z;
- + Software update in the collection process (not yet included in the decoder of the first batch in April 2013): The ability to be updated for all ZIMO decoders (Vehicle and Accessory decoders) has existed for almost 10 years, of course, but for built-in turnout decoders (e.g. in LGB cases) there has been the problem that each decoder had to be separately connected to the decoder update module (MXDECUP, MXULF, ..). With the new, the MX820 collection method implemented for the first time, the decoder can remain in the system, and the decoder update MXULF device is connected to the system instead of the digital controller and sends all accessory decoders together the new software. Each accessory decoder has the option to request a repetition when a negative acknowledgment is sent. The vehicles can usually remain on the track in the process.

WARNING: The accessory decoder MX820 family supports NO servo drives, in contrast to the "old" MX82.

*) For servo drives and multiplex signals later there will be the MX821, with 5 V power supply and without "ballast" for other drives.

Prices: from 25 euros (MX820E) up to 43 euros (MX820Y) (RRP).

Since April 2013, the successor to the MX631 decoders is delivered: The new Loco Decoder Family - MX634

The most important data for all variants of the decoder family MX634:

DCC + RailCom, DC Analogue, MM, AC Analogue

Dimensions: 20.5 x 15.5 x 3.5 mm

1.2 A Motor and total current

6 Function Outputs (Lv, Lr, FA1 ... FA4) 2 servo outputs or SUSI

Connection for external energy storage (Elko 25 V, up to 10000 uF)

Of course with all the known properties concerning ZIMO update capability, security, motor control and regulation functions, train control and feedback.





Type **MX634:** 11 wires + solder pads for more outputs Type **MX634R:** NEM652 (8 pin plug) on wires Type **MX634F:** NEM651 (6 pin plug) on wires MTC-21 Type



Type **MX634D:** MTC-21 Type **MX634C:** MTC-21 with FA3, FA4 as logic outputs

Regarding dimensions, connection types, current capacity, and the price, there is no difference from its predecessors the decoder MX631 family. The MX631 is the starting point, but after settling a step higher: together with the recently published

PluX decoder MX633, the MX634 has the following features:

- + a processor with double the program memory space (32KB instead of 16KB for MX631 and most other decoders);
 the additional space is not exploited by the latest software, but allows for a generous expansion with future features through software updates,
- + circuitry, and the acknowledgements on the programming track which allows for reading CVs even without connected load,
- + optimized energy storage circuitry (NOTE: 25 V electrolytic capacitors needed instead of 16 V as for MX633).
- + Can be switched by CV # 8 between the types MX634D and MX634C (i.e. outputs FA3, FA4 can be normal or logic level outputs). So if the wrong version was ordered, that can be corrected by CVs without further effort.

Prices MX634: from 37 euros (RRP) (MX634D)

Currently in progress (probably available from approximately June 2013): Loco Boards LOKPL96LS, -KS, -LV, -KV for Large Scale Decoder MX696

Depending on the type of loco board, fitted with solder pads or screws and used in accordance with

- either for fixed wiring (on solder pads) into a vehicle, then the decoder MX696S MX696V is plugged into the board,
- Or with comfortable connections (with screw connectors) with the plugged in MX696 (-N, -S or -V), even when a non screw connector version is used.

The variants LOKPL96KS and KV are also available with the respective matching sound decoder MX696S or V already installed to form your own type of large scale sound loco decoders, namely MX696KS and MX696KV: These are (by functionality and technology) very similar to large scale sound decoders MX695KS and MX695KV, but much narrower (29 mm instead of 40) but a little longer (64 instead of 50 mm) and higher.

The board drawing shows the connection places for the LOKPLKV example based on large scale sound decoder MX696KV: So three 10-pin screw terminal connectors (for rail, motor, 14 function outputs, fan output, speaker output, inputs, energy storage connection, low voltage outputs) and four complete servo connectors (with 5V, ground, and control line), of which two are countersunk.



Properties of the "combinations" MX696KS and MX696KV



DCC + RailCom, DC-analog, MM, AC-Analog 64 x 29 x 18 mm 4 A Motor, Gesamt (Spitze 10 A) 8 Funktions-Ausgänge 1 Rauch-Ventilator-Anschluss 1 Schalt-Eingang auf Klemme (+ 2 als Löt-Pads)

4 Servo-Steuerleitungen auf Löt-Pads (5 V extern bereitzustellen) 4 komplette Servo-Anschlüsse (Steuerleitung, Minus, 5 V) SUSI (mit 4-poligem Stecker) Direkter Anschluss für externen Energiespeicher (Elkos, Goldcaps oder Akku-Schaltung) 10 Watt Audio, 4 - 8 Ohm, 32 Mbit, 6 Kanäle

DCC + RailCom, DC-analog, MM, AC-Analog 64 x 29 x 18 mm

4 A Motor, Gesamt (Spitze 10 A) 14 Funktions-Ausgänge (8 auf Klemme. 6 als Stifte) 1 Rauch-Ventilator-Anschluss

3 Schalt-Eingänge (1 auf Klemme, 2 als Stifte)

2 Funktions-Niederspannungen (5 V, einstellbar 1,5 V bis Schienenspannung) SUSI (mit 4-poligem Stecker)

Direkter Anschluss für externen Energiespeicher (Elkos, Goldcaps oder Akku-Schaltung) 10 Watt Audio, 4 - 8 Ohm, 32 Mbit, 6 Kanäle

GA7 N GA8

Schiene

Besetzt HLU

First batch of prototypes for testing: Stationary Processing Module – StEin (Stationär-Einrichtungs-Modul)

The device shown on the right in the picture is the first of a planned series of "StEin Modules", which are the modules used to replace the MX9, MX8 and MX7.

This first StEin module, which will soon be on the market (exact production date is not yet known), is a mixed type for all types of facilities on the model railway. It provides outputs for:

- 8 track sections (with occupancy detection, train number recognition, RailCom detection and HLU functionality),
- 8 high-current coils and turnout motor ports,
- 16 LEDs, servos, multiplex signals. HLU Besetzt These outputs can (optionally) be used as inputs (track contacts)
- Anschluss für Tasten und LEDs für Erweiterungsplatine Anschluss für lokale Bedienung LEDs zur USB Stick Erweiterungsplatine USB Stick Buchse (weitere Ein-/Ausgänge) 2 x CAN-Bus (+ DCC-Timing vom MX10) DC Ver-Mas sorgung GA1 N GA2 Schiene Anschlüsse für 8 Gleisabschnitte

und LEDs für lokale Besetztmeldung

und HLU-Zustand

USB (client) Schnittstelle Audio-Ausgang (2 Kanäle) 5 V (für Servos) "20 V"

8 "Hochleistungs-" Ein-/Ausgänge, 2 A Dauer nach Masse oder "20 V"

16 Ein-/Ausgänge, 60 mA nach 5 V, 1 A nach Masse, LEDs/Lämpchen, Multiplex-Signale, Servo-Steuerung

a speaker for the built-in sound generator for station noise and other sounds.

For example, this module is good to use to cover all the needs of a small junction station.

The concept of StEin modules facilitates installation and commissioning, to enable convenient monitoring of the control technology and the layout itself, and facilitates troubleshooting. More specialized StEin module types (with emphasis on track sections or turnouts) are planned.