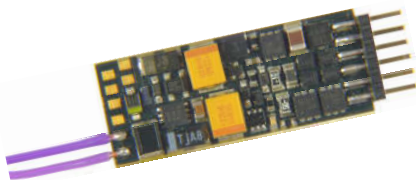


## MX649 – New Miniature Sound Decoder

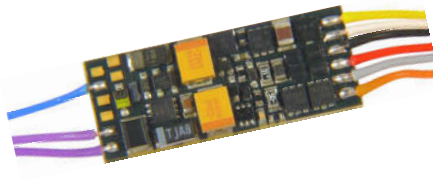
*Smaller than all previous ZIMO Sound-Decoders, but nevertheless fully equipped \*)*

\*) ZIMO does not build the absolute smallest decoders available on the world market, but they are consistently "fully equipped". This refers to the well-known range of ZIMO quality characteristics such as motor control and sound concept, the maximum voltage tolerated of 30 V, and (especially in miniature decoders) refers to the following critical points:

Those that know ZIMO Sound Decoders will immediately notice the ochre-coloured tantalum capacitors. Despite the need to reduce components in such a small size decoder, ZIMO has included them. Without the small amount of energy stored in these capacitors, even the smallest interruption to the supply of current would cause disturbance to the playing of the sounds.



**MX649N** (with NEM-651 Interface)



**MX649** (Version with wires, only)  
**MX649R** (with NEM-652 on wires)  
**MX649F** (with NEM-651 on wires)

**23 x 9 x 4 mm** (the predecessor - MX646: 28 x 10.5 x 4 mm)

The decoder family MX 649 is the successor and replacement for MX646, thus the same interface options (see above) are available.

DCC + RailCom, DC-Analogue, MM  
**30 V** maximum voltage  
**0.7 A** Motor-and Total Current (1.5 A peak)  
**4** Function Outputs (Lv, Lr, FA1, FA2)  
**2** Logic-Level Outputs for additional Functions, Servo-Control or SUSI  
**1** Watt Audio, **8** Ohm, **32** Mbit, **6** Channels

All well-known ZIMO characteristics for Firmware Updating,  
Motor Control and Regulation, Train Control and Feedback.

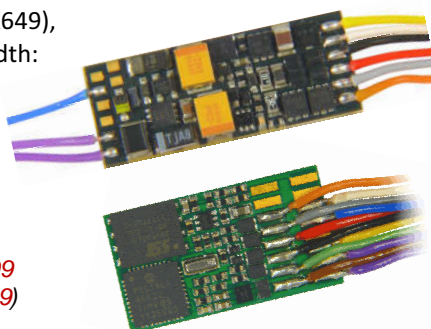
In terms of circuitry, the MX 649 is practically the same as the MX648 and MX658 (available for about two years or one year, respectively). The decision between these three miniature sound decoders depends on the desired interface :-

NEM-651 → **MX649N** PluX-16 → **MX648P16** Next-18 → **MX658N18**

or in the case of where the interface is not important (wires only) then the dimensions decide: not so much by the absolute area (5% less in favor of the MX649), but rather by the reaction on the length and width:

**Long and Narrow** → **MX649** >>>  
(23 x 9 x 4 mm)

**Short and Wide** → **MX648** >>>  
(20 x 11 x 4 mm)



Price: MX649 **RRP €102** MX649N **RRP €99**  
(MX648 **RRP €102** MX648P16 **RRP €99**)

## New Features with new SW-Version for ZIMO Sound Decoders

As of software version 34.0, there are numerous improvements in the decoder software. To download see [www.zimo.at](http://www.zimo.at), Menu "Update & Sound" | "Update Decoder".

- Extensions to the "Swiss Mapping": now 13 groups, outputs individually dimmable, fade in and fade out as in "Rule 17" (depending on speed).
- Extension of the driver cab-side light suppression on 3 outputs.
- Braking on function key (preferably with CV #4 set to the maximum value, whereby the train will continue to run, so long as the braking key is not pressed)
- Suppression of light changing (or panto changing) during shunting moves.
- Effects now assignable to the function outputs FA1 ... FA8 (no longer for F0, which was hardly ever used).
- Manual control of the diesel sounds through more function keys.
- Control of 2 smoke fan ventilators in Mallet-Locos, now possible in decoders with 2 fan outputs as well as others.
- Reprogramming of the SUSI-Pins on function outputs FA9, FA10 (on the MX645).
- Input mapping now works with SUSI-outputs.
- RailCom-Message "Quality of Service".
- With CV#8 = 0, decoder is reset to default values (while CV#8 = 8 resets Sound Project to default values).

## Other topics in this Newsletter:

Software Release for **MX10 & MX32**

Massoth **DiMAX Navigator** now with ZIMO Digitalsystem

Decoder Test and Connection Board **MXTAPS** and **MXTAPV**

New "**Dumbo**"-Loudspeaker with optimized resonator body

Now **NEW: Roco Sound-Projects** in the ZIMO Sound Database

Since August 2015 available for Download:

## Software Release 1.17 for MX10 & MX32

The common container file for updating MX10 and MX32 can be used directly for all devices which already have SW version 1.16.xx; i.e. for deliveries roughly from April 2015.

All units have been purchase before April 2015 will have software version 1.15 or earlier. If an update is to take place from 01:15 (or earlier) to 01:17, please request assistance from ZIMO using this email address [service@zimo.at](mailto:service@zimo.at).

Here are the most important bug fixed and new features in Version 1.17:

- RailCom Railcom is now fully operational and suitable for large scales: among other functions are reading out and writing CVs in OP PROG (operations mode), real speed message, including "Quality of Service" display during LOCO mode on MX32.
- Radio operation (with MX10 and one or more MX32FU controllers) now works.
- Numerous errors in SWI mode (Switch/Points) and in ZUB list (Accessories) fixed, control of accessory products by address and sub-address is fixed. Direct access to ACC (Accessories) list works using Softkey II or Key E + Key 3 (full screen), with W key now opening and closing the display panel in the bottom window
- Restoration of vehicles and accessories data after switching power on.
- In SERV PROG (service mode): Warning of non-standard contemporary setting of voltage / current in the MX10. Proper control of (old) DCC decoders with 14 or 28 speed steps (instead of 128).
- External Emergency Stop button connected to "Boo UE" pin (on rear CAN-socket) now usable.
- Roco Multimaus, Massoth DiMax Navigator and Manhart Funkhandy have become supported input devices.
- GUI takeover from the MX10 via menu call (automation will follow).
- Reloading of vehicle images, as described in the operations manual, now works.
- MX8, MX9 operation and programming via ACC (accessories) list now usable.
- Setting the operating language of MX32, via menu CAB CONF (currently German or English).
- Setting the operating language of MX10, via menu MX10 CONF (currently German or English).



The software for the MX 10 and MX32 is naturally evolving; for the next versions besides bug fixes and necessary additions things like traction handling, LAN interface (for wireless connection to tablets and smartphones with the appropriate apps), and decoder update and sound-project loading from the MX10 will be provided.

### Massoth DiMAX Navigator can be used with ZIMO Digital System

The DiMAX radio receiver (version for Xpressnet & Loconet) is used by connecting to the "XNET" socket of the MX10 base station.

DiMAX Navigator device can ONLY be operated in radio mode, on the other hand ZIMO cabs (as always, but also in combination with DiMAX) optionally can be connection via cable to the CAN-socket or via ZIMO "MiWi" radio.

NOTE: Also the Roco Lokmaus- (Red "Multimaus") can be connected to the ZIMO Digital System via the MX10; Therefore, there are two possibilities (currently) for the connection of simple manual controllers. Later Loconet products will also be added!







## MXULFA

New SUSI protocol to speed up loading of sound projects, implemented from:  
SW Version 0.62 (MXULFA)  
and SW Version 35.00, 34.10  
partly (in Decoder)

The **Sound Project loading via "SUSI"**  
(using the "SUSI" terminals of the decoder, but not the standard "SUSI" protocol)  
is up to **10 times faster** than by rail.

For decoders with direct connections (PluX, MTC & Next) the SUSI interface is integrated into these plugs: to connect to the MXULFA, this is best done by using the test and connection board MXTAP (-S, -V); see example on the right.

Loading via the **new "SUSI" protocol** works much more reliable than the "old". It also enables the **simultaneous loading of multiple decoders**. Use several terminal boards MXTAP (-S or -V), connected together.

## Decoder Test-and-Connection Boards

### MXTAPS and MXTAPV

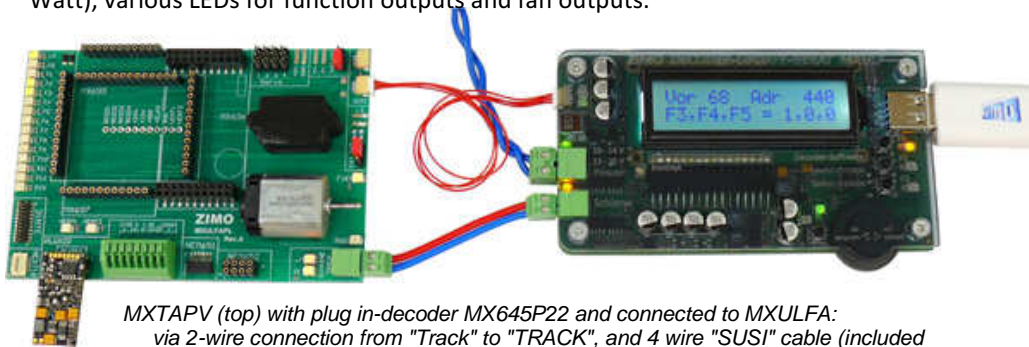
For Decoder Testing, Decoder Updating and Sound Project loading

The ZIMO Decoder Test and Connector Boards should be used together with the MXULFA (decode update and sound-loading device), as well as current and older ZIMO base units (MX10, MX1, etc.), and also with third-party systems.

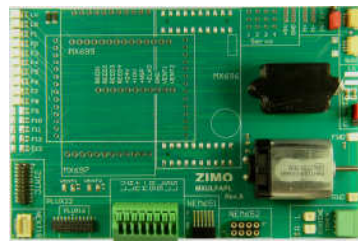
- Support for the plug in all currently known and standardized interfaces, PluX12, -16, 22, Next18, MTC21 and NEM651, and for the special ZIMO large scale interface of MX696, MX697 and MX699.

Two Versions: **MXTAPS** for small scales, **MXTAPV** for all (including large scale decoders).

- Connection to MXULFA or ZIMO base unit or other digital centers using double terminal "TRACK" connection, and, where appropriate, "SUSI" cable (for SUSI sound loading).
- To test the decoders on the board there are the following: DC motor, speaker (1 Watt), various LEDs for function outputs and fan outputs.



MXTAPV (top) with plug in-decoder MX645P22 and connected to MXULFA: via 2-wire connection from "Track" to "TRACK", and 4 wire "SUSI" cable (included



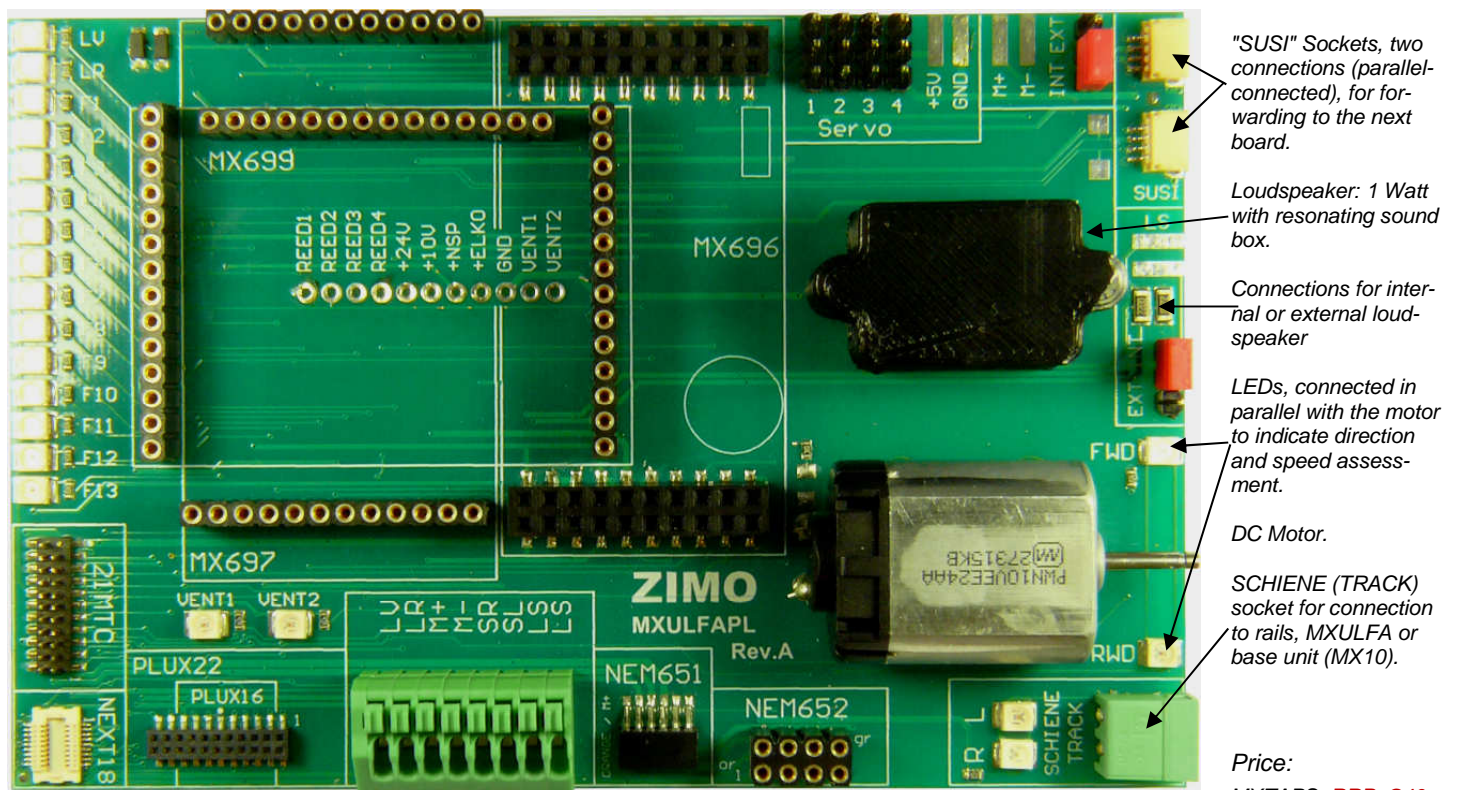
MXTAPS (left), the more affordable version for small scale decoders (the connections for MX696 and MX699 are missing)

With MXTAPS and MXTAPV, **3rd party decoders** (decoders from other manufacturers) can be used and tested: for software updating or sound project loading, you would need the manufacturers programming device.

LEDs for Function Outputs

Sockets for ZIMO Large Scale Decoders

Servo Connections  
Connection for Internal/External Motor



"SUSI" Sockets, two connections (parallel-connected), for forwarding to the next board.

Loudspeaker: 1 Watt with resonating sound box.

Connections for internal or external loud-speaker

LEDs, connected in parallel with the motor to indicate direction and speed assessment.

DC Motor.

SCHIENE (TRACK) socket for connection to rails, MXULFA or base unit (MX10).

Price:

MXTAPS RRP €46  
MXTAPV RRP €66

Standard connectors for "small" decoders and terminal for "wire only" decoder

## New Loudspeaker for ZIMO Sound-Decoder

Based on "Dumbo", with optimized resonator boxes for all cases.

(produced by the company Maryschka, on behalf of ZIMO)



**LS13X18** 18 x 13 x 13 mm, 8 Ohm  
The "Dumbo" with lateral resonator body, suitable for "small" ZIMO Sound Decoders; for 3 Watt Audio two loudspeakers can be connected in parallel -> giving 4 Ohm total impedance.



**LS26X20X08** 26 x 20 x 8 mm, 8 Ohm  
Larger area, but flatter resonance body and therefore lower overall height, the sound is practically the same as the above type.



**LS40X20X09** 40 x 20 x 9 mm, 8 Ohm  
Large resonator body, particularly good for reproducing bass sounds.



**LS40X22X09** 40 x 22 x 9 mm, 4 Ohm (2 x 8 Ohm parallel)  
**Two "Dumbos"** in one box, significantly higher volume, suitable for "small" 3 watt sound decoders; In this type, however, relatively little resonance volume, therefore slightly weaker bass reproduction.



**LS55X22X09** 55 x 22 x 9 mm, 4 Ohm  
**Two "Dumbos"**, higher volume and better bass reproduction.

**LS50X15X14** 50 x 15 x 14 mm, 4 Ohm  
**Two „Dumbo“s**, with high (14 mm) resonance body, sonically as above.

**LSG50X15X14** 50 x 15 x 14 mm, 16 Ohm  
Same as above, but the two "Dumbos" are connected in series, therefore suitable for ZIMO Large Scale Sound Decoders.

The best miniature rectangular speakers (with ZIMO resonance boxes), i.e.

**LS8X12** (12 x 8 x 8 mm), **LS10X15** (15 x 10 x 9 mm), and **LS10X15H11** (15 x 10 x 11 mm), **continue to be offered by ZIMO**, of course. Removed from the catalogue (and replaced by the "Dumbos"), however, are the types LS1635 ... and LS2040 ....

Not affected by this reorganization of the speaker range, and still available, is the ZIMO selection of VISATON loudspeakers, as offered previously.

## Growth of the ZIMO Sound Database

Most of the sound projects that are used in ZIMO Decoders installed in Roco & Fleischmann models are now available for private use free of charge ("free download").

The following projects will be in the database in the near future, followed by others.

NS MAT '64	Niederlande
DR-Baureihe 23	Deutschland
NOHAB AA16	Multinational
BR 602 Gasturbine (VT 11.5)	Deutschland
SNCF CC72000	Frankreich
BR 10 ÖI	Deutschland
SNCF BB 16000	Frankreich
Lyntog (DSB MA 460)	Dänemark
BR 35.10 DR	Deutschland
VT 11.5 (N-Spur)	Deutschland
VT 11.5 (H0-Spur)	Deutschland
Taurus 1116	Multinational
SNCF 231E 'Chapelon'	Frankreich
BR 120 'Taigatrommel' (N-Spur)	Deutschland
BR 120 'Taigatrommel' (H0-Spur)	Deutschland
SNCF 68500	Frankreich
SNCF 68000	Frankreich
Preußische P 8 (BR38) Rundschlot	Deutschland
Preußische P 8 (BR38) Giesl	Deutschland
BR 01.5	Deutschland
VT 98	Deutschland
SNCF CC 72000	Frankreich
BR 23	Deutschland
V 100 Ost	Deutschland
SJ Dm3	Schweden
SB 109	Österreich
kkStb 310 / CSD 375	Österreich / Tschechien
BR 44 ÖI	Deutschland
BR 35.20	Deutschland
Mat '24 "Blockendoos"	Niederlande
BR 18 201	Deutschland
CSD 555	Tschechien
GKB 152	Österreich
MRCE Dispolok ES64U2 (Taurus)	Multinational
BR 605 'ICE TD'	Deutschland
Öbb 1010	Österreich
PtL 2/2 (BR98*)	Deutschland
BR 103	Deutschland
BR 218 TB11	Deutschland
BR 218 MTU4000	Deutschland
BR 218 Pielstick	Deutschland
WR 360 C 14 (DR V 36)	Deutschland
BR 151	Deutschland
Bayerische S 3/6	Deutschland
FS E.636	Italien
NS 1202	Niederlande
BR 03.10 DR ÖI	Deutschland
BR 03.10 DR Kohle	Deutschland
Öbb 2016 'Hercules'	Österreich

## modell-hobby-spiel LEIPZIG

2. - 4. Oktober 2015  
Halle 3, Stand K07  
Messe-Allee 1  
D - 04356 Leipzig

## Modellbaumesse WIEN

23. - 26. Oktober 2015  
Halle B, Stand B0204  
Messe Wien  
A - 1020 Wien

## Exhibitions in Autumn 2015

## Faszination Modellbau FRIEDRICHSHAFEN

30. Oktober - 1. November 2015  
Messe Friedrichshafen  
Neue Messe 1  
D - 88046 Friedrichshafen

