

## MS decoders: small and large ones.

Following the MS sound decoders for HO standard interfaces PluX22 and 21MTC, i.e. **MS450P22** and **MS440C** and **-D**, more MS types are released. Those, too, are the successors of the MX types equipped with the same interfaces.

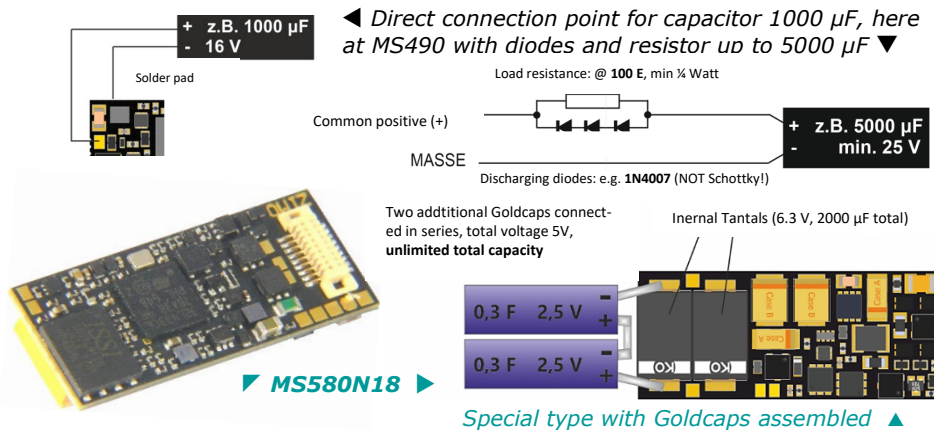
Next18 interface: MX658 -> **MS580** (complete)  
PluX16-interface or with wires: MX648 -> **MS480** (in development)  
NEM-651 mounted directly or with wires \*): MX649 -> **MS490** (almost complete)

\*) "with wires" = as desired with free ends or NEM-652, NEM-651 on wires.

The key innovations of the MS technique compared to MX lies (as is well known) in the sound reproduction (**16 bit** resolution, **128 Mbit** memory, etc.) and in the **mfx ability** (except MS490). New types also provide an opportunity for additional improvements; in this case the focus lies on **stay-alive capacitors**.

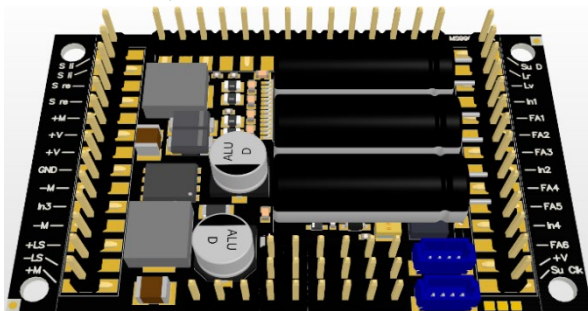
The larger decoders (typically HO) already have the connection for stay-alive capacitors by ZIMO since MX decoders; for miniature sound decoders there are new possibilities for MS types:

**MS480** and **MS490** at least provide the possibility to connect capacitors with 1000 µF (16 V) directly (i.e. without additional components), even more with diodes and resistors. The greatest possible extent is provided by **MS580N18**: two small Goldcaps, connected directly in series, provide a **stay alive capacity of 1-2 sec** (5V).



The flagship under the MS decoders for scales G and 1 is the **large-scale sound decoder MS990**. Due to better spatial conditions than smaller scales, practically everything can be equipped, as far as it is technically possible. This is also done with this product, although it may take some time until the final release.

Fan 2.1 low voltage outputs 10V, 5V var. low voltage output  
Second speaker FO7 ... FO12 FO13

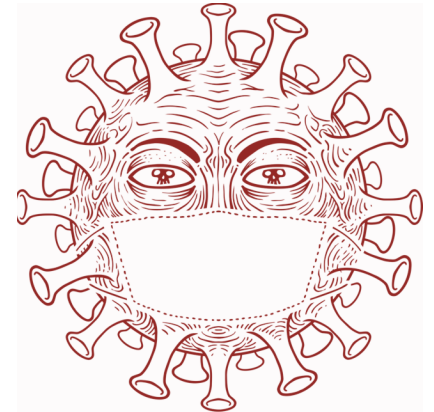


The connection terminals (pins or screw terminals) are equal to the predecessor MX699, in the front (servos) and in the back there are differences.

Please refer to the next page for details to MS990!

This is why there is only a CAD drawing of the PCB at the moment.

◀ **MS990LV** (with pin connector)



Free picture by Gordon Johnson on Pixabay

Currently the Corona virus affects everything, even model railways.

Fairs and exhibitions were and are going to be cancelled (Mannheim, Dortmund, Wels, St. Louis, ...). This does not only mean loss in promotion and business, but especially missing personal contact between "railroaders" of all kinds.

It SHOULD start again on August 13th: the new date for the Intermodellbau in Dortmund. Although this is not very probable, keeping in mind that the (at a later date) Oktoberfest in Munich has been cancelled already....

Nevertheless, the model railway industry keeps working; we register almost no decrease in orders for decoders by manufacturers.

At ZIMO we had to establish some safety measures: Distance, working from home in some areas, ...

The production is working as usual, especially now the MS decoders broaden our range of product types.

Material supply is a little unsteady, some components are more expensive, but because of the ZIMO-internal flexibility, the assembly and following processes are still producing at full capacities.

It looks like ZIMO will overcome this crisis without short-time work or even dismissals. To achieve this, we need

YOU

that is, model railroaders, who buy our products directly or "packed" in fully equipped model vehicles.

*The most important features and specialties of the  
MS large-scale decoder **MS990**,  
especially regarding differences to the MX types  
(additional to 16 bit and 128Mbit sound inherent to all MS decoders)*

- 6 A** motor/total current | **15** function outputs | **3** stay-alive capacitors Supercap 3F3 similar to MX699, optimization regarding energy storage.
- 2** fixed and **1** variable low voltage connections, similar to MX699, the voltage 5, 10, 8 V are available (for servos or sound amplifiers) as well as type dependent: one low voltage output for other functions.
- 2** independent outputs for 10 Watt speaker ("stereo"), on the one hand, to provide more volume and, on the other hand, distribute sound according to their origin like in the prototype.
- 2** independent smoke generators with their own fan each can be activated if required by the model; the voltage supply is accordingly powerful.
- 6** servo connections, eligible 6 x 3 pole or on one single line; for all cases 4 servos are not enough, e.g. two couplers or more than two pantographs.
- 2** independent SUSI interfaces  
one of them on a typical SUSI interface as well as on pins/screw terminals, the other only on the second SUSI interface; as always, "SUSI" does not only mean a train bus connection corresponding to the SUSI-protocol standardized by Railcommunity, but also for I<sup>2</sup>C usages for faster sound loading.
- 1** gyroscopic sensor  
for future use (as soon as activated by the software) to influence driving and sound through inclines and declines or other measurable movements.

*Special  
MS decoder for 0-scale  
planned: **MS950***

This sound decoder will bridge the HO-world with the "real" large-scales (G, 1), regarding dimensions as well as characteristics.

The MS950 will be **narrower** than the current "small large-scale decoder" MX696 (only 23 instead of 29 mm), reproduce two-channel sound (2 x 3 Watt), provide many function and servo outputs, as well as a connection for smoke generators and an individual output for a fan.

**Stay alive** is - as in all MS decoders - of utmost importance: three Supercaps 1F (like the "big" MS990, only less capacity) supply motor, sound and function voltage.

Note: ZIMO is thinking about developing a smoke generator, like the TR92-101 without internal electronics to eliminate those unnecessary costs.

## *MS decoders - current software development status:*

Currently (when receiving this newsletter) the **software version** for MS decoders is "around" **4.15**. This is an intermediate step to version 5.00 (almost there...); in 5.00 there should not be essential backlogs to the features of the MX decoders, but more advantages of the MS technique. Currently, DCC features prevail; after the release of SW version 5.00, the work on mfx will be intensified (regarding the automatic configuration of the GUI when registering).

The current instruction manual (download at: [www.zimo.at](http://www.zimo.at)) already contains the features of the upcoming SW-version 5.00, always with the note "**SW version 5.00 and higher**".

This is a summary of missing features at delivery of **MS decoders since 20th April** (or the SW versions to download); with notes to the planned sequence of additions per SW update:

- **Loading sound via tracks** (up until now not possible at all) is still very slow (depending on the sound project between 1 and 2 hours). This is mainly due to the MXULF software which also is developed constantly.  
Note: fast sound loading (a few minutes) is still possible via SUSI and especially suitable for decoders with the following interfaces: PluX, MTC, Next. This is because the MXTAP is equipped with the corresponding sockets.
- The **DC analog operation** is not yet possible, only AC analog is working.  
*The time of implementation depends on the need of industrial clients, because it is not very important for private clients.*
- The **Script language** in sound projects (very often used by sound providers Däppen, Henning, Chetter) can only be interpreted in part by MS decoders; therefore, interruptions of background noises or wrong dependencies of driving situations can occur.  
*The script ability is the most pressing MS project.*
- Some **effects** are not yet implemented; this concerns mostly "American light effects" (Ditch, Mars, ...).
- Some **special features**, like motor brake, adaptive acceleration, idle, solo drive, motor control in consist, etc. are not yet implemented, whereby it is unclear, if all of the features will be needed in MS decoders.
- "Distance controlled stopping" (also known as "**constant braking distance**") is not yet implemented.  
*Feature can be improved (to MX); therefore a little later, but better, in the realisation for MS.*
- **SUSI** interface (only shares pins with sound loading) as well as **servo** control and **inputs** (for cam sensors or reed contacts) are not implemented.  
*Urgency depends on need for clients.*
- The **CV #300 procedure** (select and configure sound) is not implemented yet; the development is connected to the development of the new controller MX33.
- Sound projects for **diesel mechanical locos** cannot be used yet.
- Some **less important configurations** and other routine sounds for steam, diesel, electric locos are not yet useable.



# SOUND – News for MX and MS

*A contribution by Alexander Mayer (ZIMO Sound design)*

Only a few years ago, the entries in the ZIMO sound database could be counted on one hand, this has changed drastically. We can provide our clients with the biggest range of different sound projects of the whole world. Thereby, we value highest quality. This is only possible with our partners the "sound providers".

We proudly present new partners:



*Leo Soundlab, Austria*

Christian Leopoldseder is sound engineer and worked at AKG for many years, until he became a freelancer. LeoSoundLab creates sound projects of highest quality and also offers installation of decoders and speakers into locos.

A quote from the company's website:

"It all started with the hobby model railroading and the dissatisfaction with sounds available on the market, as well as the limited range of sounds for Austrian vehicles. The first steps towards the production of the first sound project lead to the ÖBB 399.01 (today Mh.1). To get the best audio quality, I used the large diaphragm condenser microphone C414, the best equipment of the Austrian company AKG. The sound was recorded with a Zoom 4Hn. With this equipment, the first recording was impeccable.

The steadily big demand for sounds of Austrian vehicles and many compliments for this and other sound projects encouraged me to further recordings. The recording of the Rh.298 / U and the offer to install it professionally into the (at that time) current Liliput model on the market marked a breakthrough and so I founded my company."



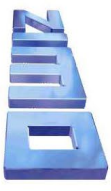
**équipeTonTrain.com**

*éTT, France*

Frédéric Holbrook comes from a family of railroaders. His father was head of a consulting and certification company for railbound matters near Paris. Following the foundation of his own small company in 2019, which specializes on repair and digitalization of model vehicles and partnering with Maketis, éTT will provide French sound projects on the ZIMO sound database. The recordings are from last summer. Due to his close relationship to French Heritage railways further projects are also possible in future.



# ZIMO Team



A lot of time has passed since the last print version of the catalog in 2019, and because of the missing exhibitions due to Corona, the next edition will be released in autumn 2020 the earliest.

Therefore, the employees are presented in a newsletter; there have been many changes this year... to provide more information for our readers, the heads are enriched with information about the actual task within the team.

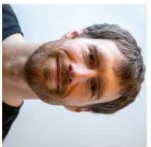
This information makes no claim to be complete regarding the whole "ZIMO world", on the one hand due to spatial reasons, on the other hand there are external partners additional to the people employed by ZIMO GmbH, who perform important tasks (interlocking software, ZCS, ... up to assisting on workshops and fairs, etc.).



Stephan Lampert  
Schaltungsdesign,  
Leiterplattenlayout



Markus Veigl  
Schaltungsdesign,  
Leiterplattenlayout



Vincent Hamp  
Software design  
MS-Decoder



Stephan Zimmerer  
Software design  
MS-Decoder, ZSP



Roman Hlozka  
HW- und SW-Test  
Demo-Anlagen



Peter W. Ziegler  
Geschäftsführer



Attila Balog  
SMD-Bestückung,  
optische Kontrolle



Maria Liszka  
Handlötarbeiten,  
SW-, Sound-Laden



Nada Radulovic  
Handlöt- und Serien-  
testarbeiten



Ferenc Györe  
Produktions-  
reparaturen, Test



Selim Adamkaya  
SMD-Bestückung,  
optische Kontrolle



Peter Ostatnik  
Softwaredesign  
STEIN, ICA



Michael Schwarzer  
Softwaredesign  
MX10, MX32



Endre Sinka  
Softwaredesign  
STEIN, MXULF



Michael Rubitschka  
Softwaredesign  
MX32, MX33



Oswald Holub  
Leitung  
Entwicklung



Oj Van Beranek-Che  
Leitung



Tan Hung Huynh  
Leitung  
Produktion,  
Einkauf



Selda Telci  
Handlöt- und Serien-  
testarbeiten



Renata Gyenge  
Handlötarbeiten,  
SW-, Sound-Laden



Mohammad Alrfai  
SMD-Bestückung,  
optische Kontrolle



Ruslan Agiev  
Produktions-  
reparaturen, Test

## Development - Testing

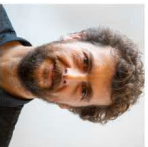
## Production - Purchasing



Alexander Mayer  
Sounddesign, Ver-  
trieb Frankreich u.a.



Sven Fuchs  
Sounddesign, Anlagen,  
Ausstellungen



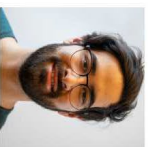
Oliver Heissenberger  
Webdesign, Grafik,  
Video



Irina Lochmann  
Buchhaltung,  
Assistenz



Harald Schandara  
Fakturierung,  
Buchhaltung



Rene Farahmandi  
Auftragsbearbeitung,  
Behördenmeldungen

Leitung  
Verkauf,  
Vertrieb,  
Verwaltung



Alexandra Bopp  
Auftragsbearbeitung,  
Auslieferung



Manojela Stanojevic  
Verpackung,  
Auslieferung



Thomas Mader  
Verpackung,  
Lautsprecherbau



Manfred Brückner  
Reparaturen, Produkt-  
fotos, Testmittelbau



Alyssa Reed  
Reparaturen, Testen,  
IT-Administration



Stephan Hubinger  
Kundendienst,  
Telefon und Mail

## Sounddesign - Documentation

## Administration

## Sales

## Repair

## Testware

## Customer Service