Newsletter - JULY 2010"

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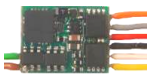
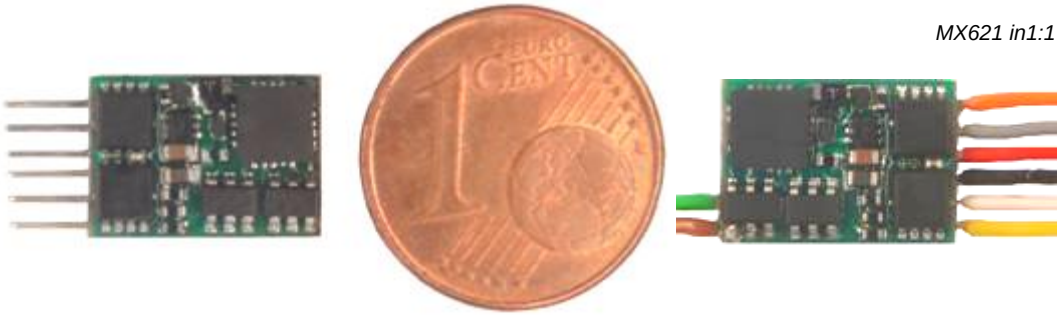
ENGLISH VERISON

MX621 in1:1 actual size





Picture above: MX621N – Design with 6 pins / MX621 - wired Version (optionally with NEM652 or NEM651 Plug)

Probably available in September/October 2010:

New Miniature Decoder MX621 - 12 x 8.5 x 2 mm

The plan is for a direct transition from the MX620 to the MX621; but the MX621 needs a completely new micro-controller type, and, because of the very tense situation in the electric component market (the economic situation, as well as the Smart Phones and iPads absorbing all spare capacity …), these components are not yet available in sufficient quantities. But, in time for the winter season, the MX621 will be released; samples (see photos above) have already been built.

The new MX621 is about 2 mm shorter, and 0.5 mm narrower and 0.5 mm thinner than the previous MX620. The MX621 is not quite the **"smallest Decoder in the World"** (although close), but is **a fully-fledged Decoder**; with 4 Function Outputs, with complete Hard- and Software for motor control, with all current, voltage and temperature overload protection, naturally also with software update capability and RailCom. The tolerance for voltage overload is higher than 35 volts, which is better than many large scale decoders.

WARNING: The MX621 has no SUSI interface; as this fell victim to the small size. The smallest decoder with SUSI is now the MX630; for sound applications in N and 00/H0 the new miniature sound decoder, the MX646, will soon be available, and this is technically a better solution than a miniature decoder with SUSI interface and a separate sound only decoder (more likely to fit into a small space).

Modes - DCC, MM, DC analogue, AC analogue,
Total current/motor current - 0.7 A continuous
Total current/motor current – 1.5 A peak
4 Function Outputs; Total current from function outputs - 0.5 A

Versions:

MX621 - 9 highly flexible wires (2 x rails, 2 x motor, 4 function outputs, earth/ground),
MX621R - 8-pin interface with NEM652 (socket on wires),
MX621F - 6-pin interface with NEM651 (socket on wires),
MX621N - 6-pin direct plug-in - NEM651.

Prices:

Probably about the same price as the MX620, starting from 31 euros (Recommend Retail Price). There is some uncertainty due to the situation on the electric components market and the euro/dollar exchange rate.

A product for the near future, already available today:

MX643: Sound Decoder with PluX Interface

ZIMO now offer a sound decoder with the new PluX interface, which is the new interface designed to replace (in the future) the "MTC" 21-pin interface and the even older NEM652:

- as **MX643P16** – with 16-pin PluX-plug, 4 function outputs on the PluX-plug,
- as **MX643P22** – with 22-pin PluX-plug, 9 function outputs on the PluX-plug.

Technically the MX643 is practically the same as the MX642 (which is available with wires or the 21 pin "MTC" plug); both the MX643 and the MX642 have been developed from the proven MX640 design. All sound projects developed for the MX640 and MX690 can be used without change on the MX642 and MX643.

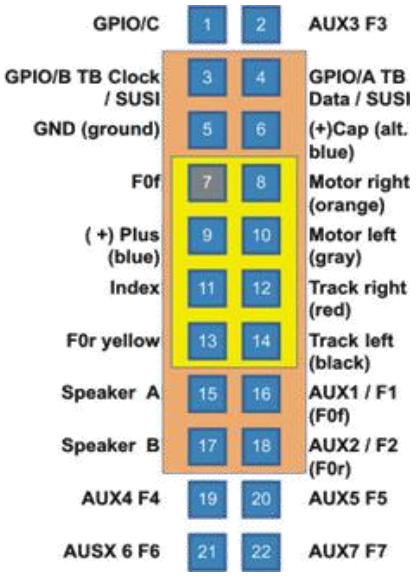
Key data: **30 x 15 x 5 mm**, DCC, MM, Analogue DC and AC, RailCom, 1,2 A motor current, 10 function outputs (up to 9 on the plug, and the others on a solder pad) with a total current of 800 mA, **audio power output 3 Watts** (at 3 Ohm, for example, 3 * 8 ohm speakers connected in parallel), sound storage 32 MBit (180 sec with 22 kHz or 360 sec with 11 kHz), direct energy storage interface for connecting capacitors (with protection against the in-rush current on start-up), RailCom, delivered with the ZIMO Sound Collection (5 steam locos and one diesel loco), more sound projects can be downloaded from the sound database, software updateable.

Photo under: MX643P22

Note for the photo, the circuit board is actually black (not blue or green, as before), this is not an exposure error, but improves the heat dissipation of the board.

Photo right: the "PluX"-Interface, according to the standards, has several versions: 8 pin 12 pin, 22 pin, also a 12 pin.

ZIMO offers the PluX 16-pin non sound decoder (the MX630P16) as well as the16 and 22 pin sound decoders (MX643P16 and MX643P22). Also planned are 8 or 12 pin versions (without sound).



Already in development:

Miniature Sound Decoder MX646 - 28 x 10.5 x 4 mm

The latest generation of decoders are no longer (or very rarely) used with different sound modules (sound only decoders), managed through a SUSI interface to the decoder controlling the motor. This arrangement can work with all the ZIMO decoders currently produced or announced, except the new miniature decoder, the MX621, which, for space reasons, has no SUSI interface. The SUSI interface is an outdated concept, motor control and sound production can easily be integrated into one decoder, which is functionally better (no cumbersome SUSI protocol communication between decoders), and (in most cases) and there are savings in terms of costs and space.

The **Miniature Sound Decoder - MX646** is almost **identical with the "bigger" sound decoders - MX642 and MX643**. The smaller size is mainly due to the use of a new micro-controller (to be precise, the same chip in a smaller case). The only significant difference from the MX642 or MX643 is the omission of the energy storage interface. In addition, the voltage overload tolerance is lower at 30V (instead of 60V), but this is irrelevant in standard operating conditions.

All ZIMO sound projects can be used in this decoder, the storage capacity is 32 Mbit and the amplifier is the same as other sound decoders (3 Watt audio, with 4 to 8 ohm speakers.

Versions:

MX646 - Version with 11 very flexible wires (2 x Rails, 2 x Motor, 4 Function Outputs, Ground/Earth, 2 x Loudspeaker),
MX646R - 8-pin interface NEM652 (plug on wires),
MX646F - 6-pin interface - NEM651 (plug on wires),
MX646N - 6-pin direct plug-in - NEM651

MX646 dimensions in 1:1 actual size

Prices:

Probably in the range between MX640 and MX642, or about 80 euros.

Product replacement, from about September 2010

Function Decoder MX685 replaces the MX680

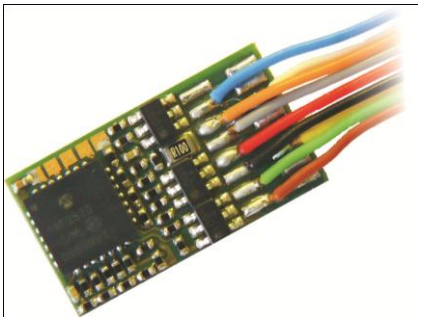


Photo left: The new function only decoder is based on the well-known MX630 loco decoder, only with the orange and grey wires (motor connections) taken away.

This product replacement is a consequence of the MX621 replacing the MX620, since the old MX680 was derived from the old MX620. Since the MX 621 offers too few function outputs, the new MX630 has been used as a basis As a consequence, the new function decoder is somewhat larger than the old one (20 x 11 x 3.5 mm), but is more **robust** and **lower priced** (The priced is not yet fixed, between 20 and 25 euros).

As normal ZIMO offers additional features which are missing in cheaper products, for example, a **programmable second address**, and all effects including coupling control, servo control, RailCom and software updateable.

A useful "Waste-Product" from our Production Workshop:

The ZIMO Decoder Test Stand (Product name not yet fixed)

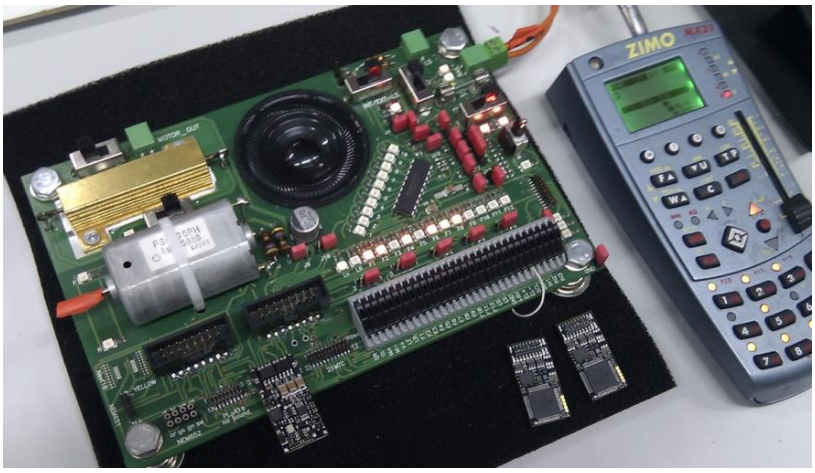
To meet increasing demand for ZIMO products, especially decoders, ZIMO has established in 2009 a high-performance SMT (Surface Mount Technology) assembly and soldering production line.

ZIMO Digital Systems and Decoder … made in Austria, not in China.

*The establishment of a **new production facility in 2009** (photo right) and the return of the entire assembly and finishing to the **ZIMO HQ in Wien** has now been proven. ZIMO is now less dependent on China's capacity and allocation of resources, than is normal in the DCC manufacturing industry.*

Decoders are not only produced, but need to be tested individually (piece by piece), software has to be loaded, and the sound projects recorded. In order to handle this efficiently and reliably, we had to create the means, including the test stand now presented.

This can be (for some users) be a worthwhile purchase. The test stand will not be cheap, but since it has already been developed for internal use, there is no need to recover all the development costs through sales.



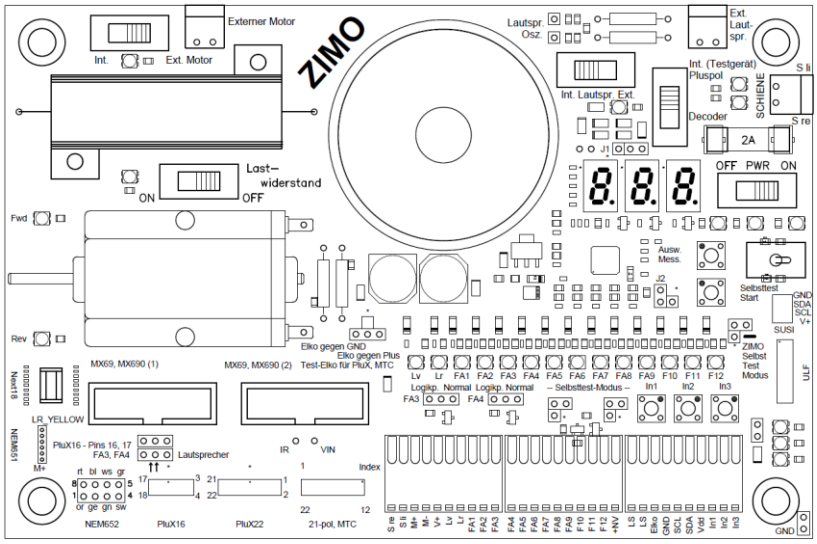


Photo left: The first version of the test stand, as used in several places in the ZIMO production workshop, with a MX643P16 (sound decoder with PluX 16 pin interface) plugged in, as an example.

This not the version the version that will go on sale, for example, there will be a digital display for current and voltage measurements to be added, reduce the number of jumpers and improve the labelling.

The layout diagram – *Photo, below left* – gives a good idea of how the final version of the ZIMO test stand will operate; here is a list of the important features:

- Connections for all current decoder interfaces, NEM652, NEM651, "MTC" 21-pin, various PluX versions, possibly a future N-port (subject to change), ZIMO large-sc ale decoders, and naturally a wired connection with up to 12 function outputs and various auxiliary connections for inputs, loudspeakers, external capacitors etc.
- LED Displays for all function outputs, automatic load simulation of the decoder outputs, switchable for decoders (ZIMO and other manufacturers) with logic level outputs on outputs FA3 and FA4.
- Test motor on test stand, with adjustable load for a high load test, and switchable to an externally connected test motor.
- Strong 8 ohm speakers on the test stand, can be switched to externally connected speakers.
- Digital display of to measure rail voltage and current (can be used without test decoder), decoder low-voltage outputs, and the effective motor current (visual view of control action).
- Especially for the ZIMO decoders of the latest generation: set the parameters for a self-test, start the test after the key has been pressed, and then display the results.

Available in Autumn 2010; Price to be decided.

Matthias Henning, a new Sound Provider

Herr Henning is interested in German locomotives and has made the **first two projects** available on the ZIMO Sound Database. As with the sounds from Heinz Däppen, these are chargeable projects with a "Load Code" (15 euros for 00/H0), but even with these extra costs, ZIMO sound decoders are still priced attractively!

Description of "Coded" Projects:

"Coded" (= code protected) Ready-to-use Sound Projects - are usually projects created outside ZIMO – and are paid for by the sale of "Load Codes" or the "Load Code Fee". After paying a surcharge on the sound decoder, ZIMO can install a factory registered "Load Code" which allows for the loading of all the sound projects in a certain Bundle (= all projects from one provider, e.g. Däppen or Henning).

Or: the "Load Code" can be purchased later and written to the decoder by the customer; each code is unique to a certain decoder as the algorithm to generate the "Load Code" includes the Decoder Id (4 digits, each 0 to 255, stored in CV's # 250 to 253 in the workshop, read-only). Given this Decoder Id, ZIMO or an authorized Partner (e.g. the Sound Author or Provider) can generate the "Load Code" (… after payment of the load fee) for this particular decoder, and this "Load Code" can only be used in this decoder.

The "Load Code" has to be written to the decoder, either directly into CVs 260 to 263, or using the ZIMO Rail Center (ZIRC) software (much easier). Once this "Load Code" has been written to the decoder, any sound project of that Bundle (usually from one sound provider) may be loaded, reloaded and played (in the same way as a free sound project.

Extract from Sound Database (section where you can find the projects from Matthias Henning):

	Standard	Steam	Class 556.0		Free D'Load	Dealer	Artol	Nov 09
	Germany						Go To	
	Schmal	Dampf	99.23-24	Kein Proben	Coded	Provider	Heinz Däppen	Under Development
	Schmal	Dampf	99.600	Kein Proben	Coded	Provider	Heinz Däppen	Under Development
	Standard	Benzin	KLV 20 (VW Bully)	Kein Proben	Free D'load	ZIMO	Arnold Hübsch	Mar 10 NEW
	Standard	Dampf	BR 44	Kein Proben	Coded	Provider	Matthias Henning	Jul 10 NEW
	Standard	Dampf	BR 80	Kein Proben	Free D'load	ZIMO	Oliver Zoffi	Nov 09
	Standard	Dampf	BR 94		Free D'load	ZIMO	ZIMO	Jan 08
	Standard	Diesel	BR 132 'Ludmilla'		Coded	Provider	Matthias Henning	Jul 10 NEW
	Standard	Diesel	BR 218		Free D'load	ZIMO	ZIMO	Jan 08
	Standard	Diesel	BR 218 216-0	Kein Proben	Free D'load	ZIMO	Winfried Burger	May 09

Software Development of the New MX32 Controller (CAB) . . .

Before the start of the delivery of the new MX32 (from today perspective, September 2010), a number of important software features have been built in, and the series of images below illustrate the ongoing work. The high performance of the micro-controller and the high resolution display allow for much more operating comfort, but they represent a major development effort, far above the effort for previous ZIMO CABs, and even more than many of the DCC controllers on the market. Therefore the "not minor" delays in delivery have occurred...

The two photos below on the left show the possible display of the "memory recall" feature, which for many years has been available in ZIMO controllers (CABs), but now is applicable to a larger extent, as the size is almost unrestricted, but in practice is restricted to a short list (4 vehicles) or a long list (10 vehicles) in the display; here any configuration of consists can be arranged, with special attention to the simple creation of pre-loaded operations.

The two windows below on the right show provisionally the pop-up window for the case when a loco is already active under the control of another CAB, and the transfer option is executed, or a pop-up window for showing a single stop, emergency stop, short-circuit, current overload .