

0. OPERATING MANUAL - CONTENT

This operating manual contains the latest-edition instruction manuals for all ZIMO products:

Command stations **MX1, MX1HS model 2000 , MX1EC**

Note: The new serial interface protocol description is not included in this manual; it is available online at www.zimo.at (click on the "Application" and "manuals" tab)!

Cab, Cab with integrated command station, radio cab + base module
MX31, MX31ZL, MX31FU + MXFU

"Small" decoders (for N, TT, HO, HOe, HOm, O...)
MX620, MX63, MX64, MX64H, MX64V, MX64D, MX64P

Note: Instructions for the **MXDECUP** update module are also included in this manual.

"Large" decoders (for O, 1, 2, 2m, G...)
MX69, MX690

Note: Instructions for the **MXDECUP** update module are also included in this manual.

Function decoder
MX68

Accessory decoder
MX82

Reverse loop modules
MX7, MX7/3

Accessory modules
MX8S, MX8M

Track section module and plug-in boards
MX9B, MX9V, MX9AZN, MX9ALA, MX9ASE, MX9ZIA

Information at the ZIMO web site www.zimo.at ...

- on the APPLICATION pages: Here, the latest edition of instruction manuals can be found. The manuals are rewritten when new software becomes available or for editorial reasons.
- on the UPDATE pages: Information about current software versions for all ZIMO products. Software can be downloaded and installed with the tool available on those pages.

1. Quick Start

This quick start guide enables the user to start running trains in DCC with a newly acquired ZIMO starter set, without studying the whole operating manual in detail.

The equipment contained in the starter set is compatible to the NMRA-DCC data format and also communicates in the MOTOROLA protocol (although not activated on delivery). It is therefore possible to use other decoders besides the ones that come with the starter set (i.e. MX63 or MX69S), that is different ZIMO decoders as well as decoders from other manufacturers, as long as they are either NMRA-DCC or MOTOROLA compatible.

CAUTION

- Components such as command stations, boosters and transformers can heat up considerably and must not be placed in areas or installed in close confinements that hinder heat transfer. Neither should they be placed near flammable objects.
- The high output of command stations, boosters and other components cause high current flow in the track and bus wires. These wires and connections must be of adequate size to prevent any fire hazards!
- Since some components remain under power even after the system has been shut down (i.e. part of the command station), all transformers must be unplugged from any power source before leaving the layout area!
- With a ZIMO system connected to the track, other non-DCC equipment must not be connected to the same track; this is also true for catenary (overhead wire). Turnout and signal actuators on the other hand may also be operated with non-DCC equipment provided there is no electrical connection possible to the DCC circuit on the track.
- **The ZIMO control system is not suitable for children under the age of 14 without adult supervision.**

Installing a ZIMO loco decoder:

For the first decoder installation, it is recommended to select a locomotive that doesn't require major body work, one that has enough free space inside for placing a decoder and one with simple internal wiring. A loco with headlight bulbs that are not connected electrically to the frame is also of advantage, so that relevant insulation work can be omitted for now.

A DCC conversion of a loco with a NMRA or MOROP interface (NEM 652, NEM 651) and a matching decoder (MX63R, MX64R, MX620N, MX63F, MX64D etc.) would be especially easy. All that's needed to install a decoder is to open the locomotive, pull the dummy plug from the circuit board and plug the decoder in its place.

A wiring diagram along with detailed installation information can be found in the respective decoder manual. All **direct electrical connections** in the locomotive between the power pick ups and the motor **must be permanently separated**. If such connections are overlooked (especially connections via the frame!), permanent damage to the decoder during power up is highly likely.

Image: Shows track, motor and headlight connections of an **MX64** decoder as an example; the wire colors for small decoders are standardized and are also valid for MX63, MX620 and others.

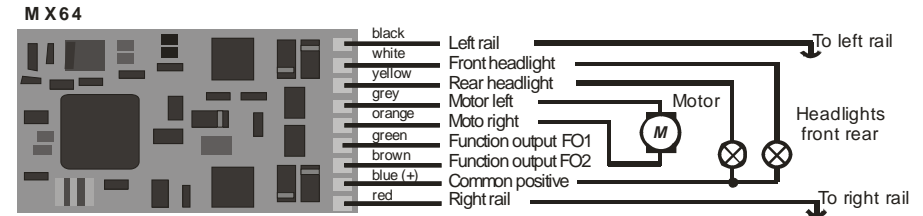
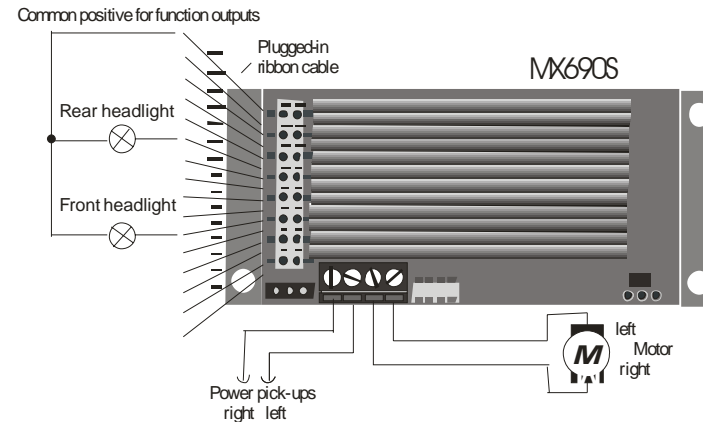


Image: Shows track and motor hook-up at screw terminal and headlight connections through ribbon cable of an MX69S large-scale decoder as example (part of a large-scale starter set).



The decoders that come with a starter set as well as all other new decoders are programmed at the factory to **address #3**, which is defined by the NMRA-DCC standard, and are operational with this address. Please consult the appropriate pages of the relevant decoder and cab instruction manuals for detailed information on how to change the decoder address.

Connecting command station, transformer and cab

The command station does not come with a built-in transformer. An external transformer must be connected to the socket "TRAFO" (on the far right, viewed from the rear of the command station). The **transformer** used for this purpose should meet the following requirements:

Output voltage **24 – 28V AC**, minimum power is 80VA but **150 to 200VA** is better.

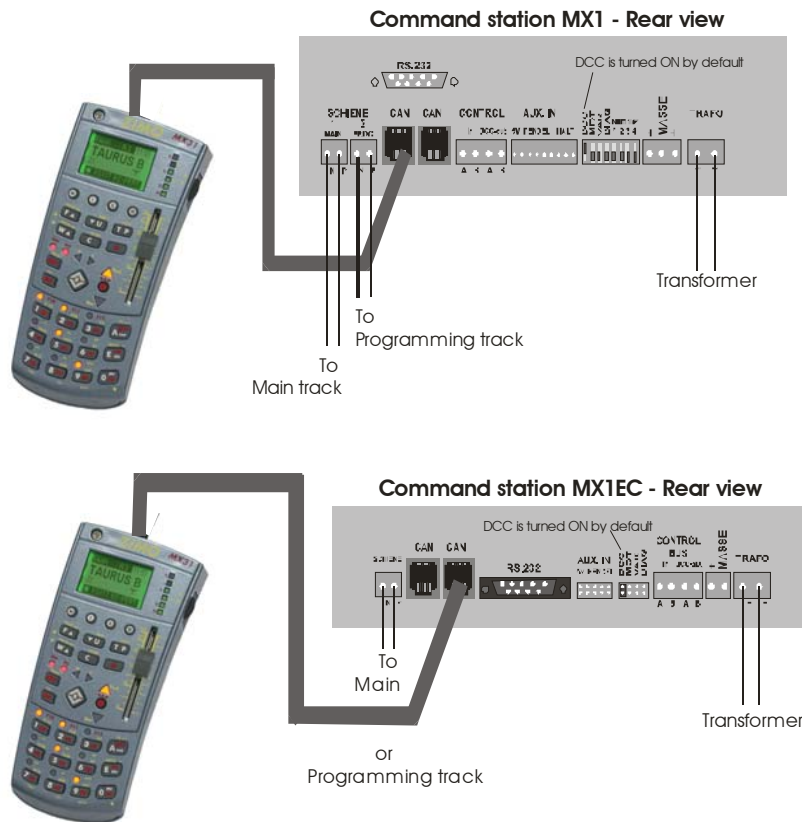
Not suitable are commercially available model railroad power packs, since their voltage is too low and load dependent; the available power is most often too low as well.

Use the CAN bus cable supplied with the starter set to connect the **cab** with the command station (each device has two identical CAN bus sockets).

The **track** is connected to the two sockets marked "SCHIENE" (polarity is irrelevant).

Top image: Command station **MX1** (Rear view) and MX31 cab. Starter sets STARTK, STARTG come with the MX1 command station. If the command station is an **MX1HS** (comes with starter sets STARTKHS, STARTGHS etc.), connect one transformer to each TRAF0 sockets!

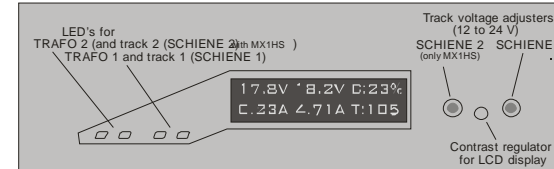
Bottom image: Command station **MX1EC** and MX31 cab. Starter sets STARTKEC, STARTGEC etc. come with the MX1EC command station.



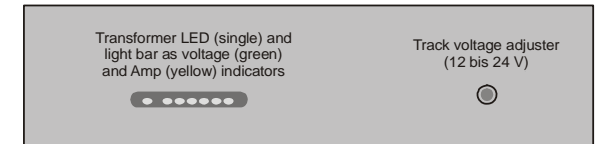
Initial start-up and operation:

After plugging the transformer into a wall outlet, two green LEDs (4 LEDs on the MX1HS or 1 LED on the MX1EC) are lit up in the front panel. The MX1 (or MX1HS) LCD display briefly shows the currently installed software version, after that the current volt and amp values of the two track outputs are being displayed.

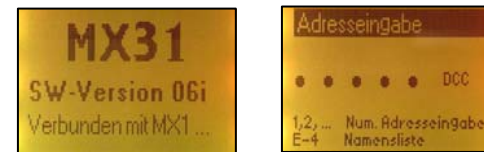
COMMAND STATION MX1 OR MX1HS - FRONT VIEW



COMMAND STATION MX1EC - FRONT VIEW



At the same time the cab displays the start-up screen, indicating the current software version for about 2 seconds, after which it switches over to the **address input** page.



In most cases a brand new system will start with the German language enabled as shown above. To switch the cab to English proceed as follows:

Press the "M" key 3 times to get to the cab menu; in the German language it looks like this:



In the "Dieses Gerät" menu, use the scroll wheel on the side and scroll down to "Auswahl SPRACHE"; Accept with the "A" key.



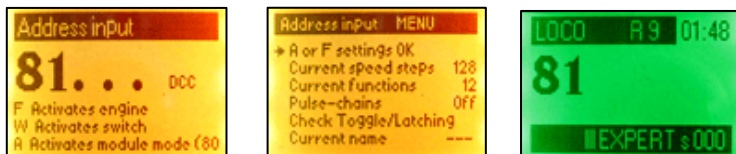
The "Menu Sprache" opens up. Scroll down to "English" and accept the selection with the "A" key, which moves the tick mark to the "English" line.

Press the "E" key repeatedly until you are back to the same screen you started out from.



As mentioned above, the address input page will be display if a cab is brand new or if the cab's memory has been deleted, otherwise the cab switches automatically to the same page it was in before it was shut down. Should an active address be displayed (= green background for a loco or red background for an active turnout or signal address) , press the A key to get to the address input page shown above. Then proceed below.

Use the digit keys (1 to 0) to enter the desired loco address (for a brand new decoder that would be **address #3**. In the example below however, address #81 is displayed as an example). Press the "F" key to **activate** the address. The display changes to the "address input MENU". Press the "F" key again to enter the **Loco mode**: The display changes to a green background and the mode indicator "LOCO" is displayed (top left).



Note: If the mode indicator shows "FAHR" the cab is set for German language. Go to the cab menu by hitting the little round "M" key three times. Use the scroll wheel and scroll down to the line "Auswahl SPRACHE" and hit the "A" key. Scroll down to "English" and hit the "A" key. Hit the "E" key 4 times to get back to the previous screen.

The locomotive can now be driven with the help of the speed slider and the direction key (diamond shaped key); functions can be actuated with the digit keys. For example: Key 1 (= F0) actuates the headlights. The active address can be deactivated with the "A" key, which gets you back to the address input page where a new address can be entered and activated to control another locomotive.

2. Info for "8-function-mode" and "12-function-mode"

This information is

Only relevant to users of ZIMO products produced prior to 2003!

Attention: Purchase date is not always the same as production date.

Up until the end of 2002 ZIMO command stations and decoders were set to the "8-function-mode", from 2003 on to the "12-function-mode".

Problems will arise when the command station and decoders are not set to the same mode, which is the case when an older decoder is operated with a current command station or a new decoder with an older command station, but also when third party decoders operate with an older command station.

The mismatch is noticeable by

- the functions F5 – F8 not being accessible or only intermittently and/or
- the non-working MAN function (only applies to ZIMO decoders during HLU control).

Functions F0 – F4 and normal operation (without HLU) are not affected.

To prevent these problems and guarantee correct operation, **all command stations and decoders involved must be set to the "12-function-mode"**. The opposite is also possible by setting all components to the "8-function-mode" but at today's standards would be a technical

regression. However, if very old non-transposable ZIMO decoders are used, these decoder addresses and only these addresses must be set in the command station to the "8-function-mode".

The "12-function-mode" in the **decoders** (beginning with generation MX61, possibly not all software versions) can be activated with **CV #112, Bit 3 = 0**.

Command stations can be set to the "12-function-mode" for all decoder addresses by a general switch-over procedure as described in the command station manual or for individual addresses as described in the cab instruction manual. Command stations prior to the "model 2000" series require at least SW-version 6.12.