INSTRUCTION MANUAL

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KLUG

KOMPAKTES LADE- u. UPDATE-GERÄT

COMPACT LOADING AND UPDATE DEVICE

Decoder software updates and loading sound projects directly from PC

Valid from ZIMO Sound Tools 2.0
ZIMO Sound Editor and ZIMO Sound Creator are hereinafter sometimes abbreviated to Sound Editor or Creator.
The ZIMO Sound Tools were formerly known as ZPP Konfig and ZSP.

NOTE regarding USB-C cable: A USB-C **data** cable is required for operation; charging cables alone (often not labelled) will not work and will result in no device being found in the ZPP configuration under *Search for update device*.

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Overview:

The use of the ***ZIMO KLUG*** requires a connection to a **computer** (with **Windows operating system from XP** onwards and **decoder loading and update programme** installed, see below) via a standard, data-capable USB-C cable (on the computer side also USB-C or USB-A – the 'classic' USB plug, depending on the equipment). This cable also supplies power to the ZIMO KLUG, including the connected decoder or the vehicle with built-in decoder.

A decoder can either be plugged directly into the ZIMO KLUG (interfaces are provided for all "small" decoders commonly used in 2025 — that is, for H0, TT, N, Z, and so on), or — remaining in the vehicle without having to open it — be connected via the track. In addition, the MSTAPK(2) and MSTAPG boards originating from the "MXULF world" can also be used for connection.

Initially, ZIMO KLUG could only be used with currently produced ZIMO decoders of the MS... series (sound decoders), MN (non-sound decoders), and FS... (function decoders). Support for MX decoders was added in March 2026 (KLUG from version 0.3.6, ZPP Konfig from version 1.26.00). Now the software is called ZIMO Sound Editor in the ZIMO Sound Tools from 2.0 onwards.

For the decoder loading and update program, three alternatives are available. The first one, "ZPP Config," is actually the intended option, but the alternatives also have their advantages. ...

1. The program **"Sound Editor"** provides convenient control of all operations related to the ZIMO KLUG: self-updating, loading of sound projects into decoders via the track (i.e. leaving the decoder installed in the vehicle) or via SUSI (plugging the decoder into one of the available interfaces, or — rarely — connecting it through a SUSI cable), decoder software updates via the track (decoder in the vehicle), CV programming/reading, and test operation using a virtual control desk on the track or together with an MSTAP board.
The program **"Sound Editor"** is described in **this operating manual**.

2. The program **"Sound Creator"** also offers all of the above-mentioned functions; however, its main focus is on the creation of sound projects..

3. The program **"ZCS"** (a program by Matthias Manhart, not developed by ZIMO itself) is a very popular tool among model railway enthusiasts, offering a much wider range of functions than just decoder loading and updating. Its features include, above all, **graphically assisted CV programming** ("ZCS" stands for *ZIMO CV Setting*), as well as the **creation of GUIs (Graphical User Interfaces)** for ZIMO system products such as control panels and apps.

1. Overview of ZIMO KLUG and Sound Editor features

- **MS-, MN-, FS decoders** (a related family using the same update file, 16-bit) and **MX decoders** (8-bit): loading sound projects into the decoder via the track or SUSI interface, decoder software updates via the track, CV programming, and test operation using the virtual throttle in combination with the MSTAP board.

  'Via rail' means that the decoder remains in the vehicle and the vehicle is placed on an update track connected to the ZIMO KLUG. 'Via SUSI' usually means that the decoder is plugged into the ZIMO KLUG and the SUSI pins there are used for the connection, sometimes with the help of the SUSI plug on the ZIMO KLUG and the SUSI cable to the SUSI interface on the decoder.
- Loading a sound project via SUSI takes only about 1/10 of the time compared to the track, i.e. a maximum of 5 minutes instead of up to an hour.
- Simultaneous sound load of multiple decoders via parallel SUSI interfaces (via multiple test and connection boards MSTAP or MultiTAP).
- CV programming and CV reading via the Sound Editor software (or Creator or ZCS); this also includes editing CV pages (theoretically up to 16 million CVs) and special displays for decoder UIDs and ZIMO load codes.
- Test operation via virtual controller in 'Sound Editor' (also in "Creator" or 'ZCS') on the track or together with MSTAP board, on which the motor, loudspeaker and various LEDs are located as replacements for the actual consumers of a locomotive.
- Self-update of KLUG via Sound Editor

For other programme options ('Sound Editor', Creator, 'ZCS'), please refer to the separate instructions!

NOTE: Due to ongoing development of the KLUG software, there are sometimes slight differences between the operating instructions and the actual behaviour of the KLUG.

2. Technical data

Power Power supply at USB-C input; 5 V, load capacity of at least 900 mA, i.e.: A USB port with a load capacity of at least 900 mA is required for power supply. This is always guaranteed with USB-A 3.0and USB-C ports. Operation with older USB ports is possible in principle, but is not recommended.

Maximum current output at 'track' output (stabilised at Vout = 10 V)) .....400 mA
Dimensions L x W x H ..... 68 x 41 x 7,5 mm

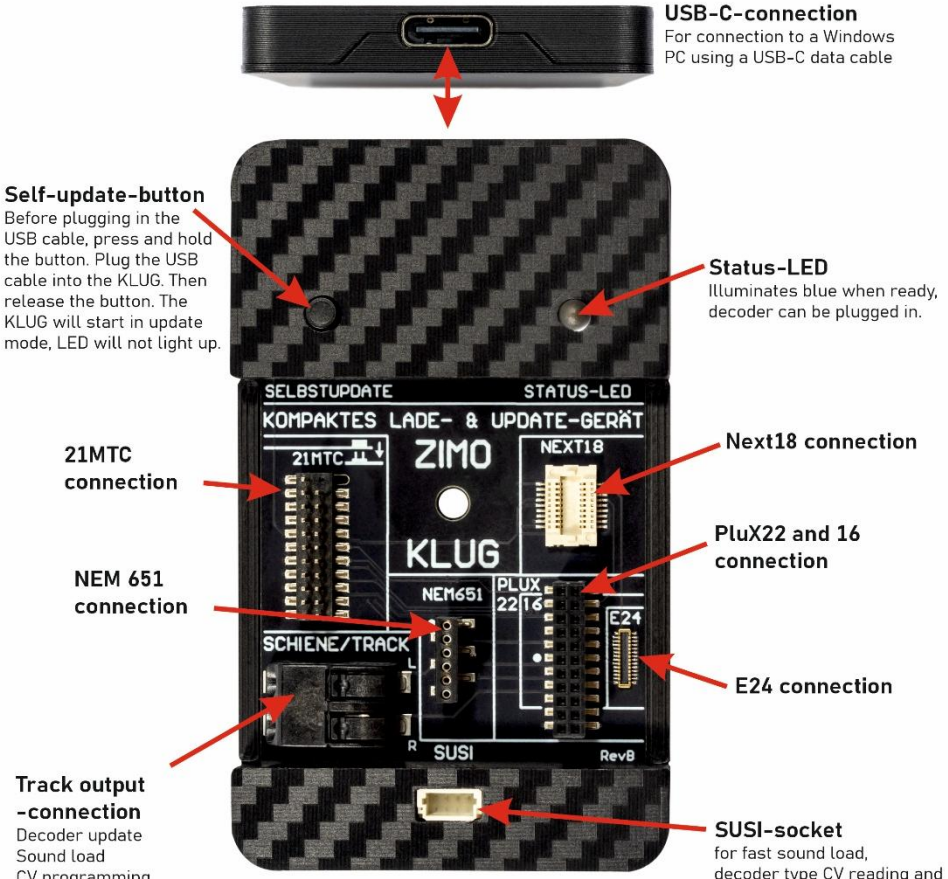
Interfaces for direct connection of decoders: PluX22/16, 21MTC, Next18, E24, NEM651

Scope of delivery: 1x KLUG – Compact loading and update device
1x SUSI cable

NOT included but needed: USB-C **data** cable (not a pure power cable) for connection to a Windows PC.

Accessories, optional for use with ZIMO KLUG (from the ZIMO product range):
Decoder test and connection boards MSTAPK2, MSTAPK, MSTAPG, MultiTAP

3. Connection diagram





4. Getting started: USB-C Cable and decoder connection

„**Power**“: Connect KLUG to a Windows PC using a USB-C data cable.
→ *StatusLED lights up blue*

A decoder can be connected to the ZIMO KLUG in several ways. Only one decoder may be connected directly to the KLUG at any one time. **Connecting or replacing a decoder on the KLUG** is possible when **the LED is blue** or **the KLUG is disconnected from the USB**.

A. . . . directly on ZIMO KLUG

The standardised interfaces PluX16/22, 21MTC, Next18, E24, NEM651 can be used directly for the corresponding decoders. This automatically connects the SUSI pins of the decoders, which are used for (fast) sound load via the PluX16/22, 21MTC, Next18, E24 connectors (except for NEM651, where a SUSI cable must be used).

B. . . . to test and connection board MSTAPK2 or MSTAPG

Wire-harnessed decoders, NEM652 decoders and large scale decoders can be connected via a test and connection board MSTAPK (‘K’ = small) or MSTAPG (‘G’ = large scale); these boards also enable decoders (all types, even non-ZIMO) to be tested using a kind of simulated locomotive (motor, loud-speaker, LEDs, etc.)

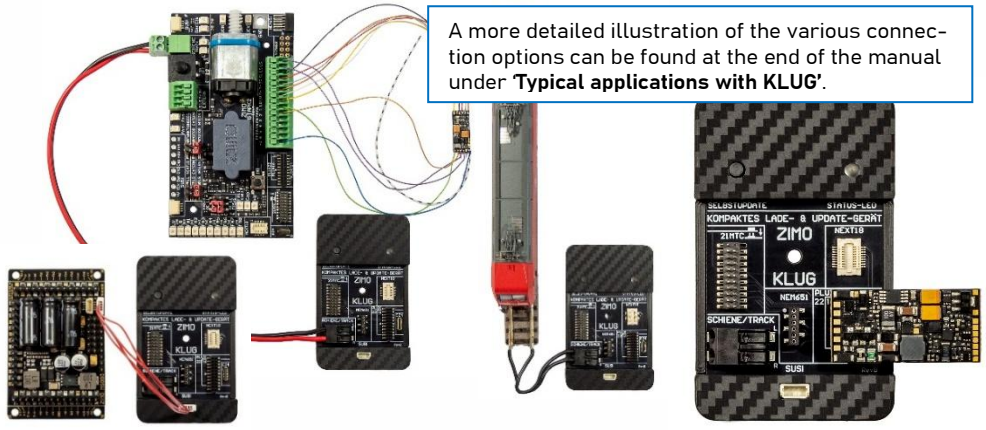
C. . . . at the RAIL output of the ZIMO KLUG (usually left in the vehicle)

The decoder is updated within a vehicle (without opening it) with a software update or a new sound project. To do this, the RAIL output of the ZIMO KLUG is connected to a piece of track separate from the actual layout, the ‘programming track’. The transfer of a sound project takes significantly longer via the track connection than via SUSI; approx. 10 times longer.

D. . . . (large scale decoder) via SUSI cable directly to ZIMO KLUG

Large-scale decoders such as MS950 or MS990 (as well as future models, provided they have a SUSI connector) can be connected directly to the ZIMO KLUG using a SUSI cable.

With large scale decoders (e.g. MS950), it may be necessary to wait a few seconds (to charge the built-in energy storage device) before starting to load the update or sound.

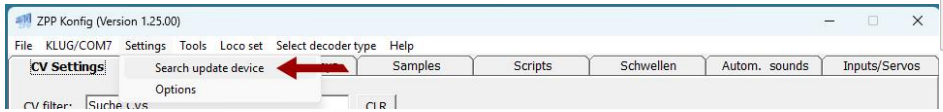


A more detailed illustration of the various connection options can be found at the end of the manual under **‘Typical applications with KLUG’**.

5. Preparing the ZIMO Sound Editor programme

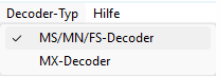


To set the programme to ZIMO KLUG:
Menu **Settings – Search update device**
Sound Editor automatically selects the COM port for the KLUG; confirm by clicking OK.



Required when using KLUG for the first time, or when switching between KLUG and MXULF, as well as after reinstalling ‘ZIMO Sound Tools”.

In the Decoder Type menu item, select the **MS/MN/FS Decoder** setting.



6. Self-update of the KLUG

NOTE: Regular updates of the KLUG software are recommended, especially when new decoder types or generations are introduced. You should update the KLUG at the latest when problems occur. ***Follow chapter 5 first before attempting to self-update.***

PLEASE NOTE: KLUG can only be updated via a PC using the Sound Editor (or Creator) application.

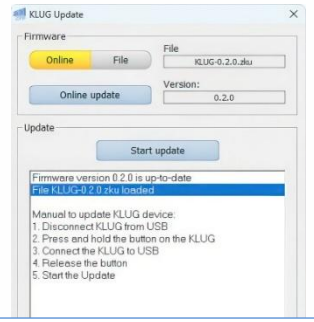
- Use the **online update function** of Sound Editor OR download a new KLUG software from www.zimo.at – Update & Sound - KLUG as a .zip file; unzip the .zip file.
- Prepare KLUG: **Disconnect** the USB cable from **the KLUG**.
  Press and hold the self-update button on the KLUG.
  Connect the USB-C data cable from the PC to the KLUG,
  then **release the button after about 1 second**.

→ KLUG now in update mode (bootloader) **Status LED is NOT lit!**

- The update is performed in the Sound Editor software via the menu item:
  KLUG/COM - KLUG Update
  Firmware: click on **Online Update** – Sound Editor automatically downloads the latest firmware OR click on File to select a KLUG update file previously downloaded from www.zimo.at using the file browser.

- Start process with the **Start update** button.
- Once the update is complete, you can close the window by clicking Close or X
- → *Status-LED blue* indicates that the KLUG is ready for use.
  If not: disconnect the USB cable from the KLUG and reconnect it.





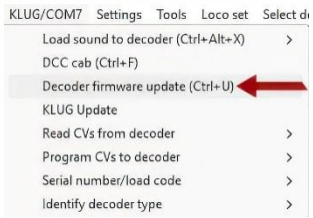
NOTE: On the first self-update attempt, Windows must install special USB drivers. This usually happens in the background and may take a few minutes, depending on the system. If it does not, repeat the process by connecting in self-update bootloader mode as described.

7. Decoder software update and sound load

The new decoder software for the update or the desired sound project is loaded directly from the computer into the decoder using one of the programmes 'Sound Editor, 'Creator' or "ZCS"; see the 'Overview' section for information on the differences.

Starting and monitoring the software update or sound load is done from the computer; there are no controls on the ZIMO KLUG.

See previous chapters regarding the connection of the decoder to be processed.



Decoder Firmware Update:

The new software version is always loaded via the rail connections of the decoder (not via SUSI).

- Connect the USB-C data cable from the PC to the ZIMO KLUG.

→ *Status LED lights up blue continuously.*

- Connect decoder (directly to ZIMO KLUG, to MSTAP, via track, etc.)
- Start the selected programme, i.e. 'Sound Editor' or 'Creator'. These instructions describe only how to use the *'Editor'*.
- Select menu 'KLUG/COM' - 'Decoder firmware update', select decoder class 'MS/MN/FS', or 'MX' (usually MS preset automatically)
- **Online update** searches for the latest decoder software. **File** can be used to access decoder firmware downloaded from www.zimo.at.
- **Start Update** begins the update process on the decoder.

→ *Status LED flashes yellow during flash erasure*

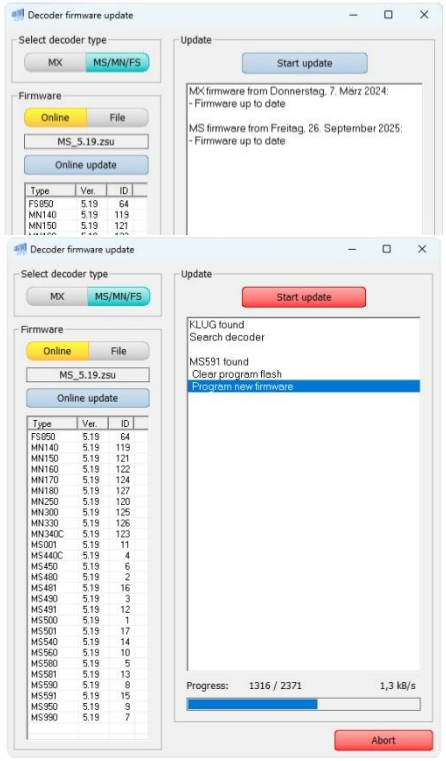
→ *Status-LED flashes green* during Update-process

- After completing the update, click Close.

→ *Status-LED lights up blue continuously.*

or:

- **Remove the decoder and connect the next decoder** select **Start Update** again.



Note: During an update or loading process, the decoder should not be touched.

Loading a sound project into the decoder:

*Sound projects can be loaded either via the decoder's rail connections (without opening the locomotive, as with a software update) or via the decoder's SUSI pins (takes approx. 1/10 of the time, but requires removing the decoder from the locomotive or doing so before initial installation). In the menu item **Load sound**, select either SUSI or track MS in the extended field.*

Connect the USB-C data cable from the PC to the ZIMO KLUG (if not already done).

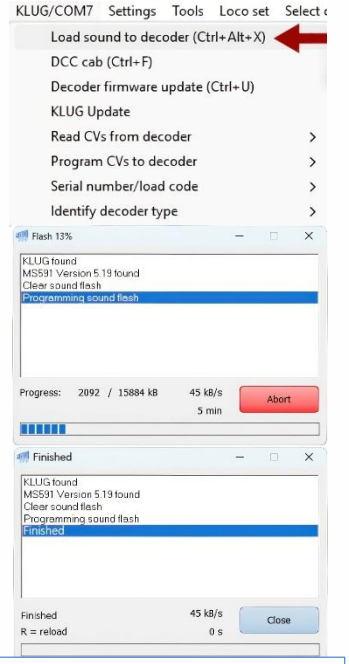
→ *Status LED lights up blue continuously.*

- **Connect the decoder (directly to ZIMO KLUG, to MSTAP, via track,** ...)
- Start the selected programme, i.e. *'Sound Editor', 'Creator'* or *"ZCS"*.
- These instructions describe only the operation of ***'Sound Editor'***.

- **File → Open ZPP Project**: Opens a file browser for selecting the previously loaded sound project, which is then opened in **Sound Editor**. Here, changes can also be made to the project before transferring it to the decoder. For more information, see the instructions for Sound Editor at www.zimo.at.

- Select menu **KLUG/COM – Load sound to decoder,** select between **track and SUSI** (if available, SUSI is faster)

Please note that all data on the decoder will be deleted and overwritten with the settings of the sound project.
Sound Flash is deleted → *Status-LED flashes yellow*
then automatically:
Sound project is being transferred (Flash programming)
→ *Status-LED flashes green*



Transfer complete: "Finished" appears in the status, the "Cancel" button turns green → *Status-LED lights up blue continuously.*
Decoder can be removed and window can be closed...

OR:

Plug in a **new decoder** and use the **'R' key** to load the same project onto another decoder.

The sound project can also be tested using a ZIMO test board and the virtual controller from Sound Editor.
See description in the Test mode section.

Note: If a loading process is aborted by the user or an error occurs, the **decoder** may **stop responding**.

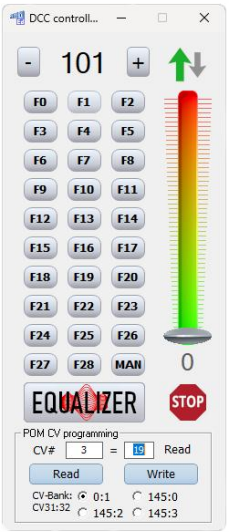
Solution:
Connect the decoder directly to the KLUG or via track. Open the **KLUG/COM** menu, select **DCC cab** and enter the **address of the decoder**. The KLUG supplies the decoder with power – the **status LED flashes blue**.

After a few seconds (maximum 200 seconds with older decoder software), the **status LED will start flashing magenta**. This means that a **RailCom signal** is being detected again. The decoder will then function normally again.

8. CV programming and testing operation

In ZIMO Sound Editor, there are several ways to programme CVs on the decoder with KLUG.

Programming individual CVs and test operation:



Decoder directly on the KLUG, MSTAP(K2/G) or in the vehicle on the programming track.

Start the controller with **KLUG/COM – DCC cab (Ctrl+F)**.

In the upper section, the address can be set using **+ / -** or by **clicking on the number** and then **entering it directly**.

The **F0–F28 buttons** can be used to test the **functions of the sound project**.

The **MAN** button switches to manual driving mode.
The **drive controller** on the right-hand side is used to set the **drive level**; the current value is **displayed below** it.
The **STOP** button at the bottom can be used to set the drive level directly to 0.
The **arrows above the speed controller** switch between **forward** and **reverse** (changes between green and red).

The field for **reading and programming individual CVs** is located at the **bottom** of the virtual controller.
Enter the CV number in the left field and read it from the decoder using the **'Read'** button.
The right-hand field shows the CV value, which can be adjusted here and programmed in the decoder using **'Write'**. Below there are fields to select CVPs (CV Pages).



The **separate 'CV Changes' window** opens and **logs all CVs read and written** in the controller.
A **check mark in the 'Set cv value in project also' field** transfers the last programmed CV value to the open sound project. As long as the check mark remains set, further programmed CVs are also transferred directly to the project.

Note: A **simplified procedure** for reading and **addressing a decoder** will be **added in a future update**.
Currently, a **short address** (up to 127) can be programmed directly via **CV #1** in the controller.
A short and **long address** can be entered in the **'Locomotive Address'** field of each CV in the list on the left (see next page).
When a long address is entered, the required values are automatically transferred to the corresponding CVs #29, #17 and #18 of the open sound project.
All CVs are transferred to the decoder via the menu item KLUG / COM → **Program CVs to decoder** – including the long address.

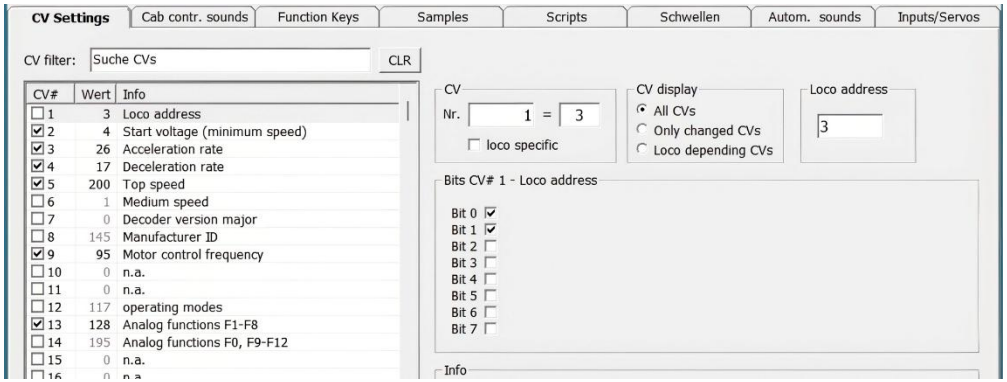


Programming multiple CVs:



The normal use case is to open a sound project in **Sound Editor**, adjust the desired **CVs**, and then load the entire project onto the **decoder**. If changes are made to the CVs in the decoder after loading, they can be imported back into the project using the **'Load CVs from decoder'** function. If, on the other hand, changes are made to the CVs in the project after loading, these can be quickly transferred to the decoder using the 'Import CVs into decoder' function. It should be noted that CVs imported in this way will be lost in the event of a hard reset. This method is therefore only recommended for testing purposes. After completing the tests, the entire sound project should be loaded onto the decoder again. Alternatively, the **ZCS** programme can be used to change CVs in the locomotive retrospectively. This programme also allows sound projects to be configured directly in the locomotive, even if no project file (**.zpp**) is available.

If possible, the transfer should be carried out using the **SUSI protocol**, as this is significantly **faster**.
if a sound project has been opened in ZPP Config, loading from the decoder will overwrite the CVs in the sound project. When **restarting ZPP Config**, the CVs in the **list will be reset to their default values**.
If you only want to read all the CVs of the decoder, you should not open a sound project beforehand.



By **clicking on the CV** to be changed in the list on the left, the **corresponding setting options** are displayed in the **right-hand area**. Alternatively, the required CV can be found by scrolling or using the **CV filter**, or it can be entered directly in the **'CV No.'** field.

The **CV value** can either be entered **directly into the field** or adjusted **setting the respective bits**.

CV view switches the display of the CV list between **all**, **only changed** and **locomotive-specific CVs**.

The **address of the decoder** can be changed in the **'Loco address'** field (see note on the left-hand side).

You can specify that a CV applies to a **locomotive set** by **checking the 'Locomotive Specific' box** under the CV number.
Menu KLUG/COM – **Program CVs to decoder** programs the adjusted CVs into the connected decoder.

Detailed information on CV programming and customising sound projects can be found in the separate ZIMO Sound Editor manual at www.zimo.at.

Caution: Close the controller (DCC cab) before connecting another decoder to the KLUG. Only connect the decoder when the KLUGs LED is lit blue.

The equalizer on MS decoders allows you to adjust the overall sound of a sound project to the individual characteristics of the respective model. The sound is influenced not only by the type and size of the speaker, but also by its position in the model housing, the material of the housing, the type of mounting, the volume of the sound capsule and other factors. There are seven different filter types available, up to six of which can be applied simultaneously. Changes have an immediate effect on the decoder, are audible straight away and remain stored there until a hard reset is performed or a new sound project is loaded. The set filters can also be transferred to the open ZPP project, read out from a decoder or saved externally as a *.flt file and imported again elsewhere. Detailed description of the function and respective filters in the ZIMO Sound Editor manual.

Useful keyboard shortcuts for the controller (dcc cab) in ZIMO Sound Editor:

Key	Function
Drive:	
mouse wheel	Change speed
Esc	Toggle F0
F1 - F12	Toggle F1 - F12 (function keys)
Shift + F1 - F10	Toggle F11 - F20
Strg + F1 - F8	Toggle F21 - F28
M	Toggle MAN
R	change of direction
Image up	Moving forward
Image down	Moving backwards
Up/down arrow	Increase/decrease speed by 9 drive levels
Right/left arrow	Raise/lower drive level by 1
S	single stop
CV programming	
A	Change address
E	Open equaliser window
C	Jump to CV number text field
V	Jump to CV value text field (in a future version of Sound Editor)
R	Read CV (in CV field)
W	Write CV (in CV field)
Enter at CV number	Continue to CV value, then press Enter again to write the CV value.

9. Read/program decoder ID number/loading code

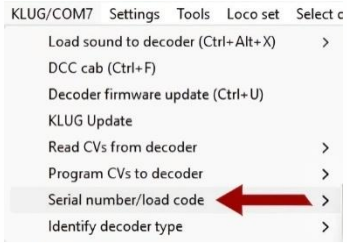
The need for a load code is due to the large number of external 'sound providers' who produce sound projects for ZIMO sound decoders on their own account. In order to load a project onto a decoder, a 'load code' must be purchased from ZIMO or directly from the 'sound provider'. This depends on the author of the sound project (in order to forward the purchase price of the load code to them) and on the identification number of the decoder (because it is only valid for this decoder).

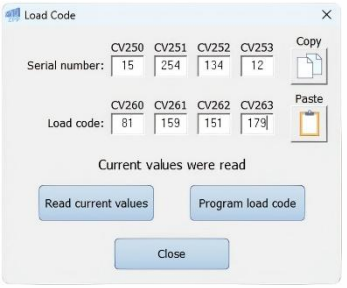
The user must take the following steps:

- Reading the decoder's ID number: CV values #250, 251, 252 and 253.
- Purchasing the load code (from the ZIMO website/load code shop), retailer, author of the project)
- Programming the loading code (4-digit sequences) into CVs #260, 261, 262 and 263.
- Loading the sound project into the decoder (see chapter Sound load)

In order to read or programme these CVs for ID numbers and load code, Sound Editor, together with KLUG, offers a more convenient method in addition to 'normal' CV handling (see previous chapter).:

- Prepare KLUG: Connect the USB-C data cable from the PC to KLUG. → *Status-LED lights up blue continuously.*
- Plug in the decoder
- Start the Sound Editor software
- Menu **KLUG/COM – serial number/load code**
- Click on Read current values to read the serial number and load code
- Using **Copy**, the serial number can be copied and pasted into an email, for example. Using **Paste** or manual entry, enter the load code into the CV260-63 fields and write it to the decoder using **Program load code.**
- Load the *crypt.zpp sound project into ZPP Config and transfer it to the decoder as described in the chapter sound load.





Typical applications / connection variants with KLUG:

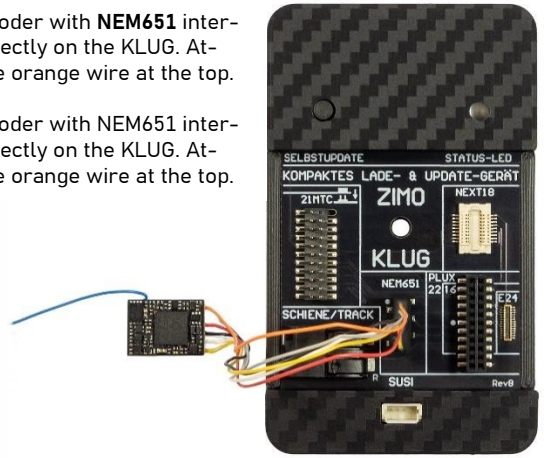


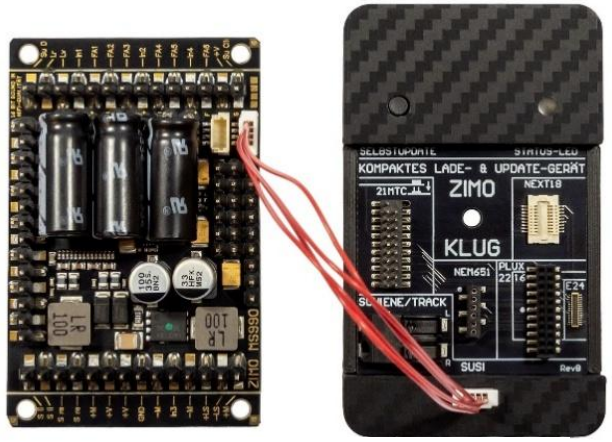
KLUG with decoder connected directly. **Please note**: only one decoder should ever be connected directly to the KLUG; additional decoders should be connected via rail connection or SUSI socket.

Decoder update, sound load, CV read/write possible

MN decoder with **NEM651** interface directly on the KLUG. Attach the orange wire at the top.

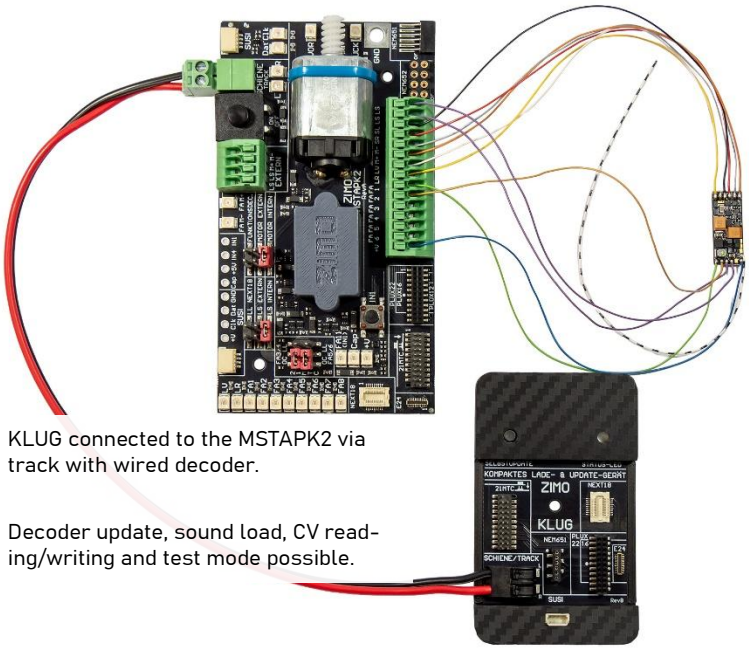
MN decoder with NEM651 interface directly on the KLUG. Attach the orange wire at the top.





MS990 large scale decoder via **SUSI socket** directly on the KLUG.

Sound load, CV reading/writing possible



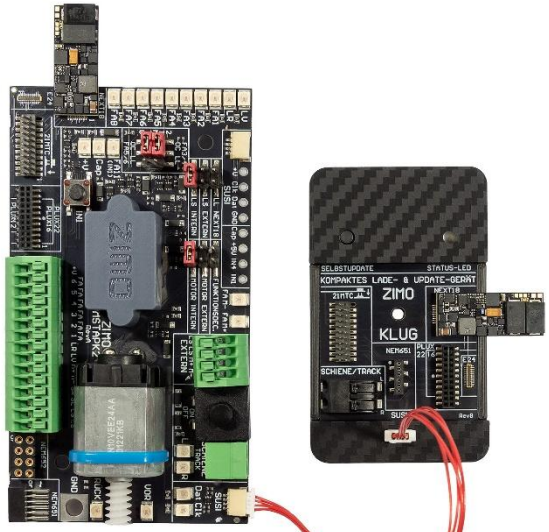
KLUG connected to the MSTAPK2 via track with wired decoder.

Decoder update, sound load, CV reading/writing and test mode possible.



KLUG on the programming track.

Decoder update, sound load, CV reading/writing, and test mode possible.



KLUG via SUSI socket on MSTAPK2

Same decoder type on KLUG and MSTAPK2

Simultaneous loading of the sound onto both decoders is possible.

Additional Information and Troubleshooting

KLUG Status LED – Color Indications



Blue (steady): Standby – the connectors are not powered; a decoder can be disconnected or connected.

Blue (flashing): Establishing connection

Yellow (flashing): The decoder's flash memory is being erased.

Green (flashing): Data is being transferred.

White (flashing): Test mode active

Magenta (flashing): RailCom connection (virtual controller).

Red (flashing): No connection or data transfer error — check the wiring to the decoder and repeat the operation. When using a roller test bench, cables longer than 2 meters, banana plugs, or alligator clips, data transfer problems may occur.



Decoder not detected automatically during update:

Manually select the decoder in the list on the left below the "Online Update" button. If the decoder type is unknown, it can usually be determined via the "COM/KLUG" → "Identify decoder type" menu. Then start the update process again using the "Start Update" button.

Alternatively, all decoders can be selected by first clicking the first decoder and then selecting the last decoder while holding the **SHIFT** key. Then choose **"Start Update"**. This procedure requires a few seconds more but in most cases leads to a successful completion of the update.

Difference between Track and SUSI

When **loading sound projects**, two transfer methods are available: **"via the track" and "via SUSI."**

When loading via the track, the decoder is plugged into one of the interfaces on the KLUG or connected to the KLUG via the track output. The decoder may also remain installed in the model, with the model placed on a programming track connected only to the KLUG.

When loading via SUSI, the decoder is plugged directly into the PluX22/16, 21MTC, Next18, or E24 interface on the KLUG, or connected to the KLUG using the SUSI cable supplied with the device.

In this context, "SUSI" refers only to the interface connector or socket. The protocol used to transfer sound data to the decoder is a ZIMO proprietary protocol that utilizes these SUSI pins or connectors.

Even if the SUSI pins are assigned to another function via CV 201 (or CV 202), loading sound projects is still possible.

Decoders without SUSI pins or connectors can receive sound projects only via the track connection.

The main difference lies in the transfer speed. Loading a sound project via SUSI takes only about one tenth of the time compared to the track—typically a maximum of about five minutes instead of up to one hour. For this reason, the SUSI interface is generally recommended for larger data transfers.

Decoder software updates are performed **exclusively via the track** connections (including for decoders plugged directly into the KLUG); updating via SUSI is not possible.

Reading and programming CVs (configuration variables) is possible both via the programming track and via the SUSI pins. Functionally, there is no difference when reading individual CVs; however, larger data blocks such as CV pages or complete projects are transferred significantly faster via SUSI.

ZIMO decoders with 21MTC, E24, Next18, PluX16, PluX22 and PluX24 interfaces provide a SUSI connection directly available at the interface

Decoders with NEM651, NEM652, or PluX12 interfaces do not provide a SUSI connection at the interface; if available, it may be accessed via corresponding solder pads on the decoder.

Information on the specific features of a decoder can be found in the tables in the corresponding operating manual or in the product information at www.zimo.at.

Compatibility of 8-bit and 16-bit Sound Projects

Modern and technically enhanced 16-bit sound projects are intended for use with ZIMO MS and FS decoders and are fully compatible with them.

8-bit sound projects were originally developed for the MX decoder series. Their use on newer MS or FS decoders is generally possible. However, careful verification and, if necessary, adjustment of the relevant CV settings is recommended.

It cannot be excluded that the project may differ from the originally intended configuration in certain functions or operating behavior when used on MS/FS decoders.

For MS and FS decoders, the use of the corresponding 16-bit sound project is explicitly recommended. These projects offer:

significantly improved sound quality; a larger number of available sounds; extended functionality; specific optimization for the current ZIMO decoder generation

This ensures optimal performance and full functional support.

Multi-loading for MS, FS, and MN Decoders

With ZIMO decoders of the current generation, it is possible to load updates and sound projects onto multiple decoders simultaneously. The KLUG can handle up to six MS, FS, or MN decoders at the same time.

For **sound projects**, all connected **decoders** must be **of the same type** (e.g. **6× MS450P22**).

For **decoder software updates**, different decoder types may also be used. In this case, **identical decoders are updated in parallel**, while **different decoder types are programmed sequentially**.

Only one decoder may be connected directly to the KLUG. Additional decoders can be connected, for example, via multiple MSTAP and/or MXTAP boards or via models placed on the programming track.

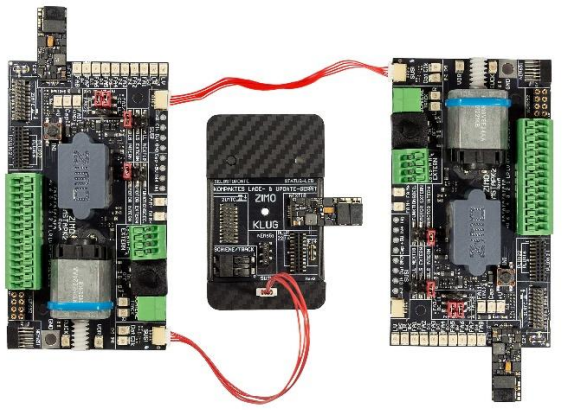
All decoders must be connected **in the same way**, either **all via SUSI** or **all via the track**. Decoder software updates must always be performed via the track protocol, while sound projects can be loaded using either method.

MX decoders and large-scale decoders are not supported for multi-loading.

Possible configurations for multi-loading include, for example:

One decoder plugged directly onto the KLUG, or none and:

- multiple MSTAP and/or MXTAP boards connected via the track or SUSI
- multiple decoders connected on a MULTITAP via the track or SUSI
- multiple decoders installed in models on a programming track



Annex: Declaration of Conformity and Warranty

24 months warranty:

Our products are technically sophisticated and are manufactured and tested with utmost care, therefore, ZIMO Elektronik GmbH guarantees its products for 24 months from the date of purchase (with proof of purchase from a ZIMO contractor).

The warranty covers the repair or replacement of defective parts. ZIMO Elektronik GmbH reserves the right to proceed at its own discretion only if the damage is proven to be the result of a design, manufacturing, material or transport fault. A repair does not extend the warranty. Warranty claims can be made with a ZIMO contract partner or ZIMO Elektronik GmbH. Proof of purchase is required.

The warranty does not apply:

- with normal wear and tear

- if devices are not used for the purpose intended by ZIMO Elektronik GmbH and in accordance with its operating instructions

- in case of modifications or alterations not performed by ZIMO Elektronik GmbH.



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