# LPZW.modules Schleußig

## Manual

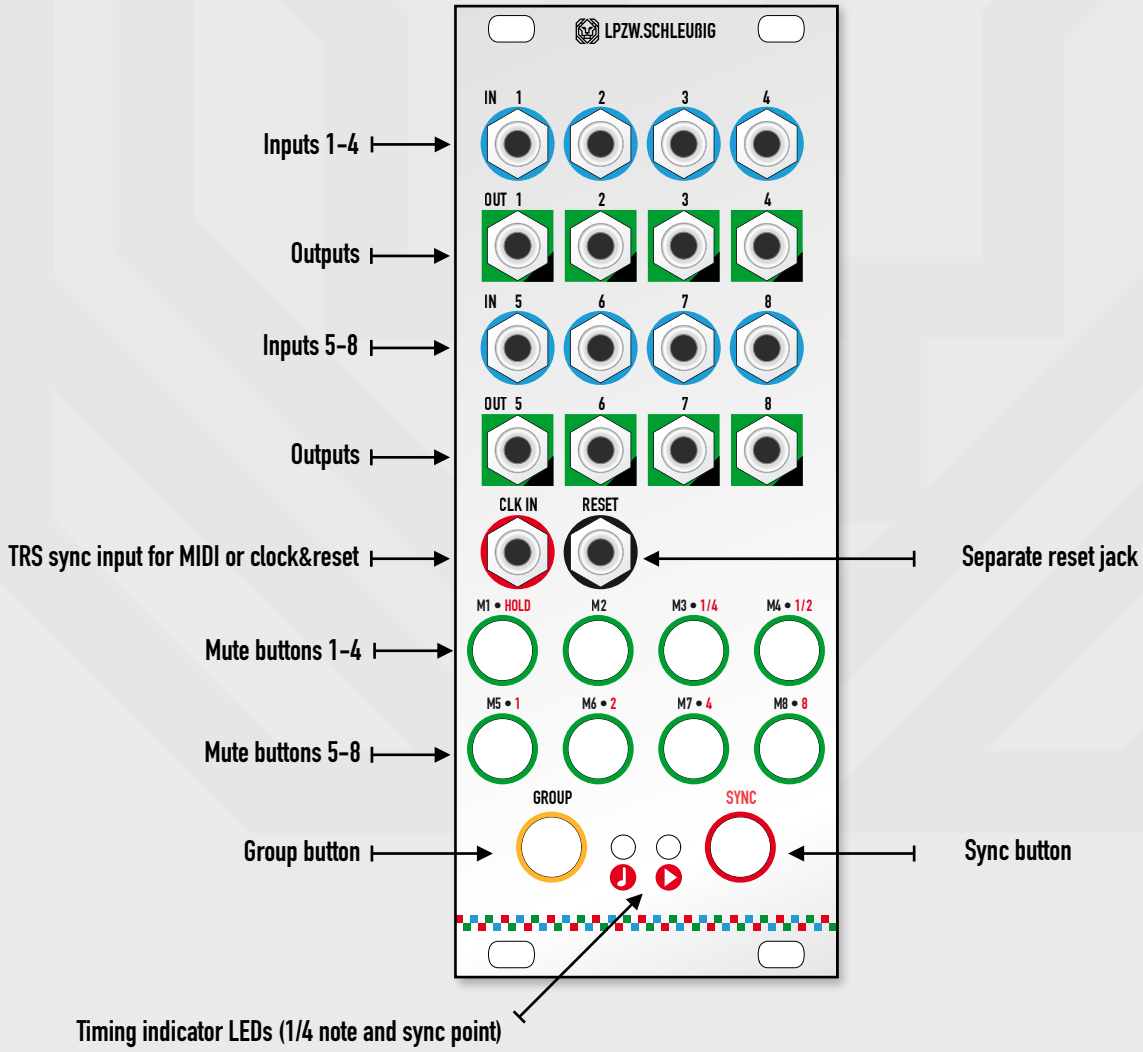
HW Version 1.2

## Introduction and overview

The LPZW.modules Schleußig is a dedicated muting module for Eurorack. It was initially built for gates and triggers but isn't limited to those. It can mute audio or any DC-coupled signal within approx. +/- 10V.
It is an 8 channel module and as such has 8 signal inputs and 8 corresponding outputs.

It offers an performance enhancing grouped toggling, which can also be synced with either clock+reset (DIN-SYNC or 16th notes) or MIDI as a timing reference.

If you use MIDI, the Schleußig also doubles as MIDI/gate converter.



LPZW.MODULES

# Content

## Muting and Grouped Muting

You can either toggle a channel *off* or *on* (i.e. mute or unmute it) by pressing its corresponding mute button. If you don't press **Group** at the same time this will result in direct switching. The cannel will be either on or off depending on its previous state.
The mute buttons LED will indicate if the channel is *on* or *off* by being itself either *on* or *off*.

If you press **Group** and select one or more channels you will setup a toggle group, i.e. those channels will not toggle directly but wait until you release the group button. The mute button LED of the selected channels will indicate this by flashing, when going from *on* to *off*, or a faster flashing for *off* to *on*.

### Hold Setting

The **HOLD** setting can be enabled from the Sync menu (see chapter *Sync Menu*). When activated, the group selection and the actual toggling will be two separate actions. Channels will **not toggle** if you press and release **GROUP** and select or deselect channels while doing so.

Toggling will only occur when **GROUP** is pressed and released **without** pressing any mute button at the same time.

This way you can prepare a group for a later action. You can also press **GROUP** again and change the toggle group.

The **HOLD** setting will also work in sync mode.

# Synced Muting and Sync Menu

In order to achieve accurate drop ins, we have the **SYNC** mode.

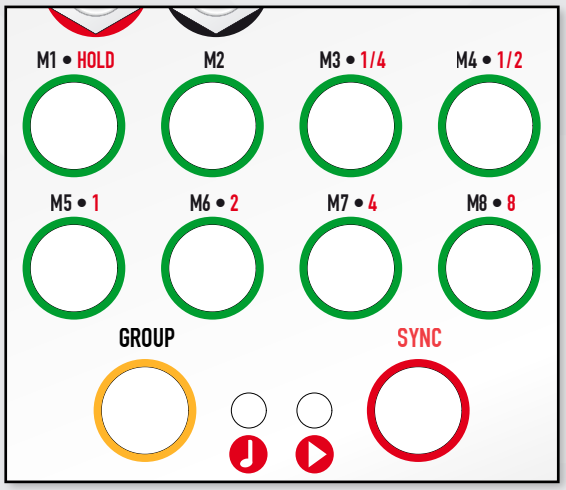
For it to work you need to apply a clock, which can be either a MIDI clock or DIN-SYNC or 16th note clock with reset (see chapter *Clock & Basic Setup*). The Schleußig will count notes and bars after a start/reset occurs. This way you will be able to mute or activate channels in a group to meaningful positions of the song structure (assuming a 4/4 rhythm).
To activate the **SYNC** mode press and release the **SYNC** button.

## Sync menu

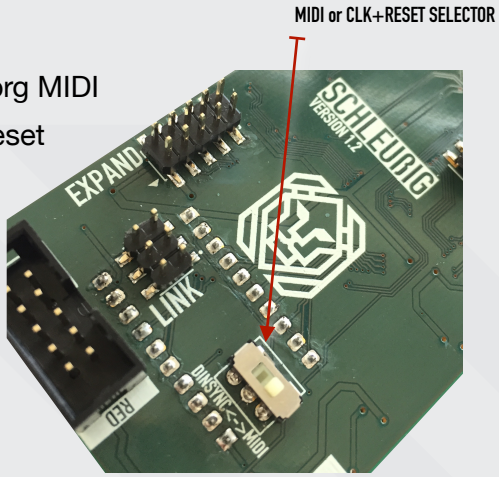
The **SYNC** menu is entered by pressing and holding the **SYNC** button down.

In the **SYNC** menu the **HOLD** mode can be activated by pressing **MUTE** button 1 (**M1**).

**MUTE** buttons 3 - 8 select the measure for the synced muting. The selection is labeled in red above each button (quarter notes to 8 bars).



# MIDI & CLK/RESET Input




The 3.5mm **CLK IN** jack is a TRS jack suitable for Arturia or Korg MIDI standard direct connection (with auto-crossover) or clock+reset (DIN-SYNC) with the pinning of the Arturia Beatstep Pro (tip: clock, ring: reset).
Use the switch on the back of the module to determine the kind of clock you use (MIDI or logic pulse clock).

The separate reset jack overrules the ring connector of the TRS **CLK IN** jack when using logic clock+reset clocks.

The **RESET** signal can be either a pulse or a permanent high level a.k.a. run. Only the edge of the signal is important. You can select if the rising or falling edge of the **RESET** is actually resetting the rhythm counters (see chapter *Clock & Basic Setup*).



## MIDI/Gate Converter

If you use MIDI as the timing source for the Schleußig, you can also use it as a MIDI/Gate converter for drum triggers.

All outputs have one common MIDI channel.

The converter is normaled to the input jacks, so plugging an external signal into the channel input will overwrite the MIDI converter of this channel.

The converter out will go high with a *note-on* of one note and low with the *note-off* of the same note. The output's high level is ca. 5 volts.

## MIDI Setup Menu

The MIDI setup menu is entered by holding down **GROUP** while powering the rack up.
In this menu you can select the MIDI channel and the notes for the built-in MIDI/gate converter.

When you enter the menu you will be greeted by all mute buttons flashing.

Select channel 1 by pressing its mute button. The next received note will set MIDI channel for the whole converter, as well as the note for channel 1. (LEDs will stop flashing after you selected something).

Select any other channel the same way and the next received MIDI note will set the channel.

You do not have to change all the notes when entering the menu, just as many as you need to change. Just remember that when you change the MIDI channel by changing channel 1, you will also change the MIDI channel for all the other channels .

Leave the menu by pressing **SYNC**.

## Clock & Basic Setup

Enter the setup menu by holding the **SYNC** button when powering the rack up.

Prescaler:

Mute 1 ..
16th clock (4 ppq) or DIN24 clock (24ppq) .. LED On: prescaler active - 4 ppq.

Edge of reset (reset invert):

Mute 5 .. On - rising edge of a reset strobe or run signal (as in DIN-SYNC)
Off - falling edge of a reset strobe or run signal

Velocity mute (for CV expander):

Mute 6 .. On - velocity CV will not be updated when channel is muted
Off - velocity CV will be updated when channel is muted

Those clock and reset setting are only for the logic clock input (DIN-SYNC) and NOT for MIDI.

Mute 8 .. Press once for default reset, press again for dis-engage (flashing LED) - leaving the menu resets all.

Leave the menu by pressing **SYNC**.

### Defaults

Pressing Mute 8 in the Clock & basic setup and then leaving the menu by pressing **SYNC** resets the Schleußig to the following settings:

The defaults of the system are:

24ppq clock
rising edge resets the counters
velocity CV will be updated regardless of channel mute state

MIDI/Gate converter:

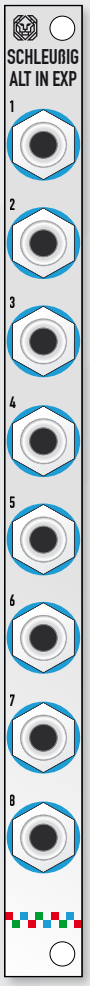
Channel 10

Notes

channel 1: C3 (60)
channel 2: C#3 (61)
channel 3: D3 (62)
channel 4: D#3 (63)
channel 1: E3 (64)
channel 2: F3 (65)
channel 3: F#3 (66)
channel 4: G3 (67)

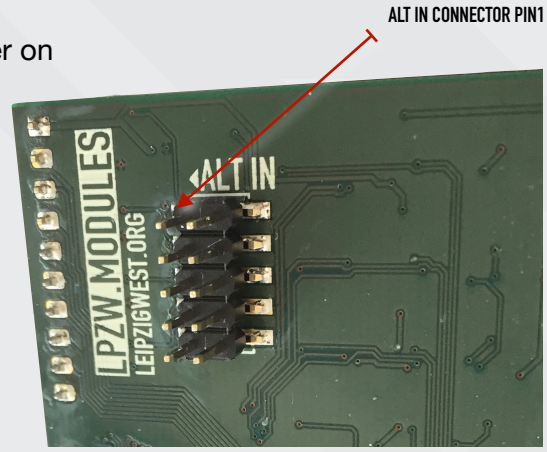
# Expander Options

## Alternate Input Expander




This expander connects to the ALT IN header on the back of the module.
The expander module is 2HP wide, needs no power and offers 8 additional inputs. One per channel.

The input of the expander is routed to the output of the channel when the main input on the channel of the Schleußig is muted. Thus making the Schleußig an 8 channel A/B-switch instead of ON/OFF-switch.




The expander is actually just an assembly of 8 jacks with no other electronics. All the circuitry for this function is already included on the main module, so you can build your own ALT IN expander. The pinout is:

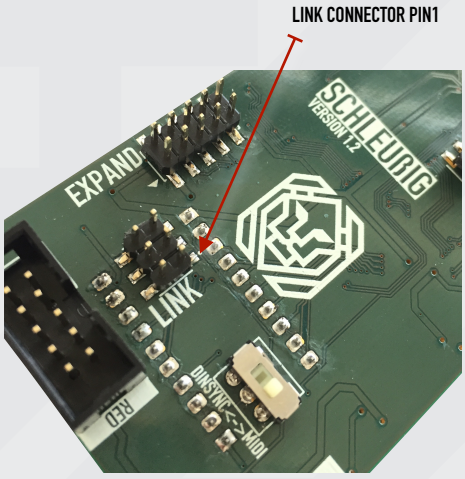
| | |
|---|---|
| Pin 1: ALT IN 1 | Pin 2: ALT IN 2 |
| Pin 3: ALT IN 3 | Pin 4: ALT IN 4 |
| Pin 5: ALT IN 5 | Pin 6: ALT IN 6 |
| Pin 7: ALT IN 7 | Pin 8: ALT IN 8 |
| Pin 9: GND | Pin 10: GND |

## Link Connector

You can link two or more Schleußig with the **LINK** connector.

The connection will provide a coupling of the **GROUP** button over multiple modules, BUT nothing else.
It helps you to generate groups over multiple modules, so that you can mute and unmute signals without having to press group on each of them.

You have to provide sync to every module and make the settings so they behave similar.




The Link Connector can be daisy chained over multiple modules. If you aren't able to make your own cable contact us. (Actually: if you buy more than one Schleußig, you are eligible to a free cable with the purchase).

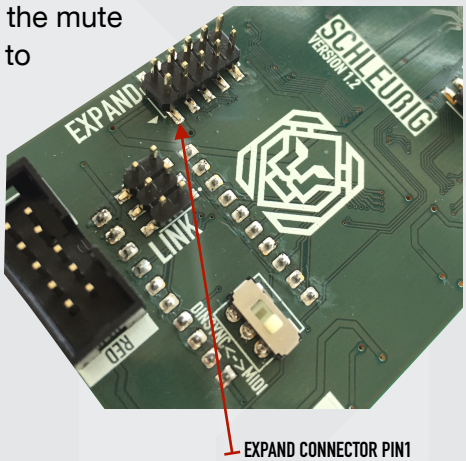
We also plan a footswitch expander that can be attached to the **LINK** connector.

## Velocity CV Output Adapter


Connect to CV output expander to the **EXPAND** connector.

The expander provides analog CV in the range of 0-5V ~~(0-10V)~~[1] according to the channels corresponding received MIDI note's velocity data.
(Note-Off velocity will be ignored.)

Per default the CV output will not be affected by the mute state of the channel, i.e. the output will continue to change according to incoming notes even if the channel is muted and no triggers are sent.
(Patching tip: you can use the velocities of multiple channels as CV source for other modules.)
You can set the Schleußig so, that the Velocity output will not be changed when the channel is muted from the setup menu (See chapter *Clock & Basic Setup*).




[1] We planned 10V but noticed that most modules rather expect 5V and some even acted erratically when receiving CVs over 5V (like ALM Akemie's Taiko)

## Firmware Update

You can enter the firmware update mode by pressing **GROUP** and **SYNC** while powering up the module. The LEDs will flash in a rotating kind of way with each row blinking in another speed.

You need to switch the **SCHLEUßIG** to MIDI input (switch on the back) and send the provided firmware sysex file to the **SCHLEUßIG** and no other MIDI data in the same time. Make sure all other software stops sending on this MIDI port!

If you do not already have a MIDI DIN to 3.5mm TRS adapter: you can use any adapter from eBay for Arturia or Korg devices.

As soon as the **SCHLEUßIG** receives its firmware it will start indicating a progress with the LEDs, (this is only rudimentary and not exact).
After the successful update it will indicate the firmware version with blinking **MUTE** LEDs, before restarting. Your settings will not be overwritten (stored in EEPROM)

If the received data is corrupted or not send completely the **SCHLEUßIG** will return to the rotating LEDs and shows an error code with the LEDs (non-blinking). Please try several times if the update fails.

The update procedure was tested successfully with the Mac app SySex Librarian (do not reduce the transmit speed in the app!).

## Specifications

| | |
|---|---|
| Power supply | 10 Pin header with +/-12V<br>120mA @ +12V<br>80mA @ -12V |
| Inputs | +/- 10.5V range<br>DC coupled<br>100kOhm input impedance on channel inputs<br>>2200hm on MIDI Input |
| Outputs | MIDI gate signals ca. 0V low; 5V high<br>+/- 10.5V range<br>DC coupled<br>1000hm impedance |
| MIDI Input | 3.5mm TRS jack Tip/Ring auto-crossover, Sleeve to system 0V(GND) |

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Thanks to everyone that gave us input, ideas, support and motivation, especially the people on the Muffwiggler forum!

If you find faults or inconsistency in the manual content or unbearable grammar mistakes, please contact info@leipzigwest.org.