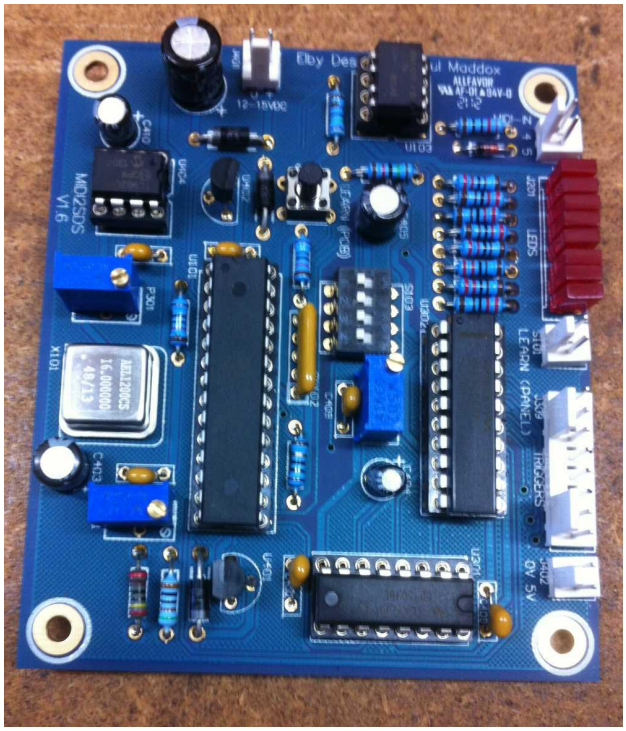
MIDI-Retrofit 8 - MIDI to Trigger Module

The MIDI-retrofit is an 8-channel MIDI note to Trigger unit suitable for use with a variety of drum machines including the SDS range from Simmons for which it was originally designed.



Each of the TRIGGER outputs has velocity control and can be assigned to a specific MIDI Note and Channel using the `LEARN' mode.

There are several options that can be selected using the onboard DIPSWITCH:-

1. TRIGGER INVERT - TRIGGER output pulses can either be positive going (LO to HI) or negative going (HI to LO). The width of the pulse and the LO and HO voltages are set by onboard trimmers
2. GATE MODE - When GATE MODE is OFF the TRIGGER outputs are set to generate a fixed width output pulse in response to a MIDI Note-ON command. When GATE Mode is ON the TRIGGER outputs turn ON with MIDI Note ON and turn OFF with MIDI Note OFF commands
3. ACCENT Mode - When ACCENT MODE is turned OFF all 8x TRIGGER outputs respond to their assigned MIDI Note/Channel. When ACCENT MODE is turned ON (ACCENT TYPE must be 'OFF') the TRIGGER outputs are paired together with the 1st TRIGGER output responding to its assigned MIDI Note/Channel as normal, The 2nd TRIGGER output will only 'trigger' when the MIDI Velocity value is greater than 100
4. ACCENT TYPE - If ACCENT Mode is enabled and this switch is set 'ON' then only [TRIGGER 8] will act as an ACCENT output and will be fired if any of the other TRIGGER Outputs passes the ACCENT-LEVEL which is currently fixed at a MIDI Velocity of 100

The 8x LED's indicate the status of each of the output triggers and are also used during LEARN MODE to assist the user whilst programming the board.

LEARN MODE

LEAN MODE lets you assign different notes and channels to each TRIGGER. You could, for example, have four triggers on channel 10, two more on channel 11, one on channel 15 and one on channel 2.

To enter the LEARN MODE, hold down the LEARN button until all the LED's come on and then release before the LED cycle pattern completes. Then the LED for the first channel to be set will flash once every second, indicating that it is waiting for a note to be assigned to trigger it. Once received it will trigger its output, and then flash the next LED showing it is waiting for the next trigger assignment.

If ACCENT MODE has been enabled and ACCENT TYPE is disabled, then you can only program the odd TRIGGER channels (1, 3, 5 & 7) and you will only need to program 4x MIDI Note/Channel combinations.

Repeat for all remaining triggers, if you don't want to reprogram all the outputs then simply wait, the unit will time out after roughly 4 seconds, saving any changes to trigger notes in flash memory.

The assignment of MIDI Channel and MIDI Note for the TRIGGERS can also be done using a MIDI SYSEX message.

Setting-up the MIDI-Retrofit 8

There are 3 adjustments that can be made on the MIDI-Retrofit 8.

TRIGGER Output Pulse-Width

The 1st adjustment defines the pulse-width of the TRIGGER outputs. This should be set to the smallest time period possible consistent with reliable triggering and operation of the attached triggered devices. If the pulse is set too small then the triggered devices may not trigger reliably or some devices may not produce the full `sound' for which they were designed. Increasing the pulse-width over the optimum period will affect the speed at which MIDI-Retrofit 8 can accept repetitive triggers for the same output. This adjustment is made with P101 and the range can be set from around 0.5mS per pulse to over 120mS per pulse.

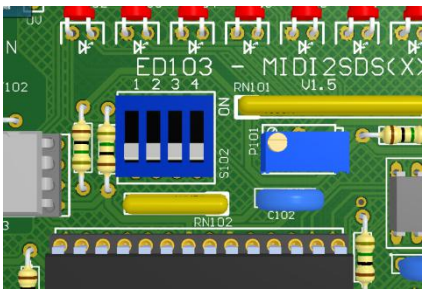
TRIGGER Output LO Voltage

The 2nd adjustment is used to set the lower voltage level (LO) of the output trigger pulse. P151 is, typically, adjusted so that lower trigger pulse voltage is 0V.

TRIGGER Output HI Voltage

The 3rd adjustment is used to set the higher voltage level (HI) of the output trigger pulse. P152 should be adjusted so that higher trigger pulse voltage is at the desired voltage and is typically set to 5V.

Options



Currently, the MIDI-Retrofit 8 supports the following options:-

DIPSWITCH #1 - Trigger Invert

DIPSWITCH #1 can be used to invert the trigger output logic. With the switch in the OFF position the output is a positive going pulse starting at 0V (or the voltage set by P151) to a maximum of the voltage set by P152. the actual output voltage will depend upon the VELOCITY value of the received MIDI message.

Setting DIPSWITCH #1 to the ON position will invert this with the output sitting at the voltage set by P152 and going to a maximum of 0V, again with the actual output being dependent on the VELOCITY value. If you change this switch then you may need to re-adjust P151 and P152.

DIPSWITCH #2 - GATE Mode

DIPSWITCH #2 can be used to select between TRIGGER Mode and GATE Mode. In TRIGGER Mode (DIPSWITCH #2 OFF) the width of the TRIGGER pulse is defined by the PULSE-WIDTH trimpot P101. With DISPWITCH #2 ON, the TRIGGER outputs are controlled by NOTE-ON and NOTE-OFF i.e. NOTE-ON will enable the relevant TRIGGER output while a NOTE-OFF for the same note will disable the same TRIGGER output.

DIPSWITCH #3 - ACCENT Mode

With DIPSWITCH #3 in the OFF position, the MIDI-Retrofit 8 provides 8 normal TRIGGER outputs with all 8 outputs assignable to customer specified MIDI channels and addresses.

With DIPSWITCH #3 in the ON position the MIDI-Retrofit 8 outputs are split in to 2 groups:-

1) Standard TRIGGER Outputs - those on the left of the module (TRIGGERS 1, 3, 5 & 7) operate as standard TRIGGER outputs,
2) while those on the right (TRIGGERS 2, 4, 6 & 8) operate as ACCENT Outputs.

Each ACCENT output is automatically assigned to the same MIDI address as its TRIGGER output (i.e. 2 -> 1, 4 -> 3, 6 -> 5 & 8 -> 7). When the associated TRIGGER output receives a VELOCITY byte greater than 100 then the ACCENT Output will generate an output.

NB: When assigning MIDI Channel and MIDI Notes the ACCENT assignments need not be the same as their associated TRIGGER output. This means you can switch between Standard and Accent modes and have 8 different assignments while in the Standard mode.

MIDI Trigger Assignments

The default TRIGGER assignments in the firmware are:-

Trigger	MIDI Channel	MIDI Note	General MIDI Drum Instrument
1	10	36	Bass Drum 1
2	10	39	Hand Clap
3	10	43	Low Tom 1
4	10	51	Ride Cymbal 1
5	10	50	High Tom 1
6	10	47	Mid Tom 1
7	10	38	Snare Drum 1
8	10	42	Closed Hi-Hat

To reset the MIDI Note and MIDI Channel assignments to the above factory defaults, press and hold the LEARN button, the MIDI-Retrofit 8 will cycle through an LED pattern, while powering on the unit.

Programming LEARN via MIDI

From V4.3 onwards it is now possible to define the MIDI Channel and MIDI Note values for the TRIGGERS using a SYSEX message:-

Set Channel/Note

F0 00 20 69 02 00 *1c 1n 2c 2n 3c 3n 4c 4n 5c 5n 6c 6n 7c 7n 8c 8n* F7

where:- *xc* = MIDI Channel for TRIGGER *x* (values = 1 to 16)
xn = MIDI Note for TRIGGER *x* (values = 1 to 127)

Request Channel/Note

F0 00 20 69 02 01 F7

Response = F0 00 20 69 02 11 *1c 1n 2c 2n 3c 3n 4c 4n 5c 5n 6c 6n 7c 7n 8c 8n* F7

where:- *xc* = MIDI Channel for TRIGGER *x* (values = 1 to 16)
xn = MIDI Note for TRIGGER *x* (values = 1 to 127)