ED103 - MIDI-TRIGGER

(formerly MIDI2SDS)
Construction Guide

Revision 1.1

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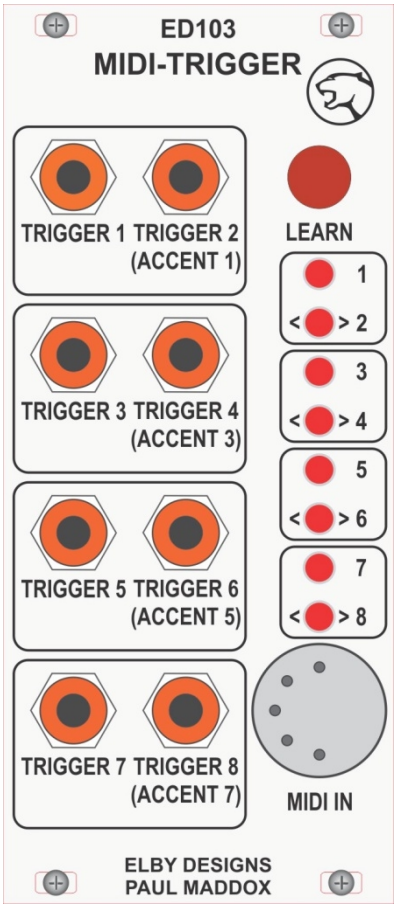
ED103 - MIDI-TRIGGER

Construction of the ED103 requires 3 boards:



Column 1 - Panther Jack PCB (3D Model) (Overlay)
Column 2 - Panther Jack PCB (3D Model) (Overlay)
Column 3 - ED103 PCB (3D Model) (Overlay)

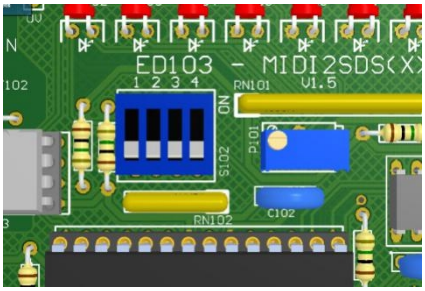
Constructors should refer to the PCB Overlay for any specific comments regarding the board assemblies, the Bill of Materials for the current value of all components and General Construction Notes for general PCB assembly guidelines.

1. Assemble the Switch Carrier Board assembly (3D Model)
2. Insert the 8x lens mounts in to the front panel
3. Fit all components to the main board excluding the LEDs, MIDI Socket, switch and its Carrier board,
4. Take 2 pieces of cut resistor leg and, after forming a small hook at one end, insert the hooks in to pins 4 and 5 of the MIDI socket and solder in place.
5. Fit the MIDI Socket to the front panel ensuring that the locking nut has a flat face parallel with the side of the panel.
6. Fit the LEARN switch sub-assembly to the front panel and check for correct vertical alignment..
7. Offer the PCB up to the panel inserting the 2 wires from the MIDI socket in to their respective pads on the PCB.
8. With the PCB firmly squared against the edge of the MIDI locking nut (PCB should be running parallel to the side of the panel) solder the switch and socket pins in to place.
9. Form the legs of the 8x LEDs to about 30° taking note of the orientation of the LED to the PCB footprint.
10. Insert the LEDs in to the PCB whilst locating the head of the LED in to its respective lens mount and solder
11. Complete assembly of the module by adding the 2x Panther Jack-Switch boards and then attaching the respective IDC cables.

Addendum

A track error requires a small wire link to be fitted between X101_5 and X101_7 on the underside of the PCB. Take a piece of resistor leg and, from the underside of the PCB, solder across the 2 pads as shown (do not insert the ends of the link in to the pads).
There is also a track that has been pre-cut on the topside near the text U107

OPTIONS



DISPSWITCH #1 – Invert Mode
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.

DIPSWITCH #2 – GATE Mode
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.
DIPSWITCH #2 selects between normal TRIGGER Mode (Dipswitch #2 = OFF) and GATE Mode (Dipswitch #2 = ON). In TRIGGER Mode the length of the output pulse is defined by the setting of P101. In GATE Mode the output is held ON until a Note OFF message is received.

DIPSWITCH #3 – Accent Mode
Setting DIPSWITCH #2 to the ON position will put the ED103 in to ACCENT Mode. The ED103 outputs are then paired together (1 + 2, 3 + 4, 5 + 6 & 7 + 8). The first one in each pair is the main trigger output and will respond as normal to its associated MIDI Note number. When the velocity of that note exceeds 100 the 2nd output will also trigger

CALIBRATION

There are 3 adjustments that can be made on the ED103. To allow calibration for steps (2) and (3) it is necessary to have a MIDI controller connected and for the ED103 to respond to the controller. If your MIDI controller cannot be set to generate MIDI Channel 10 messages then you will need to go through the [LEARN] Mode and set at least the assignment for [TRIGGER 1].

The following procedure assumes a positive trigger output.

(1) This adjustment is used to set the lower voltage level of the output trigger pulse.
1. Set all dipswitches to the OFF position.
2. Monitor the output of TRIGGER 1 with a multimeter and adjust P151 to set the 'OFF' trigger pulse voltage to the desired level which is, normally, 0V(*).

(2) This adjustment is used to set the higher voltage level of the output trigger pulse.
1. Set dipswitch #2 to ON
2. Connect a MIDI Controller to the MIDI IN socket
3. Press and hold the note corresponding to [TRIGGER 1]. The note must have a MIDI Velocity >= 120
4. Monitor the output of [TRIGGER 1] and adjust P152 to set the 'ON' trigger pulse voltage to the desired level which is, normally, around 5V(*).

(3) This 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 ED103 can accept repetitive triggers for the same output. If you do not know the optimal pulse width for your applications we suggest setting it to around 4mS

1. Set all dipswitches to the OFF position
2. Turn P101 fully anti-clockwise
3. Monitor the output of [TRIGGER 1] with an oscilloscope
4. Repeatedly play the assigned note
5. Adjust P101 to set the desired pulse width.

Your unit should now be ready to operate. Apply power and note that the 8x LEDs display a running pattern that indicates the unit is functioning correctly. If the unit has not been through the [LEARN] mode then the pattern will run from the centre triggers [TRIGGER 4] and [TRIGGER 5] to their respective end triggers ([TRIGGER 1] and [TRIGGER 8]) and then back to the centre triggers. If the unit has been through the [LEARN] mode then the pattern will run from [TRIGGER 1] to [TRIGGER 8] and then back to [TRIGGER 1].

(*) If you are going to use negative-trigger outputs then the voltages in (1) and (2) will need to be swapped i.e. the 'OFF' voltage will be 5V and the 'ON' voltage will be 0V.