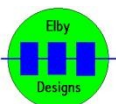




MIDI-Retrofit MIDI to TRIGGER Module

User Guide V0.1

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MIDI-Retrofit - MIDI to Trigger Module

MIDI-Retrofit-16 is a 16-channel MIDI note to Trigger unit suitable for use with a variety of synthesizer modules and drum machines including the SDS range from Simmons for which it was originally designed.

The unit has 16, velocity sensitive, trigger outputs which can be either a fixed-width pulse output or a Note-ON - Note-Off output.. The period of the trigger output pulse can be adjusted using the onboard trimpot (P101) from approximately 1mS to approximately 130mS.



Figure 1

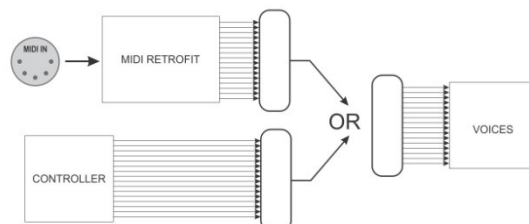


Figure 2

MIDI-Retrofit-16 is designed as a stand-alone controller and so must replace any existing controller in the equipment. The typical configuration for the equipment is shown in Figure 1 where the equipments 'controller' drives a separate section containing the 'voices'.

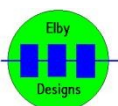
To use MIDI-Retrofit-16, the connection between these 2 sections needs to be broken and replaced with a multi-pin connector. Once completed, the connector on the 'voices' section can then be plugged in to either the MIDI-Retrofit-16 section or the original controller section.

LEARN MODE

It also has a 'LEARN' mode, which lets you assign different notes and channels to different triggers. 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 use the 'LEARN' mode, you simply hold down the LEARN button until all the LED's come on. 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 then wait for the associated NOTE OFF command before triggering its output, and then moving on to the next channel.

Repeat for all 16 triggers, if you don't want to reprogram all the outputs then simply wait, the unit will timeout after roughly 4 seconds, saving any changes to trigger notes in FLASH memory.



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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:-

1) Set Channel/Note

Send -

F0 00 20 69 05 00 *1c 1nn 2c 2nn 3c 3nn ... 15c 15nn 16c 16nn* F7 (55 bytes)

where:- *xc* = MIDI Channel for TRIGGER *x* (values = 0 to 15 in hexadecimal)

xnn = MIDI Note for TRIGGER *x* (values = 0 to 127 in hexadecimal)

Data for all 16 TRIGGERS must be sent with each having 3 bytes of data (*cnn*)

2) Request Channel/Note

Send -

F0 00 20 69 05 01 F7 (7 bytes)

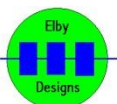
Response -

F0 00 20 69 05 11 *1c 1nn 2c 2nn 3c 3nn ... 15c 15nn 16c 16nn* F7 (55 bytes)

where:- *xc* = MIDI Channel for TRIGGER *x* (values = 0 to 15 in hexadecimal)

xn = MIDI Note for TRIGGER *x* (values = 0 to 127 in hexadecimal)

Data for all 16 TRIGGERS will be received with each having 3 bytes of data (*cnn*)



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MIDI Trigger Assignments

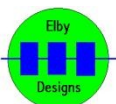
The default TRIGGER assignments in the firmware are:-

Trigger	MIDI Channel	MIDI Note	General MIDI Drum Instrument
1	10	36	Bass Drum 1
2	10	38	Snare Drum 1
3	10	50	High Tom 1
4	10	47	Mid Tom 1
5	10	43	Low Tom 1
6	10	42	Closed HiHat
7	10	57	Crash Cymbal 2
8	10	49	Crash Cymbal 1
9	10	51	Ride Cymbal 1
10	10	35	Bass Drum 2
11	10	48	High Tom 2
12	10	41	Low Tom 2
13	10	60	High Bongo
14	10	61	Low Bongo
15	10	46	Open HiHat
16	10	81	Open Triangle

To reset the MIDI Note and MIDI Channel assignments to the above factory defaults, press and hold the LEARN button, the MIDI-Retrofit 16 will cycle through an LED pattern, while powering on the unit.

MIDI-Retrofit-16 has 16 LED's which indicate the status of each of the output triggers and are also used during LEARN mode to assist the user whilst programming the board by indicating which TRIGGER output is being programmed..

MIDI-Retrofit-16 can be powered from a single DC power supply in the range 12VDC to 15VDC. The maximum TRIGGER output voltage will then be 10V to 12V respectively.



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MIDI-Retrofit Firmware

The latest release of the MIDI-Retrofit-16 firmware (version 3.8 and later) includes the following 2 features:-

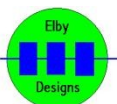
1. Positive/negative outputs: DIPSWITCH #1 allows the outputs to be inverted so that they are either positive-going (from 0V to +V) or negative-going (from +V to 0V). Note that the actual maximum excursion in either mode is determined by the Velocity value received for each channel i.e. a Velocity value of 127 will result in the maximum excursion.
2. Trigger/Gate mode: DIPSWITCH #2 determines how and/or when a triggered output will turn OFF. In the TRIGGER Mode the output pulse width is determined solely by the setting of the pulse-width trimmer (P101). In the GATE Mode the output will only turn OFF when an associated NOTE OFF command is received.

NB: These settings are global and apply to all 16 outputs.

Modulation Wheel

The MIDI-Retrofit16 V1.6 and onwards has a new feature: ModWheel Control. When the MIDI-Retrofit16 receives a MIDI Controller Change 0xB1 message, it will set the MOD-WHEEL output to a voltage proportional to the ModWheel value. The full scale output can be adjusted (V1.7 onwards) to any value between ~5V and ~12V.

This output can be used on SDSV units as a control input for the SDS HiHat



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