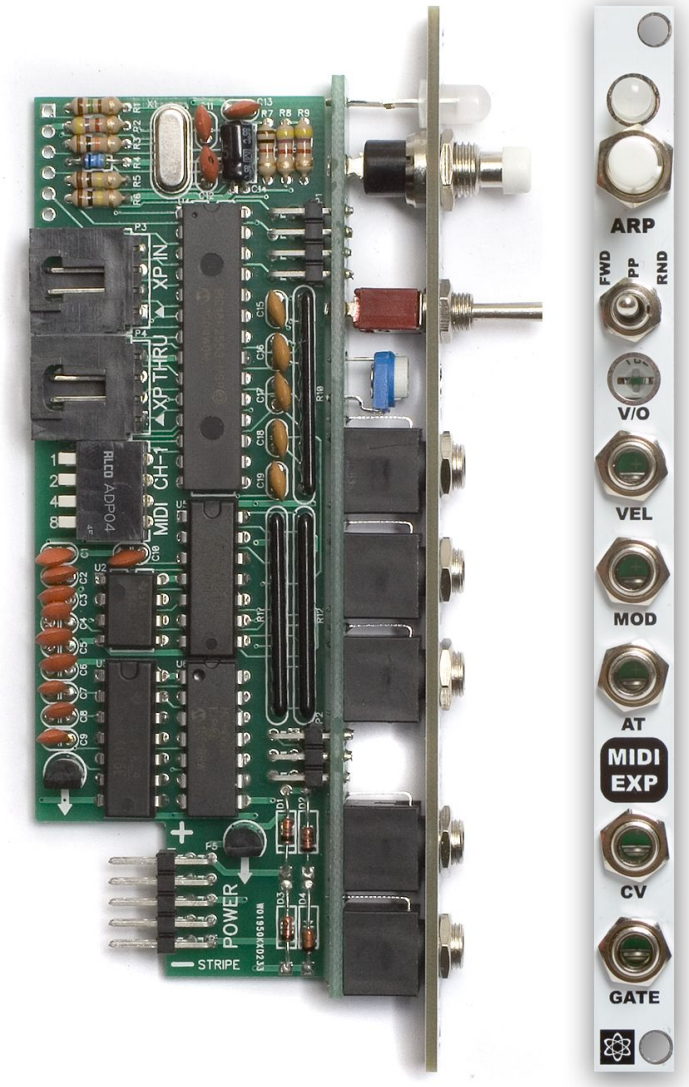
MST MIDI to CV Expander Manual

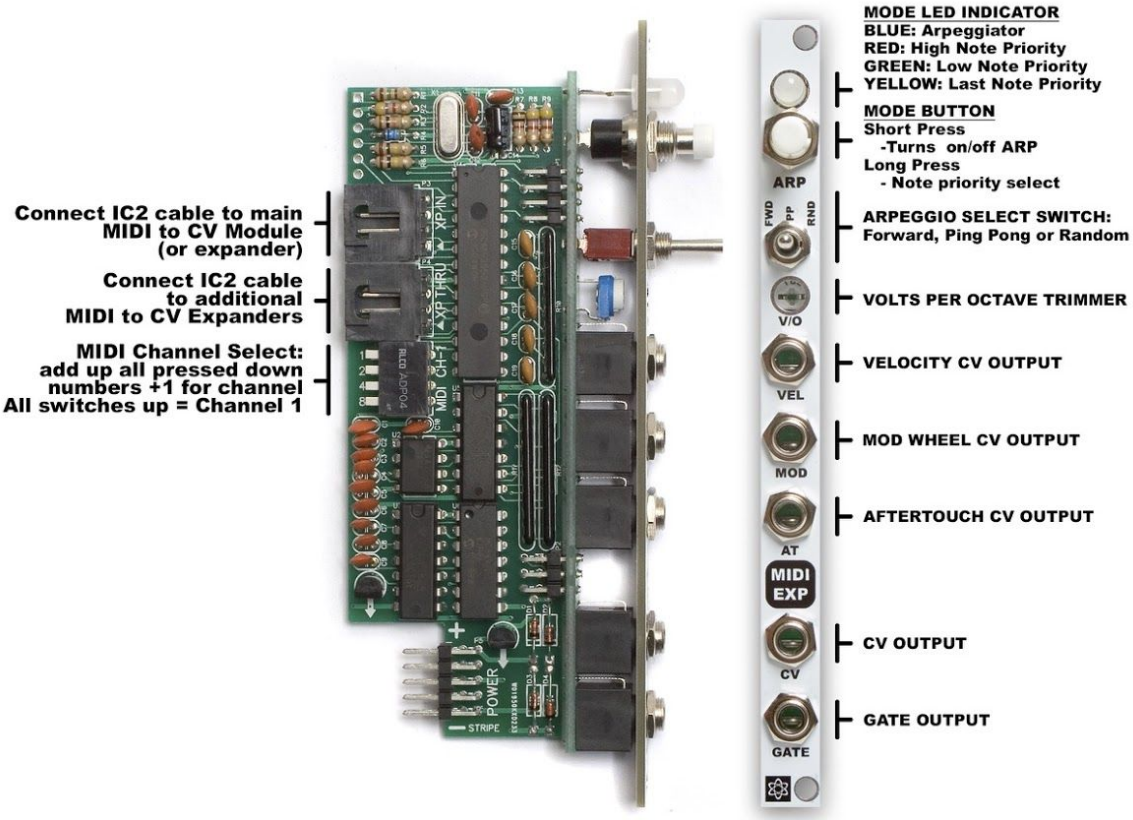


For help with technical terms in this manual, check out these links:

Glossary of MIDI terms: http://www.midi.org/aboutmidi/glossary.php
Intro to MIDI: https://www.soundonsound.com/sos/1995_articles/aug95/midibasics1.html

SYNTH ROTEK
classic noise.

MST MIDI TO CV EXPANDER
QUICK START GUIDE



To activate/deactivate "order played" mode, hold the button down and flip the switch to any new position within 2 seconds. The LED will light green when "order played" mode is activated or red when deactivated.

Note: The arpeggiator requires that the module be receiving a clock via either the main module's CLK IN jack, USB port or MIDI IN jack. If the arp doesn't seem to be working when notes are being played or the blue light doesn't flash, check to make sure that it has a clock signal to work with.

classic noise.

Current draw: +12V: 55mA, -12V: 15mA
Module width: 2HP
Module depth: 48mm

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Power connection (on back of module): Connect this to your Eurorack system's power supply. The module requires +/-12VDC. It does not use a keyed header, so use the "STRIPE" and polarity indicators printed on the PCB to achieve the correct polarity. The power input is reverse-polarity protected, however, so even if you do connect it backwards it won't hurt anything.

Data Connection: Connect the supplied data cable between the XP connector on the main module and the XP In connector on the expansion module. If more than one expansion is to be used, additional modules can be daisy-chained via the use of the XP THRU connector.

Gate LED: Lights whenever the gate output is on.

RED indicates high-note priority
GREEN indicates low-note priority
YELLOW indicates last-note priority
BLUE indicates arpeggiator

The LED also flashes red whenever the module is reset using the button on the main module.

ARP Button:

- Short press:
  Turns arpeggiator mode on and off. The LED will light blue to indicate that arp mode has been activated, and red/yellow/green (depending on note priority mode) to indicate that arp mode has been deactivated
- Long press (~2 seconds):
  Cycle between high-note, last note and low-note priority. The LED will flash red (high-note), yellow (last-note) or green (low-note) to indicate new mode

ARP Switch: Selects note order when using arpeggiator.

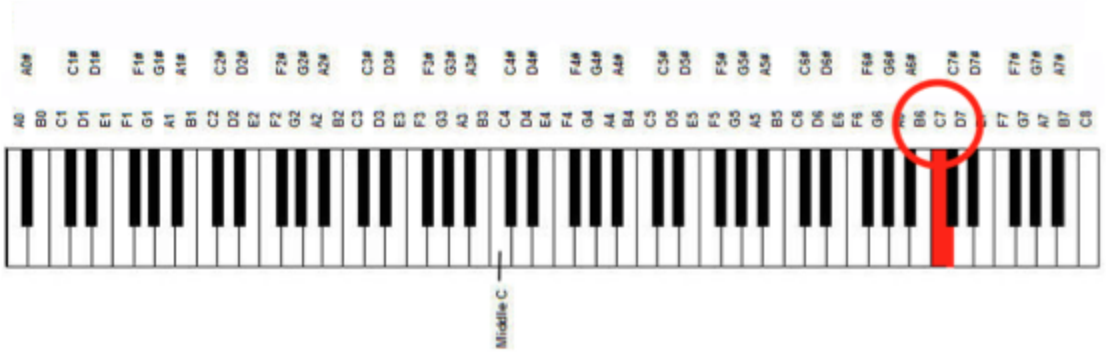
- FWD (Forward): plays held notes from lowest to highest (or in order played if "order played" mode is active)
- PP (Ping-Pong): plays held notes from lowest to highest (or in order played if "order played" mode is active), then reverses this order.
- RND (Random): plays notes in random order. "Order played" mode has no affect on this selection.
- Order Played: the note order follows the key press order. To activate/deactivate "order played" mode, hold the button down and flip the switch to any new position within 2 seconds. The LED will light green when "order played" mode is activated or red when deactivated.

Note: The arpeggiator requires that the module be receiving a clock via either the main module's CLK IN jack, USB port or MIDI IN jack. If the arp doesn't seem to be working when notes are being played or the blue light doesn't flash, check to make sure that it has a clock signal to work with.

Note: Arpeggiator latches when a sustain pedal is held on a MIDI keyboard (once the arpeggio is established).

V/O: This adjusts the volts-per-octave scaling for all the outputs.

To calibrate: Connect a volt meter to the module's CV OUT jack, play a MIDI C7 (note #108), then adjust the V/O trimpot until the meter reads exactly 6V. You can use other octaves, too, if you want; just remember that every C note should output an even voltage value.



MIDI Note	MIDI Note #	Output Voltage
C1	36	0.0
C2	48	1.0
C3 (Middle C in MIDI land)	60	2.0
C4 (Standard middle C)	72	3.0
C5	84	4.0
C6	96	5.0
C7	108	6.0

VEL: Velocity of last note played by MIDI in or arpeggiator (0 to +5V)

MOD: Mod wheel position (0 to +5V)

AT: Last channel aftertouch value received on current MIDI channel (0 to +5V)

CV: Outputs analog voltage for controlling 1V/O equipped gear. May be configured as low note, last-note or high-note priority. This output is buffered so that the output voltage will stay constant regardless of the load applied to it.

GATE: Outputs +10V whenever one or more notes are being held (or played by the arpeggiator), and 0V when none are. Press the RESET button on the main module if the gate ever gets stuck on.

MIDI CH-1 (on back of module): These four DIP switches select the MIDI channel that the expansion module responds to. It does not have to match the channel of the main module. Since MIDI channels are 1-indexed and the binary numbers represented by the switches are 0-indexed, set the switches for one less than the MIDI channel you want. Alternatively, you could just look at this chart:

Channel	J1	J2	J4	J8	Channel	J1	J2	J4	J8
1	off	off	off	off	9	off	off	off	ON
2	ON	off	off	off	10	ON	off	off	ON
3	off	ON	off	off	11	off	ON	off	ON
4	ON	ON	off	off	12	ON	ON	off	ON
5	off	off	ON	off	13	off	off	ON	ON
6	ON	off	ON	off	14	ON	off	ON	ON
7	off	ON	ON	off	15	off	ON	ON	ON
8	ON	ON	ON	off	16	ON	ON	ON	ON

Note: Down = ON on these DIP switches.

XP IN (on back of module): Used for connecting this expansion module to the main MIDI-CV module (required). Can also connect to XP THRU of another Expander if daisy-chaining multiple Expanders.

XP THRU (on back of module): Connect to the XP IN connector of another Expander module when daisy-chaining multiple Expanders.