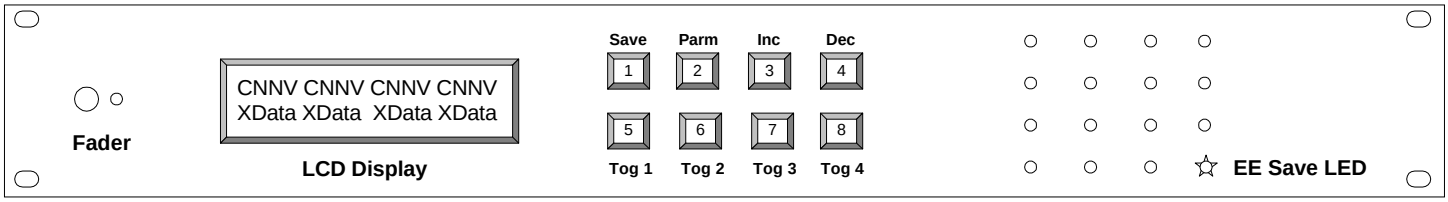
CV-to-MIDI User Manual

Four analog control voltages (0-5v) are connected to four ADC inputs on the MIDItools CPU board. The digitized voltages are mapped to MIDI controller messages according to the controller parameters set (voltage source, MIDI channel, and MIDI controller number).



C = MIDI Transmit Channel (0H-FH), corresponding to MIDI channels 1 - 16
NN = MIDI Controller Number (00H-7FH), corresponding to controllers 0 - 127
V = Voltage Source (1-4)
X = Controller Disable Indicator (">" = DISABLE)
Data = MIDI Controller Data Transmitted (0-127)

Operating Instructions

HOW DO I...

...SET THE TRANSMIT CHANNEL FOR EACH CONTROLLER?
Press the PARM key until the underline cursor is under the desired Transmit Channel parameter. Press the +/- key to set the desired channel: 1-16.

...SET THE CONTROLLER NUMBER FOR EACH CONTROLLER?
Press the PARM key until the underline cursor is under the desired controller number parameter. Press the +/- key to set the desired controller number: 0-127.

...SELECT THE ANALOG VOLTAGE FOR EACH CONTROLLER?
Press the PARM key until the underline cursor is under the desired voltage parameter. Press the +/- key to select the desired analog votage source: 1-4.

...DISABLE THE TRANSLATION FOR A GIVEN CONTROLLER?
Press the DISABLE/ENABLE key (Tog1, Tog2, Tog3, and Tog4) for the desired controller. Press again to enable the translation.

...SAVE ALL PARAMETERS?
Press the SAVE key. All translation parameters are saved to nonvolatile EEPROM. They will be recalled at powerup.

...OPERATE THE DEVICE?
Four control voltages (0-5VDC) are connected to the four ADC inputs (ADC0-ADC3). The digitized voltages are mapped to MIDI controller messages according to the controller parameters set (voltage source, MIDI channel, and MIDI controller number). Incoming MIDI messages are ignored. Running status is implemented.

CV to MIDI Applications

The CV inputs are available via stereo switching ¼" jacks, wired as shown in Fig 1. The "tip" of the jack is connected to the MIDItools +5V power supply, the "sleeve" of the connector is connected to board ground, and the "ring" of the jack is connected to one input channel of the analog to digital converter (ADC) chip on the MIDItools CPU board.

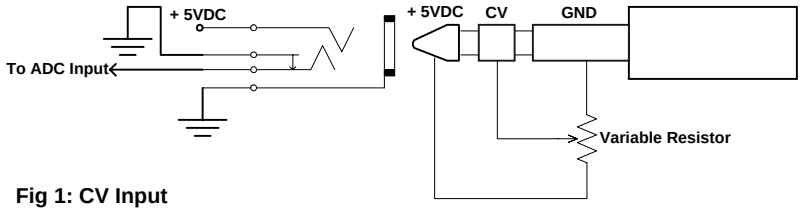


Fig 1: CV Input

Fig 1 also shows how a typical passive variable resistor (potentiometer, force sensing resistor, etc.) is connected to this input. The variable resistor is wired as a "ratiometric" resistor divider between the supplied +5V and ground signals.

In some applications you may want to supply a control voltage that is not derived directly from the +5V supplied via the CV input jack. Fig 2 shows how an externally generated 0-5V CV can be interfaced to the CV input. The resistor/diode network in this circuit clamps the maximum CV voltage to +5V to prevent damage to the ADC chip.

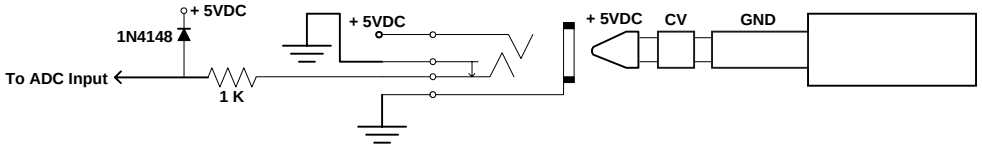


Fig 2: Externally Supplied Voltage Source

Fig 3 shows how control voltages above 5V may be applied to the CV input. The CV is divided by a resistor divider network, and the diode provides clamping to +5V to prevent ADC chip damage. The resistor divider network may be scaled to accommodate virtually any CV range greater than 5V. R2 must be chosen using the equation: R2 = R1 * 5V/(Max CV – 5V). In the example shown the max CV = 10V, and R2 = 1K * 5V/(10V – 5V) = 1K.

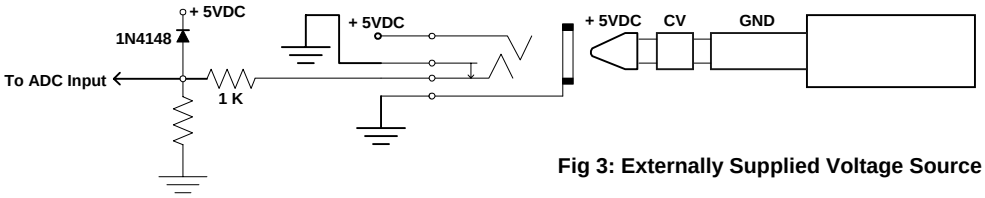


Fig 3: Externally Supplied Voltage Source