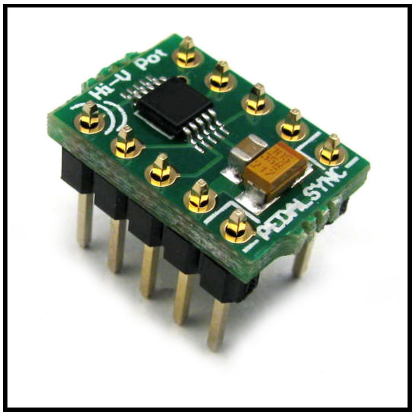
PedalSync™

Hi-V Pot

Digital Potentiometer Module



Key Features

- Programmable digital replacement for analog potentiometers
- Extended 18 volt and 5 mA power limits
- Fits in standard DIP socket
- Power filter capacitors on module
- Designed for use with the PedalSync MV-56B Four Pots Module
- CadSoft Eagle footprint available at www.PedalSync.com

Overview

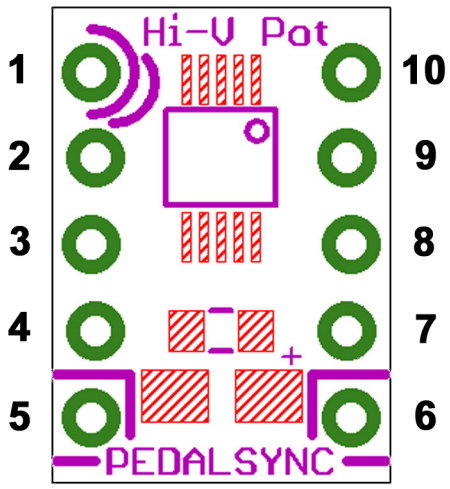
The PedalSync Hi-V DigiPot module is designed for applications requiring higher current and voltages than standard 5-volt digital potentiometers.

The module was designed for seamless integration with the PedalSync MV-56B Four Pots Module but can also be used as a stand-alone module.

Interface

Each Hi-V digipot lug can handle up to 5mA and up to 18VDC. **The voltage applied to any Hi-V digipot pin must not exceed the Hi-V digipot module input voltage**.

Table of Hi-V Pot Module v1.0 Pin Assignments



Pin	Connection
1	Chip Select (CS)
2	Clock (CLK)
3	Serial Data Input (SDI)
4	Ground (power)
5	Positive Voltage (18VDC max)
6	Positive Voltage (18VDC max)
7	Circuit Pot Lug 1
8	Circuit Pot Lug 2 (wiper)
9	Circuit Pot Lug 3
10	*not connected*

The Hi-V Digipot module can be used in place of standard mechanical potentiometer as long as the voltage and current limits are not exceeded. The minimum input voltage is 4.5VDC.

The Hi-V Digipot module was designed to fit into a standard 10-pin DIP placement. Solder the header pin strips provided with the module into the holes.

Note: use an 8-pin DIP setup with the PedalSync MV-56B Four Pots module, as described below

Connect Pin 7 in place of the first lug of the analog potentiometer. Connect Pin 8 in place of the wiper of the analog potentiometer. Connect Pin 9 in place of the third lug of the analog potentiometer.

The resistance is divided into 256 separate and equal steps.

Note: Digipots have a nominal amount of resistance in the wiper. As such, the extremes of resistance are generally about 4% lower than the total resistance.

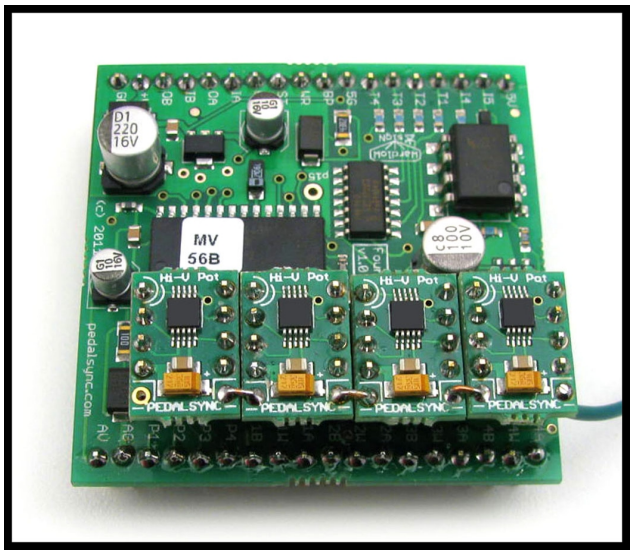
Because of the 256-step architecture, “zippering” may be audible when subjecting the digipots to *real-time* control in sensitive audio applications.

Follow this link to the underlying AD5290 digital potentiometer datasheet for information on **data transfer protocol** and more:
http://www.analog.com/static/imported-files/data_sheets/AD5290.pdf

Note: Although the AD5290 can handle even higher voltages, the Hi-V Pot module is limited to 18VDC

Interfacing With The PedalSync MV-56B Four Pots Module

MV-56B sends real-time or programmed resistance data to PedalSync Hi-V Digipot Modules.



The Hi-V Digipot module was designed to fit into a 10-pin DIP socket.

To interface with the MV-56B Four Pots module’s 8-pin DIP pads, cut one pin off the 5-pin header strips (*provided*) with wire clippers. Solder the 4-pin header strip in the top 4 pins on each side while leaving the power connection (pins 5 and 6) empty.

Note: The Hi-V Pot modules fit into 8-pin DIP sockets or can be soldered in place for applications requiring a lower profile.

The Hi-V digipot module was designed so the input voltage pins can be easily interconnected with a short bare wire (0.2”) from one module to the next, as seen in the photo, *above*.

The Power input will then be connected to the external circuit by a jumper wire to one of the open power input pins (such as the green wire in the lower right of the photo, *above*).

Generating A Programmed Voltage

An op amp interface can output a programmed voltage. The following Microchip application notes give a number of examples for creating programmable amplifiers using digital potentiometers:

Optimizing the Digital Potentiometer in Precision Circuits - AN691
http://ww1.microchip.com/downloads/en/AppNotes/00691a.pdf

Using Digital Potentiometers for Programmable Amplifier Gain - AN1316
http://ww1.microchip.com/downloads/en/AppNotes/01316A.pdf

Noise

Always use filtered and regulated power with the PedalSync Hi-V Pot module.

Follow proper PCB layout design rules and isolate the digital and analog sections of your circuit as much as possible.

Related Products

- Use with PedalSync Four Pots chip MV-56B and module to store and recall 4 potentiometer settings.

  Currently only 100K Hi-V DigiPot modules are available but 10K and 50K are coming soon.

Support

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