

cedargrove_ad5293

A CircuitPython driver for the AD5293 digital potentiometer.

The AD5293 Digital Potentiometer is a 10-bit, SPI, 100K-ohm device. The potentiometer sports 1024 resistance steps. The digital logic power requires 2.7v to 5.5v. The potentiometer circuit operates with dual analog supply voltages from +/-9v to +/-16.5v. The pins act similarly to a passive resistive potentiometer, but require that voltages placed on any of the three pins not exceed the analog power supply voltages.

The CircuitPython driver supports a single SPI potentiometer device per instance. It will not work with daisy-chained devices.

The Cedar Grove AD5293 custom breakout board provides power and signal connections for SPI and the potentiometer chip. The AD5293 is also used in the AD9833-based Cedar Grove Precision VCO Eurorack module.

- Author(s): JG for Cedar Grove Studios

Implementation Notes

Hardware:

- Cedar Grove Studios AD5293 breakout or equivalent

Software and Dependencies:

- Adafruit CircuitPython firmware for the supported boards: <https://github.com/adafruit/circuitpython/releases>

```
class cedargrove_ad5293.AD5293(*, spi=board.SPI(), select=board.D9, wiper=0)
```

Class representing the Cedar Grove AD5293, a 10-bit SPI digital linear taper potentiometer.

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| Parameters: | <ul style="list-style-type: none">• spi – The <i>busio.SPI</i> definition. Defaults to <i>board.SPI()</i>.• select – The chip select pin designation. Defaults to <i>board.D9</i>.• wiper – The initial wiper integer value ranging from 0 to 1023. Default is 0. |
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wiper

A class get/set property.

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| Parameters: | Change or read the integer value of the potentiometer wiper position, ranging from 0 to 1023. |
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normalized_wiper

A class get/set property.

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| Parameters: | Change or read the normalized floating-point potentiometer wiper position, ranging from 0.0 to 1.0. |
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reset()

A class helper function.

Parameters: Reset the potentiometer. Refresh the wiper position to mid-scale. Disable write-protect.

shutdown()

A class helper function.

Parameters: Connects the **W** pin to the **B** pin and opens the **A** pin. The content of the wiper register is not changed.