POLOLU ACS714 CURRENT SENSOR CARRIER - 30A TO +30A

USER'S GUIDE

USING THE SENSOR

ACS715 current sensor carrier with solderless ring terminal connectors (not included).

ELECTRICAL CONNECTIONS

The sensor requires a supply voltage of 4.5 V to 5.5 V to be connected across the Vcc and GND pads, which are labeled on the bottom silkscreen. The sensor outputs an analog voltage that is linearly proportional to the input current. When Vcc is 5 V, this output voltage is centered at 2.5 V and changes by 66 mV per amp of input current, with positive current increasing the output voltage and negative current decreasing the output voltage.

Warning: This product is intended for use below 30 V. Working with higher voltages can be extremely dangerous and should only be attempted by qualified individuals with appropriate equipment and protective gear.

The input current can be connected to the board in a variety of ways. For low-current applications, you can solder 0.1" male header pins to the board via the small through-holes on the input-current side of the board. For higher-current applications, you can solder wires directly to the through-holes whose sizes best match your wires, or you can use solderless ring terminal connectors, as shown in the picture to the right. The large through-holes are big enough for #6 screws.

MOUNTING INFORMATION

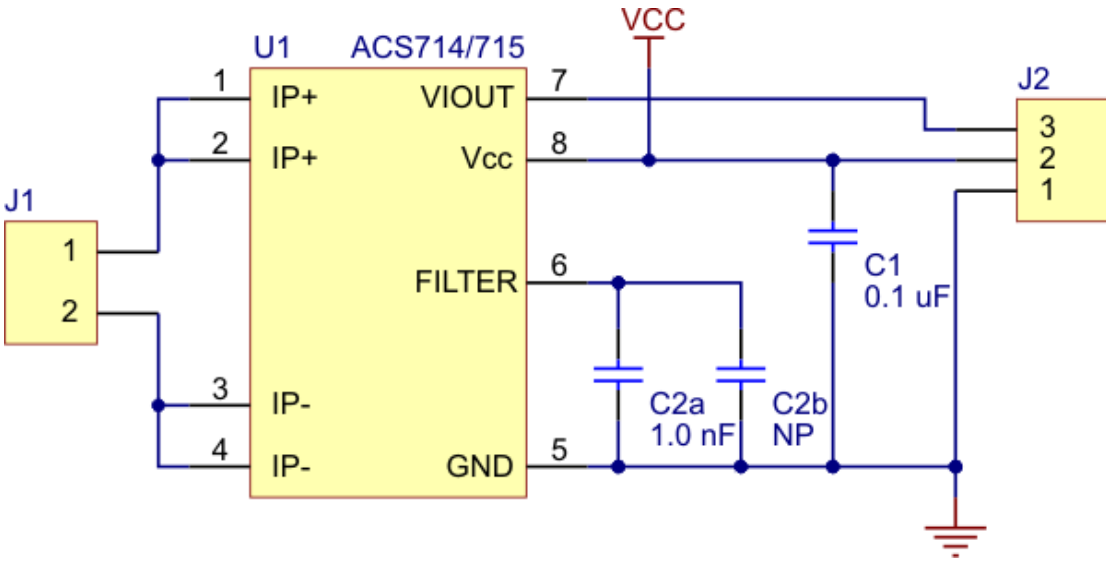
The board has two mounting holes on the logic side of the board. These mounting holes are 0.5" apart and are designed for #2 screws.

FILTERING THE OUTPUT

The IC has an internal filter resistance of 1.7 kΩ, and the carrier board includes a 1 nF filter capacitor, which produces a low-pass RC filter with a 90 kHz cutoff. You can improve sensing system accuracy for low-frequency sensing applications by adding a capacitor in parallel with the integrated 1 nF capacitor across the pads marked “filter” on the bottom silkscreen (this capacitor is labeled C2b in the schematic below). The frequency F that the filter will attenuate to half its original power is given by:

$$F = 1 / (2\pi RC) = 1 / (11k\Omega * (1\ nF + Cf))$$

where Cf is the value of the capacitor added to the filter pads.



Pololu ACS714/ACS715 current sensor carrier schematic diagram.