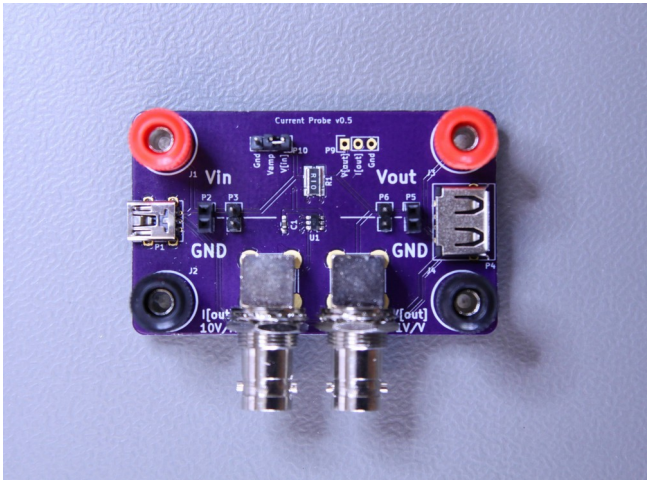


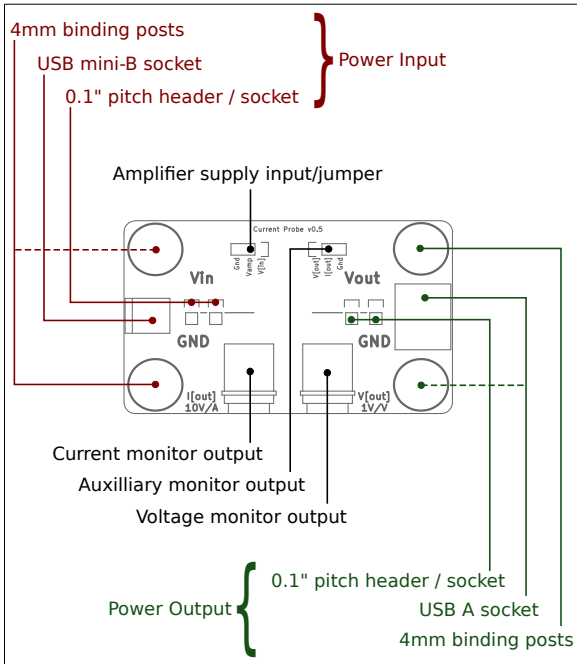
Oscilloscope Current Probe Adapter



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Overview



This instrument passes through power and ground from the input to the output side by a choice of connectors, while monitoring the amount of current drawn by means of a shunt resistor placed in the positive side. All the positive inputs are connected together on one side of the shunt, as are all the outputs connected on the other. The ground connections remain uninterrupted, giving a low-impedance grounding path through the device.

Power input and output may be connected by a choice of 4mm banana plugs, 0.1" pitch header pins or socket, USB connectors, or bare wire wrapped around the binding posts.

The USB sockets have a pass-through connection of the D+ and D- data lines, allowing USB communication to take place.

Monitor Output

The Current Monitor Output BNC connector gives a signal whose voltage level corresponds to the current being drawn by the load. This is amplified such that a current draw of $1mA$ is indicated by a voltage of $10mV$. As the output is referenced to the common ground this may be connected directly to an oscilloscope. If the oscilloscope has a probe attenuation adjustment then it can be set to $\times 0.1$ to cause the displayed values to correspond directly to current readings.

A second BNC connector is connected directly to the output voltage line, and allows the oscilloscope to also indicate the voltage directly. Further to these, 3 connector pads provide the current and voltage output and another ground connection. These pads remain unpopulated to allow the user to solder in pin header or socket if required.

Power Supply

This instrument requires power for the built-in sense amplifier. This power can either come from the line supply that is also powering the load under test, or it can be sourced independently via the supply jumper connector.

To use line-supplied power leave the jumper in place between the $V[in]$ and $Vamp$ pins connecting the amplifier power supply to the

main power input. Using line-supplied power is more convenient but does limit the voltage available on the monitor output. For example, a supply of 3.3V means the highest current it can indicate is 330mA.

To use a separate power source remove the jumper and use the *Gnd* and *Vamp* pins to connect a separate supply of between 3V and 28V. The ground is common with the power input, output and monitor connections. Using a higher voltage here than the main power input gives the amplifier more headroom to indicate larger currents; e.g. a 10V supply could indicate 1A of current, even if the main supply is at a lower voltage.

Limits and Specification

Amplifier voltage range	3V to 28V
Amplifier current supply	<1mA
Current monitor range	up to 1.5A
Current monitor output	10V/A
Relative error	<2%
Bandwidth	1.8MHz
Shunt resistance	0.1 Ω \pm 1%

CAUTION: Do not place this instrument on a metal or other conductive surface while it is powered up. The nuts holding the 4mm binding posts onto the board also serve as feet, and these will short across the conductive surface.