

SIPZ Build Guide & User Manual

Sipz is a breakout board that allows you to measure the current draw of a Eurorack module. It is rated for up to 2A of current, so you could even use it to measure the current draw of a row of your system.

The connection points on Sipz are designed to allow the use of alligator clips, probes, test points, or whatever else you can think of (within reason!) to attach your multimeter or ammeter. To find out how many milliamps/amps are being consumed by your module, you just set the jumpers for whichever rail you're interested in measuring (-12V, +12V, or 5V) and attach your meter's probes.

BUILD

Required Tools

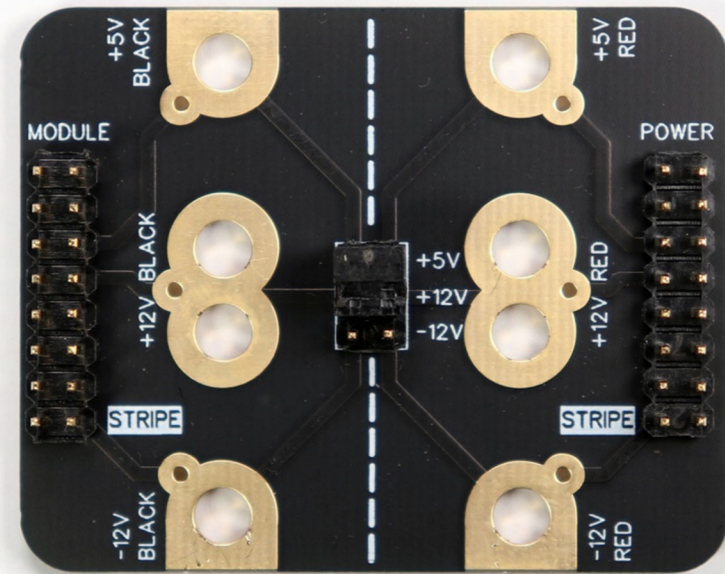
1. Flush cutters
2. Soldering iron & solder

Included with the Kit

1. Sipz PCB
2. 2x20 pin header
3. Two .1" jumpers
4. 16 pin to 16 pin ribbon cable

Build Instructions

1. From the included 2-row pin header, snip: one 3-pin length and two 8-pin lengths
2. Place them in place on the PCB (on the side that does *not* say XOXO)
3. Solder them from the back of the board (you will be looking at the XOXO as you solder)
4. Connect the three jumpers: one in-line with each of the labels (+5V, +12V, -12V)



IMPORTANT: Before continuing, read all of the warnings at the end of this document!

USAGE

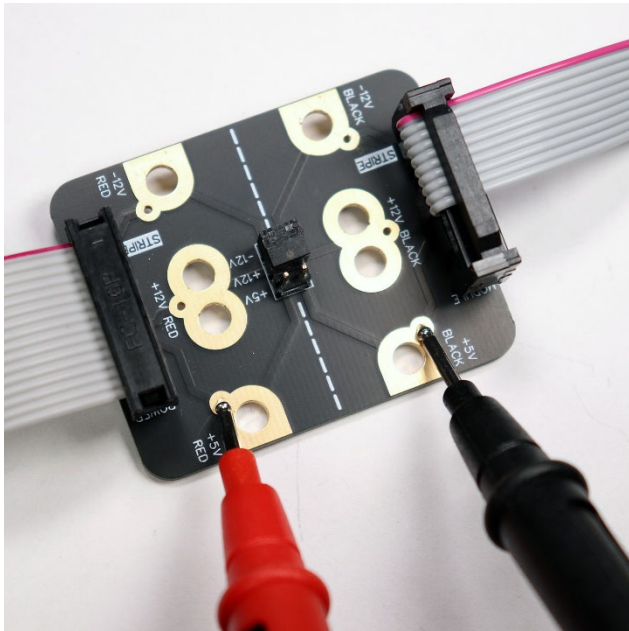
1. Power everything OFF
2. Connect the included ribbon cable from your power supply to the Sipz pin header labeled POWER.
3. Remove the jumper corresponding to the rail that you want to measure. Jumpers should be in place for the other two rails.
4. Connect the power cable from the module to be measured to the Sipz pin header labeled MODULE. *(If you want to measure an entire row of your system – up to 2 Amps – you can connect a flying bus cable to the MODULE header instead)*
5. Set your multimeter to measure DC current. If you have been measuring voltage, you will likely have to change how your probes are plugged in.
6. Connect your probes to the Sipz circuit board as shown on page 2.
7. Turn on your power supply and read the measurement on the meter.
8. Turn off the power supply immediately after taking the measurement.

EXAMPLE CONNECTIONS

The locations for placing positive and negative probes are clearly marked on the circuit board. If the probes are reversed, the module will not receive a voltage on that rail and no current will be measured.

Pay close attention to the markings and the examples on this page to make sure that you are not connecting the positive or negative from one rail to a pad from a different rail!

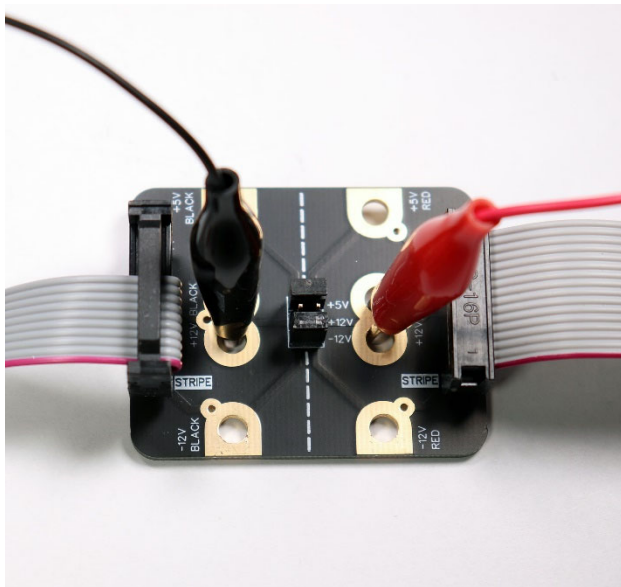
Example 1: Measuring the current draw on the +5V rail. Note that the jumper for +5V is missing, while the other two jumpers are in place.



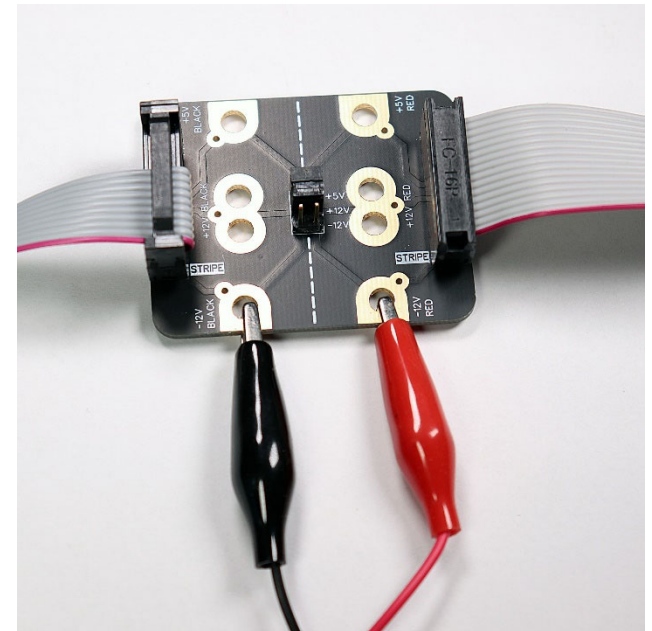
Note the use of the small holes for keeping the probes in place, in Example 1. While this is convenient, it is important to ensure that the board is on a clean, non-conductive surface and that the probes are being held securely in place.

In addition to probes and clips, you could decide to solder single male pin headers, test points, or wires to any of the holes.

Example 2: Measuring the current draw on the +12V rail. Note that the jumper for +12V is missing, while the other two jumpers are in place. This example shows how alligator clips, croc clips, etc. can be used to connect the meter.



Example 3: Measuring the current draw on the -12V rail. Note that the jumper for -12V is missing, while the other two jumpers are in place. Again, alligator clips are being used to connect the multimeter. In this photo, a different method of grabbing the pads is shown.





WARNINGS

Read the following warnings before connecting and using your Sipz breakout.

Avoid short circuits by following these rules:

- **Place the Sipz board on a clean, non-conductive surface. Metal cases, rails, fasteners and bits of wires can cause a short circuit if they contact exposed pads on the top or bottom of the board.**
- **Take care that the probes are connected securely before switching the power supply on.**
- **Sipz is meant to be used only long enough to read your current measurement. Immediately after taking your measurement, turn the power supply OFF and remove all connections.**
- **When preparing to measure a different power rail, turn the power supply OFF before switching jumpers and moving your probes.**

NO WARRANTY

DIY kits from XOXO Modular, including the Sipz current-measuring breakout kit are sold without warranty. Users of the kit are at their own risk. XOXO Modular LLC makes no warranties, express or implied, including, but not limited to, any implied warranties of merchantability or fitness for a particular purpose. XOXO Modular LLC shall not be liable for harm to person or equipment caused through operation of this product, or for any errors or inaccuracies that may appear in this document.

By using this product, you agree to these terms.