Row Power 45
4ms Company
Eurorack Power Module
User Manual 1.0 – June 23, 2020

The **Row Power 45** is a power supply module for the Eurorack modular system. It requires a barrel-style power brick (15V – 20V DC) and provides power to modules via flying bus cables, direction connection, and/or bus boards using the two standard 16-pin Eurorack headers on the back.

Multiple **Row Power** modules can be powered from a single power brick by daisy-chaining with an inexpensive barrel cable. The **Row Power 45** can also be daisy-chained to **Pod** enclosures.

The **Row Power 45** is compatible with the **4ms Power Shield**. This device (sold separately) attaches to the back of the **Row Power 45**, monitors the amount of current being drawn, and measures the voltages of the power rails. This information is transmitted over Bluetooth to be displayed on a phone or tablet.

For custom power systems, the **Row Power 45** has a set of easy to solder holes which fit large gauge wire or MTA156 connectors in order to attach distribution bus boards.

Maximum and recommended power output:
- +12V: 2.0A maximum, 1.5A recommended
- -12V: 1.4A maximum, 1.2A recommended
- +5V: 1.5A maximum, 1.2A recommended

Maximum power output can be expected under normal operating conditions. Recommended power output is guaranteed under extreme temperature and limited airflow conditions.

Power Brick:
- Available wherever **Row Power 45** modules are sold.
- You may use your own power brick if it meets the following specifications:
  - 15VDC to 20VDC
  - Minimum 30W output power
  - Positive center 2.1mm barrel plug
  - Low-noise output

Features:
- Two identical barrel power jacks at top and bottom for daisy-chaining (either jack can be used for power input or chaining)
- On/off switch
- LEDs indicate power rails are functioning
- 25.6mm (1.01") deep with power cable attached
- 22.0mm (0.87") with no power cable (when using solder points)
- 4HP

Installation
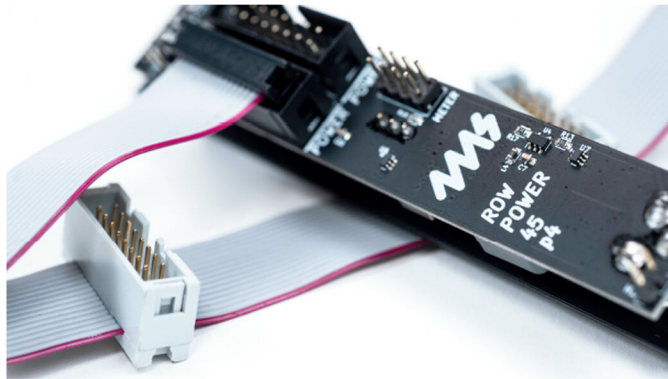
The **Row Power 45** can be used with flying bus cables, multi-power cables, bus boards and other passive distribution systems. There are two male pin headers on the back of the **Row Power 45**. You can use just one of the two headers, or both.

Flying Bus Cables

A flying bus cable has a female connector on one end which can be plugged into the male pins on the back of the **Row Power 45**. The notch on the male pin connector will prevent you from plugging a standard cable in backwards, but it's always good practice to verify that the red stripe on the cable is orientated towards the bottom of the module, facing the white stripe labeled POWER printed beneath the header.

If you have more than one flying bus cable, you can safely daisy-chain them together. You can also daisy-chain a bus stick to the end of the flying bus cable, or vice-versa. However, in some cases you may experience noise issues with the modules at the end of a long daisy-chain. If this happens, you will need to re-position the modules in your case or find a different distribution system in order to avoid daisy-chaining flying bus cables and bus sticks.To insure the lowest noise in a Eurorack system, use the shortest power cables possible and the least number of points of connection.

Direct Connection

You can directly connect any Eurorack module to the **Row Power 45.** Simply plug the 16-pin cable to one of the **Row Power 45**'s 16-pin headers. Verify that the red stripe is facing down on both ends of the cable.

Multi-Power Connectors

These types of cables are similar to flying bus cables, but have multiple female connectors instead of male connectors. They are only a good solution if you intend to power three or less modules which all have the same type of power header (10-pin or 16-pin). Simply plug the 16-pin connector on the end of the multi-power connector to the **Row Power 45,** and then plug the female connectors directly to

your modules. The multi-power connectors sold by 4ms can connect up to three modules and cannot be daisy-chained. For powering over three modules, or for powering modules with a mix of 10-pin and 16-pin headers, we recommend using flying bus cables.

**Bus Stick (or other passive distribution boards)**
Use a standard 16-pin Eurorack power cable to connect the **Row Power 45** to the first header on a Bus Stick. Verify that the red stripe is pointed down on both ends of the cable. Other passive power distribution boards can also be used with the **Row Power 45** if they have a standard 16-pin Eurorack power header for receiving power. Power distribution boards that require a different kind of connection may be able to use the **Row Power 45**'s solder holes (see below).
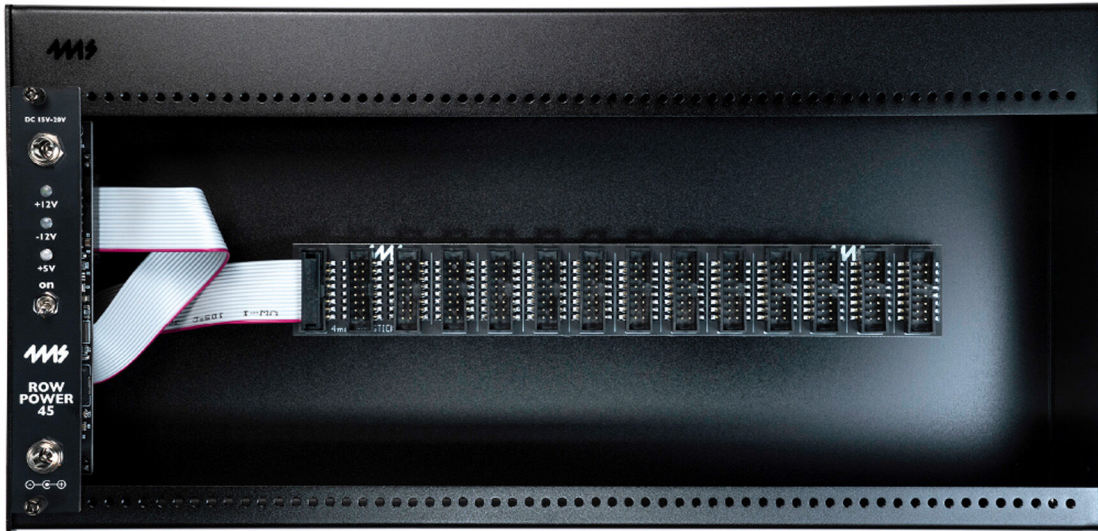
A Bus Stick installed in a Pod64X is shown above. The Bus Stick can be secured to the case using the adhesive pads on the back. When mounting, make sure the surface is clean and apply pressure for 20 seconds. It's safe to daisy-chain a flying bus cable or another Bus Stick, but to insure minimal noise, it's best to avoid this practice.

Solder Holes (MTA156 or wires)
The **Row Power 45** has a set of four holes for +12V, -12V, +5V, and ground (GND). The holes are 0.082" (2.1mm) in diameter and are spaced 0.156" (3.96mm). They fit the Molex MTA156 connector (example: Molex PN: 5273-04A or 09652048), and will also fit 14 AWG wire.
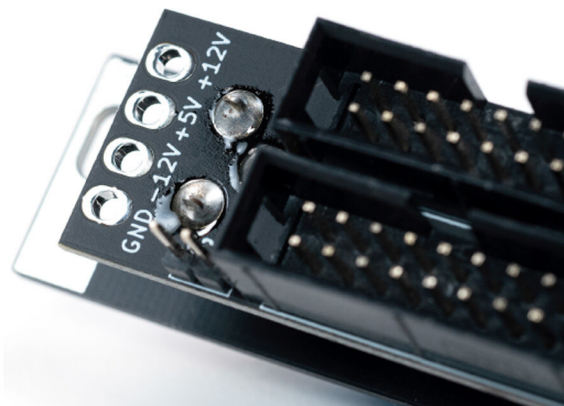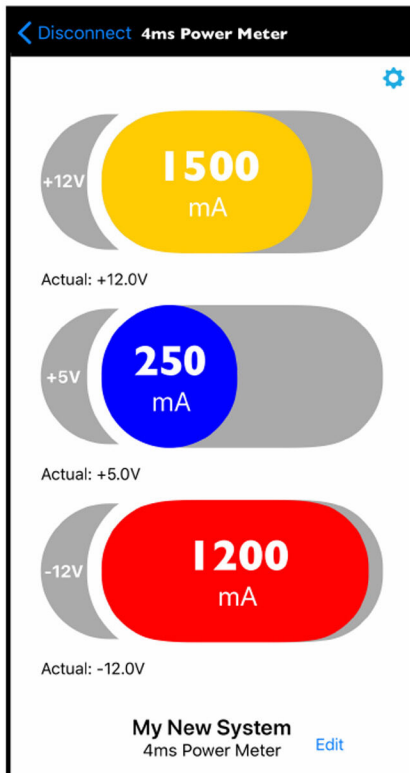

These connectors are provided for advanced users with sufficient knowledge of soldering and power systems. They can be used with a custom or specialized low-noise bus board system. While 4ms Company will provide a warranty and support the internal circuitry of the **Row Power 45**, we do not offer support for 3rd party or DIY bus boards or distribution systems, or any damage to the **Row Power 45** due to malfunctions of 3rd party or DIY power system components.

4ms Row Power Shield

The **Row Power 45** is compatible with the **Row Power Shield**, a device that monitors your current usage, measures voltage levels and transmits this information to a phone or tablet app. The circuitry is designed so that the **Row Power Shield** does not cause a voltage drop or add noise. The **Row Power Shield** is installed onto the METER header of the **Row Power 45** by following the instructions in the **Row Power Shield** manual.

Once installed, use your **Row Power 45** normally. When there's activity on the **Row Power Shield** (for example, when connecting to a phone or tablet), the +5V light will change from red to purple.

See the **4ms Row Power Shield** manual for details.

Row Power Shield App