



12V/5V Power Supply Hookup Guide

Introduction

The 12V/5V (2A) power supply is great for powering a microcontroller and an LEDs. In this tutorial, we will replace the power supply's molex connector with two male barrel jacks adapters.



Power Supply - 12V/5V (2A)

TOL-11296

Required Materials

To follow along with this tutorial, you will need the following materials. You may not need everything though depending on what you have. Add it to your cart, read through the guide, and adjust the cart as necessary.

Wishlist for 12V/5V Power Supply Hookup Guide_SparkFun Wish List

Product	
	<u>Power Supply - 12V/5V (2A)</u> TOL-11296
	<u>Power Cable - 7A IEC C13</u> TOL-11299
	<u>DC Barrel Jack Adapter - Male</u> PRT-10287
	<u>DC Barrel Jack Adapter - Female</u> PRT-10288

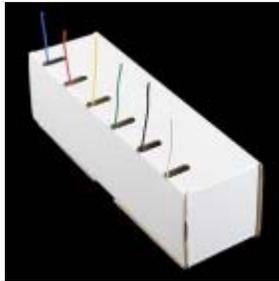
Tools

You will need a soldering iron, solder, general soldering accessories, and the following tools.



Digital Multimeter - Basic

TOL-12966



Hook-Up Wire - Assortment (Solid Core, 22 AWG)

PRT-11367



Solder Lead Free - 100-gram Spool

TOL-09325



Flush Cutters - Hakko

TOL-11952



Diagonal Cutters

TOL-08794



Wire Strippers - 30AWG (Hakko)

TOL-12630

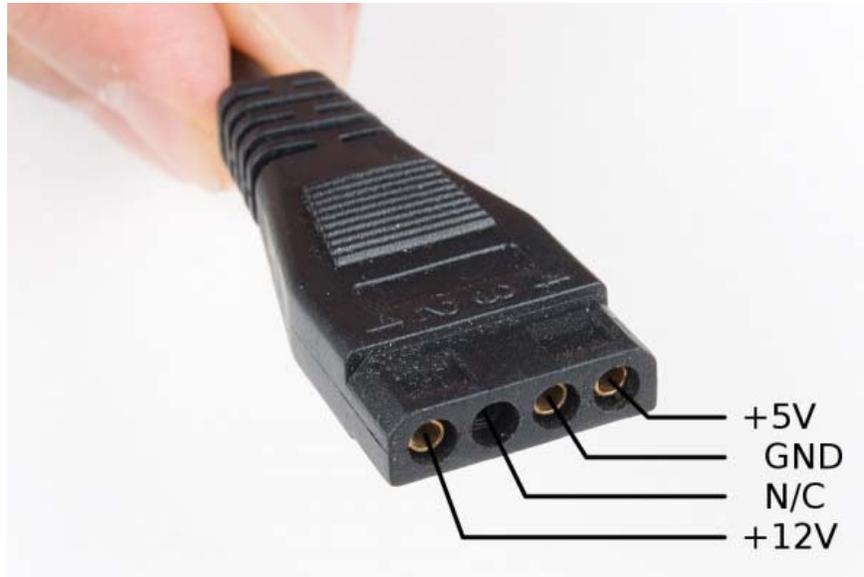


Weller WLC100 Soldering Station

TOL-14228

Hardware Overview

The power supply's pinout is shown below. The connector's molding will have numbers associated with the output to help identify the connection. You will also notice that the connector is polarized with the two chamfered corners.



Pinout Table

Warning! Depending on the manufacturer, the colors of the wires inside the sheath may vary. Make sure to test the connection with a multimeter before connecting to a load and powering your circuit up!

The following table describes the molex connector's pinout and what color the wire may look like.

Molex Pinout	12V/5V Power Supply	Notes
1	+12V	"Red"
2	N/C	May Not Be Not Connected
3	GND	"Yellow"
4	+5V	"Black (or White)"

Hardware Hookup

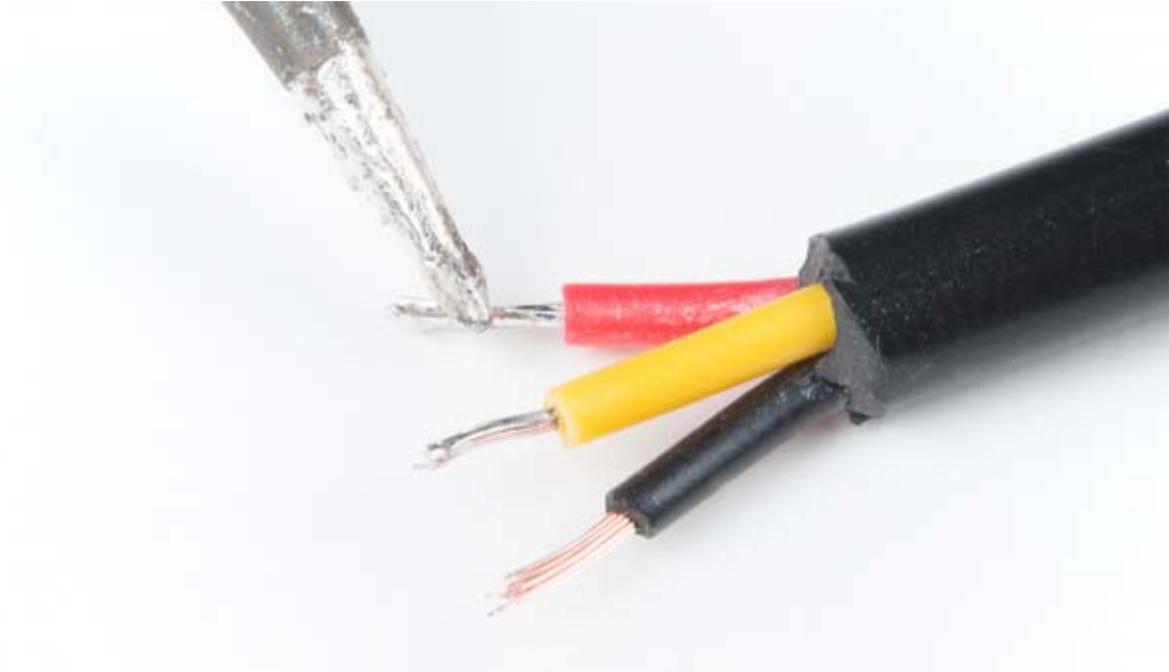
Cut the cable about 1-2 inches from the molex connector.



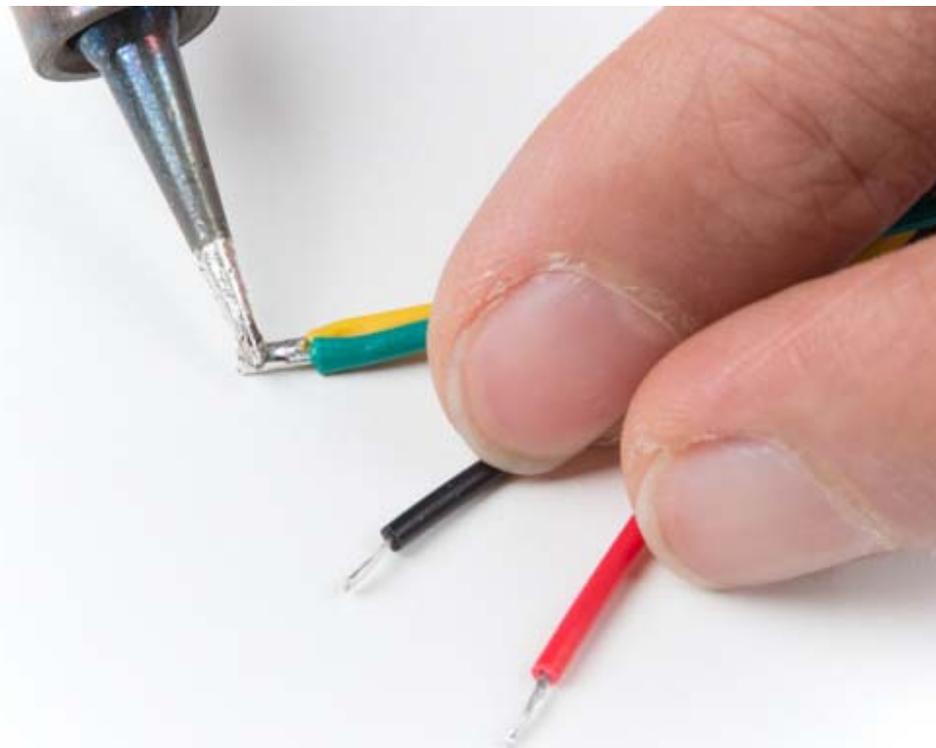
Cut into sheath with the flush cutter. Pull it back just enough so that you have enough room to work with the wires. Be careful not to cut yourself!



Strip the power supply's three wires. The wires are stranded so feel free to tin the wires by adding solder to the tips.



Then cut and strip a piece of hookup wire. Solder it to the ground wire.



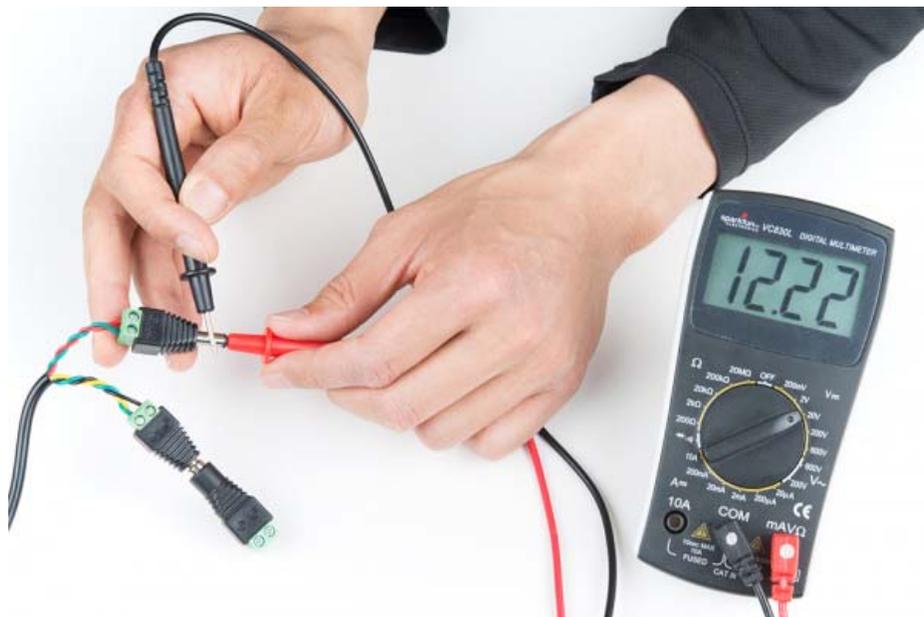
Braid the wire and insert into a barrel jack connector. Secure the wires in the screw terminal with a Phillips head. Feel free to add some heat shrink or electrical tape to the connection at this point.



Note: Using screw terminals is one method of modifying the 12V/5V power supply. For a more secure connection, try splicing the wires to a polarized connector and adding heat shrink to your connection. You can also use a USB connector for the 5V side depending on your personal preferences.

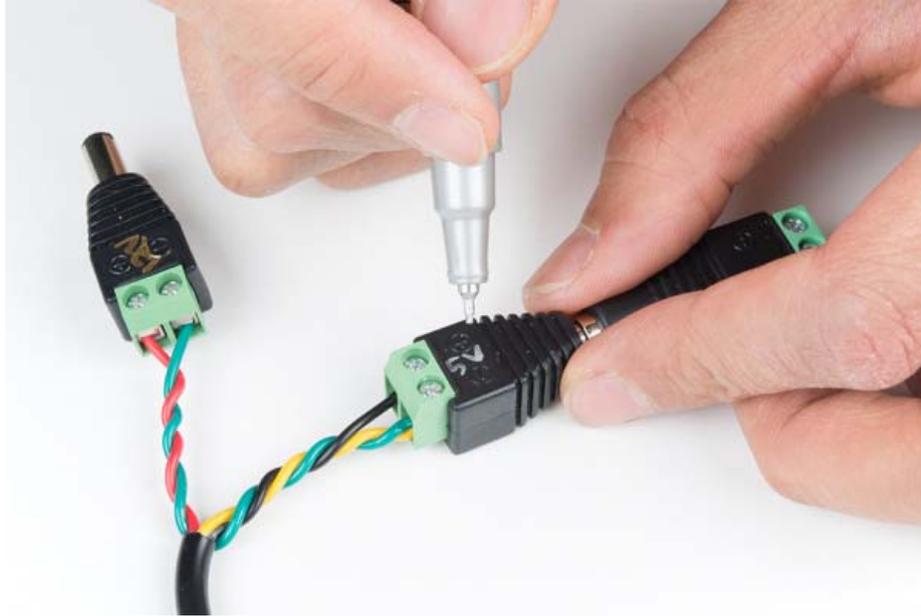
Test the Output

Power the power supply and test with a multimeter to verify the voltages. Usually power supplies are center positive so make sure that the wires were inserted correctly. Adjust as a necessary for your system.



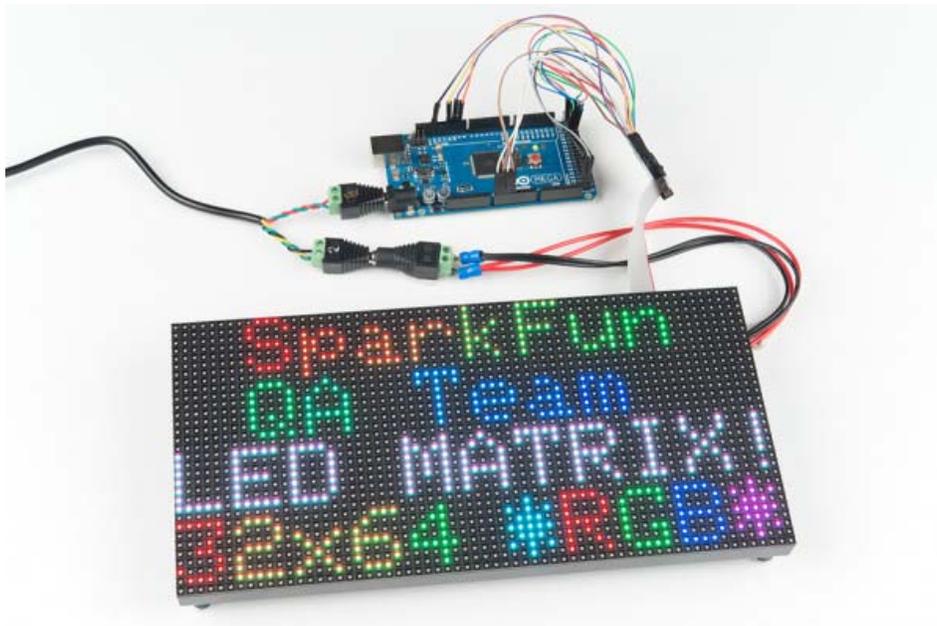
Label the Output

Using a Sharpie, clearly label the barrel jack connector's voltage relative to the output. Feel free to add an additional barrel jack when not in use.



Power Your Circuit!

Connect the power supply to your circuit and power it up! I personally use the power supply as a tool for basic testing. Usually the 12V side is connected to an Arduino's barrel jack. The 5V output is used for more power hungry loads such as the the RGB LED Matrix or a few meters of addressable (WS2812B, APA102, etc) LEDs.



Arduino Mega 2560 and 32x64 RGB LED Matrix Powered by the 12V/5V Power Supply

Troubleshooting

Certain power supplies have a lot of noise. While 12V/5V power supply works great with a microcontroller and a LED strip, it may not work as well when you attach a capacitive touch sensor to the system. The power supply lacks proper filtering and causes the potentiometer to have a lot of latency. You can try to add additional circuitry to fix it since the current power supply has a lot of noise. However, it would be easier to use two separate power supplies or a more robust power supply such as a Meanwell.



Example PWM Lighting Controller from the Touch Potentiometer Hookup Guide

Resources and Going Further

Now that you've successfully got your 12V/5V power supply up and running, it's time to incorporate it into your own project!

For more information, check out the resources below:

- [Molex Connector Pinout](#) - Pinout of one power supply. Remember, wire color may vary depending on your manufacturer.
- [Wikipedia: Molex Connector](#)
- [SparkFun Eagle Libraries](#) - Check out the Eagle part for the molex connector in our libraries.

Need some inspiration for your next project? Check out some of these related tutorials that uses the 12V/5V (2A) power supply.

RGB Panel Hookup Guide

Make bright, colorful displays using the 32x16, 32x32, and 32x64 RGB LED matrix panels. This hookup guide shows how to hook up these panels and control them with an Arduino.

Large Digit Driver Hookup Guide

Getting started guide for the Large Digit display driver board. This tutorial explains how to solder the module (backpack) onto the back of the large 7-segment LED display and run example code from an Arduino.

How to Build a Remote Kill Switch

Learn how to build a wireless controller to kill power when things go... sentient.

Building a Safe Cracking Robot

How to crack an unknown safe in under an hour.