

How to Test an ATX Power Supply

Although there are portable power supply testers on the market that are inexpensive, it often becomes necessary to test whether a power supply is good or bad with only a multi-meter handy. The following steps detail how to perform this.

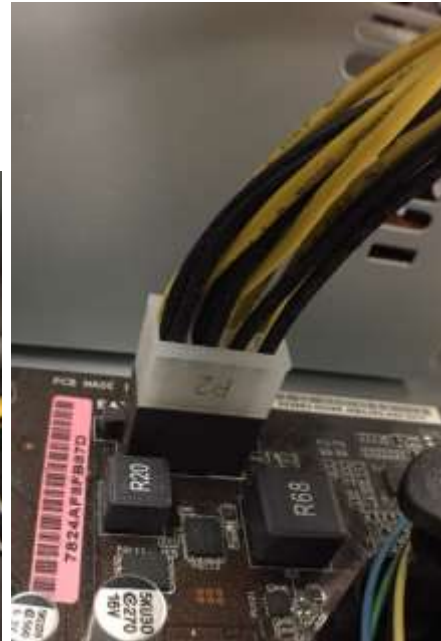
WARNING: When working with electricity always follow proper safety procedures. Remove jewelry from your hands. Do not attempt to open enclosures labeled "Non-Serviceable" or with warnings of electric shock. Do not touch capacitors which may still be holding an electric charge.

Steps:

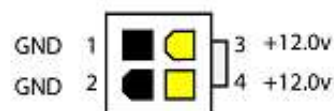
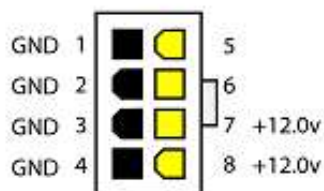
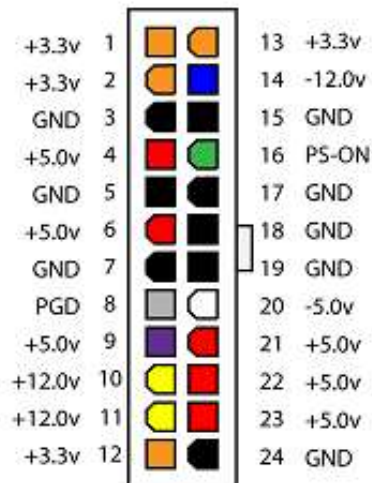
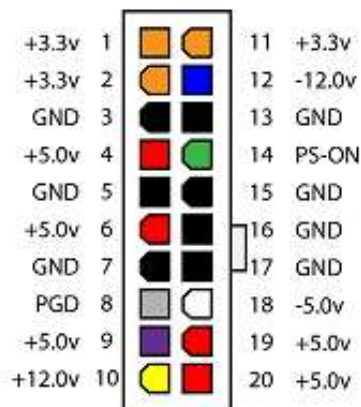
1. Power down the system and remove the power cable(s) from the device.
2. Open the server case and unplug the power connectors inside.
 - Follow the large bundle of wires from the power supply to the motherboard. You will find a large, plastic connector. This is typically white but may also be black.
 - Press the release down on one side of the connector and pull up to remove it.



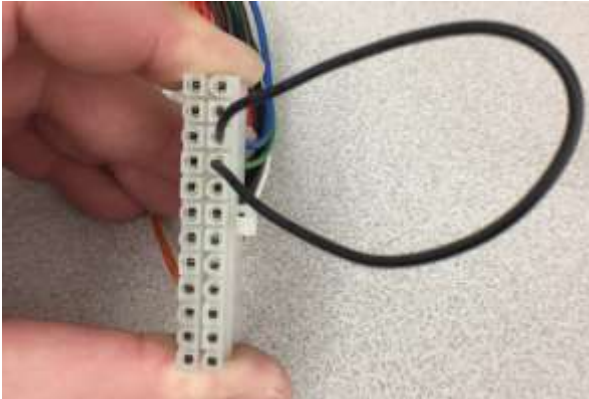
- A smaller bundle will connect to a 4 or 8-pin connector elsewhere on the motherboard. Disconnect these as well.



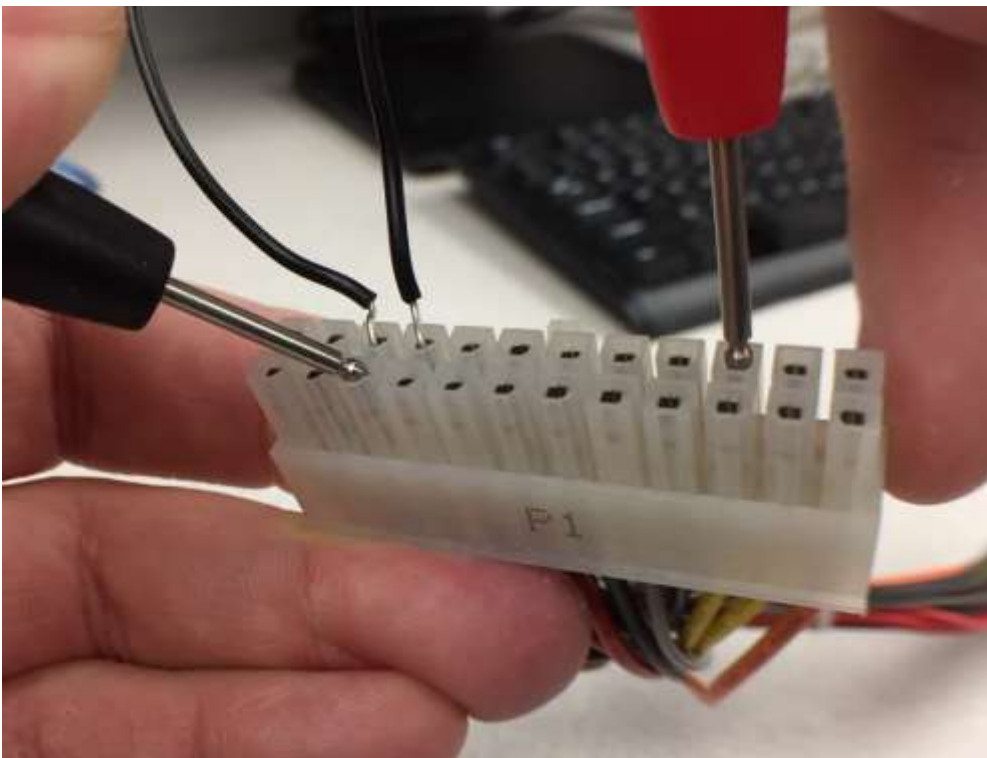
- It is not necessary to remove the entire power supply from the chassis; just pull the connectors to a place you can easily access them.
- Examine the pinout diagrams. While some machines may have a 20-pin connector, others will have a 24-pin connector. With the pins facing you and the release clip towards the right the top-left pin will be pin number 1 and follow down the left side before beginning again at the top of the next column.



4. You will need a short piece of wire to use as a jumper for the next step. If you have a 20-pin connector, insert the ends of the wire into pins 13 and 14 to short out this connection. If you have a 24-pin connector, insert the wire into pins 15 and 16
 - 20-pin --> 13 to 14
 - 24-pin --> 15 to 16



5. Plug in the power supply. If it has no power switch you should hear the fan come on. If it does have a power switch, turn the unit on.
6. If you have an Auto-Ranging multi-meter you can just set it to DC Voltage. If you have a traditional multi-meter, set the dial to the 10-Volt setting.
7. Place the black (-) probe from your multi-meter on any of the pins labeled Ground (GND). Place the red (+) probe on the first pin and work your way around to each pin.



- Make a note of the voltage reach from each pin. [Click here](#) for a printable worksheet to record these readings.



8. Compare the values from your meter readings to the value that should be supplied.

Note: These will almost never be exactly 3.3, 5.0 or 12.0 volts. Your actual meter readings should fall between the minimum and maximum voltage tolerances.

If your readings are above or below the allowable tolerances, noted on the [worksheet](#), for that pin the power supply should be replaced.