

Power Supply Reference - [Test A Power Supply With A Paperclip](#)



Standard power supplies turn the incoming 110V **or** 220V AC (Alternating Current) into various DC (Direct Current) voltages suitable for powering the computer's components.

Power supplies are quoted as having a certain power output specified in Watts, a standard power supply would typically be able to deliver around 350 Watts.

The more components (hard drives, CD/DVD drives, tape drives, ventilation fans, etc) you have in your PC the greater the power required from the power supply.

By using a PSU that delivers more power than required means it won't be running at full capacity, which can prolong life by reducing heat damage to the PSU's internal components during long periods of use.

Always replace a power supply with an equivalent or superior power output (Wattage).

There are 3 types of power supply in common use:

- **AT Power Supply** - still in use in older PCs.
- **ATX Power Supply** - commonly in use today.
- **ATX-2 Power Supply** - recently new standard.

The voltages produced by AT/ATX/ATX-2 power supplies are:

- **+3.3 Volts DC** (ATX/ATX-2)
- **+5 Volts DC** (AT/ATX/ATX-2)
- **-5 Volts DC** (AT/ATX/ATX-2)
- **+5 Volts DC Standby** (ATX/ATX-2)
- **+12 Volts DC** (AT/ATX/ATX-2)
- **-12 Volts DC** (AT/ATX/ATX-2)

A power supply can be easily changed and are generally not expensive, so if one fails (which is far from uncommon) then replacement is usually the most economic solution.

The power supply connectors



4 Pin Berg Connector

Used to connect the PSU to small form factor devices, such as 3.5" floppy drives.
available in: AT, ATX & ATX-2



4 Pin Molex Connector

This is used to power various components, including hard drives and optical drives.
available in: AT, ATX & ATX-2



20 Pin Molex ATX Power Connector

This is used to power the motherboard in ATX systems.
available in: ATX(ATX-2 have four extra pins)



4 Pin Molex P4 12V Power Connector

Used specifically for Pentium 4 Processor Motherboards.
available in: ATX (integrated into the power connector in ATX-2)



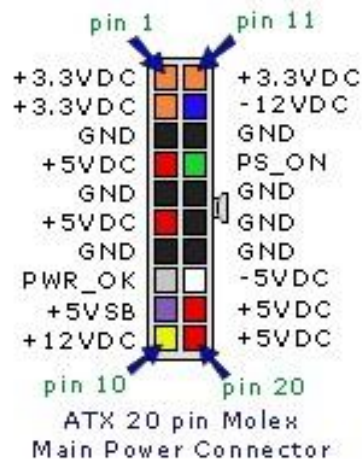
6 Pin AUX Connector

Provides +5V DC, and two connections of +3.3V.
available in: ATX/ATX-2

ATX Power Supply Pinouts

Below are pinout diagrams of the common connectors in ATX power supplies.

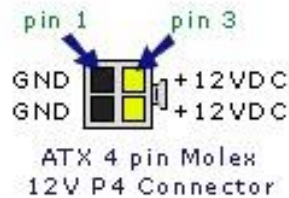
diagrams with pins facing forward



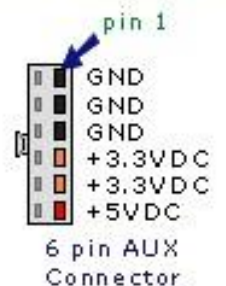
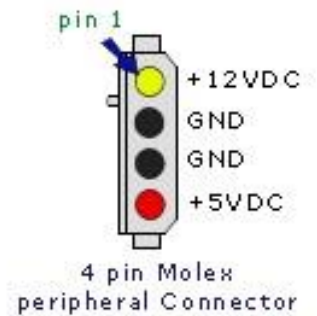
(c) helpwithpcs.com



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note: The pinouts above relate to the connectors not the sockets.

note: To power up an ATX or ATX-2 PSU for testing, short pin 14 (PS_ON) with one of the grounds.

Motherboard Pin Outs

24-pin ATX, main plug on motherboards (short pin 16 to any GND to turn the PSU on)

http://pinouts.ru/Power/atx_v2_pinout.shtml

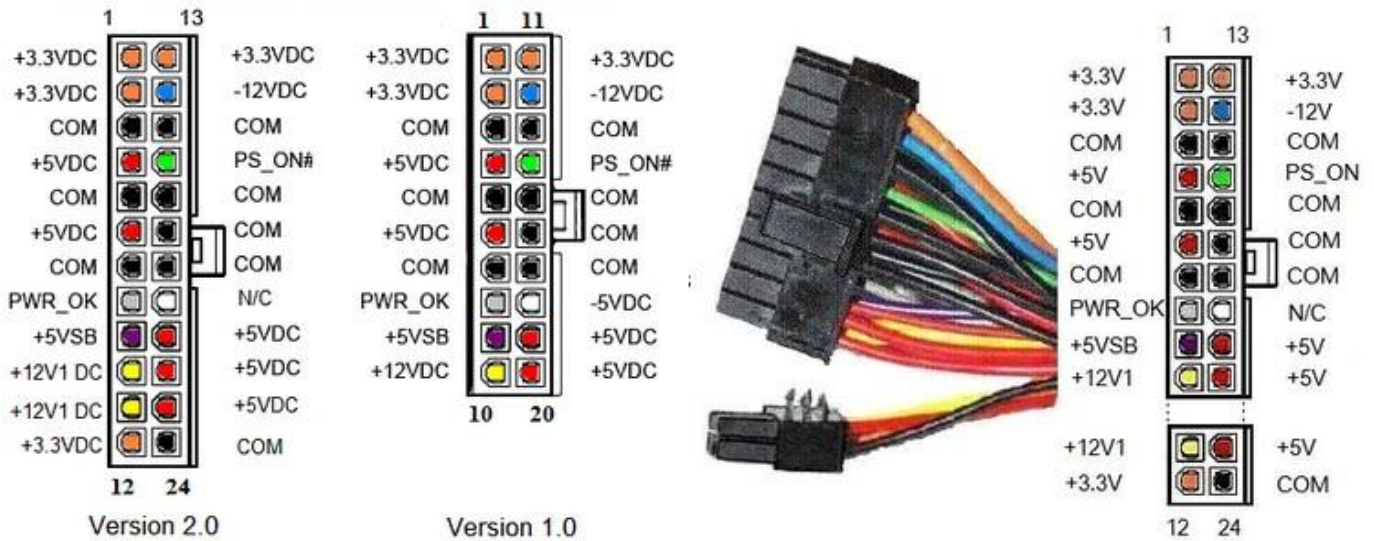
20-pin ATX, main plug on older motherboards (short pin 14 to any GND to turn the PSU on)

http://pinouts.ru/Power/atxpower_pinout.shtml

ATX Power Supply Pinout Tables

[Pinout Tables for ATX v2.2 Power Supply Connectors](#)

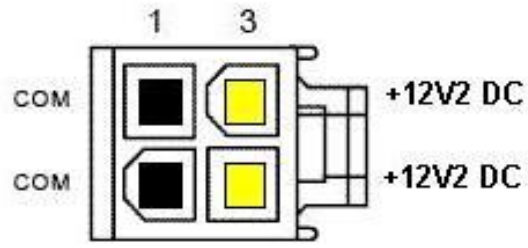
MAIN POWER CONNECTOR (PIN-SIDE VIEW)



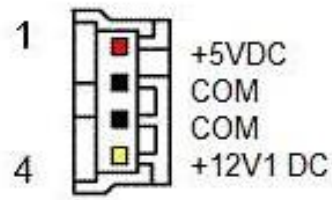
To power up a stand alone PSU for testing purposes, you need to short PS_ON pin with one of the common pins. Normally, PS_ON is activated when you press and release the computer power button while it is in standby mode. All voltages are referenced to the same common (if you need to measure a voltage, touch the return lead of your voltmeter to any of the COM pins).

Note that between 1996 and 2000 Dell used proprietary (non-standard) power supplies and motherboards with entirely different pinouts.

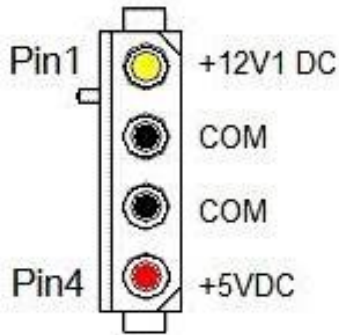
For more details go to <http://www.smpsowersupply.com/connectors-pinouts.html>



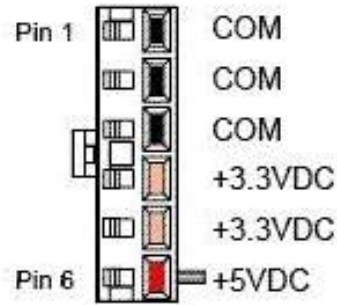
+12V2 DC Connector



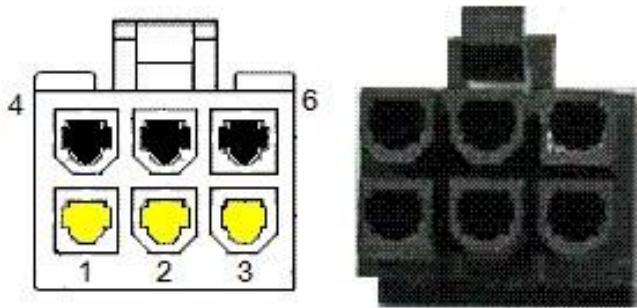
Floppy Drive Connector



Peripheral Connector

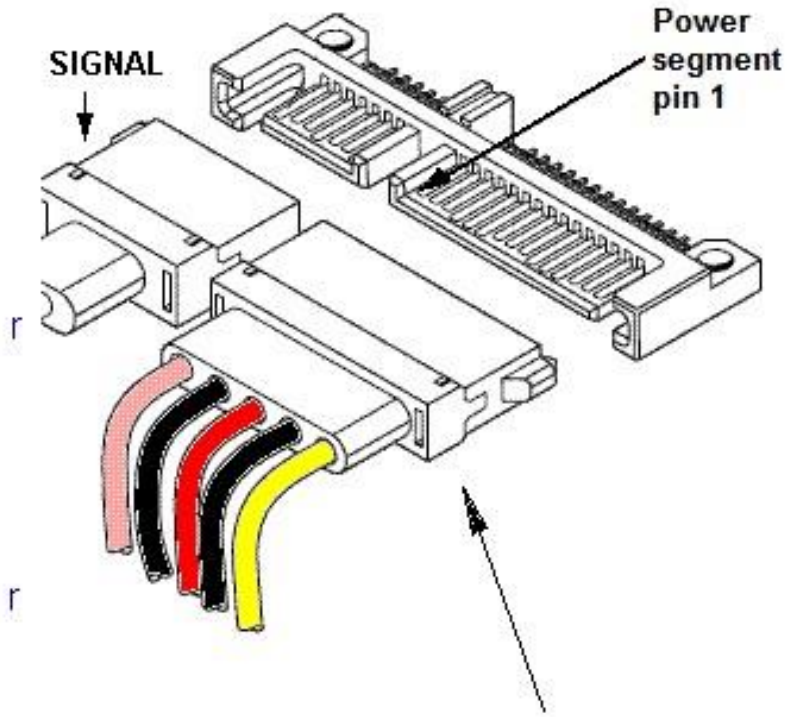


Aux Power Connector
(ATX12V v.1)

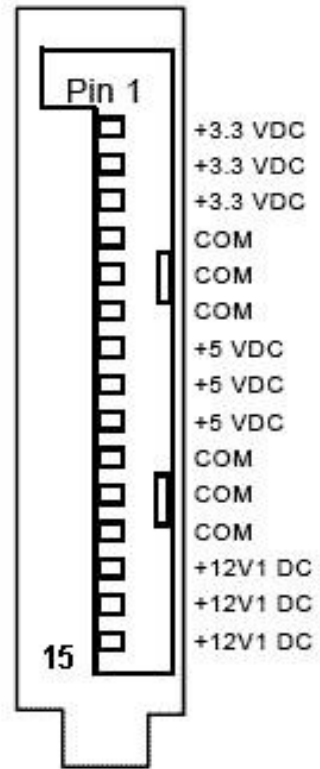


PCI Express®
power connector
1,2,3 +12V
4,5,6 COM

For more details go to <http://www.smppowersupply.com/connectors-pinouts.html>



SERIAL ATA POWER CONNECTOR



Courtesy of <http://www.smpspowersupply.com/>