

How do I power my DC-DC PSU on my workbench?

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How do I power my DC-DC PSU on my workbench? FAQ: How do I power my DC-DC PSU on my workbench? you've got your computer put together (or it arrived UPS) and you're ready to load the operating system, front end, navigation application, support software, and maybe even a pretty skin for the front end. But it's raining outside and you really don't feel like sitting in your car for a Windows installation. You also want to test the shutdown capabilities of the PSU to make certain it's all setup the way you want it to behave.

Well, you can use a spare ATX power supply to provide 12v to the PSU. This FAQ will show you how to accomplish that so you can tweak and customize your vehicle computer inside. These instructions only show you the "poor mans" method. There are certainly other ways to power your setup inside, but this method uses parts that most of us geeks have lying around.

Required components

- (1) ATX power supply that provides sufficient power on the 12v rail. Typically, 10A-15A should be sufficient. You can get the ratings from a sticker on the side of the PSU.
- (1) 3-pin HDD pass-thru adapter like this one.
- (1) low-voltage switch that will maintain on/off state
- (3) Terminal connectors that are suitable for your DC-DC PSU or SDC
- 14AWG Wire (thicker wire may be used, but it may be unwieldy to work with)
- Method of connecting wires (solder/heatshrink or crimp connectors are preferred)

Background information

An ATX power supply provides 12v DC power to the motherboard and to components like hard drives, optical drives and the like. This is the same input voltage that is required for your DC-DC power supply or shutdown controller. To utilize the 12v DC from the ATX power supply, you need to do two things:

- 1) Wire the DC-DC power supply's inputs to a 12v source from the ATX power supply. The easiest place to get the 12v is the HDD connector.
- 2) Fool the ATX power supply to believe it's connected to a motherboard and powered on, so it will supply 12v

In addition, you'll want a switch in order to simulate turning ignition on and off to insure that the shutdown capabilities of your DC-DC PSU (or standalone shutdown controller) work the way you want.

The hard drive molex connector provides power in two voltages, +5v and +12v. The yellow wire is 12v and the red wire is 5v. The two black wires are both grounds. The yellow wire will provide power to the DC-DC PSU, as well as to the ACC line for startup/shutdown control.

This procedure assumes that you have your computer assembled properly and the DC-DC PSU or SDC setup is wired correctly to the motherboard, including the two-wire connector that goes to the power switch header on your motherboard!!!

Assembly

Connector to fool the ATX power supply

- 1) Cut the three-pin fan header off about halfway along the wire.
- 2) Strip the wire that goes to the outer pin and connect it to the unused outer pin on the 3-pin fan header.

Connector for the DC-DC PSU

- 1) Cut the female end off the pass-thru connector as close to the female end as possible. Discard the female connector.
- 2) Extend the yellow (+12v) and a black (ground) wires to your desired length. Six inches or so should be more than sufficient.
- 3) Attach terminal connectors to the extended +12v and ground lines.
- 4) Connect the thinner wire that went to the HDD connector to the input side of the switch.
- 5) Connect another wire to the output side of the switch and attach a terminal connector to the other end of that wire.
- 6) Connect the +12v, ground and switched lines to their appropriate terminals on the DC-DC PSU or SDC, it matches the following diagram:

Usage

You now have two connectors. One is connected to your PSU at one end and a HDD connector to the other end. Make

certain this is wired up first. Also, make certain the switch is in its off position.

The other connector (the 3-pin fan header) goes into the ATX connector that would normally go into the motherboard. The two outer pins of the fan header should fit nicely into pins 13 & 14 of that connector. You can locate the correct pins in this diagram:

The wire colors may or may not be the same!

Plug the ATX power supply into the wall and turn it on, if required.

At this point, cross your fingers, pray to your deity and turn on the switch in your homemade adapter. When the switch is in the on position, you should get +12v to your IGN line of your DC-DC PSU or SDC, which should send the pulse to the motherboard and initiate booting of the PC.