

Thursday, July 3, 2008

What is Remote Sensing?

Most medium to high power AC-DC power supplies and DC-DC converters have "Remote Sense" connection points (+/- Sense) that are used to regulate the supply's output voltage at the load. Since the cables that connect a power supply's output to its load have some resistance, as current flows it will cause a voltage drop in the cables. Since it is best to regulate the voltage at the load site, the use of the two Remote Sense wires connected from the supply to the load will compensate for these voltage drops.

Typical remote sensing circuits are capable of correcting from 0.3V to 1.0V of voltage-drop in the output cables. However, to be sure, always check your power supply's instruction manual to determine the maximum remote sense compensating range. If the voltage drop across the cables exceed the range of the remote sense circuits, this can be remedied by either reducing the length of the cables or increasing the size of the cable's conductors. The remote sense leads carry very little current, so light gauge wires can be used. Steps should be taken to ensure the remote sense wires do not pick up noise by either twisting the +/- Sense wires together and/or shielding the wires from noise. It is important to observe the correct polarities, i.e., the +Sense wire should connect at the load to the +V output cable and the -Sense wire should connect at the load to the -V output cable. Refer to Figure 1.

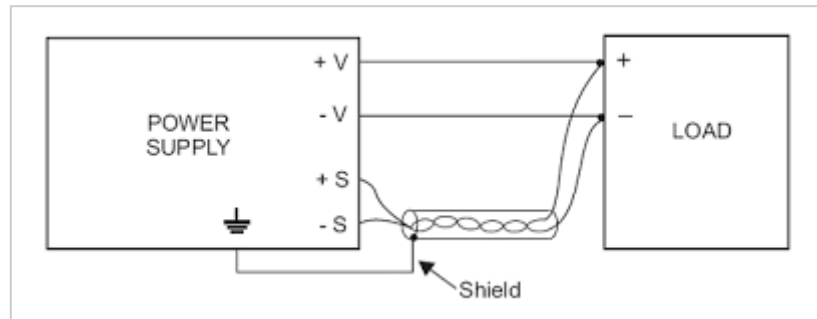


Fig. 1: Power Supply with Remote Sense Wires Connected at the Load

When not using the remote sense feature, Local Sense (LS) connections should be used. In this case the +/-Sense points should be connected to their corresponding output or local sense terminals at the power supply (+Sense to +V output or +LS and, -Sense to -V output or -LS). Most power supplies are shipped from the factory with these "Local Sense" connections in place. Refer to Figure 2.

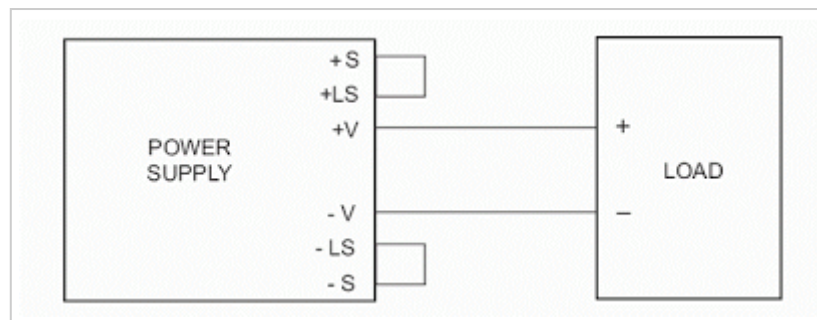


Fig. 2: Power Supply with Local Sense Jumpers Installed

Posted by [Power Guy](#)