

## Measuring Line and Load Regulation

Line regulation is the module's ability to maintain a constant output voltage as the line (input) voltage changes. Load regulation is the module's ability to maintain a constant output voltage as the load current changes.

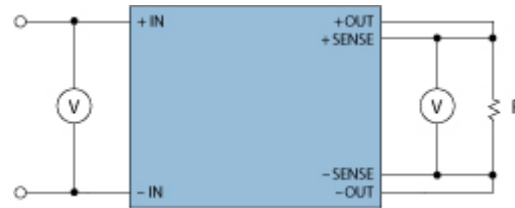
Line and load regulation are two of the most common types of converter measurements. Although straightforward, there are some simple guidelines that will help insure accurate readings.

To check the module for regulation, measure the output voltage at the sense pins (+SENSE and -SENSE). There is virtually no current flowing through the sense leads, and consequently no appreciable drop across them. Therefore, measuring at the sense pins is equivalent to measuring at the point where the sense leads are connected to the output leads.

In contrast, there can be a significant voltage drop between the module's output terminals and the load. This voltage drop, which varies with load current, can cause erroneous regulation values.

The remote sense terminals should always be connected to the output either at the output terminals or at the load. (Connect - SENSE to -OUT and +SENSE to +OUT.)

**Line Regulation** Connect a DVM to the sense terminals. Vary the input voltage from minimum to maximum. The output voltage change, as a percentage of nominal output voltage, is the line regulation. See *Figure 7a*.



**Figure 7a** Detail of line (input) regulation measurement circuit

**Load Regulation** Connect a DVM to the sense terminals. Vary the load current from zero to maximum. The output voltage change, as a percentage of nominal output voltage, is the load regulation. See *Figure 7b*.



**Figure 7b** Detail of load regulation measurement circuit