Tuesday, August 5, 2008
# Power Supplies with Wide Range Adjustable Outputs

For some power supply applications it is desirable to change the output voltage over a wide range. There are a number of ways to control the output voltage of power supplies that are designed to provide wide adjustment ranges. Remotely adjustable output voltages can be implemented by using one of the following methods.

Variable Voltage Control
In this case an external variable control voltage (e.g., 1-6V) is connected to the designated input of the power supply, sometimes called the PV input. As the input control voltage is varied it will cause the output voltage to change in a fairly linear fashion over a wide range (e.g., 20% to 120% of the nominal output voltage). For some applications this is a low cost method of providing a programmable power supply. Below are diagrams showing an example of this type of remote voltage adjustment for Lambda's HWS/PV and SWS-L series of power supplies.
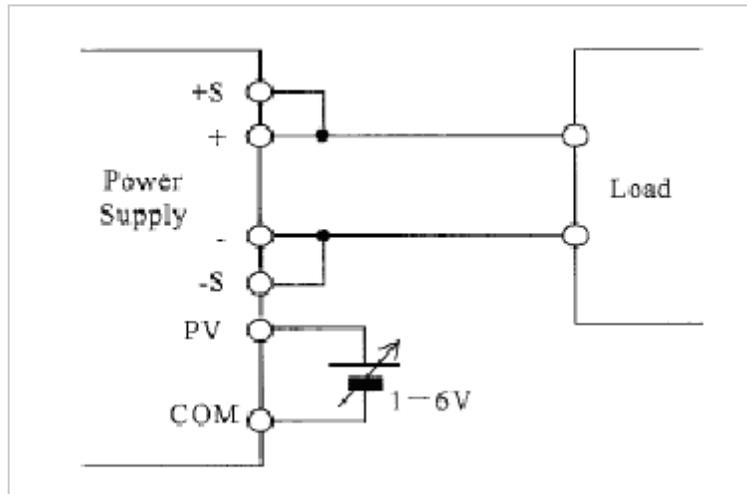
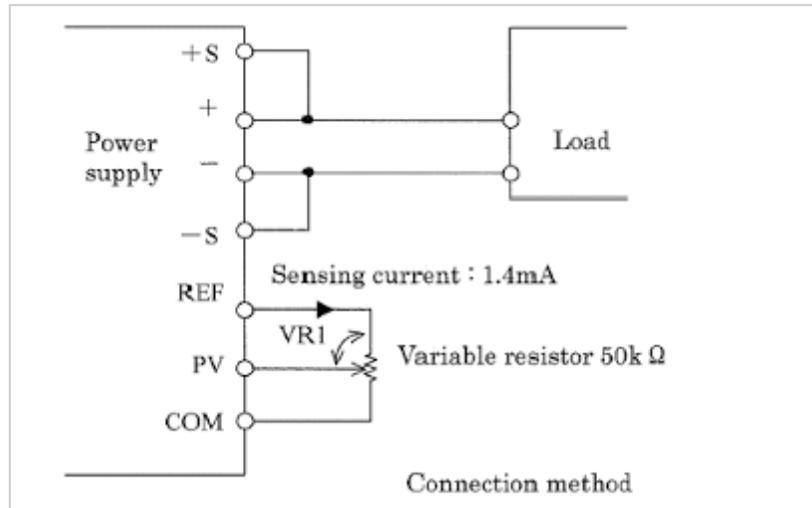**External Variable Voltage Control (1-6V)**
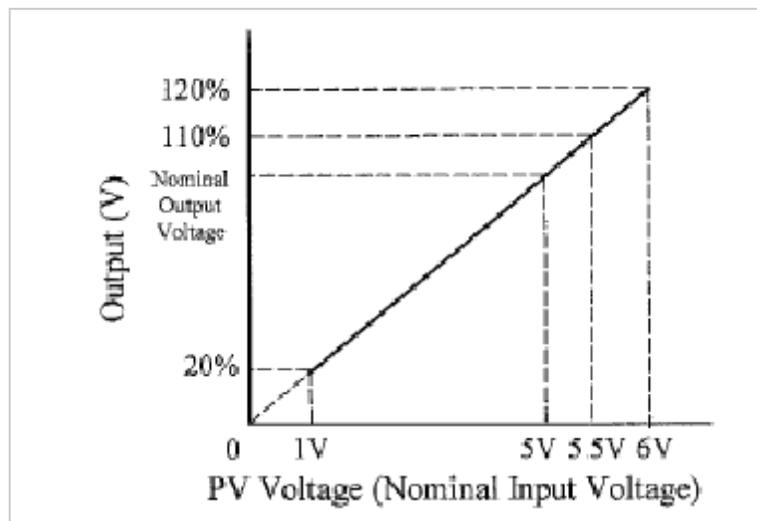
Output Voltage Change (20-120%) with Ext. Variable Voltage Control (1-6V)
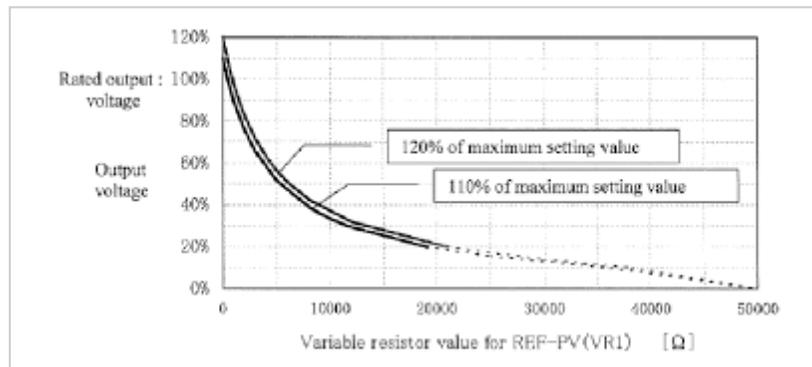

Variable Resistive Control
Some power supplies can be remotely adjusted via a variable resistive control (external potentiometer). This method has the advantage that an external voltage is not required since an internal Ref. voltage is

provided by the supply. As the resistance changes, it will cause the output voltage to change in a non-linear fashion over a wide range (e.g., 20% to 120% of the nominal output voltage) as shown in the diagrams below (Lambda's HWS/PV series). For some applications this is a low cost method of providing a programmable power supply.


External Variable Resistive Control (50k ohm pot.)

Output Voltage Change (20-120%) with Ext. Variable Resistive Control (50k ohm pot.)

Serial Digital Control
Programmable Power Supplies can be remotely controlled via a serial digital port such as RS232 or RS485. Both the output voltage and current can be controlled from zero to the maximum output ratings. In addition, alarm signals from the supplies can be sent back to the remote computer or controller via the same digital link. Programmable Power Supplies are more expensive than wide adjustable supplies mentioned above, but they have a large array of local and remote control features that are not found elsewhere. Lambda's ZUP series is a good example of a feature-rich Programmable Power Supply.
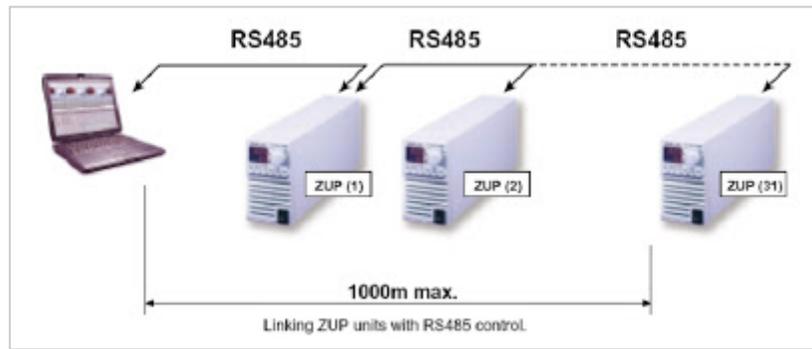
Up to 31 ZUP Series Programmable Supplies can be Remotely Controlled via RS485 Interfaces

Posted by Power Guy