PPS 2116A Programmable DC Bench Power Supply User Guide

This is a useful small benchtop DC programmable power supply.

Unfortunately the manual was translated into very poor English which In some places is incomprehensible.

Here is the English version based on fiddling with the power supply to figure out how to actually use it.

Description

The front panel of the PS2116A power supply has two four digit LED displays for indicating output voltage and output current. Both the output voltage and the current limit can be set using front panel controls and these values stored in any of five individual memories (M1-M5) for instant recall.

Operating Instructions

Setting Output Voltage

The output voltage is set by using the ADJUST knob in increments of either 10, 1, 0.1 or 0.01 V.

To select the step size press the VOL (VOLTAGE) button and one of the voltage LED displays will flash. The left hand display flashes to indicate that the ADJUST knob is assigned to the 10V step size. A subsequent push of the VOL button moves the flashing digit right to the next finest step size (in this case 1V) indicating that the ADJUST knob will now change the output in 1V steps. By subsequent pushes of the VOL button adjustment step sizes of 0.1 and 0.01 can be chosen.

Approximately 3 seconds after the last adjustment the display will stop flashing indicating that the ADJUST knob is no longer active.

Output voltage and current may be set with the output enabled or disabled.

Setting Current Limit

Setting the current limit is accomplished in a similar fashion to setting the output voltage.

To select the current limit step size press the CUR button and a digit of the current display will flash indicating which digit is assigned to the ADJUST knob.

NOTE: The current must be set to a non-zero value for the output to work.

Constant Current Mode

The power supply is in the "Constant Voltage" mode as long as the output current is less than the setpoint for the current. For example if the current setpoint is 0.2A, when the load is such that the output current is less 0.2A the output will be voltage regulated (CV LED lit). When the load resistance is such that the current demanded by the load is greater than the preset current, the power supply enters the Constant Current mode (CC). The output voltage falls out of regulation to the value Vout = Iset x Rload.

For example.

V(set) = 10V

I(set) = 1A

R(load) = 20 ohms

In this case I(load) = 10/20 = 0.5A (<I(set)

If however the load resistance was changed to R(load) = 5 ohms.

V(out) = I(set) x R(load) = 1 x 5 = 5V.

Or if R(load) = 8 ohms

V(out) = 1 x8 = 8V

Output Enable

The output may be turned ON/OFF by use of a dedicated OUTPUT button. When the output is disabled ("OUT" LED extinguished) power is cut off to the front panel terminals and the front panel LED displays show the set points for the voltage and current.

When the output is enabled, power is provided to the front panel terminals and the front panel LED displays show the actual output voltage and current.

Control Lock

Front panel controls can be locked to prevent accidental adjustment by using the front panel LOCK function.

In the lock state, the message "-Loc" is shown whenever a button is pressed to indicate that the panel is locked.   Note that this also disables all buttons including the OUTPUT button and memory buttons.

To lock the panel press and hold the LOCK button for about 3 seconds.

To unlock the panel press and hold the LOCK button for about 3 seconds.

Memory Programming

Five memories (M1-M5) are available to store preset voltage and current combinations.

Use the following steps to load an output setting into one of the five presets.

1. Adjust the output voltage and current as needed

2. Press the shift button (the memory status LEDs will illuminate).

3. Press the button of the preset that you wish to store the setting into.

4. Repeat 1-3 for each preset that you wish to store.

Power supply operating parameters including output voltage and current can be stored in five individual memories (M1-M5).

Note that recalling a stored setting will recall the stored value but the output will be disabled.

After recall you will need to reset the output state by pressing the OUT button.

Programming from a PC

The power supply may be connected to a simple user interface ("DPS software " provided on the CD) that allows the user to set the power supply voltage and current settings directly from the PC. The PC interface also allows the user to turn the output on or off.

The actual output voltage and current are also displayed on the PC user interface.

A more powerful feature of the DPS software is the ability to program the power supply with a time line. This allows the user to change the output voltage (or current) on a second by second basis. For example the power supply output voltage might be zero volts at time $t = 0$ and up to 5V at time $t = 5$ seconds and then up to 12V at $t = 17$ seconds. The output voltage and current are displayed (rather poorly calibrated) in the DPS.

Although confusingly calibrated the graph does provide a useful indication of the time line and the digital readout on the DPS panel does provide an accurate representation of the voltage and current.

Although operation is not highly intuitive it is functional and very useful.