

Protek

Test and Measurement

MODELS 3003L, 3005L AND 6003L
SINGLE OUTPUT POWER SUPPLY
OPERATORS MANUAL

Table of contents

1. Introduction.....	1
2. Available models	2
3. Specifications.....	3
3-1 General.....	3
3-2 Electrical.....	4
4. Panel controls and indicators.....	5
4-1 Front panel controls and Indicators	6
4-2 Rear panel.....	7
5. Operating instructions.....	8
5-1 Precautions.....	8
5-2 Setting the output voltage.....	9
5-3 Setting the Current limit.....	9
6. Maintenance.....	10

1.Introduction

Regulated DC power supplies are designed to provide the user with a stable, Very low ripple DCV output. They can be used in industry, the science labs, the repair bench and for educational training and any where a Clean DC output is needed.

These supplies are continuously variable for 0 Volts to their rated voltage with zero to the rated output currents as shown below. The output is voltage and the constant current limiting is controlled using a fine and course controls. Both the Current and voltage are monitored with an accurate three digit LED display.

The “L” series power supplies exhibit a high degree of stability and have extremely low ripple content, and are reversed voltage, overload and short circuit protected. All models provide a fixed 5volt @ 1amp auxiliary output and have an Output standby switch for internally disconnecting the load from the Output terminals

2 Available Single output models

Model Number	Main output		Fixed output
	Output Voltage	Output Current	Output Current
3003L	0 to 30V	0 to 3Amps	5V@1Amp
3005L	0 to 30V	0 to 5Amps	5V@1Amp
6003L	0 to 60V	0 to 3Amps	5V@1Amp

2

3 Specifications

3-1 General

AC input: 110/220 \pm 10% 50/60Hz switch selectable

Operating Temperature: 0 °C to 40 °C (32 °F to 104 °F) at < 80% R.H

Storage Temperature -10 °C to 70 °C (14 °F to 158 °F) at a < 70% R.H

Accessories:

Power cord.....1ea

Operation manual.....1ea

Dimensions: 5.1" (W) x 6.3" (H) x 12" (D)

Weight: 14lbs 3005L and 6003L, 11lbs 3003L

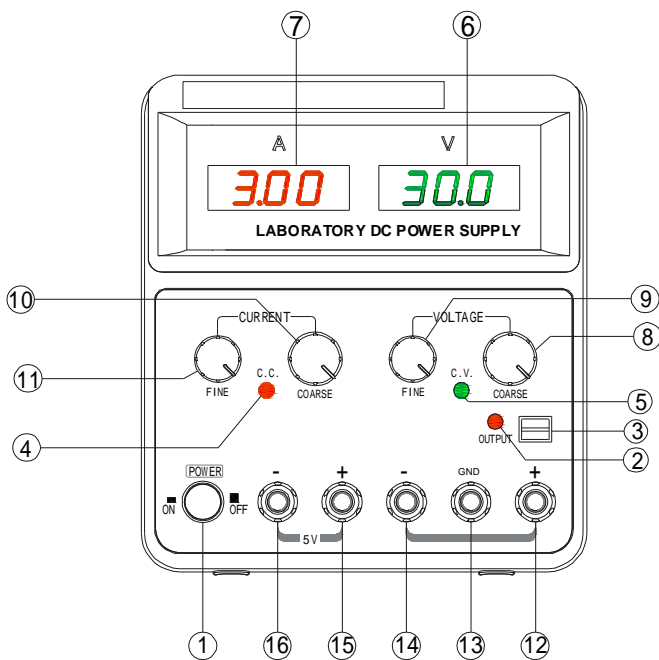
3-2 Electrical Specifications

Model	3003L	3005L	6003L
Output Voltage	0 to ± 30 Volts	0 to ± 30 Volts	0 to ± 60 Volts
Output Current	0 to ± 3 Amps	0 to ± 5 Amps	0 to ± 3 Amps
Constant voltage Operation			
Line Regulation	$\leq 0.01\%+3\text{mV}$	$\leq 0.01\%+3\text{mV}$	$\leq 0.01\%+3\text{mV}$
Load Regulation	$\leq 0.01\%+3\text{mV}$	$\leq 0.01\%+5\text{mV}$	$\leq 0.01\%+5\text{mV}$
Ripple and Noise	$\leq 1\text{mV rms}$	$\leq 1\text{mV rms}$	$\leq 1\text{mV rms}$
Temperature coefficient	300ppm/ $^{\circ}\text{C}$	300ppm/ $^{\circ}\text{C}$	300ppm/ $^{\circ}\text{C}$
Constant Current Operation			
Line Regulation	$\leq 0.2\%+3\text{mA}$	$\leq 0.2\%+3\text{mA}$	$\leq 0.2\%+3\text{mA}$
Load Regulation	$\leq 0.2\%+3\text{mA}$	$\leq 0.2\%+3\text{mA}$	$\leq 0.2\%+3\text{mA}$
Ripple and Noise	$\leq 3\text{mA rms}$	$\leq 3\text{mA rms}$	$\leq 3\text{mA rms}$
Display			
Accuracy	$\leq \pm 1\%+2\text{d}$		
Resolution	Voltmeter: 100mV Ammeter 10mA		
Recovery time	$\leq 100\mu\text{S}$		
Fixed output Supply			
Output Voltage	5 Volts		
Output current	1 Amp		
Voltage Accuracy	$\pm 1\%$		
Ripple and Noise	$\leq 2\text{mV rms}$		

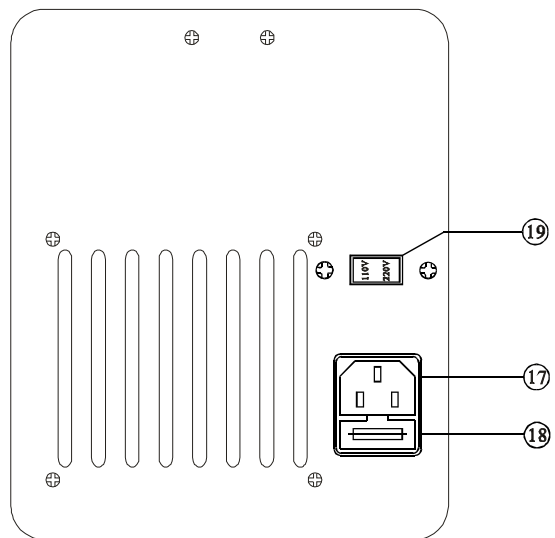
4

4. Panel Controls and indicators

Front panel



Rear panel



4-1 Front panel controls and indicator

- 1 Power switch: Turns the power on and off
- 2 Output indicator: Indicates if the output is on or in the standby mode
- 3 Output standby: When pressed, enables the output, the Volts and Amps LED meter displays the Voltage and Current values and the Output indicator is lit. When released the output is disabled and LED meters read Zero

- 4 CC indicator: Lights when the unit is in the constant current mode
- 5 CV indicator: Light when the unit is in the constant voltage mode
- 6 Voltmeter: Displays the output voltage
- 7 Ammeter: Displays the output current
- 8 Voltage Course: Course control for setting output voltage
- 9 Voltage fine: Fine control for setting the output voltage.
- 10 Current Course: Course control for setting the current limiting
- 11 Current Fine: Fine control for setting the current limiting
- 12 + output terminal: Positive output terminal
- 13 Gnd: Chassis ground (earth ground terminal) terminal
- 14 - output terminal: Negative output terminal
- 15 5V + out: the positive terminal for the fixed 5volt supply
- 16 5V - out: The negative terminal for the fixed 5 volt supply

6

4-2 Rear panel

- 17 AC power connector: The AC input voltage is applied to this connector
- 18 Fuse Holder: the following table indicates the correct fuse value. All fuses are 250V AC

Model	110/115/120V	220/230/240V
3003L	3.15A	2A
3005L	6.3A	3.15A
6003L	6.3A	3.15A

- 19 AC input Voltage select: Selects the AC input voltage. 110/115/120V or 220/230/240V may be selected: **Warning:** Check that this switch is set to the correct line voltage before applying to the unit.
- 20 Fan: For cooling the unit

5. Operating instructions

5-1 Precautions

- 1 Be sure the AC line selector is set to appropriate AC line voltage
- 2 To avoid electrical shock, be sure the chassis ground of the unit is connected the AC input ground terminal.
- 3 Do not use the unit when the ambient temperature exceeds 40°C (104°). Allow sufficient ventilation space for the heat sinks located in rear of the unit.
- 4 The outputs of these units are floating; the appropriate output terminal must be grounded for a positive or negative voltage output

8

5-2 Setting the output voltage

Note: The procedure in 5-2 and 5-3 applies only to the variable output supply

- 1 Remove all test leads from the output terminals to the load
- 2 Turn the power supply on with the Power On/Off switch (1)
- 3 Press the Output/Standby button (3) the Out INDICATOR (2) should turn on
- 4 Rotate the Course Current (10) control clockwise until the CV indicator (5) is lit
- 5 Rotate the Course Voltage (8) control to the approximate output voltage
- 6 Rotate the fine Voltage control (9) to the exact required output voltage

5-3 Setting the Current limit

- 1 Determine the maximum safe load current
- 2 Press the Output/standby button (3) to the out position (out indicator off)
- 3 Short the + and - output terminals (14 & 12) with a test lead
- 4 Press the Output/standby button in. The CC indicator (4) should be lit and the CV (5) indicator off
- 5 Rotate the Course current control (10) to the approximate safe load current
- 6 Rotate the Fine current control (11) to the required safe load current
- 7 Press the Output/standby button (3) to the out position (out indicator off)
- 8 Remove the short circuit from the output terminals and connect the load to the output terminals
- 9 Press the Output/standby button (3) in. The CV indicator (5) should be lit and the CC Indicator (4) should be off
- 10 The voltage displayed on the voltmeter (6) should read what was set in 5-2 and the ammeter should (7) read the load current
- 11 If the CC INDICATOR is lit repeat 5-2 and 5-3

6. Maintenance

Warning

The following instructions are for use by qualified personnel only. To avoid electrical shock, Do not perform any servicing other than what is set forth in the operating instructions unless You are a qualified to do so.

6-1 If the fuse blows, the CV or CC indicators nor the ammeter and voltmeter will be inoperative. The fuse should not blow under normal operating conditions. Try to determine the cause of Failure, correct the problem and then replace the fuse (18) with one with the correct ratings.

When the line voltage is change, set the AC line voltage selector switch (19) to the correct position and replace the fuse with the correct value.

6-2 If the mode is Constant voltage but the set voltage is incorrect and the CC indicator is lit, the unit is in the Constant current mode. Check the connections to the load or the determined current value (see 5-3) and correct.

6-3 If the mode is Constant current but the ammeter is reading a lower value of current than what was determined and the CV indicator is lit, the unit is in the Constant voltage mode. Recheck the connections to the load and the current setting that was performed in (5-3).

6-4 If the output is unstable check if the line voltage is below the published specification