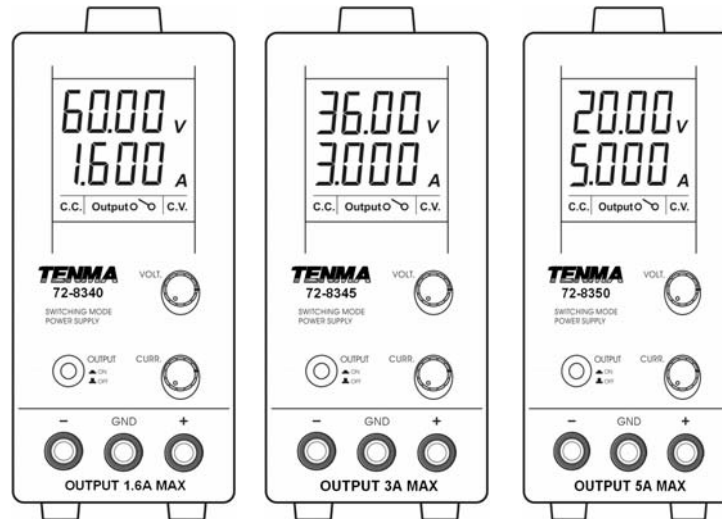




## Laboratory Switch Mode Power Supply Series



## Instruction Manual

### Model

72-8340	1.0 ~ 60VDC	0 ~ 1.6A
72-8345	1.0 ~ 36VDC	0 ~ 3A
72-8350	1.0 ~ 20VDC	0 ~ 5A

Keep this manual in a safe place for quick reference at all times.

This manual contains important safety and operation instructions for correct use of the power supply. Read through the manual and pay special attention to the markings and labels of this unit and equipment to be connected.

Pay special attention to these two types of notices used in this manual.

### **WARNING**

*Failure to observe this warning may cause injury to persons and damage to power supply or connected equipment*

### **CAUTION**

*Failure to observe this warning may result in damage to equipment and improper functioning of the power supply.*

### **WARNING:**

1. Do not use this power supply near water.
2. Do not operate or touch this power supply with wet hands.
3. Do not open the casing of the power supply when it is connected to AC power source.
4. Refer all servicing to qualified service personnel only.
5. Before replacing the AC fuse first determine and correct the cause or the blown fuse. Replace the AC fuse with the same type and rating as the original fuse.

### **CAUTION:**

1. Use only a properly grounded AC power source.
2. This unit is for indoor use only.
3. Do not operate or place this unit in a humid or dusty environment, in direct sunlight or near any heat source.
4. Before plugging into AC power source, check with the rating label at the back of the unit.
5. Do not block ventilation openings on the unit.
6. This unit must be used within the specified rating. Continuous excessive loading may cause damage to the power supply.
7. The AC power cord must be at least 18AWG, and not exceed 3m in length.
8. Replacement fuse: T3AL250V (3A Time-Lag)

### **Environmental condition requirements:**

1. 10-80% R.H.
2. Altitude up to 2000m
3. Installation category: CAT 2
4. Pollution degree: 2
5. Maximum supply voltage fluctuation:  $\pm 10\%$  of specified operating voltage.

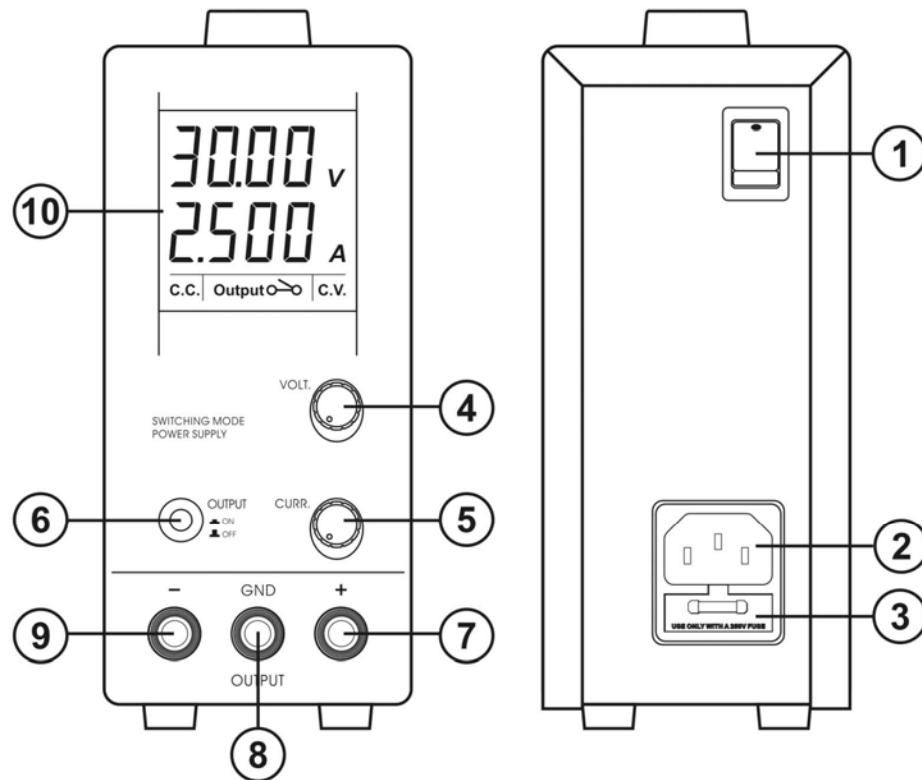
### **Introduction**

This precision series of switch mode laboratory DC power supplies are ideal for test, measurement and service applications where tight voltage and current regulation are critical. Highly efficient switch mode design delivers outstanding performance from an extremely compact footprint. Unique separate output ON/OFF control allows voltage and current setting, with the supply output turned off.

### **Features:**

- Backlit four digit LCD display
- Simultaneous display of voltage and current
- Auto selecting constant voltage (CV) and constant current (CC) modes
- Ultra quiet convection cooling
- Short circuit, overload, over voltage and thermal protection
- 84% efficiency at maximum output
- RoHs compliant

## Front / Rear Panel Controls and Indicators



1. **POWER** – Master on/off selector
2. **INPUT POWER** jack – For connection of supplied AC power cord.
3. **FUSE HOLDER** – May be opened with screwdriver when power cord is removed.
4. **VOLT** – Output voltage adjustment
5. **CURR** – Current limit adjustment
6. **OUTPUT ON/OFF** – Activates supply output
7. **OUTPUT (+)** – Positive supply output (red)
8. **OUTPUT (GND)** – Chassis ground terminal (green)
9. **OUTPUT (-)** – Negative supply output (black)
10. **LCD display Panel** – Backlit panel shows CC/CV Mode, Output status, Voltage and Current output.

## Operation

### Ground Connection

Depending on the application, the power supply output terminals can be grounded to suit any one of the following conditions:

- Negative Ground** – Black (-) negative terminal is tied to the green GND terminal.
- Positive Ground** – Red (+) positive terminal is tied to the green GND terminal.
- Floating Ground** – Green terminal is left open. Note that in this mode, high impedance leakage can exist between the power supply circuitry and the chassis ground.

## Basic Mode of Operation

This power supply is designed to operate as either a constant voltage or constant current source. Automatic crossover to either mode of operation occurs when the load condition changes. The power supply functions as a constant voltage source (**CV**) as long as the load current is less than the preset current limit value. When load current is equal to or greater than the preset current limit, the power supply will automatically cross over to constant current (**CC**) mode. The voltage will drop, (**CC**) will show on the LCD display panel and the power supply will operate as a constant current source. When the load current drops below the preset current limit, the supply will return to constant voltage (**CV**) mode.

## Operation

- Make certain the AC power cord is connected to a proper power source.
- Make certain that no load is connected to the supply.
- Switch on master ON/OFF **POWER** switch (1) on the rear panel, the LCD display backlight should illuminate.
- The (**CV**) icon should be shown on the display and the **OUTPUT** (6) should default to **OFF**.
- If current limiting is not required, turn the **CURR** (5) control fully clockwise.
- If current limiting is required, see the steps in the following section “Presetting a Current Limit Value”.
- Press the **OUTPUT** (6) button to activate the power supply output.
- Set your desired output voltage, and then press **OUTPUT** (6) again to deactivate the output.
- Observing correct polarity, connect to your load to the power supply.
- Press the **OUTPUT** (6) button to activate the power supply output.
- Check the power supply display to verify that the (**CV**) icon is displayed. If (**CC**) is displayed, your current limit value is too low, the load requires more current than the supply is capable, or there is a fault in the connected device.

## Presetting a Current Limit Value (CC)

In many cases, it becomes necessary to preset the current limit prior to having the load connected to the supply. To accomplish this, the following steps should be followed.

- With no load connected to the supply, switch on the power.
- Press the **OUTPUT** (6) button to the **ON** position to activate the supply output.
- Adjust the **VOLT** (4) control to approximately 3VDC output.
- Press the **OUTPUT** (6) button again to deactivate the supply output.
- Turn the **CURR** (5) control fully counterclockwise.
- Short **OUTPUT** terminals (7) and (9) together
- Press the **OUTPUT** (6) button to the ON position to activate the supply output.
- Adjust the **CURR** (5) control clockwise until the desired current limit is displayed.
- Press the **OUTPUT** (6) button again to deactivate the supply output and remove the short between terminals (7) and (9).
- The supply is now set for this current limit throughout its voltage range.

## Protection

To provide protection to the power supply and the connected load, the supply incorporates over voltage (OVP) thermal protection. Traditional power supplies often provide over current protection, however that benefit already exists by sheer design of a current limiting supply.

### Over Voltage Protection ( OVP )

In the event that the output voltage control circuit mal-functions, the maximum output voltage will not exceed 30% of the adjusted voltage value at the time of the operation.

### Over Temperature Protection

If the temperature inside the supply exceeds a pre-determined value, the output voltage and current of the supply will decrease to zero to prevent damage to the supply. When the temperature inside supply returns to approximately 65°C (150°F), the power supply will automatically return to operation.

## Specifications

Model	72-8340	72-8345	72-8350
Input Voltage	90 ~ 130VAC, 50~60Hz		
Full Load Input Current	1.6A		
Output Voltage Range	1.0 ~ 60VDC	1.0 ~ 36VDC	1.0 ~ 20VDC
Output Current Range	0 ~ 1.6A	0 ~ 3A	0 ~ 5A
<b>Voltage Regulation</b>			
Load variation from 10% ~ 100%	70mV	50mV	50mV
Line variation from 90 ~ 130VAC	20mV		
Ripple and noise (RMS)	5mV		
Ripple and noise (p-p)	30mV	30mV	50mV
<b>Current Regulation</b>			
Load variation from 10% ~ 100%	20mA		
Line variation from 90 ~ 130VAC	20mA		
Ripple & Noise (peak to peak)	20mA		
Switching Operation Frequency	80KHz ~ 120KHz		
Power Factor	0.68		
Efficiency at Maximum Power	84%	85%	85%
Voltmeter Display	4 Digit		
Ammeter Display	4 Digit		
Voltmeter Accuracy	±1% +5 counts (≤5V)	±1% +5 counts (≤10V)	±1% +5counts (≤20V)
	±1% +3counts (>5V)	±1% +3counts (>10V)	±1% +3counts (>20V)
Ammeter Accuracy	±1% +5 counts (≤2A)	±1% +5 counts (≤1A)	±1% +5 counts (≤0.5A)
	±1% +3 counts (>2A)	±1% +3 counts (>1A)	±1% +3 counts (>0.5A)
LCD Indication	CC, CV, Amp, Volt, Output ON-OFF		
Protection	Short Circuit, Overload, Over Temperature, Tracking OVP		
CE Approvals	LVD : EN 61010 , EMC : EN 55011		
Cooling System	Natural Convection		
Dimensions (WxHxD)	70mm x 150mm x 250mm / 2.8" x 6.0" x 9.8"		
Weight	2Kgs / 4.4 lbs.		