

TENMA®



Laboratory Switch Mode Power Supply
Models: 72-8340A, 72-8345A and 72-8350A

IMPORTANT SAFETY INFORMATION

When using electrical appliances, basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury to persons or property.

Read all instructions before using the appliance and retain for future reference.

- Check that the voltage indicated on the rating plate corresponds with that of the local network before connecting the appliance to the mains power supply.
- Do not operate this appliance with a damaged plug or cord, after a malfunction or after being dropped or damaged in any way.
- Check the product before use for any damage. Should you notice any damage on the cable or casing, do not use.
- This appliance contained no user-serviceable parts. All repairs should only be carried out by a qualified engineer. Improper repairs may place the user at risk of harm.
- This product must be grounded through the earth connection in the mains lead for safe operation and to reduce ripple and noise.
- Do not block or obstruct the cooling vent opening.
- Avoid severe impacts or rough handling that leads to damage.
- Do not discharge static electricity.
- This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory, or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.
- Children should be supervised to ensure that they do not play with the appliance.
- Always disconnect from the mains when the product is not in use or before cleaning.
- Do not use the appliance for any purpose other than that for which it is designed.
- Do not operate or store in an environment of high humidity or where moisture may enter the product as this can reduce insulation and lead to electric shock.

PRODUCT OVERVIEW

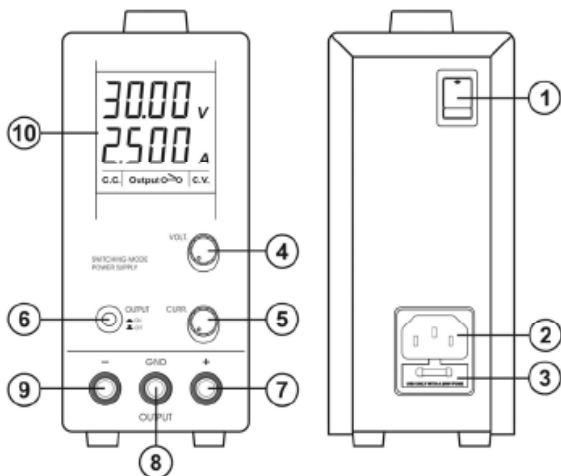
Main Features

- 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

WHAT'S INCLUDED

- Power Supply Unit
- Mains power lead
- User Manual

OVERVIEW



Front panel controls

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 isplay Panel – Backlit panel shows CC/CV Mode, Output status, Voltage and Current output.

Notes

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.

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.
- 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 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.

Over Voltage Protection (OVP)

In the event that the output voltage control circuit malfunctions, 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 normal operation.

SPECIFICATIONS

Description	72-8350A	72-8345A	72-8340A
Input Voltage (Jumper Selection)			
Full Load Input Current at 230V AC			
Output Voltage Adjustable Range	1 to 20V DC	1 to 36V DC	1 to 60V DC
Output Current Adjustable Range	0 to 5A	0 to 3A	0 to 1.6A
Voltage Regulation			
Load from 10% to 100% Variation	120mV	50mV	50mV
Line from 180 to 264V AC Variation	20mV		
Ripple & Noise in r.m.s.	5mV	5mV	8mV
Ripple & Noise (peak to peak)	30mV	50mV	100mV
Current Regulation			
Load from 10% to 100% Variation	20mA		
Line from 180 to 264V AC Variation	20mA		
Ripple & Noise (peak to peak)	70mA	20mA	20mA
Switching Operation Frequency	80KHz to 120KHz		
Power Factor	0.65		
Efficiency at Maximum Power	84%	83%	81%
Volt and Amp Control Type	Rotary Encoder		
Voltmeter and Ammeter Display	4 Digit		
Voltmeter Accuracy	±0.5% +5counts for range V≤5V	±0.5% +5counts for range V≤10V	±0.5% +5counts for range V≤20V
	±0.5% +3counts for range V>5V	±0.5% +3counts for range V>10V	±0.5% +3counts for range V>20V
Ammeter Accuracy	±0.5% +5counts for range I≤2A	±0.5% +5counts for range I≤1A	±0.5% +5counts for range I≤0.5A
	±0.5% +3counts for range I>2A	±0.5% +3counts for range I>1A	±0.5% +3counts for range I>0.5A
LCD Indication	CC, CV, Amp, Volt, Output ON-OFF		
Protection	Short Circuit Overload Over Temperature, Tracking OVP		
Cooling System	Natural Convection		
Dimensions in mm (W×H×D)	70mm x 150mm x 250mm / 2.8" x 6.0" x 9.8"		
Weight in Kg	2Kgs / 4.4 lbs.		

MAINTENANCE

Cleaning

- Use a damp cloth and a small amount of liquid detergent if necessary.
- Never submerge the power supply in liquid or allow any liquid to enter the case.
- Do not use any chemicals, abrasives or solvents that could damage the power supply casing.

Changing the fuse

- Replace the fuse only with one of exactly the same type and rating.
- Disconnect the mains power and unplug the mains lead before replacing the fuse.



INFORMATION ON WASTE DISPOSAL FOR CONSUMERS OF ELECTRICAL & ELECTRONIC EQUIPMENT.

When this product has reached the end of its life it must be treated as Waste Electrical & Electronic Equipment (WEEE). Any WEEE marked products must not be mixed with general household waste, but kept separate for the treatment, recovery and recycling of the materials used. Contact your local authority for details of recycling schemes in your area.



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