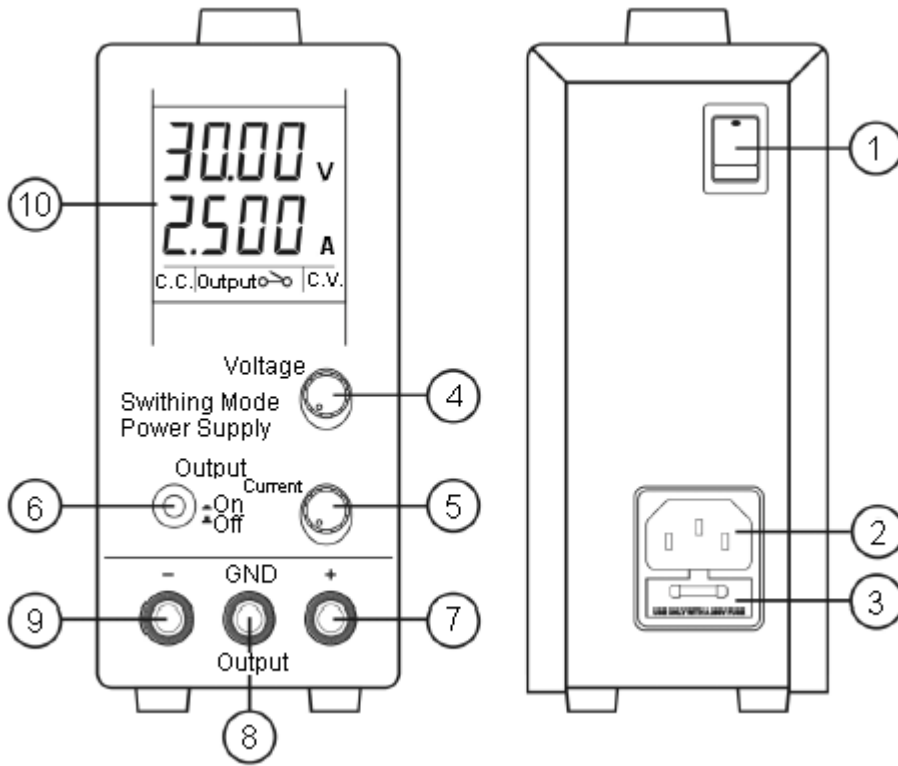


Switching Mode Power Supply



Controls and Indicators



(1) Power Switch :

Turns the power supply on-off, when it is on the front display lights up.

(2) AC input socket with fuse

(3) Concealed fuse box (ply open the cover to get to the fuse)

(4) Output voltage tuning knob

(5) Output current tuning knob.

(6) Output on/off push button

(7) Output terminal positive (+) red colour.

(8) GND terminal (↓) green colour.

Chassis ground terminal, normally this is to be short to (+) or (-) as required by user.

(9) Output terminal negative (-) black colour.

(10) LCD display panel showing:

4 digit voltage, current meter, (CV) constant voltage mode, (CC) constant current mode,

Output terminal on / off state **Output**

Introduction

This series of 100W switching mode power supplies with current limiting control, is designed with the objectives of high accuracy, compactness and easy portability. Rotary encoder are used for voltage and current control. 4 digit display LCD of voltage and current for high precision.

Operation Environmental Conditions

- 10-80% R.H.
- Maximum relative humidity 80% for temperature up to 31°C decreasing linearly to 31°C decreasing linearly to 50% relative humidity at 40°C.
- Altitude up to 2,000 m.
- Installation category : CAT 2.
- Pollution degree : 2.
- Mains supply voltage fluctuation up to $\pm 10\%$ of the normal voltage.

Operations

Ground Connection

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

Negative ground - black (-) negative terminals is shorted with green GND terminal.

Positive ground - red (+) positive terminal is shorted with green GND terminal.

Floating ground - green terminal is not shorted with any of the output terminals.

Remarks:

When operating this power supply as a floating ground, 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 a constant voltage source or as a constant current source. Automatic crossover to either mode of operation occurs when the load condition changes as following:


Constant Voltage (CV), Automatic crossover and Constant current (CC)

The power supply functions as a constant voltage source (CV) as long as the load current is less than the preset current limiting value. When the load current is equal to or greater than the preset current limiting value, the power supply will automatically cross over to the constant current mode, voltage will drop, (CC) will show on the LCD display panel and it will operate as a constant current source.

When the load current drops below the preset current limiting value, the supply returns to constant voltage (CV) mode.

Presetting Current Limiting Value (CC)

Switch on the power supply, adjust the output voltage to about 3V, turn off the output terminal with push button (6) icon becomes **Output** .

Short the black and red output terminals and turn on the output terminal by (6), icon becomes **Output** , adjust the current limiting value to your desired value say \times amperes by tuning knob (5) turn off the output terminal and take out the shorting connection.

The current limiting of power supply has been preset to \times amperes for the whole range of output voltage.

Switching Mode Power Supply



Operations

Connection and Operation Procedure

1. After checking with the rating label plug in to AC mains .
2. Switch on the power supply and the LCD display should be on at the same time.
3. The (CV) icon should be shown on the display.
4. Turn to current volume knob (5) to maximum clockwise if you do not require lower current limiting value, otherwise do the preset the (CC) limiting procedure.
5. Set your desired output voltage and then turn off the output terminal by push button (6).
6. Connect to your load positive to positive and negative to negative.
7. Turn on the output terminal again and check if display shows (CV).
8. If display shows (CC), either your preset current limiting value is too low or your load requires more voltage and current.
You need to re-access the voltage and current requirement of your load and increase the voltage or current accordingly until (CV) appears.

Tracking Output Over Voltage Protection (OVP)

This is to protect the connected load 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

When the temperature inside the power supply becomes higher than a pre-determined value, the output voltage and current of the power supply will automatically decrease to zero to prevent damage to power supply. When the temperature inside the power supply returns to about 65°C then the power supply will automatically return to operation again.

Specification Table

Description	72-8350	72-8345	72-8340
Input Voltage (Jumper Selection)	90 - 130 / 180 - 240 V ac , 50 / 60 Hz ~	-	-
Full Load Input Current at 230 V ac	0.83 A		
Output Voltage Adjustable Range	1 - 20 V dc	1 - 36 V dc	1 - 60 V dc
Output Current Adjustable Range	0 - 5 A	0 - 3 A	0 - 1.6 A
Voltage Regulation			
Load from 10% to 100% Variation	70 mV	50 mV	50 mV
Line from 180 to 264 V ac Variation	20 mV	-	-
Ripple and Noise in rms	5 mV		
Ripple and Noise (peak to peak)	30 mV	30 mV	50 mV
Current Regulation			
Load from 10% to 100% Variation	20 mA		
Line from 180 to 264 V ac Variation	20 mA		
Ripple and Noise (peak to peak)	20 mA	-	-
Switching Operation Frequency	80 KHz to 120 KHz		
Power Factor	0.68		

Switching Mode Power Supply



Specification Table

Description	72-8350	72-8345	72-8340
Efficiency at Maximum Power	84%	85%	85%
Volt and Amperes Control Type	Rotary Encoder	-	-
Voltmeter and Ammeter Display	4 Digit		
Voltmeter Accuracy	$\pm 1\%$ +5 Counts for Range $V \leq 5$ V	$\pm 1\%$ +5 Counts for Range $V \leq 10$ V	$\pm 1\%$ +5 Counts for Range $V \leq 20$ V
	$\pm 1\%$ +3 Counts for Range $V > 5$ V	$\pm 1\%$ +3 Counts for Range $V > 10$ V	$\pm 1\%$ +3 Counts for Range $V > 20$ V
Ammeter Accuracy	$\pm 1\%$ +5 Counts for Range $I \leq 2$ A	$\pm 1\%$ +5 Counts for Range $I \leq 1$ A	$\pm 1\%$ +5 Counts for Range $I \leq 0.5$ A
	$\pm 1\%$ +3 Counts for Range $I > 2$ A	$\pm 1\%$ +3 Counts for Range $I > 1$ A	$\pm 1\%$ +3 Counts for Range $I > 0.5$ A
LCD Indication	CC, CV, Amperes, 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 (W × H × D)	70 × 150 × 250 mm / 2.8 × 6 × 9.8 in		
Remarks	All the data are based on 230 V 50 Hz ~		

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