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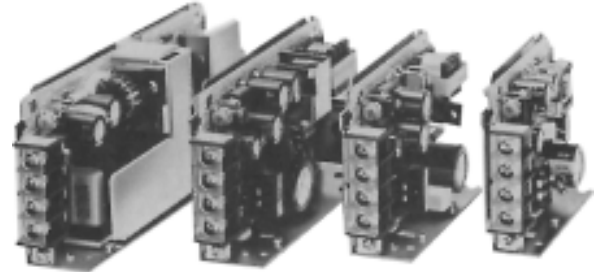
# OMRON®

## Switching Power Supply

## S8E1

Compact and Economical Switching Power Supply

- Models range from 10 to 50 W
- Open-frame and covered types
- Wide range of output voltage: 5-, 12-, 15- and 24-V models
- UL, CSA approved
- 3-year warranty



## Ordering Information

### ■ SWITCHING POWER SUPPLIES

Type	Rated input voltage	Power ratings	Output voltage	Output current	Part number
Open-frame type	120 VAC	10 W	5 V	2.0 A	S8E1-01005A
			12 V	1.0 A	S8E1-01012A
			15 V	0.7 A	S8E1-01015A
			24 V	0.5 A	S8E1-01024A
		15 W	5 V	3.0 A	S8E1-01505A
			12 V	1.3 A	S8E1-01512A
			15 V	1.0 A	S8E1-01515A
			24 V	0.7 A	S8E1-01524A
		25 W	5 V	5.0 A	S8E1-02505A
			12 V	2.1 A	S8E1-02512A
			15 V	1.7 A	S8E1-02515A
			24 V	1.1 A	S8E1-02524A
		50 W	5 V	10.0 A	S8E1-05005A
			12 V	4.2 A	S8E1-05012A
			15 V	3.4 A	S8E1-05015A
			24 V	2.2 A	S8E1-05024A
Covered type	120 VAC	10 W	5 V	2.0 A	S8E1-01005D
			12 V	1.0 A	S8E1-01012D
			15 V	0.7 A	S8E1-01015D
			24 V	0.5 A	S8E1-01024D
		15 W	5 V	3.0 A	S8E1-01505D
			12 V	1.3 A	S8E1-01512D
			15 V	1.0 A	S8E1-01515D
			24 V	0.7 A	S8E1-01524D
		25 W	5 V	5.0 A	S8E1-02505D
			12 V	2.1 A	S8E1-02512D
			15 V	1.7 A	S8E1-02515D
			24 V	1.1 A	S8E1-02524D
		50 W	5 V	10.0 A	S8E1-05005D
			12 V	4.2 A	S8E1-05012D
			15 V	3.4 A	S8E1-05015D
			24 V	2.2 A	S8E1-05024D

■ MODEL NUMBER LEGEND

S8E1 - 

1	2	3		

1. Power ratings

010: 10 W  
 015: 15 W  
 025: 25 W  
 050: 50 W

2. Output voltage

05: 5 V  
 12: 12 V  
 15: 15 V  
 24: 24 V

3. Configuration

A: Open-frame type, front terminals  
 D: Covered-type, front terminals

■ ACCESSORIES (SOLD SEPARATELY)

DIN Rail

Item	Length	Width	Part number
DIN-rail (See <i>Dimensions</i> section for details.)	0.5 m (1.64 ft)	7.3 mm (0.29 in)	PFP-50N
	1 m (3.28 ft)	7.3 mm (0.29 in)	PFP-100N
	1 m (3.28 ft)	16 mm (0.63 in)	PFP-100N2

Bracket

Item	Applicable power supply	Part number
Bracket	S8E1-□10□□□ or S8E1-□15□□□	S82Y-01N
	S8E1-□25□□□	S82Y-03N
	S8E1-□50□□□	S82Y-10N

## Specifications

Output capacity	10 W	15 W	25 W	50 W
Efficiency (typical)	73% to 83% (depends on the model)			
<b>Input</b>				
Voltage	120 VAC (85 to 132 V) 110 to 170 VDC			
Frequency	47 to 450 Hz			
Current (with rated I/O)	0.4 A max.	0.5 A max.	0.7 A max.	1.4 A max.
Leakage current (with rated I/O)	0.5 mA max.			
Inrush current (with rated I/O)	25 A max. (at 25°C)			
Noise filter	Yes			
<b>Output</b>				
Voltage adjustment range	±5% adjustable with variable resistor (V.ADJ)			
Ripple	2% (p-p) max.			
Input variation influence	0.4% max. (at 85 to 132 VAC input, 100% load)			
Load variation influence	0.8% max. (with rated input, 10% to 100% load)			
Temperature variation influence	0.05%/°C max. (with rated input and output)			
Rise time	100 ms max.			300 ms max.
Hold time	20 ms min.			
<b>Additional functions</b>				
Overload protection	105% min. of rated load current (typical), inverted L drop type, automatic reset			
Overvoltage protection	Yes (5-V output models only)			

(This table continues on the next page.)

Specifications Table - continued from previous page

Characteristics				
Ambient temperature	Operating	See the derating curve in the <i>Engineering Data</i> section.		
Ambient temperature	Storage	-20°C to 65°C (-4°F to 149°F)		
Ambient humidity	Operating	25% to 85%		
Ambient humidity	Storage	20% to 90%		
Dielectric strength		2,000 VAC, 50/60 Hz for 1 min. (between all inputs and outputs/GR terminal)		
Insulation resistance		100 MΩ min. at 500 VDC (between all outputs and inputs/GR terminal)		
Vibration resistance		Malfunction: 10 to 55 Hz, 0.75-mm double amplitude (44.1 m/s <sup>2</sup> , approx. 4.5G) for 2 h each in X, Y, and Z directions		
Shock resistance		Malfunction: 294 m/s <sup>2</sup> (approx. 30G), 3 times each in ±X, ±Y, and ±Z directions		
Output indicator		Green LED		
Electromagnetic interference		Conforms to FCC class A standards and 1st group of VCCI		
Approved standards		UL 1012, CSA E.B.1402		
Life expectancy		8 yrs. min. (40°C at the rated input with a 50% load)		
Weight (covered-type)		200 g max.	240 g max.	320 g max. 440 g max.

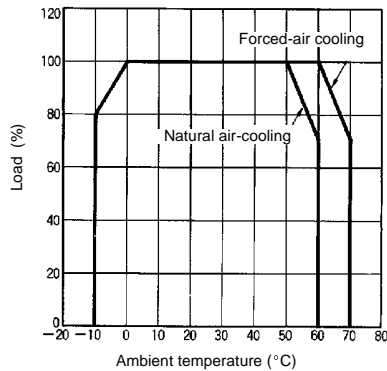
Note: Ratings and characteristics are defined at the power supply output terminals.  
 DC inputs are not included in safety standard approvals.

## Engineering Data

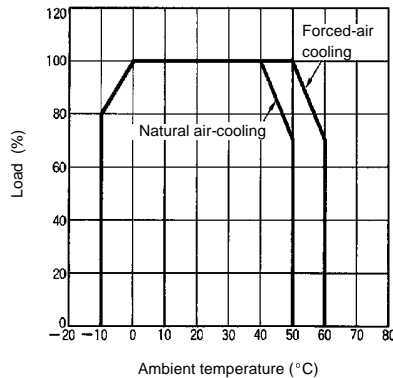
### DERATING CURVE

Note: The derating curve depends on the mounting position of the power supply. The left curve is obtained from a model mounted in one of the standard positions.

#### Open-frame type

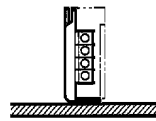


#### Covered-type

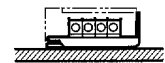


### Mounting Position

#### Standard (Vertical) Installation



#### Horizontal Installation



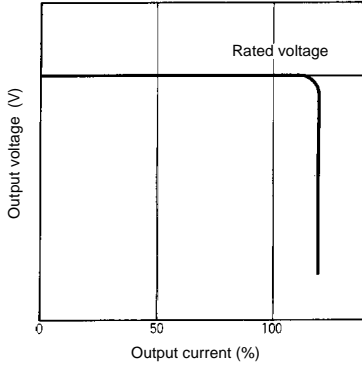
### OVERVOLTAGE PROTECTION (5-V OUTPUT MODELS ONLY)

Models with a power rating of 10 or 15 W incorporate a Zener diode clamp circuit. If the protection circuit is triggered, contact your OMRON representative for repairs.

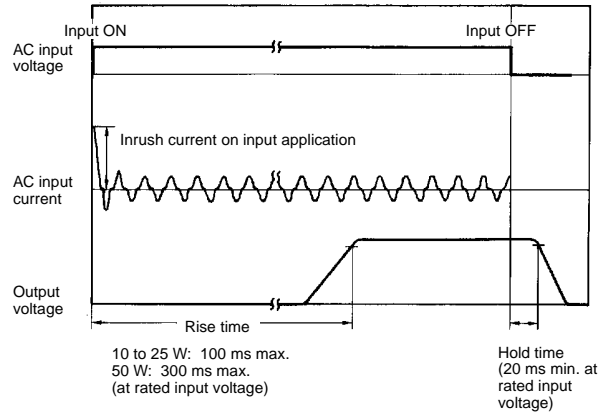
Models with a power rating of 25 or 50 W incorporate a shut-off circuit. If the protection circuit is triggered, turn off the input power and leave the power supply off for at least one minute before turning it on again.

■ OVERLOAD PROTECTION

The power supply has an overload protection function that protects the load and the power supply from possible damage by overcurrent. When the output current rises above a set value (105% of the rated output current), the protection function is triggered, decreasing the output voltage. When the output current falls within the rated range, the overload protection function is automatically cleared.



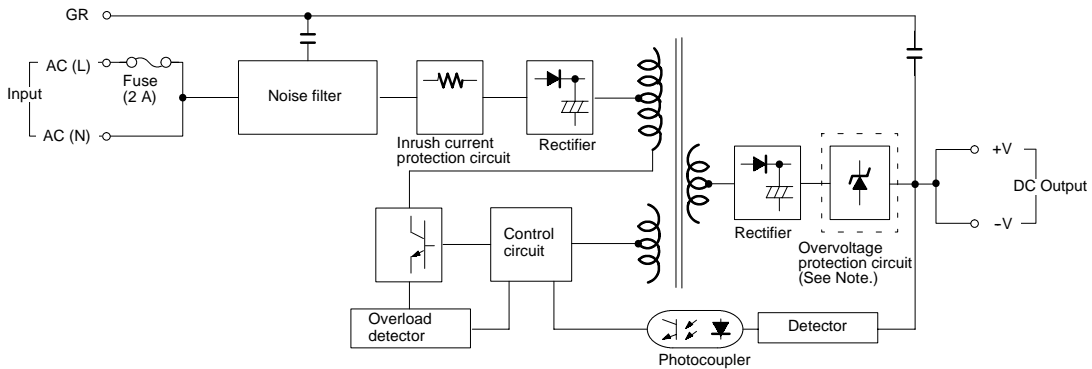
■ INRUSH CURRENT, RISE TIME AND-HOLD TIME



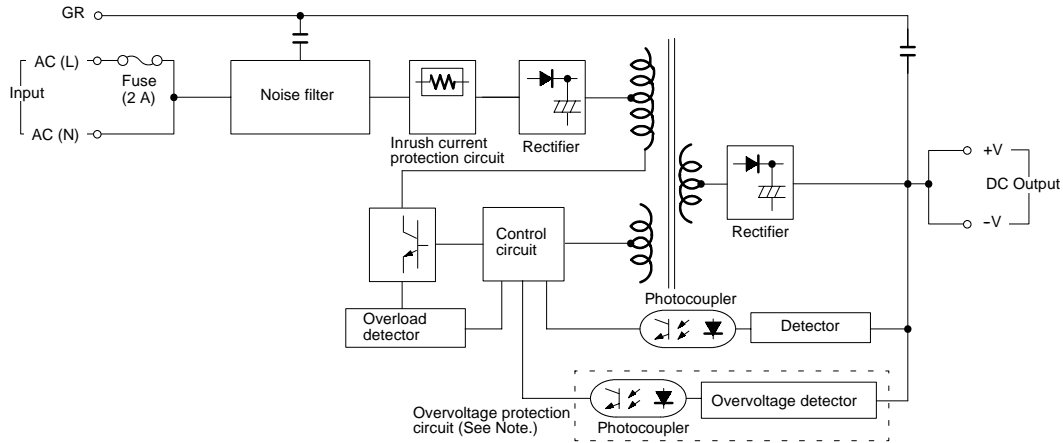
Operation

■ BLOCK DIAGRAM

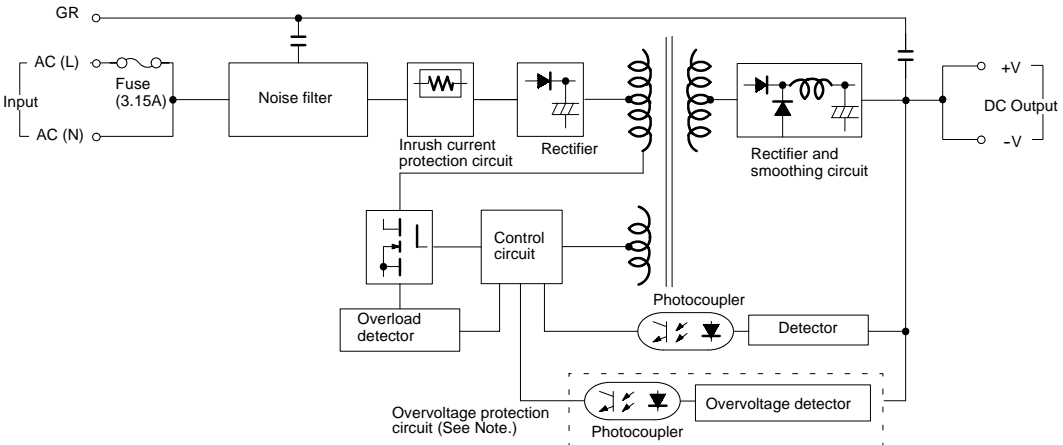
10 W, 15 W



25 W



50 W

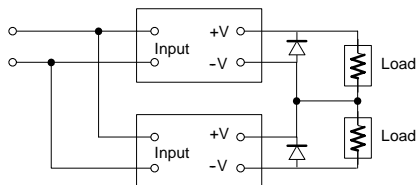


Note: Only the S8E1 with an output of 5 V incorporates an overvoltage protection circuit.

■ GENERATING OUTPUT VOLTAGE (±)

An output of ± can be generated by using two power supplies as shown below, because the power supply produces a floating output.

If operation amplifiers as loads are connected in series, connect a diode between the positive and negative output terminals of each power supplies as shown in the illustration below. Consult your OMRON representative for the specifications of the diode. No diode is necessary for models with power ratings of 50 W.



■ SERIES OPERATION

Only models with power ratings of 50 W allow series operation.

■ PARALLEL OPERATION

The output of two S8E1 cannot be combined in parallel.

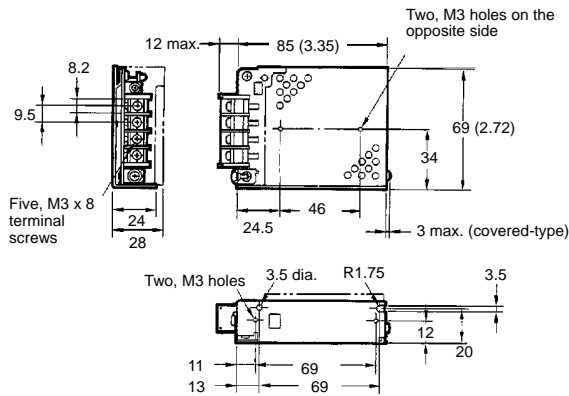
# Dimensions

Unit: mm (inch)

## SWITCHING POWER SUPPLIES

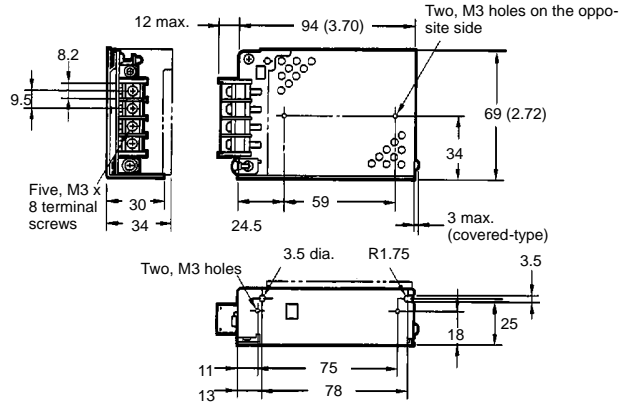
### 10W

#### Open-frame Type/Covered Type



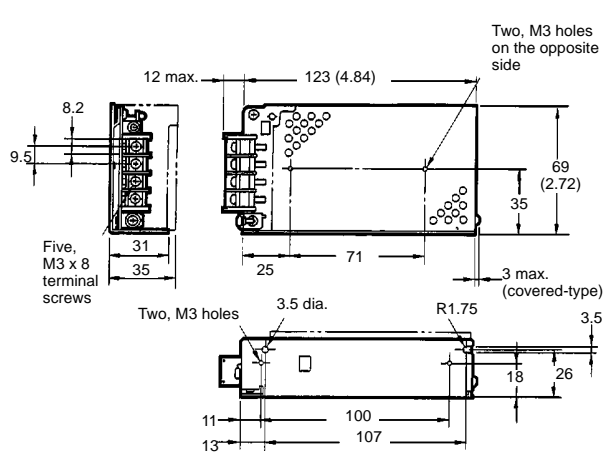
### 15 W

#### Open-frame Type/Covered Type



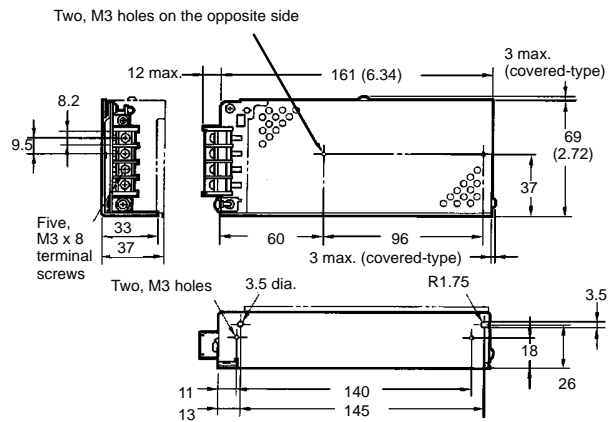
### 25 W

#### Open-frame Type/Covered Type



### 50 W

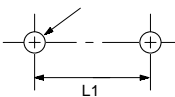
#### Open-frame Type/Covered Type



## MOUNTING HOLES

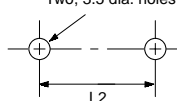
### Side Mounting

Two, 3.5 dia. holes, 4mm depth



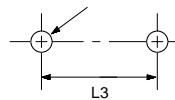
### Back Mounting

Two, 3.5 dia. holes



### Bottom Mounting

Two, M3 dia. holes



Output	10 W	15 W	25W	50 W
L1	46 mm (1.81 in)	59 mm (2.32 in)	71 mm (2.80 in)	96 mm (3.78 in)
L2	69 mm (2.72 in)	75 mm (2.95 in)	100 mm (3.94 in)	140 mm (5.51 in)
L3	69 mm (2.72 in)	78 mm (3.07 in)	107 mm (4.21 in)	145 mm (5.71 in)

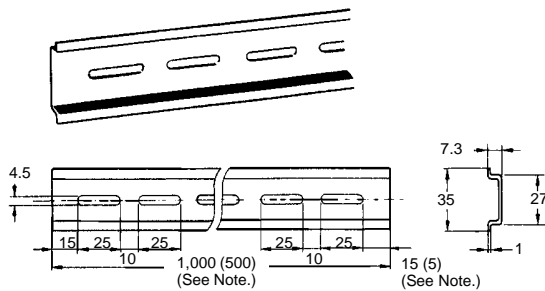
■ DIN-RAIL MOUNTING BRACKET (ORDER SEPARATELY)

Item	S82Y-01N	S82Y-03N	S82Y-10N
Applicable power supply	S8E1-□10□□□ S8E1-□15□□□	S8E1-□25□□□	S8E1-□50□□□
Dimensions			
Dimensions: L1	113 mm (4.45)	143 mm (5.63)	185 mm (7.28)
L2	114.8 mm (4.52)	144.8 mm (5.70)	186.8 mm (7.35)

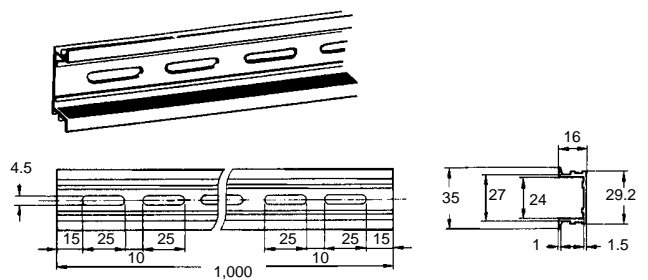
Note: The figures in row L1 are applied if a mounting bracket is attached to the power supply. The figures in row L2 are applied if either PFP-50N or PFP-100N DIN rail is used. Add 10.5 mm to each figure in the L1 row if PFP-100N2 DIN rail is used.

■ DIN RAIL (ORDER SEPARATELY)

PFP-100N/PFP-50N

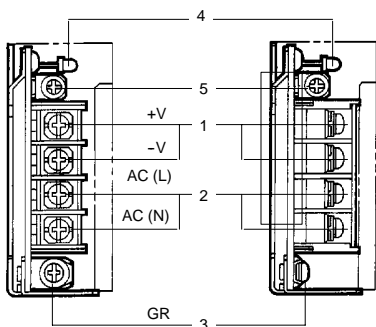


PFP-100N2



Note: The values shown in parentheses are for the PFP-50N.

Installation



1. **DC Output Terminals:** Connect the load lines to these terminals.

2. **Input Terminals:** Connect the input lines to these terminals.

Note: A fuse is inserted into the AC (L) side.

3. **Ground Terminals:** Connect a ground line to this terminal.

4. **Output LED Indicator:** Lights while a Direct Current (DC) output is ON.

5. **V.ADJ Adjuster:** It is possible to increase or decrease the output voltage by 5%.

6. **NC Terminals:** Leave unconnected.



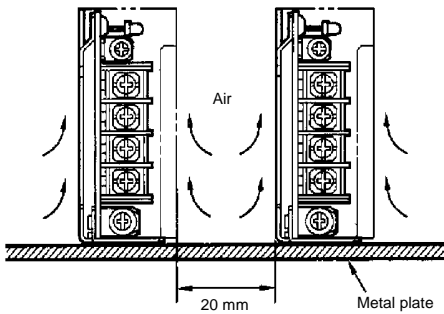
## Precautions

### ■ MOUNTING

- Mount the power supply so that air flow takes place around it. To improve and maintain the reliability, the power supply is designed to dissipate heat by using natural air flow.
- Mounting the power supply to a metal plate is recommended.

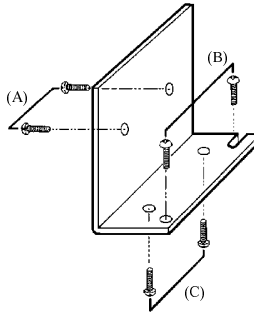
#### Two or More Power Supplies Side-by-Side

- When mounting two or more power supplies side by side, allow at least 20 mm (0.79 in) spacing between them, as shown in the following illustration.
- Forced-air cooling is recommended.



### Open-Frame and Covered-Type

- (A). Side mounting
  - (B). Bottom mounting (secured with screws from the inside of the power supply)
- Note: This method is not possible with the covered-type.
- (C). Back mounting (secured with screws from the back of the power supply)



**NOTE: DIMENSIONS SHOWN ARE IN MILLIMETERS. To convert millimeters to inches divide by 25.4.**

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