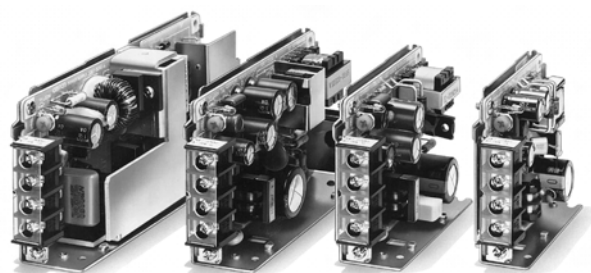


Switching Power Supply




S8E1

Miniature, Thin Power Supply to Be Built into Equipment

- Half the size of OMRON's conventional power supply.
- PCB-type and connector-type models available.
- UL, CSA approved.
- Conforming to 1st group of VCCI for noise terminal voltage and class A of FCC.



Ordering Information

| Configuration | Input Voltage | Power ratings | Output voltage | Output current | Front terminals  | Top terminals  | Connector  |
|-----------------|---------------|---------------|----------------|----------------|--|--|--|
| Open-frame type | 100 VAC | 10 W | 5 V | 2.0 A | S8E1-01005A | S8E1-01005B | S8E1-01005C |
| | | | 12 V | 1.0 A | S8E1-01012A | S8E1-01012B | S8E1-01012C |
| | | | 15 V | 0.7 A | S8E1-01015A | S8E1-01015B | S8E1-01015C |
| | | | 24 V | 0.5 A | S8E1-01024A | S8E1-01024B | S8E1-01024C |
| | | 15 W | 5 V | 3.0 A | S8E1-01505A | S8E1-01505B | S8E1-01505C |
| | | | 12 V | 1.3 A | S8E1-01512A | S8E1-01512B | S8E1-01512C |
| | | | 15 V | 1.0 A | S8E1-01515A | S8E1-01515B | S8E1-01515C |
| | | | 24 V | 0.7 A | S8E1-01524A | S8E1-01524B | S8E1-01524C |
| | | 25 W | 5 V | 5.0 A | S8E1-02505A | S8E1-02505B | S8E1-02505C |
| | | | 12 V | 2.1 A | S8E1-02512A | S8E1-02512B | S8E1-02512C |
| | | | 15 V | 1.7 A | S8E1-02515A | S8E1-02515B | S8E1-02515C |
| | | | 24 V | 1.1 A | S8E1-02524A | S8E1-02524B | S8E1-02524C |
| | | 50 W | 5 V | 10.0 A | S8E1-05005A | S8E1-05005B | S8E1-05005C |
| | | | 12 V | 4.2 A | S8E1-05012A | S8E1-05012B | S8E1-05012C |
| | | | 15 V | 3.4 A | S8E1-05015A | S8E1-05015B | S8E1-05015C |
| | | | 24 V | 2.2 A | S8E1-05024A | S8E1-05024B | S8E1-05024C |

| Configuration | Input Voltage | Power ratings | Output voltage | Output current | Front terminals | Top terminals | Connector | | |
|---------------|---------------|---------------|----------------|----------------|-----------------|---------------|-------------|-------------|-------------|
| Covered-type | 100 VAC | 10 W | 5 V | 2.0 A | S8E1-01005D | S8E1-01005E | S8E1-01005F | | |
| | | | 12 V | 1.0 A | S8E1-01012D | S8E1-01012E | S8E1-01012F | | |
| | | | 15 V | 0.7 A | S8E1-01015D | S8E1-01015E | S8E1-01015F | | |
| | | | 24 V | 0.5 A | S8E1-01024D | S8E1-01024E | S8E1-01024F | | |
| | | 15 W | 5 V | 3.0 A | S8E1-01505D | S8E1-01505E | S8E1-01505F | | |
| | | | 12 V | 1.3 A | S8E1-01512D | S8E1-01512E | S8E1-01512F | | |
| | | | 15 V | 1.0 A | S8E1-01515D | S8E1-01515E | S8E1-01515F | | |
| | | | 24 V | 0.7 A | S8E1-01524D | S8E1-01524E | S8E1-01524F | | |
| | | 25 W | 5 V | 5.0 A | S8E1-02505D | S8E1-02505E | S8E1-02505F | | |
| | | | 12 V | 2.1 A | S8E1-02512D | S8E1-02512E | S8E1-02512F | | |
| | | | 15 V | 1.7 A | S8E1-02515D | S8E1-02515E | S8E1-02515F | | |
| | | | 24 V | 1.1 A | S8E1-02524D | S8E1-02524E | S8E1-02524F | | |
| | | 50 W | 5 V | 10.0 A | S8E1-05005D | S8E1-05005E | S8E1-05005F | | |
| | | | 12 V | 4.2 A | S8E1-05012D | S8E1-05012E | S8E1-05012F | | |
| | | | 15 V | 3.4 A | S8E1-05015D | S8E1-05015E | S8E1-05015F | | |
| | | | 24 V | 2.2 A | S8E1-05024D | S8E1-05024E | S8E1-05024F | | |
| | | PCB-type | 100 VAC | 10 W | 5 V | 2.0 A | --- | S8E1-01005G | S8E1-01005H |
| | | | | | 12 V | 1.0 A | --- | S8E1-01012G | S8E1-01012H |
| | | | | | 15 V | 0.7 A | --- | S8E1-01015G | S8E1-01015H |
| | | | | | 24 V | 0.5 A | --- | S8E1-01024G | S8E1-01024H |
| 15 W | 5 V | | | 3.0 A | --- | S8E1-01505G | S8E1-01505H | | |
| | 12 V | | | 1.3 A | --- | S8E1-01512G | S8E1-01512H | | |
| | 15 V | | | 1.0 A | --- | S8E1-01515G | S8E1-01515H | | |
| | 24 V | | | 0.7 A | --- | S8E1-01524G | S8E1-01524H | | |
| 25 W | 5 V | | | 5.0 A | --- | S8E1-02505G | S8E1-02505H | | |
| | 12 V | | | 2.1 A | --- | S8E1-02512G | S8E1-02512H | | |
| | 15 V | | | 1.7 A | --- | S8E1-02515G | S8E1-02515H | | |
| | 24 V | | | 1.1 A | --- | S8E1-02524G | S8E1-02524H | | |
| 50 W | 5 V | | | 10.0 A | --- | S8E1-05005G | S8E1-05005H | | |
| | 12 V | | | 4.2 A | --- | S8E1-05012G | S8E1-05012H | | |
| | 15 V | | | 3.4 A | --- | S8E1-05015G | S8E1-05015H | | |
| | 24 V | | | 2.2 A | --- | S8E1-05024G | S8E1-05024H | | |

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
B: Open-frame type, top terminals
C: Open-frame type, connector
D: Covered-type, front terminals
E: Covered-type, top terminals
F: Covered-type, connector
G: PCB-type, top terminals
H: PCB-type, connector

Specifications

■ Ratings/Characteristics

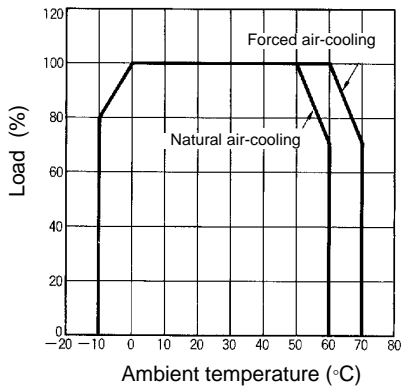
| Item | | Power ratings | | | |
|------------------------------|---|--|------------|------------|-------------|
| | | 10 W | 15 W | 25 W | 50 W |
| Efficiency (typical) | | 73% to 83% (depends on the model) | | | |
| Input | Voltage | 100 VAC (85 to 132 V) | | | |
| | Frequency | 47 to 450 Hz | | | |
| | 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 | | | |
| Output | 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. | | | |
| Additional function | Overload protection | 105% min. of rated load current (typical), inverted L drop type, automatic reset | | | |
| | Overvoltage protection | Yes (5-V output models only) | | | |
| Other | Ambient temperature | Operating: See the derating curve in the "Engineering Data" section. Storage: -25°C to 65°C | | | |
| | Ambient humidity | Operating: 25% to 85% 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 ² , approx. 4.5G) for 2 h each in X, Y, and Z directions | | | |
| | Shock resistance | Malfunction: 294 m/s ² (30G), 3 times each in ±X, ±Y, and ±Z directions | | | |
| | Output indicator | Yes (green) | | | |
| | Electromagnetic interference | Conforms to FCC class A standards and 1st group of VCCI | | | |
| | Approved standards | UL 1950 D3, CSA E.B.1402C | | | |
| | 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.

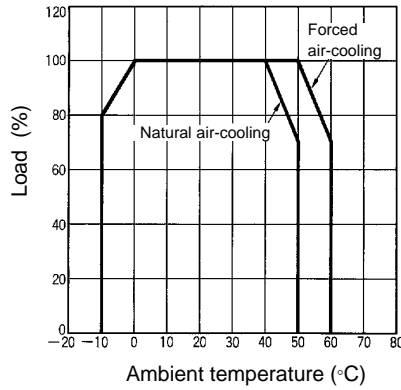
Engineering Data

Derating Curve

Open-frame type/PCB-type

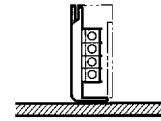


Covered-type

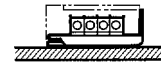


Standard Installation

Vertical Mounting Position

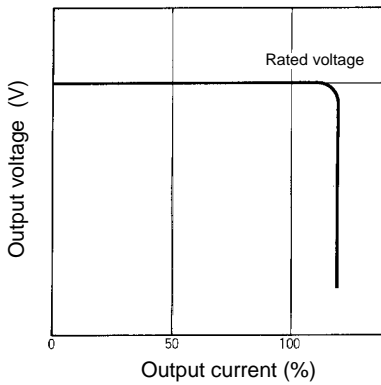


Horizontal Mounting Position



Note: The derating curve depends on the mounting direction of the Power Supply. The left curve is obtained from a model mounted in one of the standard positions.

Overload Protection

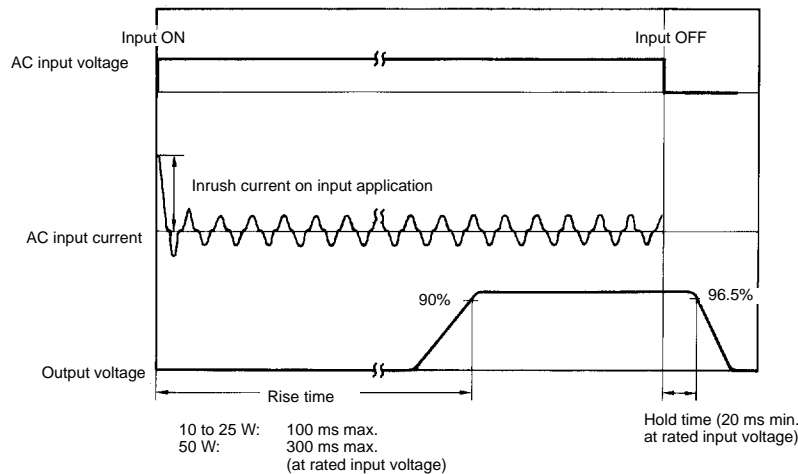


Overvoltage Protection (5-V Output Models Only)

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 Switching Power Supply off for at least one minute before turning it on again.

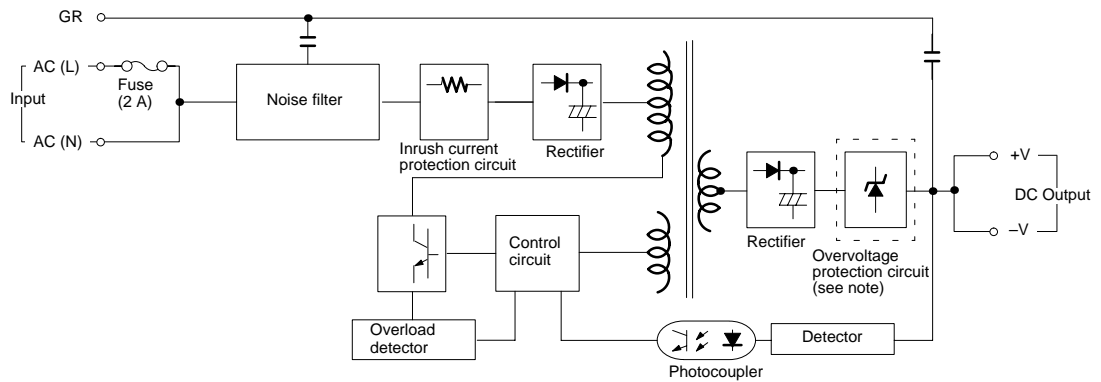
Inrush Current, Rise Time, Hold Time



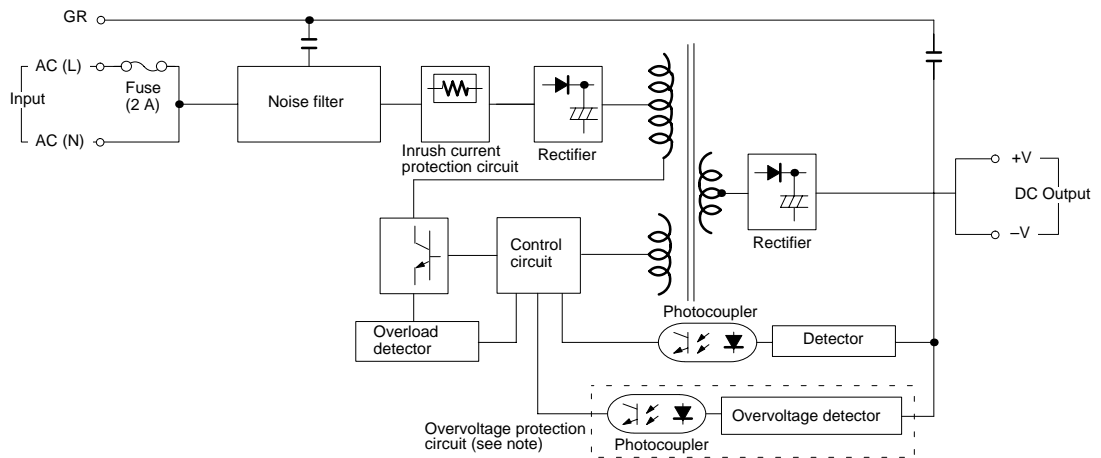
Operation

■ Block Diagram

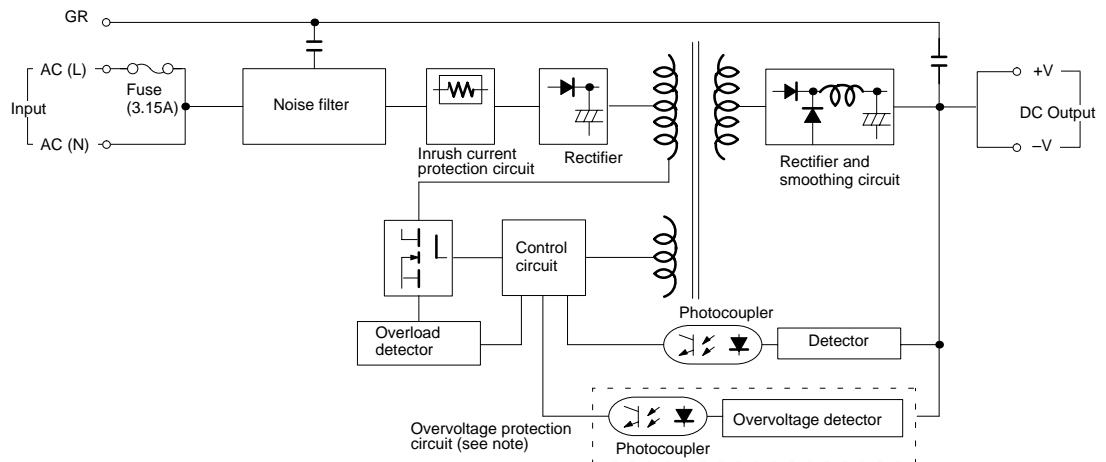
10 W, 15 W



25 W



50 W



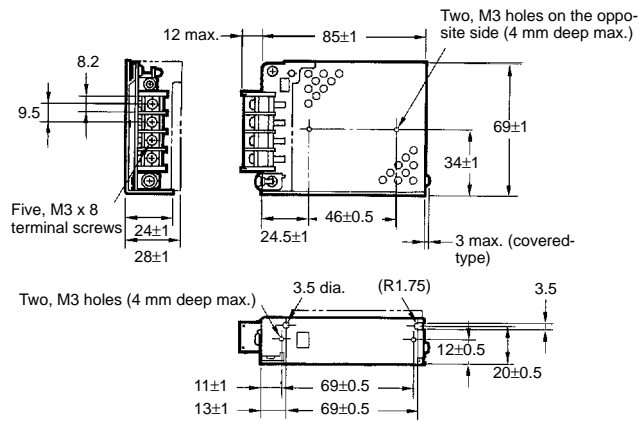
Note: Only the S8E1 with an output of 5 V incorporates an overvoltage protection circuit.

Dimensions

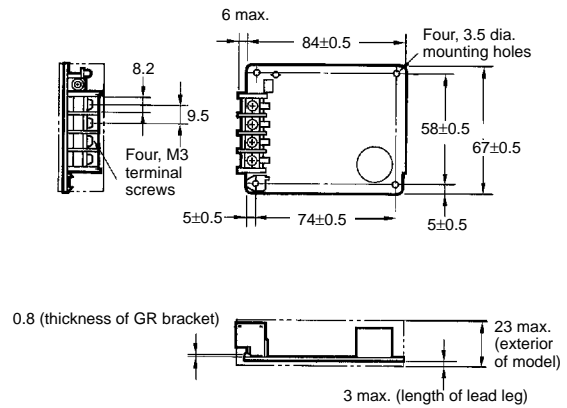
- Note:** 1. All units are in millimeters unless otherwise indicated.
 2. The thickness of the circuit board is 1.6 mm.

10 W

Open-frame Type/Covered-type

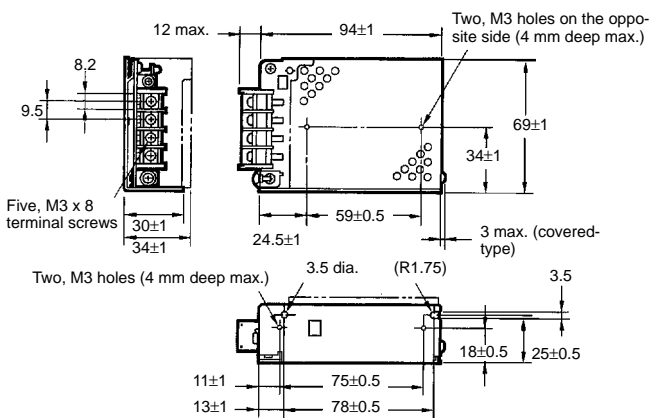


PCB-type

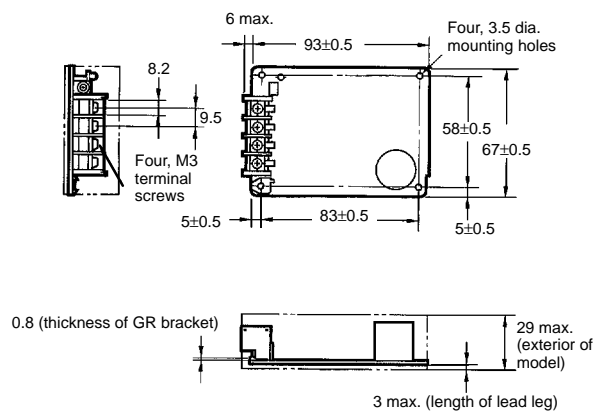


15 W

Open-frame Type/Covered-type

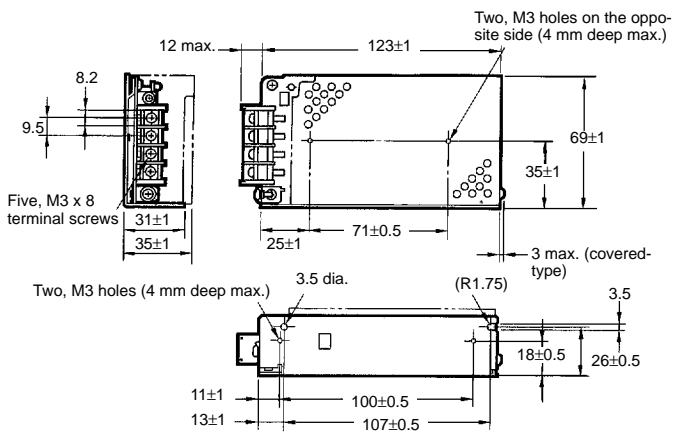


PCB-type

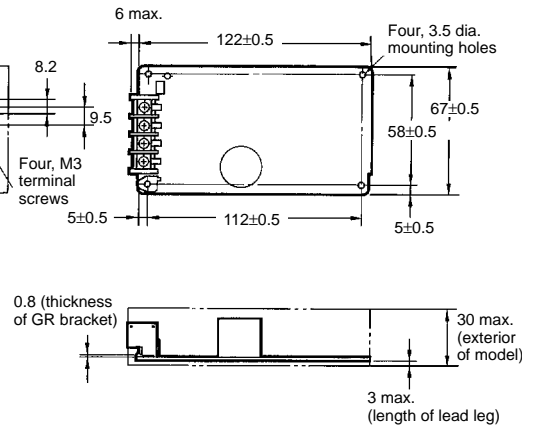


25 W

Open-frame Type/Covered-type

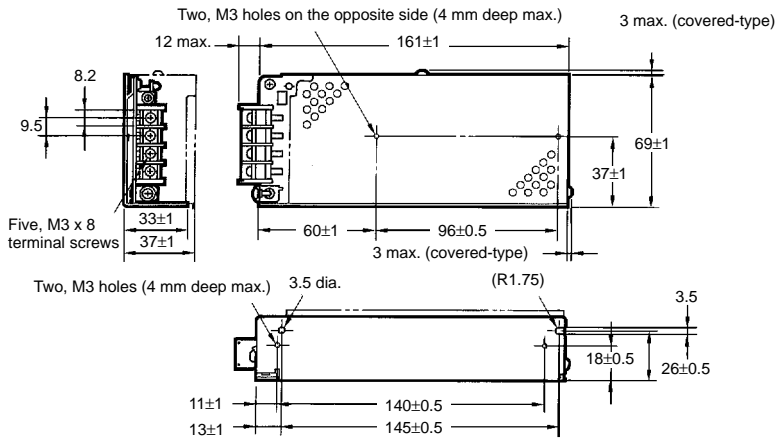


PCB-type

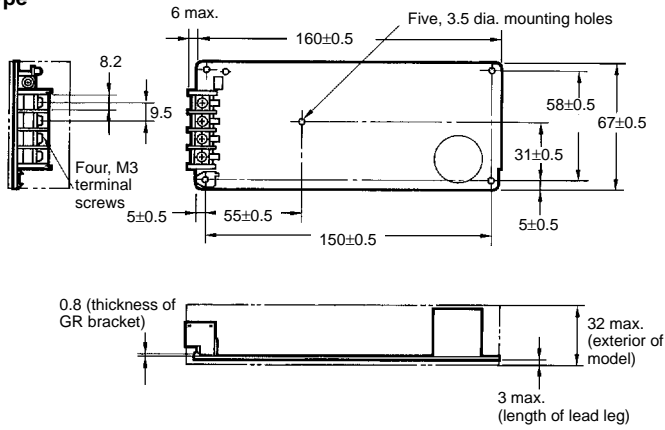


50 W

Open-frame Type/Covered-type



PCB-type

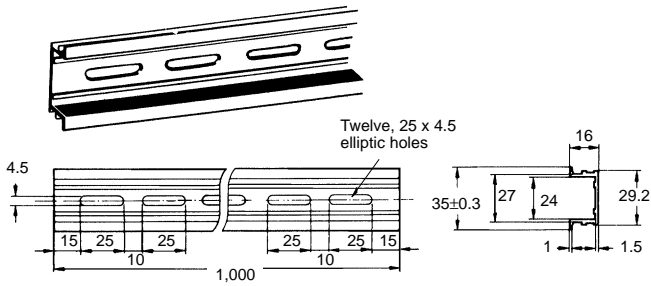


Accessories

Track Mounting Bracket (Order Separately)

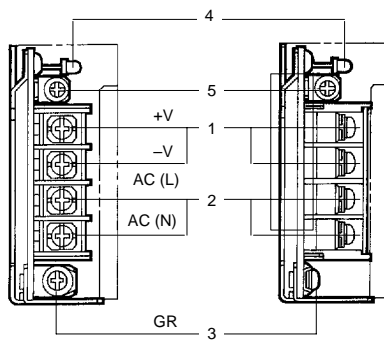
| Item | S82Y-01N | S82Y-03N | S82Y-10N |
|------------------------|----------------------------|-------------|-------------|
| Applicable supply unit | S8E1-□10□□□ S8E1-□15□□□ | S8E1-□25□□□ | S8E1-□50□□□ |
| Dimensions | | | |
| Dimensions: L1 | 113 mm | 143 mm | 185 mm |
| L2 | 114.8 mm | 144.8 mm | 186.8 mm |

**Mounting Track (Order Separately)
PFP-100N2**

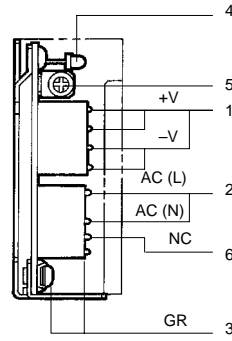


Installation

Terminal Model



Connector Model



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.

Connectors (Made by Molex)

| Connector | Connector on the PCB side | Housing | Terminal |
|---------------|---------------------------|------------------|---------------|
| Input | 5277-04A-RE (red) | 5196-04-RE (red) | Three 5194T's |
| Output | 5281-04A (white) | 5197-04 (white) | Four 5194T's |

Note: Two housings (red and white) and eight terminals (one as a spare) are provided with the Unit (S8E1).
Use the JHTR5904 (made by Molex) as a tool for crimping the terminals. The current flow for each terminal must be 7 A maximum.

Precautions

Mounting

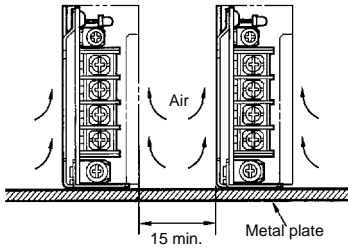
To improve and maintain the reliability of the Power Supply over a long period of time, adequate consideration must be given to heat radiation.

The Power Supply is designed to radiate heat by means of natural air-flow. Therefore, mount the Power Supply so that air flow takes place around the Power Supply.

When mounting the Power Supply, mounting it to a metal plate is recommended.

When mounting two or more Power Supplies side-by-side, allow at least 15 mm spacing between them, as shown in the following illustration.

Forced air-cooling is recommended.



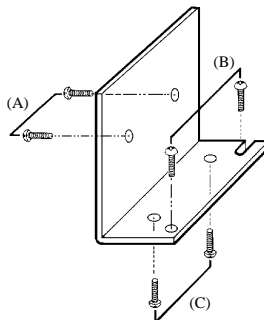
Open-frame Type and Covered-type

(A) Side mounting

(B) Bottom mounting (secured with screws from the inside of the Switching Power Supply)

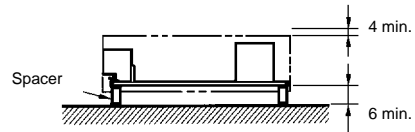
Note: This method is not possible with the covered-type.

(C) Bottom mounting (secured with screws from the back of the Switching Power Supply)



PCB-type

Leave a space between the PCB and the mounting panel for insulation.

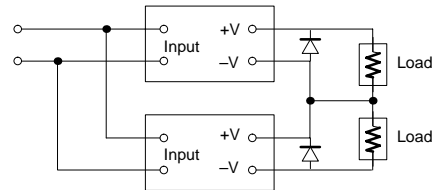


Note: The diameter of the spacer must be 9 mm max. and the length must be 6 mm min. Use a M3 screw with a washer to secure the spacer and the circuit board unit, in which case the diameter of the M3 screw head and that of the washer must both be 6 mm max.

Generating Output Voltage (\pm)

An output of \pm 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 Switching 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.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. M046-E1-3 **In the interest of product improvement, specifications are subject to change without notice.**

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Printed in Japan
1198-0.5C