# Switch Mode Power Supply
# S8PS (50/100/150/300/600-W Models)

## Compact DIN Rail-mounting Power Supplies

- Complies with EN 61000-3-2 harmonic current standards.
- Safety standards: UL, CSA, and EN/VDE.
- Complies with EN 61204-3 Class B.
- Mounting Bracket included for front mounting or DIN Rail mounting.
- RoHS-compliant

**Note:** Refer to *Safety Precautions* on page 12.

# Model Number Structure

## ■ Model Number Legend

**Note:** Not all combinations are possible. Refer to *List of Models* in *Ordering Information*, below.

**S8PS-□□□□□□**
**1 2 3**

**1. Power Ratings**
050: 50 W
100: 100 W
150: 150 W
300: 300 W
600: 600 W

**2. Output Voltage**
05: 5 V
12: 12 V
24: 24 V

**3. Configuration**
C: Covered type with Front Mounting Bracket
D: Open-frame type with DIN Rail Mounting Bracket
CD: Covered type with DIN Rail Mounting Bracket
None: Open-frame type with Front Mounting Bracket

# Ordering Information

## ■ List of Models

**Note:** For details on normal stock models, contact your nearest OMRON representative.

| Configuration | Input voltage | Power ratings | Output voltage | Output current | Front-mounting Model | DIN Rail-mounting Model |
|---|---|---|---|---|---|---|
| Covered type | 100 to 240 VAC | 50 W | 5 V | 10 A | S8PS-05005C | S8PS-05005CD |
| | | | 12 V | 4.2 A | S8PS-05012C | S8PS-05012CD |
| | | | 24 V | 2.1 A | S8PS-05024C | S8PS-05024CD |
| | | 100 W | 24 V | 4.5 A | S8PS-10024C | S8PS-10024CD |
| | | 150 W | 24 V | 6.5 A | S8PS-15024C | S8PS-15024CD |
| | | 300 W | 24 V | 14 A | S8PS-30024C | S8PS-30024CD |
| | | 600 W | 24 V | 27 A | S8PS-60024C | --- |
| Open-frame type | 100 to 240 VAC | 50 W | 5 V | 10 A | S8PS-05005 | S8PS-05005D |
| | | | 12 V | 4.2 A | S8PS-05012 | S8PS-05012D |
| | | | 24 V | 2.1 A | S8PS-05024 | S8PS-05024D |
| | | 100 W | 24 V | 4.5 A | S8PS-10024 | S8PS-10024D |
| | | 150 W | 24 V | 6.5 A | S8PS-15024 | S8PS-15024D |

## ■ Options (Order Separately)

| Name | Model |
|---|---|
| Fan | S82Y-JFAN |

# Specifications

## ■ Ratings/Characteristics

| Item | | | 50 W | 100 W | 150 W | 300 W | 600 W |
|---|---|---|---|---|---|---|---|
| **Efficiency (typical)** | | | 74% to 80% (depends on the model) | | | | |
| **Input** | **Voltage (See note 1.)** | | 100 to 240 VAC (85 to 264 VAC) | | | | |
| | **Frequency (See note 1.)** | | 50/60 Hz (47 to 63 Hz) | | | | |
| | **Current (See note 2.)** | **100-V input** | 0.9 A max. | 1.8 A max. | 2.7 A max. | 5.4 A max. | 10 A max. |
| | | **200-V input** | 0.45 A max. | 0.9 A max. | 1.4 A max. | 2.7 A max. | 5 A max. |
| | **Leakage current (See note 2.)** | **100-V input** | 0.5 mA max. | | | | |
| | | **200-V input** | 1.0 mA max. | | | | |
| | **Inrush current (See note 2.)** | **100-V input** | 25 A max. (for a cold start at 25°C) | | | | |
| | | **200-V input** | 50 A max. (for a cold start at 25°C) | | | | |
| | **Power factor (See note 2.)** | | 0.95 typical | | | | |
| | **Harmonic current standards** | | Based on EN 61000-3-2 | Complies with EN 61000-3-2 | | | |
| **Output** | **Voltage adjustment range (See note 3.)** | | –5% to 10% | | | | |
| | **Ripple (See note 2.)** | | 2% (p-p) max. | | | | |
| | **Input variation influence** | | 0.4% max. (at 85 to 132 VAC input/at 170 to 264 VAC input, 100% load) | | | | |
| | **Load variation influence** | | 0.8% max. (with rated input, 0 to 100% load) | | | | |
| | **Temperature variation influence (See note 2.)** | | 0.05%/°C max. | | | | |
| | **Startup time** | | 1,000 ms max. (up to 90% of output voltage at rated output voltage/current) | | | 1,500 ms max. | |
| | **Hold time (See note 2.)** | | 20 ms min. | | | | |
| **Additional function** | **Overload protection** | | 105% min., voltage drop, intermittent operation<br>(With the 600-W model, output is turned OFF at 5 s min.) | | | | |
| | **Overvoltage protection (See note 5.)** | | Yes | | | | |
| | **Overheat protection** | | No | | | | Yes |
| | **Protection-ON alarm indicator** | | No | | | Yes (color: red) | |
| | **Parallel operation** | | No | | | Yes, 2 units max. | |
| **Other** | **Heat radiation** | | Natural air-cooling | | | | Built-in fan |
| | **Ambient operating temperature** | | Refer to the derating curve in *Engineering Data* (with no icing or condensation). | | | | |
| | **Storage temperature** | | –25 to 65°C | | | | |
| | **Ambient operating humidity** | | 25% to 85% | | | | |
| | **Dielectric strength** | | 3.0 kVAC for 1 min. (between all inputs and outputs)<br>2.2 kVAC for 1 min. (between all inputs and PE terminal)<br>1.0 kVAC for 1 min. (between all outputs and PE terminal) | | | | |
| | **Insulation resistance** | | 100 MΩ min. (between all outputs and inputs/PE terminal at 500 VDC) | | | | |
| | **Vibration resistance** | | 10 to 55 Hz, 0.75-mm amplitude for 2 h each in X, Y, and Z directions | | | | |
| | **Shock resistance** | | 300 m/s$^2$, 3 times each in ±X, ±Y, and ±Z directions | | | | |
| | **Output indicator** | | Yes (color: green) | | | | |
| | **EMI** | **Conducted Emission (See note 2.)** | Conforms to EN61204-3 EN55011 Class B and based on FCC Class B | | | | |
| | | **Radiated Emission** | Conforms to EN61204-3 EN55011 Class B | | | | |
| | **EMS** | | Conforms to EN61204-3 High severity levels | | | | |
| | **Approved standards** | **UL<br>cUL<br>cUR<br>EN/VDE** | UL508, UL1012, UL60950-1<br>CSA C22.2 No. 14<br>CSA No. 60950-1<br>EN50178 (=VDE0160), EN60950-1 (=VDE0805 Teil 1) | | | | |
| | **Weight (See note 6.)** | | 420 g max. | 600 g max. | 735 g max. | 2,200 g max. | 3,500 g max. |
| | **Mounting method** | | Front Mounting Bracket or DIN Rail Mounting Bracket | | | | Front Mounting Bracket |

**Note: 1.** Do not use an inverter output for the Power Supply. Inverters with an output frequency of 50/60 Hz are available, but the rise in the internal temperature of the Power Supply may result in ignition or burning.

**2.** A 100% load for rated input voltage (100 VAC or 200 VAC).

**3.** If the output voltage adjuster (V. ADJ) is turned, the voltage will increase by more than 10% of the voltage adjustment range. When adjusting the output voltage, confirm the actual output voltage from the Power Supply and be sure that the load is not damaged.

**4.** The output will shut off and the protection-ON alarm indicator will simultaneously light. Turn OFF the input power supply, wait 1 min., and then turn ON the input power supply to recover normal operation.

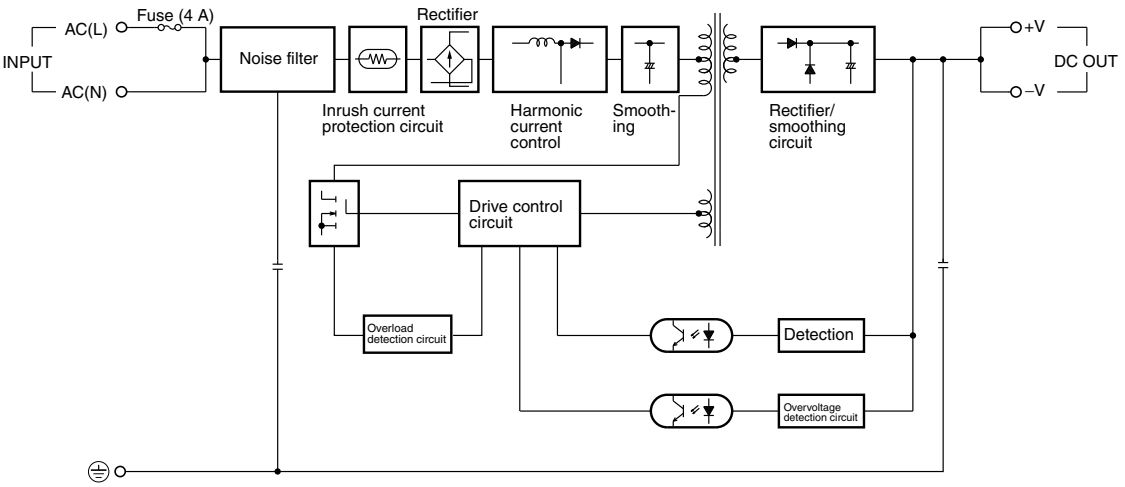
**5.** Turn OFF the input power supply, wait 1 min., and then turn ON the input power to recover normal operation. (For 300-W and 600-W models, the output will shut off and the protection-ON indicator will simultaneously light.)

**6.** The weight indicated is for a front-mounting open-frame model. (includes the cover for 300-W and 600-W front-mounting models.)

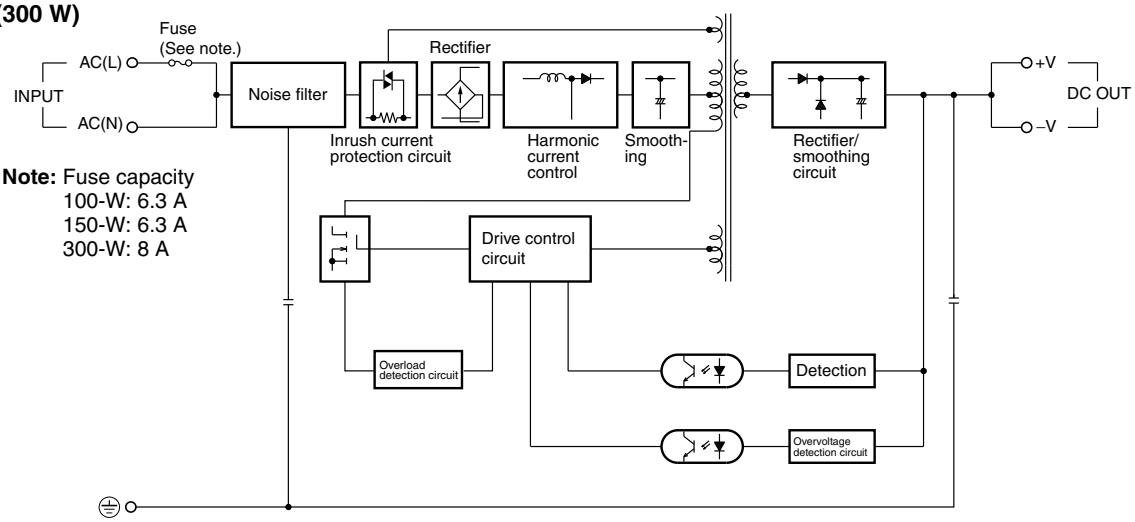
# Connections

## ■ Block Diagrams

**S8PS-050□□□□ (50 W)**

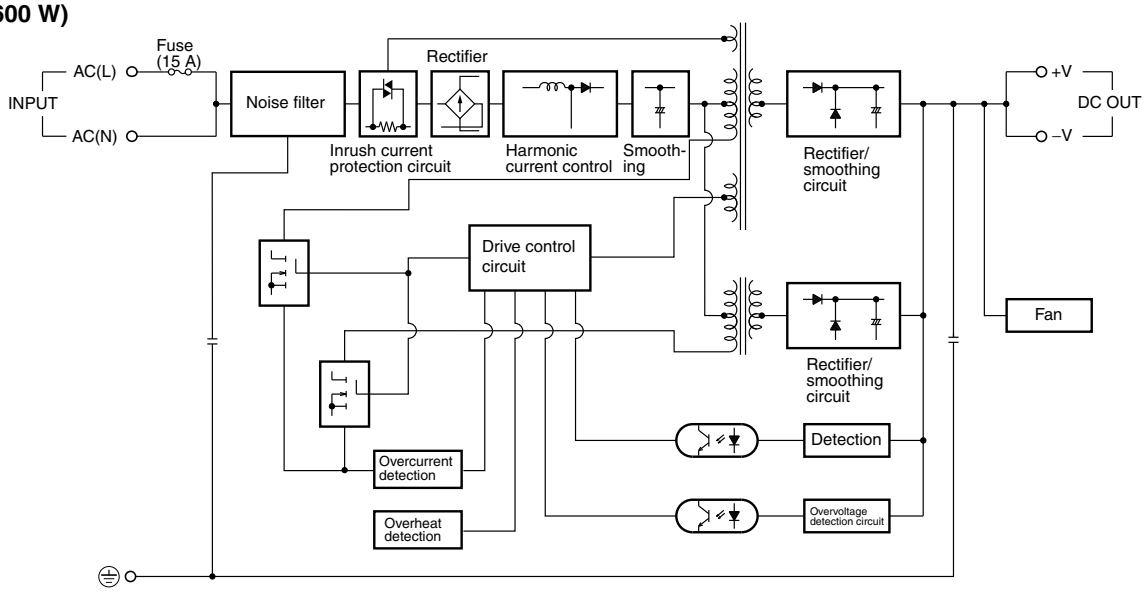



**S8PS-10024□□ (100 W)**
**S8PS-15024□□ (150 W)**
**S8PS-30024□□ (300 W)**




**Note:** Fuse capacity
100-W: 6.3 A
150-W: 6.3 A
300-W: 8 A

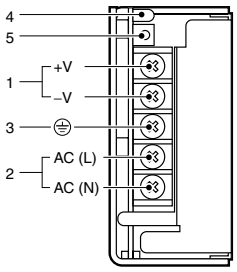
**S8PS-60024C (600 W)**



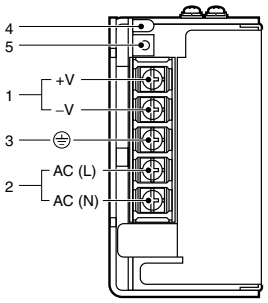
# Construction and Nomenclature

## ■ Nomenclature

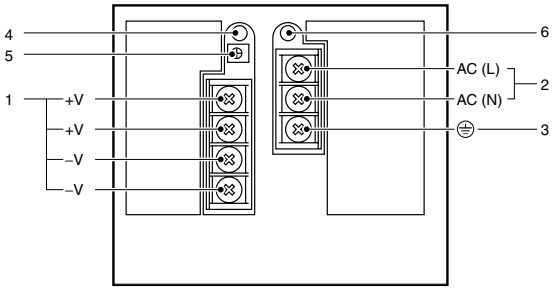
**50-W Models**



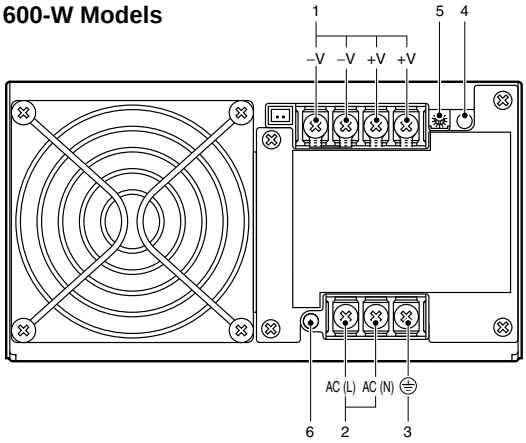

**100-/150-W Models**




**300-W Models**




**600-W Models**

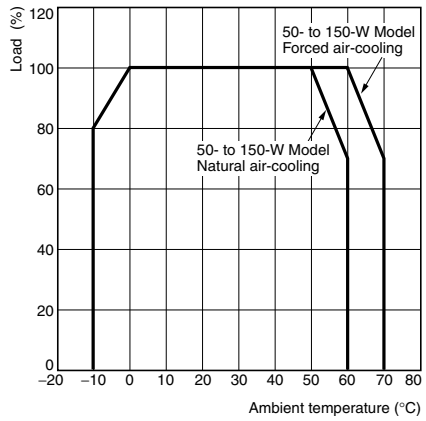



1. **DC Output Terminals (+V, –V):** Connect the load lines to these terminals.
2. **Input Terminals (L, N):** Connect the input lines to these terminals.
   **Note:** A fuse is located on the (L) side. It is NOT user replaceable.
3. **Protective Earthing Terminal ⏚ :** Connect a ground line to this terminal.
4. **Output Indicator (DC ON: Green):** Lights (green) while a direct current (DC) output is ON.
5. **Output Voltage Adjuster (V.ADJ):** It is possible to increase or decrease the output voltage by –5% to +10%.
6. **Protection-ON Alarm Indicator (Red):** The red indicator will be lit if the overvoltage (for a 300-/600-W model) or overheat protection (for a 600-W model) circuit is triggered. This indicator will also be lit when overcurrent (for a 600-W model) is detected.

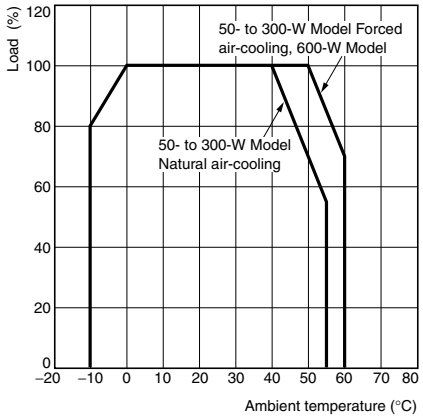
# Engineering Data

## ■ Derating Curve (Standard Installation)

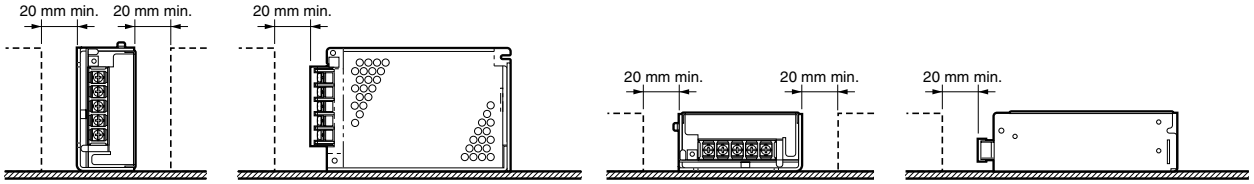
### Open-frame Type



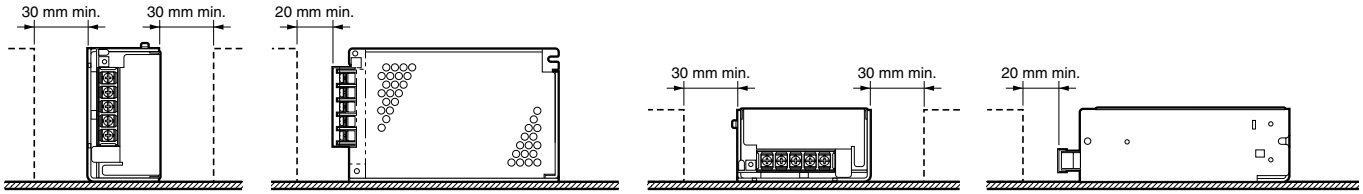

### Covered Type



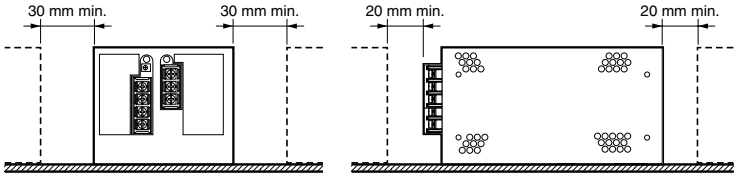

### Standard Installation (50-W Model)



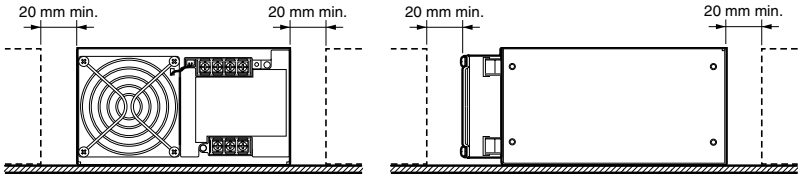

### Standard Installation (100/150-W Model)




### Standard Installation (300-W Model)




### Standard Installation (600-W Model)




**Note: 1.** Forced air-cooling must be provided with an air volume of 1 $m^3$/mm min.

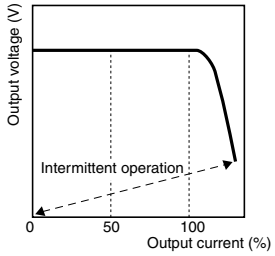
**2.** The derating curve shown is for standard installation. The derating curve depends on the mounting direction of the Power Supply.

# ■ Overload Protection

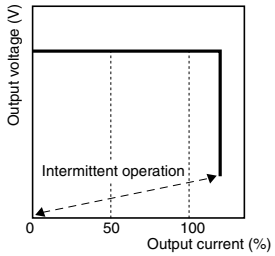
## 50- to 300-W Models

The Power Supply is provided with an overload protection function that protects the power supply from possible damage from an overload. The protection function operates when the load current rises above an overcurrent detection value (105% of the rated load current except for 300-W models, for which the value is 101%). For a short-circuit or overload lasting less than 20 seconds, output voltage is decreased to protect equipment. When the output current falls within the rated range, the overload protection function is automatically cleared.

## 50-, 100-, 150-W Models




## 300-W Model

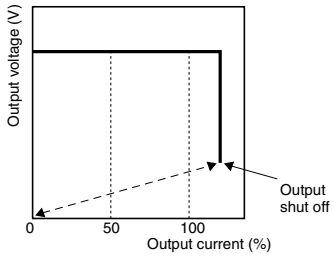



The valves shown in the above diagrams are for reference only.

**Note:** If a short-circuit or overload lasts 20 seconds or longer, internal circuits may deteriorate or be damaged.

## 600-W Model

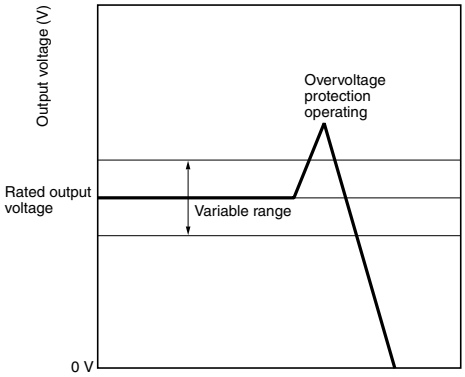
If the overload state continues for 5 seconds or longer, the output will shut off and the protection-ON alarm indicator will simultaneously light. Reset the input power by turning it OFF for at least one minute and then turning it back again.




**Note:** Internal parts may occasionally deteriorate or be damaged if a short-circuited or other overcurrent state continues during operation.

# ■ Overvoltage Protection

The Power Supply is provided with an overvoltage protection function that protects the Power Supply from possible damage by overvoltage. When the output voltage rises above a set value (115% of the rated output voltage), the protection function is triggered, shutting OFF the output voltage. Reset the input power by turning it OFF for at least one minute and then turning it back again.




The valves shown in the above diagram are for reference only.

## 300- and 600-W Models

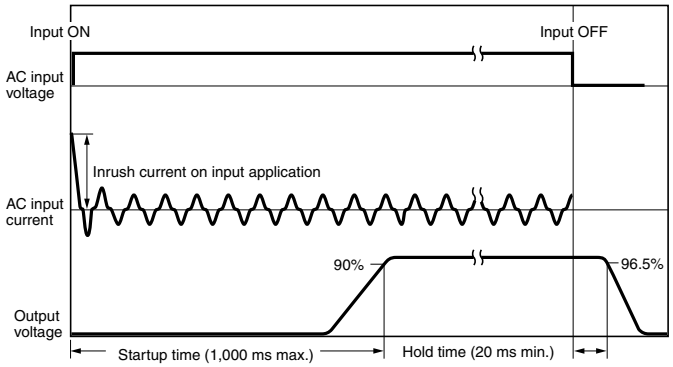
If more than approx. 115% of the rated output voltage is output, the output will be shut off and simultaneously the protection-ON alarm indicator will light. Reset the input power by turning it OFF for at least one minute and then turning it back again.

# ■ Overheat Protection Function

## 600-W Model Only

If the internal temperature of the S8PS rises excessively as a result of fan failure or any other reason, the overheat protection circuit will be triggered to protect the internal parts of the S8PS and simultaneously a protection-ON alarm indicator will be lit. Reset the input power by turning it OFF for at least one minute and then turning it back again.

# ■ Inrush Current, Startup Time, Hold Time

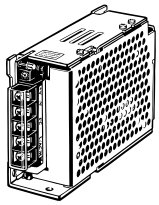


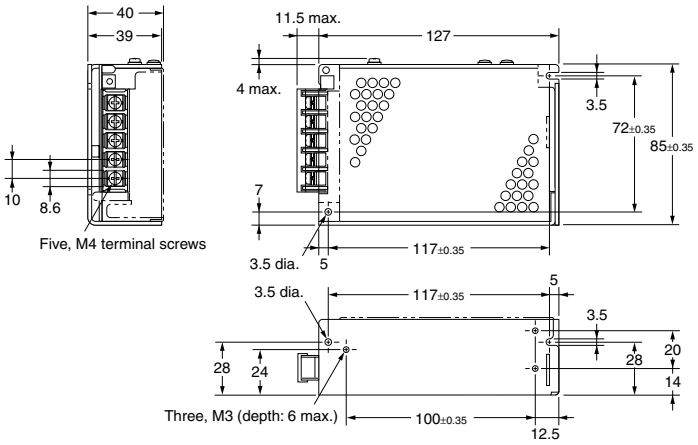
# Dimensions

**Note:** All units are in millimeters unless otherwise indicated.

## ■ Front-mounting Models

**S8PS-050□□ (50 W)**
**S8PS-050□□□C (50 W)**

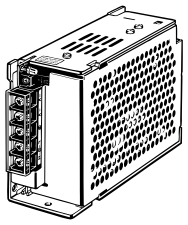


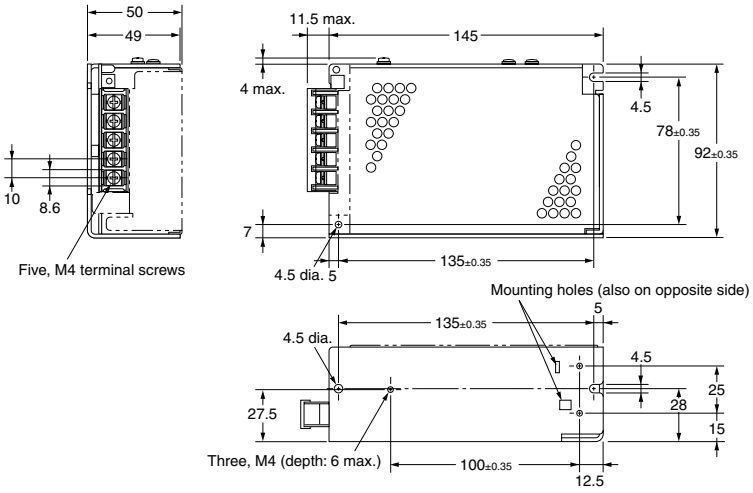



**Mounting Holes**

| | Front Screw Mounting |
|---|---|
| Side Mounting | Two, M3<br>72±0.35<br>117±0.35 |
| Bottom Mounting | Two, M3<br>117±0.35 |

**S8PS-10024 (100 W)**
**S8PS-10024C (100 W)**

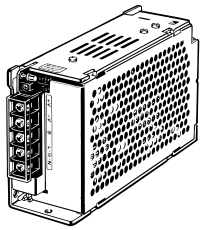


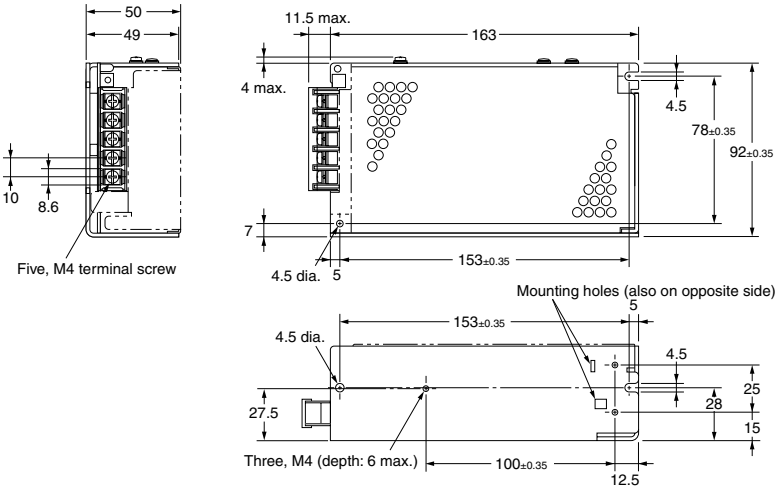



**Mounting Holes**

| | Front Screw Mounting |
|---|---|
| Side Mounting | Two, M4<br>78±0.35<br>135±0.35 |
| Bottom Mounting | Two, M4<br>135±0.35 |

**S8PS-15024 (150 W)**
**S8PS-15024C (150 W)**

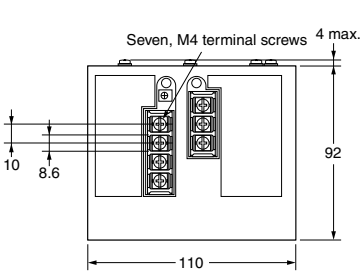


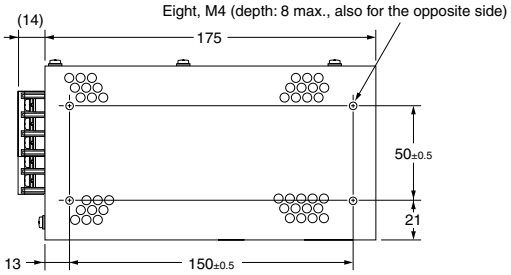


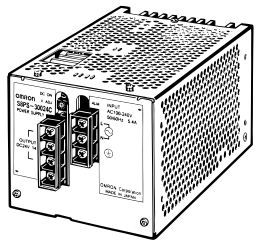

**Mounting Holes**

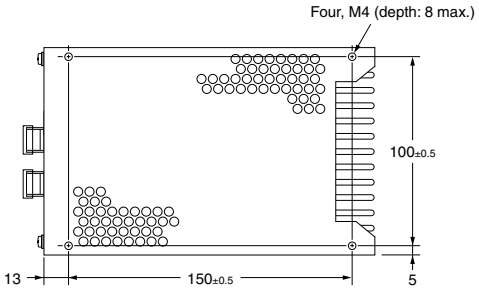
| | Front Screw Mounting |
|---|---|
| Side Mounting | Two, M4<br>78±0.35<br>153±0.35 |
| Bottom Mounting | Two, M4<br>153±0.35 |

## S8PS-30024C (300 W)

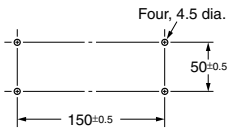
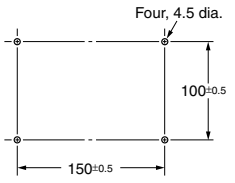


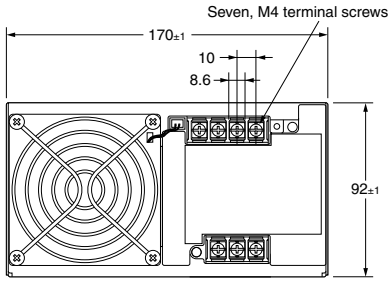


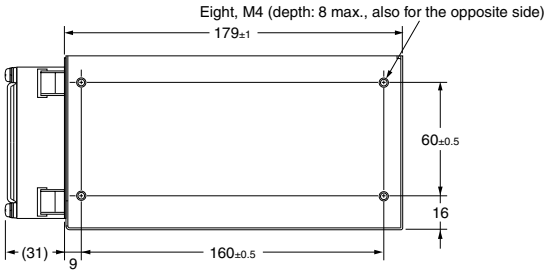

### Mounting Holes

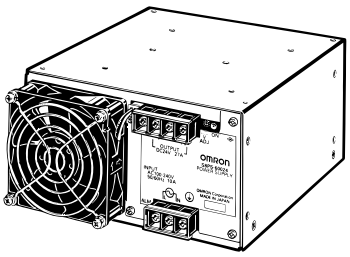
| | Front Screw Mounting |
|---|---|
| Side Mounting |  |
| Bottom Mounting |  |

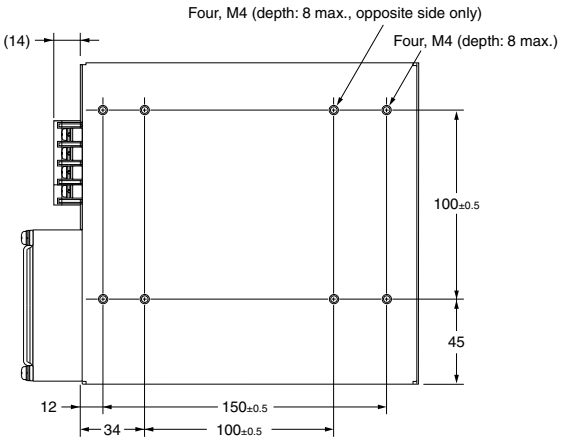


## S8PS-60024C(600 W)

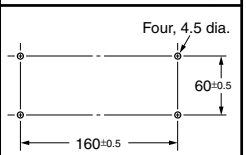
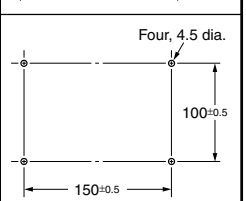




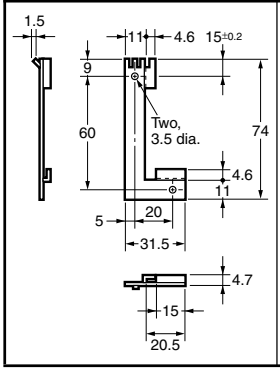
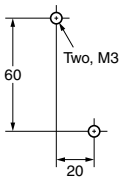

### Mounting Holes

| | Front Screw Mounting |
|---|---|
| Side Mounting |  |
| Bottom Mounting |  |

# ■ Front Mounting Brackets

**Note:** Screws for fixing the Bracket to the panel are not provided.

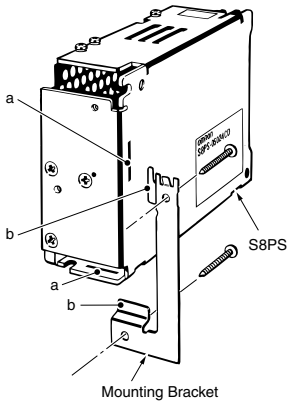
### Front Mounting Bracket for 50-W Models

| Demensions | Mounting Holes |
|---|---|
|  |  |



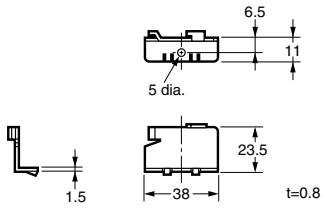
#### Using the Mounting Bracket

Attach the Mounting Bracket to the panel and loosely tighten the two screws. Insert the projected parts of the Bracket (b) to the square holes of the power supply (a). Then securely tighten the screws.

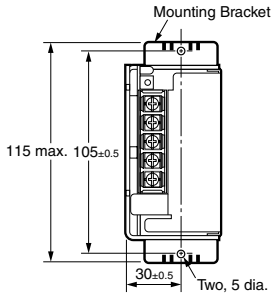



### Front Mounting Bracket for 100/150-W Models

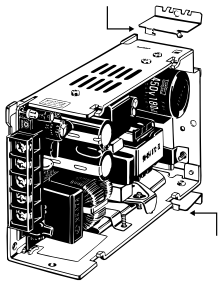
#### Appearance and Mounting Dimensions




#### Dimensions with Mounting Bracket

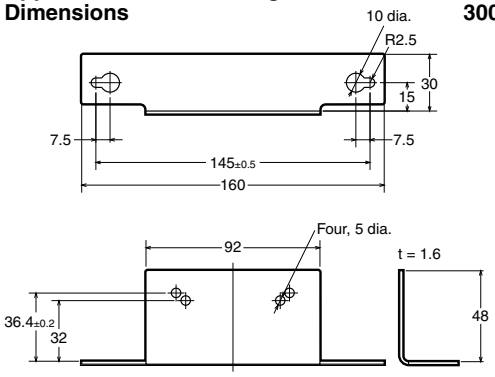



#### Using the Mounting Bracket

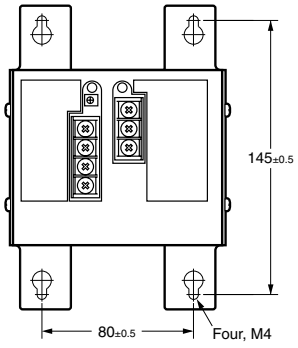


### Front Mounting Bracket for 300/600-W Models

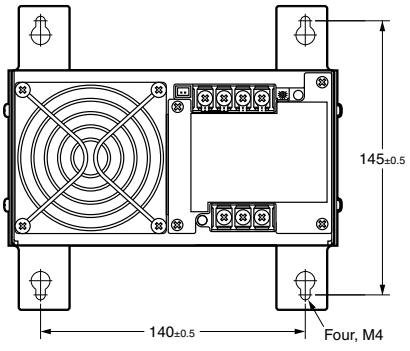
#### Appearance and Mounting Dimensions




#### Dimensions with Mounting Bracket 300-W Models

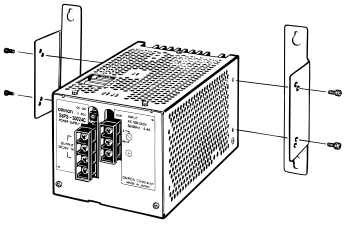



#### 600-W Models



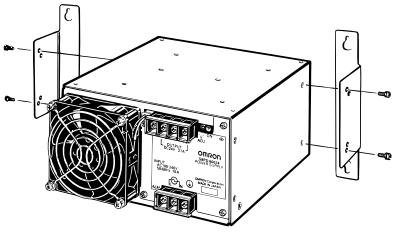

#### Using the Mounting Bracket

#### 300-W Models



**Note:** Mount the Unit 21.6 mm away from the mounting surface in order to provide air ventilation on the rear side.

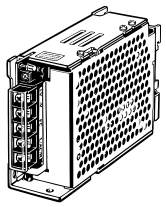
#### 600-W Models

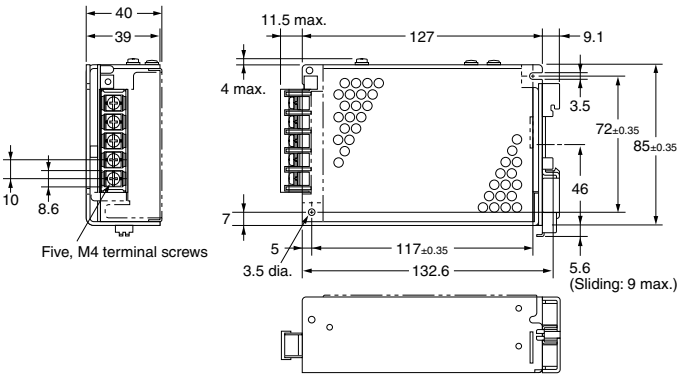


**Note:** Mount the Unit 28 mm away from the mounting surface in order to provide air ventilation on the rear side.

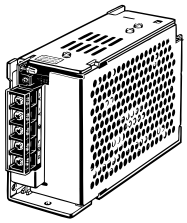
# ■ DIN Rail-mounting Models

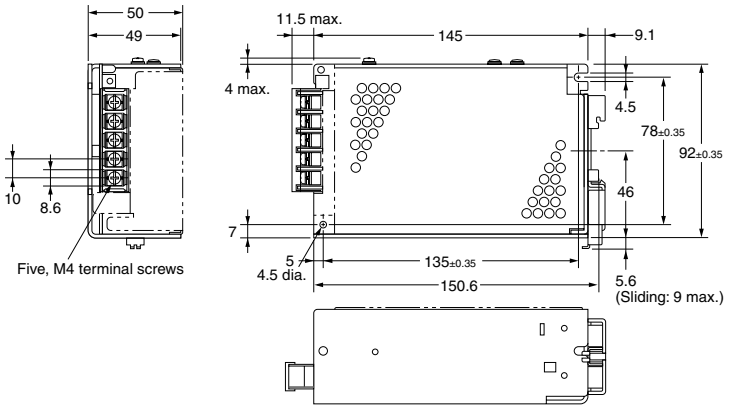
**S8PS-050□□D (50 W)**
**S8PS-050□□CD (50 W)**



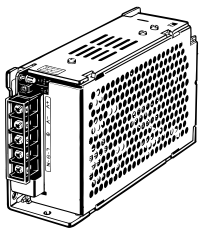


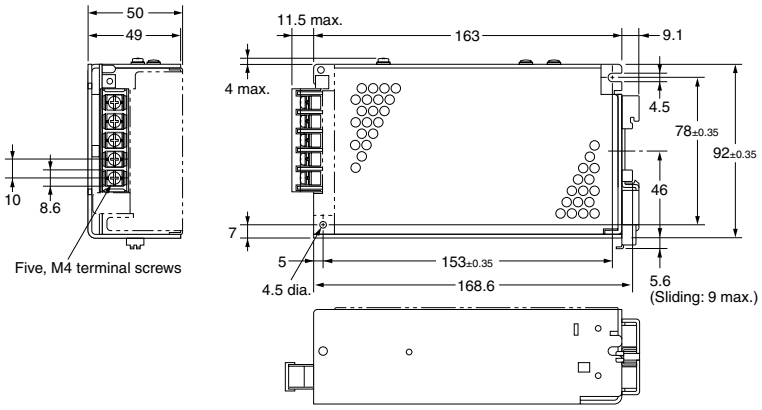

**S8PS-10024D (100 W)**
**S8PS-10024CD (100 W)**



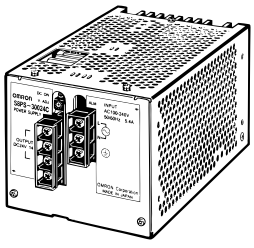


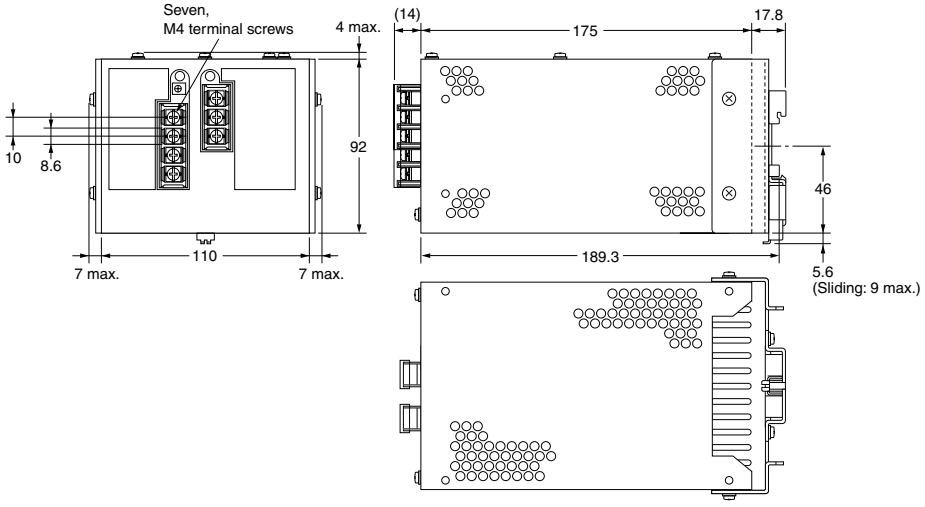

**S8PS-15024D (150 W)**
**S8PS-15024CD (150 W)**






**S8PS-30024CD (300 W)**

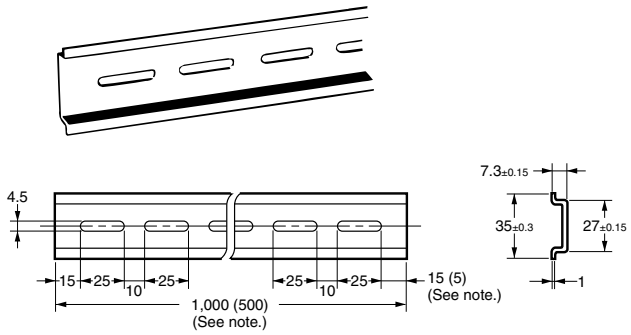




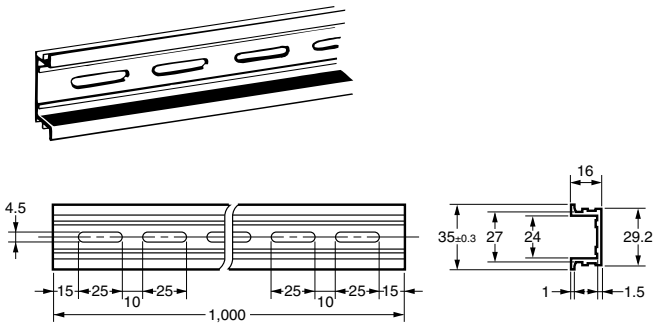
# ■ Accessories

## Mounting Rail (Order Separately)

**PFP-100N**
**PFP-50N**




**PFP-100N2**




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

# Safety Precautions

| ⚠ CAUTION | |
|---|---|
| Minor electric shock, fire, or Product failure may occasionally occur. Do not disassemble, modify, or repair the Product or touch the interior of the Product. |  |
| Minor burns may occasionally occur. Do not touch the Product while power is being supplied or immediately after power is turned OFF. |  |
| Fire may occasionally occur. Tighten terminal screws to the specified torque 1.08 N·m (M4). |  |
| Electric shock due to residual voltage may occoccur. Do not touch the Product for at least 1 minute after the input power is turned OFF. |  |
| Minor electric shock, fire, or Product failure may occasionally occur. Do not allow any pieces of metal or conductors or any clippings or cuttings resulting from installation work to enter the Product. |  |

## ■ Precautions for Safe Use

### 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.

Use a metal plate as the mounting panel.

Forced air-cooling is highly recommended.

### Wiring

Connect the ground completely. Electric shock may occur if the ground is not connected completely.

Do not apply more than 75-N force to the terminal block when tightening it.

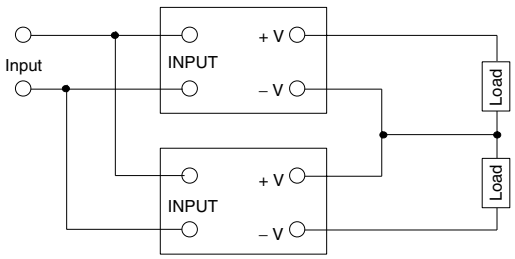
### Buzzing Noise When the Input Is Turned ON

A harmonic current suppression circuit is built into the input power. This circuit can create noise when the input is turned ON, but it will last only until the internal operation stabilizes and does not indicate any problem in the Power Supply.

### 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.

**Correct**

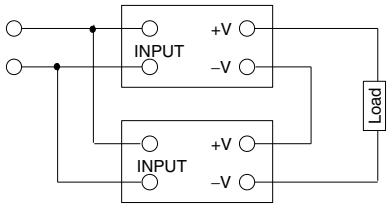



### Series Operation

All models allow series operation.

As shown in the following diagram, the output voltage from each Switching Power Supply can be added.

**Correct**

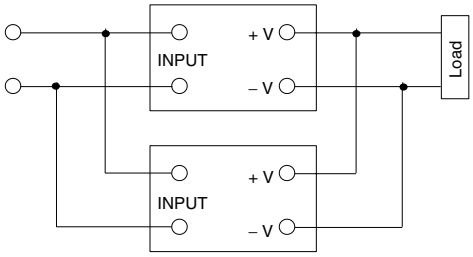



### Parallel Operation

Only 300- and 600-W models can be in parallel operation. Do not operate any other models in parallel. (A maximum of two Power Supplies can be used in parallel operation and they must have the same model number.)

Make sure that the thickness and the length of all wires connected to the load are the same to ensure that the wires will have no voltage drop differences.

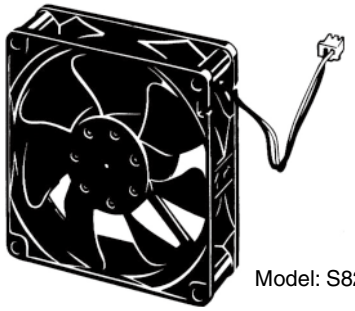
**Correct**




### Fan Replacement

The service life of the fan is approximately 50,000 hours (at 25°C). The service life varies, however, depending on the ambient temperature or other surrounding environmental conditions such as dust. As a preventive maintenance measure, replace the fan within two years if it is used at an ambient temperature of 40°C.

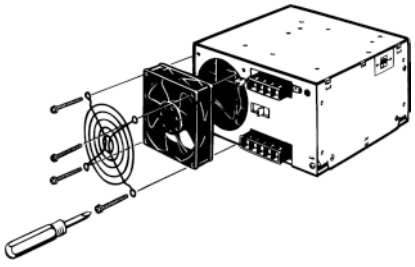
Fans are available as replacements.



Model: S82Y-JFAN

Fan Set:
Fan (above), four M4 x 35 sems screws, instruction sheet, and packing case

Replace the fan as shown in the following illustration.



ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

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