Switch Mode Power Supply
S8VM (15/30/50/100/150/300/600/1,500-W Models)

Power Supply Featuring OMRON’s Unique, New Undervoltage Alarm Function with Compact Body Contributing to Machine Downsizing

- New undervoltage alarm function assists in determining causes of errors (S8VM-24A only).
- Power failure alarm function provides notification of output voltage errors (300-, 600-, and 1,500-W models only).
- Broad range of possibilities with 8 capacities and 29 models to choose from.
- RoHS-compliant
- New, attentive design prevents screws from falling out of terminal block (except for output terminals of 300-, 600-, and 1,500-W models).
- Finger protection prevents electric shock.
- DIN Rail mounting.
- Safety standards: UL508/60950-1/1604, CSA C22.2 No. 14/No. 60950-1/No. 213, EN50178, EN60950-1 (The 300-, 600-, and 1,500-W models will not conform to safety standards if the customer replaces the fan.)
- Conforms to SEMI F47-0200 (when 200-V input is used).
- Harmonic current emissions: Conforms to EN61000-3-2 (except for 15- and 30-W models).

Note: 1. A forced-air cooling method with a fan is used with 300-, 600-, and 1,500-W models.
2. The housing and terminal of the connector for the undervoltage alarm output are provided with the S8VM-05024A/P and S8VM-10024A/P, and S8VM-15024A/P.
3. Bottom mounting models cannot be used for front mounting. For a front mounting configuration, use a DIN Rail Mounting Bracket model or Mounting Brackets (sold separately).

Refer to Safety Precautions for All Power Supplies and Safety Precautions on page 32.

Model Number Structure

Model Number Legend

Note: Not all combinations are possible. Refer to List of Models in Ordering Information on page 2.

S8VM-  

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
</table>

1. Power Ratings
   015: 15 W
   030: 30 W
   050: 50 W
   100: 100 W
   150: 150 W
   300: 300 W
   600: 600 W
   152: 1,500 W

2. Output Voltage
   05: 5 V
   12: 12 V
   15: 15 V
   24: 24 V

3. Configuration/Functions
   None: Open-frame type
   C: Covered type
   A: Covered type (Sinking (emitter COM)) (See note 2.)
   P: Covered type (Sourcing (collector COM)) (See note 2.)

4. Configuration
   None: Bottom mounting type (See note 3.)
   D: DIN Rail mounting bracket type
# Ordering Information

## List of Models

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

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Power ratings</th>
<th>Input voltage</th>
<th>Output voltage</th>
<th>Output current</th>
<th>Bottom mounting</th>
<th>DIN Rail mounting bracket</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Standard model</td>
<td>Undervoltage alarm model</td>
<td>Standard model</td>
<td>Undervoltage alarm model</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sinking</td>
<td>Sourcing</td>
<td>Sinking</td>
<td>Sourcing</td>
<td></td>
</tr>
</tbody>
</table>

### Open-frame type

- **15 W** 100 to 240 VAC
  - 5 V: 3 A, S8VM-01505
  - 12 V: 1.3 A, S8VM-01512
  - 15 V: 1 A, S8VM-01515
  - 24 V: 0.65 A, S8VM-01524
  - 5 V: 6 A, S8VM-03005
  - 12 V: 2.5 A, S8VM-03012
  - 15 V: 2 A, S8VM-03015
  - 24 V: 1.3 A, S8VM-03024
  - 5 V: 10 A, S8VM-05005
  - 12 V: 4.3 A, S8VM-05012
  - 15 V: 3.5 A, S8VM-05015
  - 24 V: 2.2 A, S8VM-05024
  - 5 V: 20 A, S8VM-10005
  - 12 V: 8.5 A, S8VM-10012
  - 15 V: 7 A, S8VM-10015
  - 24 V: 4.5 A, S8VM-10024
  - 5 V: 27 A, S8VM-15005 (See note 2.)
  - 12 V: 12.5 A, S8VM-15012
  - 15 V: 10 A, S8VM-15015
  - 24 V: 5.5 A, S8VM-15024

### Covered type

- **15 W** 100 to 240 VAC
  - 5 V: 3 A, S8VM-01505C
  - 12 V: 1.3 A, S8VM-01512C
  - 15 V: 1 A, S8VM-01515C
  - 24 V: 0.65 A, S8VM-03005C
  - 12 V: 2.5 A, S8VM-03012C
  - 15 V: 2 A, S8VM-03015C
  - 24 V: 1.3 A, S8VM-03024C
  - 5 V: 10 A, S8VM-05005C
  - 12 V: 4.3 A, S8VM-05012C
  - 15 V: 3.5 A, S8VM-05015C
  - 24 V: 2.2 A, S8VM-05024C
  - 5 V: 20 A, S8VM-10005C
  - 12 V: 8.5 A, S8VM-10012C
  - 15 V: 7 A, S8VM-10015C
  - 24 V: 4.5 A, S8VM-10024C
  - 5 V: 27 A, S8VM-15005C (See note 2.)
  - 12 V: 12.5 A, S8VM-15012C
  - 15 V: 10 A, S8VM-15015C
  - 24 V: 5.5 A, S8VM-15024C

### 30 W

- 5 V: 6 A, S8VM-03005C
  - 12 V: 2.5 A, S8VM-03012C
  - 15 V: 2 A, S8VM-03015C
  - 24 V: 1.3 A, S8VM-03024C

### 50 W

- 5 V: 8 A, S8VM-05005C
  - 12 V: 4.3 A, S8VM-05012C
  - 15 V: 3.5 A, S8VM-05015C
  - 24 V: 2.2 A, S8VM-05024C

### 100 W

- 5 V: 10 A, S8VM-10005C
  - 12 V: 8.5 A, S8VM-10012C
  - 15 V: 7 A, S8VM-10015C
  - 24 V: 4.5 A, S8VM-10024C

### 150 W

- 5 V: 15 A, S8VM-15005C
  - 12 V: 12.5 A, S8VM-15012C
  - 15 V: 10 A, S8VM-15015C
  - 24 V: 5.5 A, S8VM-15024C

### 300 W (See note 4.)

- 5 V: 30 A, S8VM-30005C
  - 12 V: 27 A, S8VM-30012C
  - 15 V: 22 A, S8VM-30015C
  - 24 V: 14 A, Peak current: 16.5 A

### 600 W (See note 4.)

- 5 V: 60 A, S8VM-60005C
  - 12 V: 53 A, S8VM-60012C
  - 15 V: 43 A, S8VM-60015C
  - 24 V: 27 A, Peak current: 31 A

### 1,500 W (See note 4.)

- 24 V: 65 A (100 VAC) 70 A (200 VAC) Peak current: 105 A (200 VAC), S8VM-15224C

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Note: 1. No outputs are built into these models.
2. The output capacity of the S8VM-15005C is 135 W.
3. M8 bolts and nuts for the output terminals are not included with the S8VM-15224C.
4. The 300-, 600-, and 1,500-W models use a forced cooling method with built-in fans.
5. To perform front mounting using the bottom mounting models, use the Mounting Brackets (S82Y-VM, sold separately).
6. The output current for UL1604 certification is 6.3 A.
## Specifications

### Ratings/Characteristics

<table>
<thead>
<tr>
<th>Item</th>
<th>Power rating</th>
<th>15 W</th>
<th>30 W</th>
<th>50 W</th>
<th>100 W</th>
<th>150 W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficiency</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-V models</td>
<td>75% min.</td>
<td>75% min.</td>
<td>80% min.</td>
<td>81% min.</td>
<td>81% min.</td>
<td></td>
</tr>
<tr>
<td>12-V models</td>
<td>78% min.</td>
<td>79% min.</td>
<td>79% min.</td>
<td>81% min.</td>
<td>81% min.</td>
<td></td>
</tr>
<tr>
<td>15-V models</td>
<td>78% min.</td>
<td>79% min.</td>
<td>79% min.</td>
<td>81% min.</td>
<td>81% min.</td>
<td></td>
</tr>
<tr>
<td>24-V models</td>
<td>80% min.</td>
<td>81% min.</td>
<td>80% min.</td>
<td>82% min.</td>
<td>83% min.</td>
<td></td>
</tr>
</tbody>
</table>

### 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**: 0.5 A max. (at 100 V input), 0.9 A max. (at 200 V input), 0.25 A max. (at 100 V input), 0.45 A max. (at 200 V input), 0.98 min. (at 200 V input), 0.84 min. (at 100 V input)
- **Power factor**: 100-V input, 105% to 160% of rated load current, voltage drop, intermittent, automatic reset
- **Harmonic current emissions**: Conforms to EN 61000-3-2
- **Leakage current**: 0.4 mA max. (at rated output), 0.75 mA max. (at rated output)
- **Inrush current**: 1.5 A max. (for cold start at 25°C)
- **200-V input**: 35 A max. (for cold start at 25°C)

### Output

- **Voltage adjustment range (See note 3)**: -20% to 20% (with V. ADJ) (S8VM-15024: +15 V)
- **Ripple**: 0.2% (p-p) max. (at rated output), 0.5% (p-p) max. (at rated output), 1.2% (p-p) max. (at rated output), 0.6% (p-p) max. (at rated output)
- **Input variation influence**: 0.4% max. (at 85 to 264 VAC input, 100%)
- **Load variation influence (rated input voltage)**: 0.8% max. (with rated input, 0 to 100% load)
- **Temperature variation influence**: 0.02°C/°C max.
- **Startup time (See note 2)**: 1,100 ms max. (at rated input/output voltage), 800 ms max. (at rated input/output voltage)

### Additional functions

- **Overload protection (See note 2)**: 100% to 160% of rated load current, voltage drop, intermittent, automatic reset
- **Overvoltage protection (See note 2)**: Yes (See note 4)
- **Undervoltage alarm output**: Yes (color: Yellow (DC LOW1), red (DC LOW2)) (S8VM-15024: +15 V)
- **Undervoltage alarm indication**: Yes (color: Green)
- **Series operation**: Yes for up to 2 Power Supplies (with external diode)
- **Remote sensing function**: Yes

### Other

- **Ambient operating temperature**: Refer to the derating curve in Engineering Data (15-W, 30-W, 50-W, 100-W, 150-W Models), (with no icing or condensation) (See note 2)
- **Storage temperature**: -25 to 65°C
- **Ambient operating humidity**: 30% to 85% (Storage humidity: 25% to 90%)
- **Dielectric strength**: 3.5 kVAC for 1 min. (between all inputs and outputs; detection current: 20 mA), 2.0 kVAC for 1 min. (between all inputs and PE/F/G terminals; detection current: 20 mA), 500 VAC for 1 min. (between all outputs and PE/F/G terminals; detection current: 100 mA)
- **Insulation resistance**: 100 MΩ min. (between all inputs and all outputs, PE/F/G terminals) at 500 VDC
- **Vibration resistance**: 10 to 55 Hz, 0.375-mm single amplitude for 2 hours each in X, Y, and Z directions
- **Shock resistance**: 150 ma/s², 3 times each in ±X, ±Y, ±Z directions
- **Output indicator**: Yes (color: Green)
- **Conducted Emission**: Conforms to EN 61000-3-2, EN55011 Class B, Environments 2,3, and 4 (See note 6)
- **Overvoltage protection (See note 2)**: 105% to 160% of rated load current, voltage drop, intermittent, automatic reset
- **Series operation**: Yes for up to 2 Power Supplies (with external diode)

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.
3. If the output voltage adjuster (V. ADJ) is turned, the voltage will increase by more than +20% of the voltage adjustment range. If the adjuster is turned too far, it may activate the overvoltage protection function and interrupt the output.
4. When adjusting the output voltage, confirm the actual output voltage from the Power Supply and be sure that the load is not damaged.
5. To reset the protection, turn OFF the input power for three minutes or longer and then turn it back ON.
6. Conducted emissions: The noise value is affected by factors such as the wiring method. The Power Supply conforms to Class B when the aluminum plate is laid under the Power Supply. For 15-W models, insert a clamp filter (ZCAT2436-1330 by TDK: 50 Ω) under the Power Supply. For 150-W models, insert a clamp filter (ZCAT2017-0930 by TDK: 35 Ω) under the Power Supply. For 150-W models, insert a clamp filter (ZCAT2017-0930 by TDK: 35 Ω) under the Power Supply.
7. The weight indicated is for bottom mounting, open-frame models.
8. A: Sinking type (NPN)
   P: Sourcing type (PNP)
9. With the S8VM-15024: +15 V, the output current for UL1604 certification is 6.3 A.
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 Efficiency 5-V models

<table>
<thead>
<tr>
<th>Item</th>
<th>Power rating</th>
<th>300 W</th>
<th>600 W</th>
<th>1,500 W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage (See note 1.)</td>
<td></td>
<td></td>
<td></td>
<td>100% to 240 VAC (85 to 264 VAC)</td>
</tr>
<tr>
<td>Frequency (See note 1.)</td>
<td></td>
<td>50/60 Hz (47 to 63 Hz)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100-V input</td>
<td></td>
<td>4.0 A max. (5 V)</td>
<td>8.0 A max. (5 V)</td>
<td>20.0 A max.</td>
</tr>
<tr>
<td>200-V input</td>
<td></td>
<td>2.0 A max. (5 V)</td>
<td>4.0 A max. (5 V)</td>
<td>11.0 A max.</td>
</tr>
<tr>
<td>Power factor</td>
<td></td>
<td>0.98 min.</td>
<td>0.97 min.</td>
<td></td>
</tr>
<tr>
<td>Additional functions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overload protection</td>
<td></td>
<td>105% to 160% of rated load current (5 V, 12 V, and 15 V), 120% to 160% of rated load current (S8VM-30024C), 115% to 160% of rated load current (S8VM-60024C), voltage drop (12 V, 15 V, and 24 V), voltage drop, intermittent (5 V), automatic reset</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overvoltage protection</td>
<td></td>
<td>Yes (See note 4.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undervoltage alarm indication</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power failure alarm indication</td>
<td>No (color: Red)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Series operation</td>
<td></td>
<td>Yes for up to 2 Power Supplies (with external diode)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parallel operation</td>
<td></td>
<td>Yes (Up to 2 units)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remote sensing function</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remote control function</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient operating temperature</td>
<td>Refer to the derating curve in Engineering Data (300-W, 600-W, 1,500-W Models), (with no icing or condensation) (See note 2.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage temperature</td>
<td></td>
<td>-25 to 65 °C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient operating humidity</td>
<td>40% to 85% (storage humidity: 25% to 90%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dielectric strength</td>
<td></td>
<td>3.0 kVAR for 1 min. (between all outputs and PE terminals; detection current: 20 mA)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insulation resistance</td>
<td></td>
<td>100 MΩ for 1 min. (between all outputs and PE terminals; detection current: 100 mA)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vibration resistance</td>
<td></td>
<td>15 to 55 Hz, 0.375-mm single amplitude for 2 hours each in X, Y, and Z directions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shock resistance</td>
<td></td>
<td>150 m/s², 3 times each in x, y, z, directions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output indicator</td>
<td></td>
<td>Yes (color: Green)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conducted Emission</td>
<td></td>
<td>Conforms to EN61204-3 EN55011 Class B and based on FCC Class B (See note 5.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radiated Emission</td>
<td></td>
<td>Conforms to EN61204-3 EN55011 Class B (See note 5.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approved standards</td>
<td></td>
<td>Conforms to EN61204-3 EN55011 Class A (See note 6.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UL</td>
<td></td>
<td>UL508 (Recognition) (5 V, 12 V, and 15 V) UL508 (Listing) (24 V), UL60950-1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>eUR</td>
<td></td>
<td>UL1604 (Listing), Class IDivision 2, Group A, B, C, D Hazardous Locations) (24 V)</td>
<td></td>
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</tr>
<tr>
<td>EN/TÜV</td>
<td></td>
<td>CSA C22.2 No.14, No. 213 (Class IDivision 2, Group A, B, C, D Hazardous Locations) (24 V)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SEMI</td>
<td></td>
<td>CSA No. 69501-1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td></td>
<td>1.700 g max.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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. Refer to Engineering Data (300-W, 600-W, 1,500-W Models) on page 15 to 17 for details.
3. If the output voltage regulator (V. ADJ) is turned, the voltage will increase by more than +20% of the voltage adjustment range. If the adjuster is turned too far, it may activate the overvoltage protection function and interrupt the output. When adjusting the output voltage, confirm the actual output voltage from the Power Supply and be sure that the load is not damaged.
4. To prevent the screw terminals from becoming worn out, use a power input for three minutes or longer and then turn it back ON. Alternatively, turn OFF the remote control signal and then turn it back ON again.
5. Conducted emissions: The noise value is affected by factors such as the wiring method. The Power Supply conforms to Class B when the aluminum plate is laid under the Power Supply. For 600-W models, insert a clamp filter (ZCAT305-1330 by TDK: 100 Ω, [50 to 500 MHz], or the equivalent) in the input wire, and ring core (HF60135X14X22 by TDK: 16 Ω typ. [1 MHz], 46 Ω typ. [10 MHz], or the equivalent) in the output wire to reduce noise.
6. Radiated emissions: The noise value is affected by factors such as the wiring method. The Power Supply conforms to Class A when the aluminum plate is laid under the Power Supply (1,500-W models).
7. The measuring method conforms to JEITA standard RC-9131A. Refer to Ripple under Safety Precautions on page 32.
8. The Power Supply will not conform to safety standards if the customer replaces the fans.
Construction and Nomenclature (15-W, 30-W, 50-W, 100-W, 150-W Models)

Nomenclature

15-W, 30-W, 50-W Models

Open-frame Models

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AC input terminals (L), (N)</td>
<td>Connect the input lines to these terminals. (See note 1.)</td>
</tr>
<tr>
<td>2</td>
<td>PE terminal: Protective earthing terminal (S8VM-0155P, S8VM-0155D)</td>
<td>Connect the ground line to this terminal. (See note 2.)</td>
</tr>
<tr>
<td>3</td>
<td>DC output terminals (-V), (+V)</td>
<td>Connect the load lines to these terminals.</td>
</tr>
<tr>
<td>4</td>
<td>Output indicator (DC ON: Green)</td>
<td>Lights (green) while a direct current (DC) output is ON.</td>
</tr>
<tr>
<td>5</td>
<td>Output voltage adjuster (V. ADJ)</td>
<td>Use to adjust the voltage.</td>
</tr>
<tr>
<td>6</td>
<td>Undervoltage alarm indicator 1 (DC LOW1: Yellow)</td>
<td>Lights only when a momentary drop in output voltage is detected. This status is maintained.</td>
</tr>
<tr>
<td>7</td>
<td>Undervoltage alarm indicator 2 (DC LOW2: Red)</td>
<td>Lights only when the output voltage drops to approximately 20 V or lower.</td>
</tr>
<tr>
<td>8</td>
<td>Undervoltage alarm output terminal 1: (DC LOW1) (See note 4.)</td>
<td>Outputs only when a momentary drop in output voltage is detected. This status is maintained. (The transistor turns OFF when a voltage drop occurs.)</td>
</tr>
<tr>
<td>9</td>
<td>Undervoltage alarm output terminal 2: (DC LOW2) (See note 4.)</td>
<td>Outputs only when the output voltage drops to approximately 20 V or lower. (The transistor turns OFF when a voltage drop occurs.)</td>
</tr>
<tr>
<td>10</td>
<td>Common terminal for undervoltage alarm output (See note 4.)</td>
<td>Common terminal (See note 6.) for terminals 8 and 9</td>
</tr>
<tr>
<td>11</td>
<td>Remote sensing terminals (See note 5.)</td>
<td>Correct the voltage drop in the load lines.</td>
</tr>
<tr>
<td>12</td>
<td>Short bars (See note 5.)</td>
<td>---</td>
</tr>
</tbody>
</table>

Note: 1. The fuse is located on the (L) side. It is NOT user-replaceable.
2. If mounting is performed using a DIN Rail, the protective earthing connection is the panel mounting hole shown in the figure below. (A protective earthing connection stipulated in safety standards is used. Connect the ground completely (S8VM-0155P only)). Ground terminal: M3 (Depth: 8 mm max.)/Ground wire: AWG 18

300-W, 600-W, 1,500-W Models

Note: Refer to page 14.

Output Color Label

This color label identifies the output voltage by color.

- Green: 5 V
- Blue: 12 V
- Yellow: 15 V
- White: 24 V
Engineering Data (15-W, 30-W, 50-W, 100-W, 150-W Models)

■ Derating Curve

15W/30W
Standard Mounting/Horizontal Mounting/ Face-up Mounting

50W
Standard Mounting/Horizontal Mounting
Face-up Mounting

100W
Standard Mounting
Horizontal Mounting/Face-up Mounting

150W
Standard Mounting
Horizontal Mounting
Face-up Mounting

300W/600W/1,500W

Note: Refer to page 15.

Note: 1. Internal parts may occasionally be deteriorated or damaged. Do not use the Power Supply in areas outside the derating curves (i.e., the area shown by shading in the above graphs).
2. If there is a derating problem, use forced air-cooling.
3. When mounting two or more Power Supplies side-by-side, allow at least 20 mm spacing between them. Multiple 100- and 150-W models cannot be used side by side. Be sure to install the Power Supplies as far away from heat-generating sources as possible. As a reference value, allow at least 50 mm spacing on the right and left sides. If only 20 mm spacing is allowed, use the Power Supply at a load ratio of 80% or less.
4. When using 150-W models for a long period of time at an input voltage of 90 VAC or lower, reduce the load to 80% or less of the above derating curves.
Mounting

Note: 1. Improper mounting will interfere with heat dissipation and may occasionally result in deterioration or damage of internal parts. Use the Power Supply within the derating curve for the mounting direction that is used.

2. Use the metal plate as the mounting panel (*1).

3. Install the Power Supply so that the air flow circulates around the Power Supply, as the Power Supply is designed to radiate heat by means of natural air flow.

4. Mounting screw tightening torque (recommended value: M3 (0.49 N·m))

Remote Sensing Function

(S8VM-100/150 only)

This function compensates a voltage drop on the load lines. To use this function, connect after removing the two short bars of the remote sensing terminal.

Note: 1. Use a 2-conductor shielded cable as a connection wire (*1).

2. Use as thick a wire as possible since high voltage drops on the load lines (*2) may activate the overvoltage protection function.

3. Use when the voltage drop is 0.3 V or lower.

4. When the +S and –S terminals are opened with the short bar removed, the overvoltage protection function is activated and the output voltage will be cut off.

5. If the load line is too long, use an electrolytic capacitor in the following 3 locations:

   1) Across the load terminals
   2) Between the +S terminal and + terminal
   3) Between the –S terminal and – terminal

Select the capacity of the connected capacitor from between several tens to several hundreds of µF as a guide, and then determine the capacity when actually connecting the capacitor between terminals as shown below.

Inrush Current, Startup Time, Output Hold Time

Item | Value | Definition
--- | --- | ---
Reliability (MTBF) | 135,000 hrs min. | MTBF stands for Mean Time Between Failures, which is calculated according to the probability of accidental device failures, and indicates the reliability of a device. Therefore, it does not necessarily represent the life of the Power Supply.
Life expectancy | 10 yrs. min. | The life expectancy indicates average operating hours under the ambient temperature of 40°C and a load rate of 50%.

Normally this is determined by the life expectancy of the built-in aluminum electrolytic capacitor.
■ Overload Protection

The Power Supply is provided with an overload protection function that protects the Power Supply from possible damage by short-circuit and overcurrent.

When the output current rises above 105% min. of the rated current, the protection function is triggered, automatically decreasing the output voltage. When the output current falls within the rated range, the overload protection function is automatically cleared.

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

Note: 1. Internal parts may occasionally deteriorate or be damaged if a short-circuited or other overcurrent state continues during operation. Do not continue an overload state for longer than 30 seconds. Eliminate the overcurrent state as soon as possible.

2. Internal parts may possibly be deteriorated or damaged if the Power Supply is used for applications with frequent inrush current or overloading at the load end. Do not use the Power Supply for such applications.

■ Overvoltage Protection

Consider the possibility of an overvoltage and design the system so that the load will not be subjected to an excessive voltage even if the feedback circuit in the Power Supply fails. When an excessive voltage that is approximately 140% of the rated voltage or more is output, the output voltage is shut OFF, preventing damage to the load due to overvoltage. Reset the input power by turning it OFF for at least three minutes and then turning it back ON again.

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

*1 S8VM-@@@24A@/P

*2 Except for S8VM-@@@24A@/P

Note: 1. Do not turn ON the input power again until the cause of the overvoltage has been removed.

2. The overvoltage protection function may be activated when the output voltage adjuster (V.ADJ) is set to a value that exceeds +20% of the rated output voltage.

3. When the +S and −S terminals are opened with the short-bar removed, the overvoltage protection function is activated and the output voltage will be cut off.

■ Undervoltage Alarm Function (Indication and Output)

(Only S8VM-@@@24A@/P)

If an output voltage drop is detected with an S8VM-@@@24A@/P with undervoltage alarm function, the DC LOW indicator will light to notify of an output error. The transistor also sends an output externally to notify of the error (except for the S8VM-01524A@ and S8VM-03024A@).

Transistor Output: Sink type: (NPN) (S8VM-@@@24A@)
Source type: (PNP) (S8VM-@@@24A@)
30 VDC max., 50 mA max., Residual voltage when ON: 2 V or less, Leakage current when OFF: 0.1 mA or less

S8VM-01524A@
S8VM-03024A@
S8VM-05024A@
S8VM-10024A@
S8VM-15024A@

• Undervoltage Alarm Function 1 (DC LOW1)

Only a momentary voltage drop is detected. Detection voltage is automatically adjusted internally by detecting the output voltage (approx. 2.7 V lower than the voltage output at an output voltage of 24.0 V).

During detection, the transistor is OFF (with no continuity across 8 and 10) and the LED (6: Yellow) lights. (The Undervoltage Alarm Function 1 is used as a latch holding function.)

Detect voltage is set to approx. 20.0 V (from 18.0 to 21.6 V).

During detection, the transistor is OFF (with no continuity across 9 and 10) and the LED (7: Red) lights.

Note: 1. This function monitors the voltage at the Power Supply output terminals.

To check actual voltage, measure voltage on the load side.

2. Gradual voltage drop is not detected by the Undervoltage Alarm Function 1 (DC LOW1).

3. Once a voltage drop in the output voltage is detected by Undervoltage Alarm Function 1 (DC LOW1), the transistor turns OFF and status of the LED (6: Yellow) light is maintained. To reset the function, turn OFF the input power for 60 seconds or longer, and then turn it ON again.

4. If the output voltage remains at 15 V or lower for several seconds when using Undervoltage Alarm Function 1 (DC LOW 1), the output hold status for detection may be reset.
# Probable Causes of Power Supply Errors and Troubleshooting Using Undervoltage Alarm Function

Check the following information if the Undervoltage Alarm Function operates.

Contact your OMRON representative if the Power Supply does not function normally after checking.

The symbols in the table are as follows:

- Lit
- Not lit
- Flashing

**Note:** Flashing: The output voltage is unstable, causing the LED to repeatedly turn ON and OFF.

<table>
<thead>
<tr>
<th>DC ON</th>
<th>DC LOW1</th>
<th>DC LOW2</th>
<th>Output voltage</th>
<th>Power Supply status diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td>ON ON</td>
<td>Normal status</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td>OFF ON ON</td>
<td>Normal (approx. 90% min. of rated output voltage)</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>ON OFF OFF</td>
<td>Output drop (approx. 90% max. of rated output voltage)</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td>OFF OFF OFF</td>
<td>Output drop (approx. 90% max. of rated output voltage)</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td>ON OFF OFF</td>
<td>Output drop (approx. 80% of rated output voltage)</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td>ON OFF OFF</td>
<td>Output drop (approx. 80% of rated output voltage)</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td>OFF OFF ON</td>
<td>No output</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td>OFF OFF ON OFF</td>
<td>Unstable output</td>
</tr>
<tr>
<td>Probable cause of error</td>
<td>Troubleshooting methods</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------</td>
<td>-------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A momentary power failure has occurred in the input.</td>
<td>Check that the output voltage is normal and no problems have occurred in other devices. No problems will be caused by continuing to use the Power Supply as is. To clear DC LOW1 (LED display and transistor output status), turn OFF the input power, and wait at least 60 s before turning ON the input Power Supply.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A momentary overload has occurred.</td>
<td>The load current has probably exceeded the rated current. We suggest reducing the connected load or replace the Power Supply with one that has a higher capacity.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A momentary output voltage drop has occurred at startup due to the capacity of the capacitive factors on the load side or when the load is activated.</td>
<td>A large inrush current has probably flowed to the load side at startup. We suggest replacing the Power Supply with one that has a higher capacity.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The output voltage has returned to normal voltage following a rapid drop caused by using the output voltage adjuster (V.ADJ).</td>
<td>Turn OFF the input power, and wait at least 60 s before turning ON the input power again to clear the indicator status.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deterioration due to age (when the Power Supply has been used for several years)</td>
<td>The internal parts of the Power Supply may have deteriorated due to age. We suggest replacing the Power Supply. Also replace other Power Supplies that were purchased at the same time.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overload (immediately following first use of the Power Supply or when increasing the load)</td>
<td>The load current has probably exceeded the rated current. Check the actual load current and Power Supply capacity. Continued use in overload status may damage the Power Supply.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The output voltage dropped to -10% or lower of the rated voltage resulting from using the output voltage adjuster (V.ADJ).</td>
<td>Adjust the output voltage to the rated values using the output voltage adjuster (V.ADJ). To clear DC LOW1 (LED display and transistor output status), turn OFF the input power, and wait at least 60 s before turning ON the input power again.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A sudden overload occurred and the Power Supply remains in overload status.</td>
<td>An error has probably occurred in the load device. Turn OFF the input power, and check whether any errors have occurred in the load device. Continued use in overload status may damage the Power Supply.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The output voltage remains low after a rapid voltage drop caused by using the output voltage adjuster (V.ADJ).</td>
<td>Adjust the output voltage to the rated values using the output voltage adjuster (V.ADJ). To clear DC LOW1 (LED display and transistor output status), turn OFF the input power, and wait at least 60 s before turning ON the input power again.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The overload status continues to fluctuate following a sudden overload.</td>
<td>An error has probably occurred in the load device. Turn OFF the input power, and check whether any errors have occurred in the load device. Continued use in overload status may damage the Power Supply.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deterioration due to age (after using the Power Supply for several years)</td>
<td>The internal parts of the Power Supply may have deteriorated due to age. Replace the Power Supply. Also replace other Power Supplies that were purchased at the same time.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overload (immediately following first use of the Power Supply or when increasing the load)</td>
<td>The load current has probably exceeded the rated current. Check the actual load current and Power Supply capacity. Continued use in overload status may damage the Power Supply.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Supply interrupted or damaged.</td>
<td>Check whether the input power is being applied correctly. If there is no output even though the input power is applied correctly, the internal circuit is probably damaged.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overvoltage protection operation</td>
<td>Turn OFF the input power, and wait at least 3 min before turning ON the input power again. If the same status recurs, the internal circuit is probably damaged.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The short bar has fallen off, or the +S and -S terminals are open.</td>
<td>Check whether the +S and -S terminals are open. If so, the overvoltage protection function is activated. Therefore, turn OFF the input power and wait at least three minutes before turning it ON again. (S8VM-10024A/P and S8VM-15024A/P models only)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output short-circuit</td>
<td>Remove the cause of the output short-circuit.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intermittent operation due to overload (S8VM-01524A/P and S8VM-03024A/P only)</td>
<td>The load current has probably exceeded the rated current. Check the actual load current and Power Supply capacity. Continued use in overload status may damage the Power Supply.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Power Supply fails to start repeatedly due to the capacity of the capacitive factors on the load side.</td>
<td>A large inrush current has probably flowed to the load side at startup. We suggest replacing the Power Supply with one that has a higher capacity.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The input turns ON and OFF repeatedly.</td>
<td>Check whether the Power Supply’s input voltage is being applied correctly.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The status repeatedly switches between normal operation and output short-circuit.</td>
<td>An error has probably occurred in the load device. Turn OFF the input power, and check whether any errors have occurred in the load device.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Construction and Nomenclature (300-W, 600-W, 1,500-W Models)

■ Nomenclature

300-W Models

S8VM-300\(\text{C}\)

600-W Models

S8VM-600\(\text{C}\)

1,500-W Model

S8VM-15224C

■ Output Color Label

This color label identifies the output voltage by color.

- Green: 5 V
- Blue: 12 V
- Yellow: 15 V
- White: 24 V

Note: A 300-W model is shown above. The label is in a different place on 600-W models and 1,500-W model.
Engineering Data (300-W, 600-W, 1,500-W Models)

■ Derating Curve

300W/600W/1,500W

Note:
1. Internal parts may occasionally be deteriorated or damaged. Do not use the Power Supply in areas outside the derating curves (i.e., the area shown by shading in the above graph).
2. When mounting two or more Power Supplies side-by-side, allow at least 20 mm spacing between them. Always provide at least 50 mm of mounting space for the surface with the fan mounted. Be sure to provide at least 50 mm (S8VM-300C/600C) or 100 mm (S8VM-15224C) of mounting space on the opposite side of the surface with the fan mounted.
3. When using the 1,500-W model for a long period of time at an input voltage of 90 VAC or lower, reduce the load to 80% or less of the above derating curve.
4. The ambient temperature is specified at a location 50 mm in front of the center of the Power Supply’s front panel.

■ Mounting

Standard Mounting
Correct Correct Correct

Horizontal Mounting
Correct Correct Correct

Upside-down Mounting (S8VM-15224C Only)
Correct

Side Mounting
Incorrect Incorrect Incorrect

Remote Sensing Function

This function is used to compensate for voltage drops on the load lines. Connect the +S pin (pin 2 on CN) to the positive load terminal and the −S pin (pin 4 on CN) to the negative load terminal to enable remote sensing. When not using the remote sensing function, use the standard supplied connector. The +S and +V pins (pin 1 on CN) and the −S and −V pins (pin 3 on CN) will be connected.

Note:
1. Use 2-conductor shielded cable as connection wire (*1).
2. Use as thick a wire as possible since high voltage drops on the load lines (*2) may activate the overvoltage protection function.
3. Use when the voltage drop is 0.3 V or lower.
4. If the sensing line is too long, it is necessary to put an electrolytic capacitor across the load terminals. The electrolytic capacitor may generate heat due to the ripple current, depending on connected load. Therefore, the electrolytic capacitor must have a ripple current allowance higher than the output ripple current.
5. The stability and accuracy of the output will deteriorate if the short bar is missing or if the +S and −S pins are open. Always connect the +S and −S pins.
6. Remove the standard supplied connector and prepare a connector harness separately.
### Remote Control Function

This function turns outputs ON and OFF using an external signal while input voltage is applied, using the +RC pin (pin 7 on CN) and the -RC pin (pin 8 on CN). Connect a switch or transistor to the +RC and -RC pins to use the remote control function. When not using this function, the +RC and -RC pins are shorted by using the standard supplied connector.

<table>
<thead>
<tr>
<th>+RC Level for -RC</th>
<th>Output Voltage</th>
<th>Built-in Fan Motor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short or L (0 to 0.8 V)</td>
<td>ON</td>
<td>Rotate</td>
</tr>
<tr>
<td>Open or H (2.4 to 12 V)</td>
<td>OFF</td>
<td>Stop</td>
</tr>
</tbody>
</table>

Maximum input voltage: 12 V max.
Maximum allowable reverse voltage: −1 V max.

Sink Current: 3.5 mA

Note: 1. Use 2-conductor shielded cable or twisted-pair cable as connection wire.
2. The remote control circuit is isolated from the input and output circuits of the power supply.
3. Remove the standard supplied connector and prepare a connector harness separately.

### Power Failure Alarm Function

The power failure alarm indicator will light red to indicate an output voltage error if overload, overvoltage, or overheat protection is activated, if a drop in the input voltage causes the output voltage to drop, if the built-in fan motor stops, and during remote control standby. The alarm is also output externally by a transistor.

Transistor output: 30 VDC max., 50 mA max.
Residual voltage when ON: 2 V max.
Leakage current when OFF: 0.1 mA max.
Alarm detection voltage: Approx. 80% of output voltage setting
During detection, the transistor is OFF (with no continuity across pins 11 and 12 on CN), and the LED (red) lights.

Note: 1. This function monitors the voltage at the power supply output terminals. To check actual voltage, measure the voltage on the load side.
2. Outputs are forced OFF if the built-in fan motor stops (S8VM-15224C only).
3. Remove the standard supplied connector and prepare a connector harness separately.

### Inrush Current, Startup Time, Output Hold Time

#### Inrush Current on Input Application

<table>
<thead>
<tr>
<th>Input ON Voltage</th>
<th>Input OFF Voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC input voltage</td>
<td>AC input current</td>
</tr>
</tbody>
</table>

Note: A maximum input surge current of approx. 40 A will flow at startup even when not turning ON the input. Consider this surge current when selecting the input switch, input breaker, or external fuse.

#### Input Current Waveform When Input Is Turned ON

The following examples show typical waveforms.

### S8VM-300C

100 VAC, Load ratio: 100%

200 VAC, Load ratio: 100%
Reference Values

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliability</td>
<td>300 W: 135,000 hrs 600 W: 120,000 hrs 1,500 W: 100,000 hrs</td>
<td>MTBF stands for Mean Time Between Failures, which is calculated according to the probability of accidental device failures, and indicates the reliability of a device. Therefore, it does not necessarily represent the life of the Power Supply.</td>
</tr>
<tr>
<td>Life expectancy</td>
<td>10 yrs. min.</td>
<td>The life expectancy indicates average operating hours under the ambient temperature of 40°C and a load rate of 50%. Normally this is determined by the life expectancy of the built-in aluminum electrolytic capacitor.</td>
</tr>
</tbody>
</table>

Overload Protection

The Power Supply is provided with an overload protection function that protects the Power Supply from possible damage by overcurrent. When the output rises above 105% of the rated current, the protection function is triggered, automatically decreasing the output voltage.

S8VM-300□□□C/600□□□C

When the output current returns within the rated range, overload protection is automatically cleared.

S8VM-15224C

Outputs are interrupted if an overload continues for 5 seconds or more. To reset the Power Supply, leave the input power OFF for more than 3 minutes and then turn it ON again. Alternatively, turn OFF and ON the remote control signal.

300W/600W (5 V) 300W600W/1,500W (12 V, 15 V, 24 V)

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

Note: 1. If the Power Supply has been short-circuited or supplied with an overcurrent for longer than 30 seconds, the internal parts of the Power Supply may occasionally be deteriorated or damaged.

2. The internal parts may possibly be deteriorated or damaged. Do not use the Power Supply for applications where the load causes frequent inrush current and overload.
■ Overvoltage Protection

Consider the possibility of an overvoltage and design the system so that the load will not be subjected to an excessive voltage even if the feedback circuit in the Power Supply fails. When an excessive voltage that is approximately 140% of the rated voltage or more is output, the output voltage is shut OFF, preventing damage to the load due to overvoltage. Reset the input power by turning it OFF for at least three minutes and then turning it back ON again. Alternatively, turn OFF and ON the remote control signal.

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

**Note:**
1. Do not turn ON the input power again until the cause of the overvoltage has been removed.
2. The overvoltage protection function may be activated when the output voltage adjuster (V.ADJ) is set to a value that exceeds ±20% of the rated output voltage.

■ Overheat Protection

The overheat protection circuit will operate and outputs will be shut OFF to protect the Power Supply if the ambient temperature rises, the fan stops, or other errors cause the Power Supply’s internal temperature to rise. To reset the Power Supply, leave the input power OFF long enough for the Power Supply to cool sufficiently and then turn it ON again. Alternatively turn OFF the remote control signal long enough to cool sufficiently and then turn it ON again.

■ Peak Output Current

*(S8VM-30024C/60024C/15224C Only)*

The peak current must satisfy the following conditions. Reduce the peak current according to the load rate of the derating curve.

- Input voltage range: 180 to 240 VAC
- Peak current pulse width: 10 s max.
- Duty: 35% max.
- Peak current value: Within the rated peak current
- Effective output current: Within the rated current

\[
\begin{align*}
I_p & : \text{Peak current (A)} \\
I_{rms} & : \text{Effective output current (A)} \\
I_{av} & : \text{Rated current (A)} \\
I_a & : \text{Continuous load current (A)} \\
D & : \text{Duty} \\
c & : \text{Peak current pulse width (s)} \\
T & : \text{Cycle (s)}
\end{align*}
\]

\[
I_{av} \leq I_{rms} \sqrt{1 + D} = I_{rms} (1 - D)
\]

\[
D = \frac{c}{T}
\]
Dimensions

Note: All units are in millimeters unless otherwise indicated.


  S8VM-015
  S8VM-015 C
  S8VM-01524A

  **Note:** The image is the S8VM-01524 Model.

  Mounting Holes
  - **Bottom View**
    - **Side Mounting:** Two, 4 dia.
    - **Bottom Mounting:** Two, 4 dia.

  S8VM-030
  S8VM-030 C
  S8VM-03024A

  **Note:** The image is the S8VM-03024 Model.

  Mounting Holes
  - **Bottom View**
    - **Side Mounting:** Two, 4 dia.
    - **Bottom Mounting:** Two, 4 dia.
Note: The image is the S8VM-05024 Model.

Note: The image is the S8VM-05024A Model.

Note: The image is the S8VM-10024 Model.

Note: The image is the S8VM-10024A Model.
<table>
<thead>
<tr>
<th>Mounting Holes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bottom View</strong></td>
</tr>
<tr>
<td>Side Mounting</td>
</tr>
<tr>
<td>Two, M4 terminal screws (+V, −V)</td>
</tr>
<tr>
<td>Bottom Mounting</td>
</tr>
<tr>
<td>Three, M3 (depth: 4 max.)</td>
</tr>
<tr>
<td><strong>Note:</strong> The image is the S8VM-15024A Model.</td>
</tr>
</tbody>
</table>

| Note: The image is the S8VM-15024 Model. |

<table>
<thead>
<tr>
<th>Mounting Holes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bottom View</strong></td>
</tr>
<tr>
<td>Side Mounting</td>
</tr>
<tr>
<td>Two, M4 terminal screws (+V, −V)</td>
</tr>
<tr>
<td>Bottom Mounting</td>
</tr>
<tr>
<td>Three, M3 (depth: 4 max.)</td>
</tr>
<tr>
<td><strong>Note:</strong> The image is the S8VM-15024A Model.</td>
</tr>
</tbody>
</table>

**Note:** The image is the S8VM-01524D Model.

**Note:** The image is the S8VM-01524AD Model.

**Note:** The image is the S8VM-03024D Model.

**Note:** The image is the S8VM-03024AD Model.
Note: The image is the S8VM-05024D Model.

Note: The image is the S8VM-05024AD Model.

Note: The image is the S8VM-10024D Model.

Note: The image is the S8VM-10024AD Model.
Note: The image is the S8VM-15024D Model.

Note: The image is the S8VM-15024AD Model.
Bottom Mounting Models (300-W, 600-W, 1,500-W Models)

**S8VM-300-3C**

Mounting Holes

<table>
<thead>
<tr>
<th>Bottom View</th>
<th>Standard Mounting</th>
<th>Horizontal Mounting</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Four, M4 (depth: 6 max.)</td>
<td>Four, 4.5 dia.</td>
</tr>
<tr>
<td></td>
<td>40 ± 0.5</td>
<td>60 ± 0.5</td>
</tr>
<tr>
<td></td>
<td>120 ± 0.5</td>
<td>120 ± 0.5</td>
</tr>
<tr>
<td></td>
<td>110 ± 0.5</td>
<td>120 ± 0.5</td>
</tr>
</tbody>
</table>

Note: The image is the S8VM-30024C Model.

**S8VM-600-24C**

Mounting Holes

<table>
<thead>
<tr>
<th>Bottom View</th>
<th>Standard Mounting</th>
<th>Horizontal Mounting</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Four, M4 (depth: 6 max.)</td>
<td>Four, 4.5 dia.</td>
</tr>
<tr>
<td></td>
<td>112 ± 0.5</td>
<td>260 ± 0.5</td>
</tr>
<tr>
<td></td>
<td>83.8</td>
<td>110 ± 0.5</td>
</tr>
<tr>
<td></td>
<td>101.8</td>
<td>110 ± 0.5</td>
</tr>
<tr>
<td></td>
<td>192 max.</td>
<td>40 ± 0.5</td>
</tr>
<tr>
<td></td>
<td>46 max.</td>
<td>60 ± 0.5</td>
</tr>
</tbody>
</table>

Note: The image is the S8VM-60024C Model.

**S8VM-15224C**

Mounting Holes

<table>
<thead>
<tr>
<th>Bottom View</th>
<th>Standard Mounting</th>
<th>Horizontal Mounting</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Four, M4 (depth: 6 max.)</td>
<td>Four, 4.5 dia.</td>
</tr>
<tr>
<td></td>
<td>327 max.</td>
<td>260 ± 0.5</td>
</tr>
<tr>
<td></td>
<td>16 max.10</td>
<td>120 ± 0.5</td>
</tr>
<tr>
<td></td>
<td>60 ± 0.5</td>
<td>110 ± 0.5</td>
</tr>
<tr>
<td></td>
<td>111</td>
<td>120 ± 0.5</td>
</tr>
</tbody>
</table>

Note: M8 bolts and nuts for the output terminals are not included.

Note: The image is the S8VM-15224C Model.

---

*Note: M8 bolts and nuts for the output terminals are not included.*
### Mounting Brackets

<table>
<thead>
<tr>
<th>Name</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mounting Bracket A (bottom mounting for 15-, 30-, and 50-W models)</td>
<td>S82Y-VM10B</td>
</tr>
<tr>
<td>Mounting Bracket B (bottom mounting for 100- and 150-W models)</td>
<td>S82Y-VM20B</td>
</tr>
<tr>
<td>Mounting Bracket C (front mounting for 15-, 30-, 50-, 100-, and 150-W models)</td>
<td>S82Y-VM10F</td>
</tr>
<tr>
<td>Mounting Bracket D (bottom mounting for 300-W models)</td>
<td>S82Y-VM30B</td>
</tr>
<tr>
<td>Mounting Bracket E (horizontal bottom mounting for 300-W models)</td>
<td>S82Y-VM30S</td>
</tr>
<tr>
<td>Mounting Bracket F (front mounting for 300-W models)</td>
<td>S82Y-VM30F</td>
</tr>
<tr>
<td>Mounting Bracket G (DIN Rail mounting for 300-W models)</td>
<td>S82Y-VM30D</td>
</tr>
<tr>
<td>Mounting Bracket H (bottom mounting for 600-W models)</td>
<td>S82Y-VM60B</td>
</tr>
<tr>
<td>Mounting Bracket I (horizontal bottom mounting for 600-W models)</td>
<td>S82Y-VM60S</td>
</tr>
<tr>
<td>Mounting Bracket J (front mounting for 600-W models)</td>
<td>S82Y-VM60F</td>
</tr>
<tr>
<td>Mounting Bracket K (DIN Rail mounting for 600-W models)</td>
<td>S82Y-VM60D</td>
</tr>
</tbody>
</table>

### Mounting Bracket A (Bottom Mounting for 15-, 30-, and 50-W Models)

**S82Y-VM10B**

- **Using the Mounting Bracket**

  - **Screws Used**
    - A: Accessories
      - (Use the supplied screws in two places for 15-W and 30-W models and in three places for 50-W models.)
    - B: M3 or M3.5
      - (three places)
      - Mounting screw tightening torque (recommended): 0.49 N·m

### Mounting Bracket B (Bottom Mounting for 100-, and 150-W Models)

**S82Y-VM20B**

- **Using the Mounting Bracket**

  - **Screws Used**
    - A: Accessories
      - (Use the supplied screws in three places.)
    - B: M3 or M3.5
      - (three places)
      - Mounting screw tightening torque (recommended): 0.49 N·m
Mounting Bracket C (Front Mounting for 15-, 30-, 50-, 100-, and 150-W Models)

S82Y-VM10F

Mounting Bracket D (Bottom Mounting for 300-W Models)

S82Y-VM30B

Using the Mounting Bracket

Screws Used
A: Accessories
(Use the supplied screws in two places for 15-W, 30-W, and 50-W models and in three places for 100-W and 150-W models.)
B: M3 or M3.5
(three places)
Mounting screw tightening torque (recommended): 0.49 N·m

Using the Mounting Bracket

Screws Used
A: Accessories
(Use the supplied screws in four places.)
B: M4
(three places)
Mounting screw tightening torque (recommended): 1.27 N·m
Mounting Bracket E (Horizontal Bottom Mounting for 300-W Models)
S82Y-VM30S

Using the Mounting Bracket

Screws Used
A: Accessories
(Use the supplied screws in four places.)
B: M4
(three places)
Mounting screw tightening torque (recommended): 1.27 N·m

Mounting Bracket F (Front Mounting for 300-W Models)
S82Y-VM30F

Using the Mounting Bracket

Screws Used
A: Accessories
(Use the supplied screws in four places.)
B: M4
(three places)
Mounting screw tightening torque (recommended): 1.27 N·m
Mounting Bracket G (DIN Rail Mounting for 300-W Models)
S82Y-VM30D

Using the Mounting Bracket

Note: Use a metal DIN Rail when mounting a 300-W model to a DIN Rail.

Mounting Bracket H (Bottom Mounting for 600-W Models)
S82Y-VM60B

Using the Mounting Bracket

Three, 4.5 dia.

Mounting Bracket I (Horizontal Bottom Mounting for 600-W Models)
S82Y-VM60S

Using the Mounting Bracket

Three, 4.5 dia.
Mounting Bracket J (Front Mounting for 600-W Models)

S82Y-VM60F

Using the Mounting Bracket

Screws Used
A: Accessories
(Use the supplied screws in four places.)
B: M4
(three places)
Mounting screw tightening torque (recommended): 1.27 N·m

Note: Use a metal DIN Rail when mounting a 600-W model to a DIN Rail.

Mounting Bracket K (DIN Rail Mounting for 600-W Models)

S82Y-VM60D

Using the Mounting Bracket

Screws Used
A: Accessories
(Use the supplied screws in four places.)
B: M4
(three places)
Mounting screw tightening torque (recommended): 1.27 N·m
Other Items Sold Separately

<table>
<thead>
<tr>
<th>Name</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undervoltage Alarm Output Wiring Cable</td>
<td>S82Y-VM10H</td>
</tr>
<tr>
<td>Signal I/O Connector Terminals and Housing</td>
<td>S82Y-VM30C</td>
</tr>
<tr>
<td>Set contains ten SPHD-001T-P0.5 Terminals and one PHDR-12VS Housing.</td>
<td></td>
</tr>
<tr>
<td>Replacement Fan Unit for 300-W Models</td>
<td>S82Y-VM30FAN</td>
</tr>
<tr>
<td>Replacement Fan Unit for 600-W Models</td>
<td>S82Y-VM60FAN</td>
</tr>
<tr>
<td>Replacement Fan Unit for a 1,500-W Model</td>
<td>S82Y-VM15FAN</td>
</tr>
</tbody>
</table>

Undervoltage Alarm Output Wiring Cable

S82Y-VM10H (for S8VM-05024A/05024P/10024A/10024P/15024A/15024P Only)

Using the Undervoltage Alarm Output Wiring Cable

Note: The signal I/O connector can be connected in only one orientation. It cannot be connected if it is upside down.

Signal I/O Connector Terminals and Housing

S82Y-VM30C (for the S8VM-300C/600C/15224C)

The S82Y-VM30C is used to make a signal I/O connector. Refer to Signal I/O Connector Harness Manufacture Method on page 33 for details.

DIN Rail

Note: All units are in millimeters unless otherwise indicated.

Mounting Rail (Material: Aluminum)

PFP-100N
PFP-50N

Mounting Rail (Material: Aluminum)

PFP-100N2

Mounting Rail (Order Separately)

End Plate
PFP-M

Note: If there is a possibility that the Unit will be subjected to vibration or impact, metallic filings may be generated by abrasion. In this situation, use a metal DIN Rail. Also, if the Unit may be subjected to sliding to either side, attach an End Plate (Model PFP-M) on each side of the Unit.
Safety Precautions

Refer to Safety Precautions for All Power Supplies.

Precautions for Safe Use

Mounting

Ensure sufficient heat dissipation when installing the Power Supply to increase its long-term reliability.

Use the metal plate as the mounting panel.
When cutting out holes for mounting, make sure that cuttings do not enter the interior of the Power Supply.
The amount of installation spacing required between Power Supplies depends on the capacity. Refer to the following table.

15/30/50/100/150-W Models

Natural cooling is used, so mount the Power Supply so that there is airflow around it.
Improper mounting will interfere with heat dissipation and may occasionally result in deterioration or damage of internal parts. Use the Power Supply within the derating curve for the mounting direction that is used.
The internal parts may possibly be damaged if mounting screws are over inserted. Refer to Dimensions on page 19 to 21 for maximum depth of insertion inside the Power Supply.

300/600/1,500-W Models

A forced-air cooling method with a fan is used. To ensure sufficient cooling, do not cover the air holes located on the side the fan is mounted and the opposite side.
Improper mounting will interfere with heat dissipation and may occasionally result in deterioration or damage of internal parts. Do not use the Power Supply in any mounting direction other than those specified.
The internal parts may possibly be damaged if mounting screws are over inserted. The screws must not protrude more than 6 mm inside the Power Supply.

Wiring

Connect the ground completely. A protective earthing connection stipulated in safety standards is used. Electric shock or malfunction may occur if the ground is not connected completely.
Minor fire may possibly occur. Ensure that input and output terminals are wired correctly.
Do not apply more than 100-N force to the terminal block when tightening it.
Be sure to remove the sheet covering the Power Supply for machining before power-ON so that it does not interfere with heat dissipation.
Use the following material for the wires to be connected to the S8VM to prevent smoking or ignition caused by abnormal loads. Over heating or fire can result from inadequately sized wiring materials when problems occur at the load. As a general rule, always select wire sizes suitable for at least 1.6 times the rated current. Refer to the wiring manufacturer’s recommended allowable current and voltage drop specifications for information when selecting wiring materials.

**Recommended Wire Sizes**

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Model</th>
<th>Recommended wire size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input</td>
<td>S8VM-015:</td>
<td>(M3.5) AFG24 to AFG14 (0.205 to 2.081 mm²)</td>
</tr>
<tr>
<td></td>
<td>S8VM-030:</td>
<td>(M3.5) AFG24 to AFG14 (0.205 to 3.309 mm²)</td>
</tr>
<tr>
<td></td>
<td>S8VM-050:</td>
<td>(M3.5) AFG24 to AFG14 (0.205 to 3.309 mm²)</td>
</tr>
<tr>
<td></td>
<td>S8VM-100:</td>
<td>(M4) AFG24 to AFG14 (0.205 to 5.27 mm²)</td>
</tr>
<tr>
<td></td>
<td>S8VM-150:</td>
<td>(M4) AFG24 to AFG14 (0.205 to 5.27 mm²)</td>
</tr>
<tr>
<td></td>
<td>S8VM-300:</td>
<td>(M4) AFG24 to AFG14 (0.205 to 5.27 mm²)</td>
</tr>
<tr>
<td></td>
<td>S8VM-600:</td>
<td>(M4) AFG24 to AFG14 (0.205 to 5.27 mm²)</td>
</tr>
<tr>
<td></td>
<td>S8VM-15024C:</td>
<td>(M5) AFG16 to AFG10 (1.32 to 5.27 mm²)</td>
</tr>
<tr>
<td></td>
<td>S8VM-30024C:</td>
<td>(M5) AFG16 to AFG10 (1.32 to 5.27 mm²)</td>
</tr>
<tr>
<td></td>
<td>S8VM-60005C/12C/15C:</td>
<td>(M5) AFG14 to AFG8 (0.81 mm²)</td>
</tr>
<tr>
<td></td>
<td>S8VM-60024C:</td>
<td>(M5) AFG14 to AFG8 (0.81 mm²)</td>
</tr>
<tr>
<td></td>
<td>S8VM-15224C:</td>
<td>(M8 bolts and nuts) AFG8 to AFG4 (8.3 to 21.09 mm²)</td>
</tr>
</tbody>
</table>

The current rating for the output terminals on the S8VM-300: is 40 A per terminal. The current rating for the output terminals on the S8VM-600: is 60 A per terminal. Use two terminals together if a current exceeding the terminal rating is used. Use min. 60°C or 60/75°C wire. Use copper conductors only.

**Undervoltage Alarm Output Connector Harness Manufacture Method**

The following products are provided with the S8VM-05024A: and S8VM-15024A: and S8VM-15224C: for the undervoltage alarm transistor output wiring.

**Installation Environment**

Do not use the Power Supply in locations subject to shocks or vibrations. In particular, install the Power Supply as far away as possible from contactors or other devices that are a vibration source. Install the Power Supply well away from any sources of strong, high-frequency noise and surge.

**Operating Life**

The life of a Power Supply is determined by the life of the electrolytic capacitors used inside. Here, Arrhenius Law applies, i.e., the life will be halved for each rise of 10°C or the life will be doubled for each drop of 10°C. The life of the Power Supply can thus be increased by reducing its internal temperature.

**Ambient Operating and Storage Environments**

Store the Power Supply at a temperature of −25 to 65°C and a humidity of 25% to 90%.

**Overload Protection**

If the Power Supply has been short-circuited or supplied with an overcurrent for longer than 30 seconds, the internal parts of the Power Supply may occasionally be deteriorated or damaged. Internal parts may possibly be deteriorated or damaged if the Power Supply is used for applications with frequent inrush current or overloading at the load end. Do not use the Power Supply for such applications.

**Dielectric Strength Test**

If a high voltage is applied between an input and the case (PE/FG), it will pass through the LC of the built-in noise filter and energy will be stored. If the high voltages used for dielectric strength testing are turned ON and OFF with a switch, timer, or similar device, impulse voltage will be generated when the voltage is turned OFF and internal parts may possibly be damaged. To prevent the generation of impulse voltages, reduce the applied voltage slowly with a variable resistor on the test device or turn the voltage ON and OFF at the zero-cross point.

When performing the test, be sure to short-circuit all the output terminals to protect them from damage. Check the waveform of the applied voltage while testing. High voltage due to distortions of the applied voltage may be produced depending on the type of testing equipment.
Insulation Test
When performing the test, be sure to short-circuit all the output terminals to protect them from damage.

Inrush Current
When two or more Power Supplies are connected to the same input, inrush current is added to the total current. Select fuses and circuit breakers giving sufficient consideration to the fusing or operating characteristics so that fuses will not burn and breakers will not break due to inrush current.

Output Voltage Adjuster (V.ADJ)
Default Setting: Set at the rated voltage
Adjustable Range: Adjustable with output voltage adjuster (V.ADJ) on the front panel of the Power Supply from −20% to 20% of the rated output voltage (−10% to 20% of the rated voltage for S8VM-24A). Turning clockwise increases the output voltage and turning counterclockwise decreases the output voltage.
The output voltage adjuster (V.ADJ) may possibly be damaged if it is turned with unnecessary force. Do not turn the adjuster with excessive force.
After completing output voltage adjustment, be sure that the output capacity or output current does not exceed the rated output capacity or rated output current.
The output voltage may increase beyond the allowable voltage range (up to +20% of the rated voltage) depending on the operation of the output voltage adjuster (V.ADJ). When adjusting the output voltage, check the output voltage of the Power Supply and be sure that the load is not damaged.
When increasing the output voltage to more than +20% of the rated value using the output voltage adjuster (V. ADJ), the overvoltage protection function may operate.
Note: 1. If the load is short-circuited, a reverse voltage may be applied inside the Power Supply unit, and this may possibly cause the deterioration or damage of the Power Supply unit. Connect the diode as shown in the figures. Use the following guidelines to select the diode to be connected.

Ripple
(S8VM-15224C Only)
The rated ripple noise voltage was measured using a measuring circuit that conforms to the JEITA standard RC-9131A.

Dielectric Strength
When testing the dielectric strength, some testing devices will apply a much higher voltage than expected. Always check the applied waveform before testing the dielectric strength.

Remote Sensing Function
100/150-W Models
If the +S and –S terminals are opened by removing the short bar, the overvoltage protection function will be activated and the output voltage will be cut off.
300/600/1,500-W Models
The stability and accuracy of the output will deteriorate if the +S and –S pins are open. Always connect the +S and –S pins.

Series Operation
Two Power Supplies can be connected in series. The (±) voltage output can be accomplished with two Power Supplies.

Parallel Operation
15/30/50/100/150-W Models
The Power Supply is not designed for parallel operation.
300/600/1,500-W Models

If the CB pin (pin 5 on CN) and the CBG pin (pin 6 on CN) are connected, the current balance function will operate and parallel operation will be possible at 80% or less of the total output capacity. Up to 2 Power Supplies can be connected.

Correct

Use 2-conductor shielded cable as connection wire (* 1).

Adjust the output voltage of each Power Supply to the same value within 1% of the rated voltage or so that the difference in the output voltage is 100 mV or less, whichever is smaller, using the output voltage adjuster (V. ADJ).

Parallel operation is used to increase static capacity. The output voltage may drop with sudden load fluctuations.

There may be steps in the rising waveform of the output voltage during parallel operation.

Remove the standard supplied connector and prepare a connector harness separately.

In Case There Is No Output Voltage

15/30/50/100/150-W Models

The possible cause for no output voltage may be that the overload protection or overvoltage protection has operated. The internal protection circuit may operate if a large amount of surge voltage such as a lightning surge is applied to the input.

If there is no output voltage even after checking the following points please contact your OMRON representative.

Check the overload protected status.

Check whether the load is in overload status or is short-circuited. Remove the load wires when checking.

Attempt to clear the overvoltage or internal protection function.

Turn OFF the input power once and leave it OFF for at least 3 minutes. Then turn it ON again to see if this clears the condition.

Check whether the +S terminal and −S terminal are open, i.e., if the short bar has been removed. (S8VM-100 / S8VM-150 only)

Check if the output voltage has been adjusted to more than +20% of the rated voltage using the output voltage adjuster (V. ADJ).

300/600/1,500-W Models

The possible cause for no output voltage may be that the overcurrent protection, overvoltage protection, or overheat protection has operated. Alternatively, the built-in fan may have stopped or the remote control function may be OFF.

If there is no output voltage even after checking the following five points, please contact your OMRON representative.

Check the overload protected status.

Check whether the load is in overload status or is short-circuited. Remove the load wires when checking.

Attempt to clear the overvoltage protection function.

Turn OFF the input power once and leave it OFF for at least 3 minutes. Then turn it ON again to see if this clears the condition.

Check whether the +S terminal and −S terminal are open.

Check if the output voltage has been adjusted to more than +20% of the rated voltage using the output voltage adjuster (V. ADJ).

Fan Replacement

300/600/1,500-W Models

Consult with OMRON regarding fan replacement. OMRON will replace fans for a fee. A replacement Fan Unit (S82Y-VM-FAN) is available. Use the curve in the graph below as a rough measure of replacement timing.

The Power Supply will not conform to safety standards if the customer replaces the fan.

Buzzing Noise when the Input Is Turned ON

50/100/150/300/600/1,500-W Models

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 internal operation stabilizes and does not indicate any problem in the Power Supply.

DIN Rail Mounting

15/30/50/100/150/300/600-W Models

When mounting to a DIN Rail, lower the S8VM onto the Rail until the Rail stopper clicks into place, hook section A over the edge of the Rail and push in the direction of B.

To remove the S8VM from the DIN Rail, insert a screwdriver into section C and pull the S8VM away from the Rail.
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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c. All sales and shipments of Products shall be FOB shipping point (unless otherwise stated in writing by Omron), at which point title and risk of loss shall pass from Omron to Buyer; provided that Omron shall retain a security interest in the Products until the full purchase price is paid;

d. Delivery and shipping dates are estimates only; and

e. Omron will package Products as it deems proper for protection against normal handling and extra charges apply to special conditions.

12. Claims for Damages. Omron’s exclusive remedy for against any damage or damage to the Products occurring before delivery to the carrier must be presented in writing to Omron’s authorized representative within (30) days after receipt of the Products or within (90) days from the date of shipment as stated in the invoice. By signing or acknowledging any return or waiver in writing by Omron, Buyer disclaims all other warranties, express or implied, or any other provision. (f) Setoff. If the financial position of Buyer at any time becomes unsatisfactory to Omron, Omron reserves the right to stop shipments or require satisfactory security from Buyer. If Buyer fails to make payment following a demand to comply with these Terms or any related agreement, Omron may (without liability and in addition to other remedies) cancel any unshipped portion of Product. (g) Setoff of Claims. Omron will not accept any order less than $200 net billing. These Terms are governed by the law of the jurisdiction of the home office of the Omron company from which Buyer is purchasing the Product, or if applicable, any other law which would otherwise govern the non-compliance. Any advice, recommendations, or information given orally or in writing, are not to be construed as an amendment or addition to the above warranty. See http://www.omron247.com or contact your Omron representative for published information.

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b. Buyer...