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# Switch Mode Power Supply
# S8VS (15/30/60/90/120/180/240/480-W Models)

## Indication Monitor for Visualization of Operating Status For Even Greater Maintenance Efficiency ✻

- Status displayed on 3-digit, 7-segment display. ✻
- Signal output notifications at 90 W or more. ✻
- Conformity to various safety standards for global usability.
- Varied coverage with 3-year warranty.
- DIN rail mounting supported.

✻ Models with indication monitor



For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

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

### Recommended Noise Filter



Noise filter
S8V-NF

For more information, refer to *S8V-NF Noise Filter Data Sheet* (Cat. No. T212-E1).

## Model Number Structure

### Model Number Legend

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

**S8VS-** □□□□□□□□-□
**1 2 3 4 5 6**

**1. Power Ratings**
015: 15 W
030: 30 W
060: 60 W
090: 90 W
120: 120 W
180: 180 W
240: 240 W
480: 480 W

**2. Output voltage (VDC)**
05: 5 V
12: 12 V
24: 24 V

**3. Indication monitor**
None: Without indication monitor (standard model)
A: With indication monitor (maintenance forecast monitor)
B: With indication monitor (total run time monitor)
BE: With indication monitor but without alarm output (total run time monitor)

**4. Alarm output**
None: Sinking (Emitter COM) ✻
P: Sourcing (Collector COM)
**Note:** No alarm output possible with 60-W models.
✻ Both sinking and sourcing outputs are available for 480-W models.

**5. UL Class 2 Output Standards (UL 1310)**
None: Does not conform. ✻
S: Conforms.
✻ 15-W, 30-W, and 60-W models conform to Class 2 output standards (UL 1310).
**Note:** The S option is available only for 90-W models.

**6. Terminal Block Form**
None: Screw terminal block
F: Screwless terminal block

**Note:** Estimates can be provided for coatings and other specifications that are not given in the datasheet. Ask your OMRON representative for details.

# Ordering Information

## List of Models

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

### Models without Indication Monitor (Standard Models)

| Power ratings | Input voltage | Output voltage (VDC) | Output current | UL Class 2 Output standards | Model number (screw terminal block) | Model number (screwless terminal block) |
|---|---|---|---|---|---|---|
| 15 W | 100 to 240 VAC (allowable range: 85 to 264 VAC or 80 to 370 VDC ✻3) | 5 V | 2.0 A | Yes | **S8VS-01505 ✻1** | --- |
| | | 12 V | 1.2 A | Yes | **S8VS-01512** | |
| | | 24 V | 0.65 A | Yes | **S8VS-01524** | |
| 30 W | | 5 V | 4.0 A | Yes | **S8VS-03005 ✻2** | |
| | | 12 V | 2.5 A | Yes | **S8VS-03012** | |
| | | 24 V | 1.3 A | Yes | **S8VS-03024** | |
| 60 W | | 24 V | 2.5 A | Yes | **S8VS-06024** | **S8VS-06024-F** |
| 90 W | | | 3.75 A | --- | **S8VS-09024** | **S8VS-09024-F** |
| | | | | Yes | **S8VS-09024S** | **S8VS-09024S-F** |
| 120 W | | | 5 A | --- | **S8VS-12024** | **S8VS-12024-F** |
| 180 W | | | 7.5 A | --- | **S8VS-18024** | **S8VS-18024-F** |
| 240 W | | | 10 A | --- | **S8VS-24024** | **S8VS-24024-F** |
| 480 W | 100 to 240 VAC | | 20 A Peak current 30 A (200 VAC) | --- | **S8VS-48024** | **S8VS-48024-F** |

✻1. The output capacity of the S8VS-01505 is 10 W.
✻2. The output capacity of the S8VS-03005 is 20 W.
✻3. The range for compliance with EC Directives and safety standards (UL, EN, etc.) is 100 to 240 VAC (85 to 264 VAC).

### Models with Indication Monitor (Maintenance Forecast Monitor)

| Power ratings | Input voltage | Output voltage (VDC) | Output current | Alarm output ✻2 | UL Class 2 Output standards | Model number (screw terminal block) | Model number (screwless terminal block) |
|---|---|---|---|---|---|---|---|
| 60 W | 100 to 240 VAC (allowable range: 85 to 264 VAC or 80 to 370 VDC ✻1) | 24 V | 2.5 A | --- | Yes | **S8VS-06024A** | **S8VS-06024A-F** |
| 90 W | | | 3.75 A | Sinking | --- | **S8VS-09024A** | **S8VS-09024A-F** |
| | | | | Sinking | Yes | **S8VS-09024AS** | **S8VS-09024AS-F** |
| | | | | Sourcing | --- | **S8VS-09024AP** | **S8VS-09024AP-F** |
| | | | | Sourcing | Yes | **S8VS-09024APS** | **S8VS-09024APS-F** |
| 120 W | | | 5 A | Sinking | --- | **S8VS-12024A** | **S8VS-12024A-F** |
| | | | | Sourcing | --- | **S8VS-12024AP** | **S8VS-12024AP-F** |
| 180 W | | | 7.5 A | Sinking | --- | **S8VS-18024A** | **S8VS-18024A-F** |
| | | | | Sourcing | --- | **S8VS-18024AP** | **S8VS-18024AP-F** |
| 240 W | | | 10 A | Sinking | --- | **S8VS-24024A** | **S8VS-24024A-F** |
| | | | | Sourcing | --- | **S8VS-24024AP** | **S8VS-24024AP-F** |
| 480 W | 100 to 240 VAC | | 20 A Peak current 30 A (200 VAC) | Sinking/ sourcing | --- | **S8VS-48024A** | **S8VS-48024A-F** |

✻1. The range for compliance with EC Directives and safety standards (UL, EN, etc.) is 100 to 240 VAC (85 to 264 VAC).
✻2. In the *Alarm output* column, "sinking" indicates an emitter COM and "sourcing" indicates a collector COM.

### Models with Indication Monitor (Total Run Time Monitor)

| Power ratings | Input voltage | Output voltage (VDC) | Output current | Alarm output ✻2 | UL Class 2 Output standards | Model number (screw terminal block) | Model number (screwless terminal block) |
|---|---|---|---|---|---|---|---|
| 60 W | 100 to 240 VAC (allowable range: 85 to 264 VAC or 80 to 370 VDC) ✻1 | 24 V | 2.5 A | --- | Yes | **S8VS-06024B** | **S8VS-06024B-F** |
| 90 W | | | 3.75 A | --- | --- | **S8VS-09024BE** | **S8VS-09024BE-F** |
| | | | | --- | Yes | **S8VS-09024BES** | **S8VS-09024BES-F** |
| | | | | Sinking | --- | **S8VS-09024B** | **S8VS-09024B-F** |
| | | | | Sinking | Yes | **S8VS-09024BS** | **S8VS-09024BS-F** |
| | | | | Sourcing | --- | **S8VS-09024BP** | **S8VS-09024BP-F** |
| | | | | Sourcing | Yes | **S8VS-09024BPS** | **S8VS-09024BPS-F** |
| 120 W | | | 5 A | --- | --- | **S8VS-12024BE** | **S8VS-12024BE-F** |
| | | | | Sinking | --- | **S8VS-12024B** | **S8VS-12024B-F** |
| | | | | Sourcing | --- | **S8VS-12024BP** | **S8VS-12024BP-F** |
| 180 W | | | 7.5 A | --- | --- | **S8VS-18024BE** | **S8VS-18024BE-F** |
| | | | | Sinking | --- | **S8VS-18024B** | **S8VS-18024B-F** |
| | | | | Sourcing | --- | **S8VS-18024BP** | **S8VS-18024BP-F** |
| 240 W | | | 10 A | --- | --- | **S8VS-24024BE** | **S8VS-24024BE-F** |
| | | | | Sinking | --- | **S8VS-24024B** | **S8VS-24024B-F** |
| | | | | Sourcing | --- | **S8VS-24024BP** | **S8VS-24024BP-F** |
| 480 W | 100 to 240 VAC | | 20 A Peak current 30 A (200 VAC) | Sinking/ sourcing | --- | **S8VS-48024B** | **S8VS-48024B-F** |

✻1. The range for compliance with EC Directives and safety standards (UL, EN, etc.) is 100 to 240 VAC (85 to 264 VAC).
✻2. In the *Alarm output* column, "sinking" indicates an emitter COM and "sourcing" indicates a collector COM.
**Note:** Refer to pages 24 to 25 for the options that available.

# Specifications

## Ratings/Characteristics

| Item | | | Power ratings | 15 W | | | 30 W | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Output voltage (VDC) | 5 V | 12 V | 24 V | 5 V | 12 V | 24 V |
| Efficiency | | | With 100-VAC input | 74% typical | 79% typical | 83% typical | 74% typical | 81% typical | 85% typical |
| | | | With 200-VAC input | 73% typical | 78% typical | 80% typical | 74% typical | 80% typical | 86% typical |
| Input | Voltage ✻1 | | | 100 to 240 VAC (allowable range: 85 to 264 VAC, 80 to 370 VDC ✻5) | | | | | |
| | Frequency ✻1 | | | 50/60 Hz (47 to 450 Hz) | | | | | |
| | Current | | With 100-VAC input | 0.45 A max., 0.34 A typical | | | 0.9 A max., 0.66 A typical | | |
| | | | With 200-VAC input | 0.25 A max., 0.22 A typical | | | 0.6 A max., 0.4 A typical | | |
| | Power factor ✻6 | | | --- | | | | | |
| | Harmonic current regulation | | | Conforms to EN61000-3-2 | | | | | |
| | Leakage current | | With 100-VAC input | 0.5 mA max. | | | | | |
| | | | With 200-VAC input | 1.0 mA max. | | | | | |
| | Inrush current ✻2 | | With 100-VAC input | 17.5 A max., 14 A typical | | | | | |
| | | | With 200-VAC input | 35 A max., 28 A typical | | | | | |
| Output | Voltage adjustment range ✻3 | | | −10% to 15% (with V.ADJ) | | | | | |
| | Ripple noise voltage (at rated I/O) | | | 60 mV max. | 70 mV max. | 60 mV max. | 60 mV max. | 90 mV max. | 150 mV max. |
| | Input variation influence | | | 0.5% max. (at 85- to 264-VAC input, 100% load) | | | | | |
| | Load variation influence (rated input voltage) | | | 2.0% max. (5 V), 1.5% max. (12 V, 24 V), (with rated input, 0 to 100% load) | | | | | |
| | Temperature variation influence | | | 0.05%/°C max. | | | | | |
| | Startup time (at rated I/O) ✻2 | | With 100-VAC input | 580 ms typical | 530 ms typical | 600 ms typical | 500 ms typical | 560 ms typical | 560 ms typical |
| | | | With 200-VAC input | 340 ms typical | 360 ms typical | 400 ms typical | 360 ms typical | 380 ms typical | 400 ms typical |
| | Output hold time (at rated I/O) ✻2 | | With 100-VAC input | 39 ms typical | 27 ms typical | 28 ms typical | 31 ms typical | 22 ms typical | 31 ms typical |
| | | | With 200-VAC input | 187 ms typical | 134 ms typical | 134 ms typical | 174 ms typical | 123 ms typical | 140 ms typical |
| Additional functions | Overload protection ✻2 | | | The range for compliance with EC Directives and safety standards (UL, EN, etc.) is 100 to 240 VAC (85 to 264 VAC). | | | | | |
| | Overvoltage protection ✻2 | | | Yes ✻4 | | | | | |
| | Output voltage indication | | | No | | | | | |
| | Output current indication | | | No | | | | | |
| | Peak-hold current indication | | | No | | | | | |
| | Maintenance forecast monitor indication | | | No | | | | | |
| | Maintenance forecast monitor output | | | No | | | | | |
| | Total run time monitor indication | | | No | | | | | |
| | Total run time monitor output | | | No | | | | | |
| | Undervoltage alarm indication | | | Yes (color: red) | | | | | |
| | Undervoltage alarm output | | | No | | | | | |
| | Parallel operation | | | No (However, backup operation is possible. An external diode is required.) | | | | | |
| | Series operation | | | Models with 24-V output: Possible for up to 2 Power Supplies (with external diode)<br>Models with 5- or 12-V output: Not possible | | | | | |
| Other | Operating ambient temperature | | | Refer to the derating curve in *Engineering Data*. (with no icing or condensation) | | | | | |
| | Storage temperature | | | −25 to 65°C | | | | | |
| | Operating ambient humidity | | | 25% to 85% (Storage humidity: 25% to 90%) | | | | | |
| | Dielectric strength | | | 3.0 kVAC for 1 min. (between all inputs and outputs; detection current: 20 mA)<br>2.0 kVAC for 1 min. (between all inputs and PE terminals; detection current: 20 mA)<br>1.0 kVAC for 1 min. (between all outputs and PE terminals; detection current: 20 mA) | | | | | |
| | Insulation resistance | | | 100 MΩ min. (between all outputs and all inputs/ PE terminals) at 500 VDC | | | | | |
| | Vibration resistance | | | 10 to 55 Hz, 0.375-mm single amplitude for 2 h each in X, Y, and Z directions | | | | | |
| | Shock resistance | | | 150 m/s², 3 times each in ±X, ±Y, and ±Z directions | | | | | |
| | Output indicator | | | Yes (color: green) | | | | | |
| | EMI | | Conducted Emissions | Conforms to EN55011 Group1 Class B and based on FCC Class A | | | | | |
| | | | Radiated Emissions | Conforms to EN55011 Group1 Class B | | | | | |
| | EMS | | | Conforms to EN61204-3 high severity levels | | | | | |
| | Approved standards | | | UL 508 (Listing, Class2 Output: Per 1310)<br>UL 62368-1<br>CSA C22.2 No.107.1 (cUL) (Class2 Output: Per CSA C22.2 No.223)<br>CSA C22.2 No.62368-1 (cUR)<br>EN 62477-1, EN 62368-1<br>EAC mark, RCM mark | | | | | |
| | SEMI | | | F47-0706 (With 200-VAC input) | | | | | |
| | Weight | | | 160 g max. | | | 180 g max. | | |

✻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. For a cold start at 25°C. Refer to *Engineering Data* on page 18 for details.
✻3. If the output voltage adjuster (V. ADJ) is turned, the voltage will increase by more than +15% 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. To reset the protection, turn OFF the input power for three minutes or longer and then turn it back ON.
✻5. The range for compliance with EC Directives and safety standards (UL, EN, etc.) is 100 to 240 VAC (85 to 264 VAC).
✻6. The value is when both rated output voltage and rated output current are satisfied.

| Item | | | Power ratings / Type | 60 W | | |
|---|---|---|---|---|---|---|
| | | | | Standard | Maintenance forecast monitor | Total run time monitor |
| Efficiency | | | With 100-VAC input | 84% typical | 83% typical | |
| | | | With 200-VAC input | 83% typical | 85% typical | |
| Input | Voltage ✻1 | | | 100 to 240 VAC (allowable range: 85 to 264 VAC or 80 to 370 VDC ✻11) | | |
| | Frequency ✻1 | | | 50/60 Hz (47 to 450 Hz) | | |
| | Current | | With 100-VAC input | 1.7 A max., 1.3 A typical | 1.7 A max., 1.3 A typical | |
| | | | With 200-VAC input | 1.0 A max., 0.68 A typical | 1.0 A max., 0.78 A typical | |
| | Power factor ✻12 | | | --- | | |
| | Harmonic current regulation | | | Conforms to EN61000-3-2 | | |
| | Leakage current | | With 100-VAC input | 0.5 mA max. | | |
| | | | With 200-VAC input | 1.0 mA max. | | |
| | Inrush current ✻2 | | With 100-VAC input | 17.5 A max., 14 A typical | | |
| | | | With 200-VAC input | 35 A max., 28 A typical | | |
| Output | Voltage adjustment range ✻3 | | | −10% to 15% (with V. ADJ) (The voltage cannot be adjusted for the S8VS-09024□□□S-□.) | | |
| | Ripple noise voltage (at rated I/O) | | | 70 mV max. | 90 mV max. | |
| | Input variation influence | | | 0.5% max. (at 85- to 264-VAC input, 100% load) | | |
| | Load variation influence (rated input voltage) | | | 1.5% max. (with rated input, 0 to 100% load) | | |
| | Temperature variation influence | | | 0.05%/°C max. | | |
| | Startup time (at rated I/O) ✻2 | | With 100-VAC input | 620 ms typical | 460 ms typical | |
| | | | With 200-VAC input | 400 ms typical | 290 ms typical | |
| | Output hold time (at rated I/O) ✻2 | | With 100-VAC input | 34 ms typical | 33 ms typical | |
| | | | With 200-VAC input | 158 ms typical | 154 ms typical | |
| Additional functions | Overload protection ✻2 | | | 105% to 160% of rated load current (101% to 110% of rated load current for the S8VS-09024□□□S-□), inverted L voltage drop, intermittent, automatic reset | | |
| | Overvoltage protection ✻2, ✻4 | | | Yes | | |
| | Output voltage indication ✻5 | | | No | Yes (selectable) ✻6 | |
| | Output current indication ✻5 | | | No | Yes (selectable) ✻7 | |
| | Peak-hold current indication ✻5 | | | No | Yes (selectable) ✻8 | |
| | Maintenance forecast monitor indication ✻5 | | | No | Yes (selectable) | No |
| | Maintenance forecast monitor output | | | No | | |
| | Total run time monitor indication ✻5 | | | No | | Yes (selectable) |
| | Total run time monitor output ✻5 | | | No | | |
| | Undervoltage alarm indication ✻5 | | | No | Yes (selectable) | |
| | Undervoltage alarm output terminals | | | No | | |
| | Parallel operation | | | No (However, backup operation is possible. An external diode is required.) | | |
| | Series operation | | | Yes for up to 2 Power Supplies (with external diode) | | |
| Other | Operating ambient temperature | | | Refer to the derating curve in . (with no icing or condensation) | | |
| | Storage temperature | | | −25 to 65°C | | |
| | Operating ambient humidity | | | 25% to 85% (Storage humidity: 25% to 90%) | | |
| | Dielectric strength | | | 3.0 kVAC for 1 min. (between all inputs and outputs/ alarm outputs; detection current: 20 mA)<br>2.0 kVAC for 1 min. (between all inputs and PE terminals; detection current: 20 mA)<br>1.0 kVAC for 1 min. (between all outputs/ alarm outputs and PE terminals; detection current for standard models: 30 mA, detection current for models with indication monitor: 20 mA)<br>500 VAC for 1 min. (between all outputs and alarm outputs; detection current: 20 mA) | | |
| | Insulation resistance | | | 100 MΩ min. (between all outputs/ alarm outputs and all inputs/ PE terminals) at 500 VDC | | |
| | Vibration resistance | | | 10 to 55 Hz, 0.375-mm single amplitude for 2 h each in X, Y, and Z directions<br>10 to 150 Hz, 0.35-mm single amplitude (5 G max.) for 80 min each in X, Y, and Z directions | | |
| | Shock resistance | | | 150 m/s$^2$, 3 times each in ±X, ±Y, and ±Z directions | | |
| | Output indicator | | | Yes (color: green) | | |
| | EMI | | Conducted Emissions | Models with indication monitor: Conforms to EN55011 Group1 Class A and based on FCC Class A, Conforms to EN55011 Group1 Class B ✻11<br>Standard models: Conforms to EN61204-3 EN55011 Group 1 Class B and based on FCC Class A | | |
| | | | Radiated Emissions | Models with indication monitor: Conforms to EN55011 Group1 Class A, Conforms to EN55011 Group1 Class B ✻11<br>Standard models: Conforms to EN55011 Group1 Class B | | |
| | EMS | | | Conforms to EN61204-3 high severity levels | | |
| | Approved standards ✻11 | | | Standard model: UL 508 (Listing; Class 2 Output: Per UL1310)<br>UL 62368-1<br>CSA C22.2 No.107.1 (cUL) (Class 2 Output: Per CSA C22.2 No. 223)<br>CSA C22.2 No.62368-1 (cUR)<br>EN 62477-1, EN 62368-1<br>EAC mark, RCM mark<br>With indication monitor: UL 508 (Listing, Class2 Output: Per 1310)<br>CSA C22.2 No.107.1 (cUL) (Class2 Output: Per CSA C22.2 No.223)<br>EN 62477-1<br>EAC mark, RCM mark, KOSHA S Mark ✻10 | | |
| | SEMI ✻11 | | | F47-0706 (With 200-VAC input) | | |
| | Weight | | | 330 g max. | | |

✻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. For a cold start at 25°C. Refer to *Engineering Data* on page 18 for details.
✻3. If the output voltage adjuster (V. ADJ) is turned, the voltage will increase by more than +15% of the voltage adjustment range (by more than +10% for 240-W models with indication monitor). 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 reset the protection, turn OFF the input power for three minutes or longer and then turn it back ON.
✻5. Displayed on 7-segment LED. (character height: 8 mm)
✻6. Resolution of output voltage indication: 0.1 V, Precision of output voltage indication: ±2% (percentage of output voltage value, ±1 digit)
✻7. Resolution of output current indication: 0.1 A; Precision of output current indication: ±5% F.S. ±1 digit max. (specified by rated output voltage)
✻8. Resolution of peak-hold current indication: 0.1 A; Precision of peak-hold current indication: ±5% F.S. ±1 digit max. (specified by rated output voltage); Signal width required for peak-hold current: 20 ms
✻9. A Type and B Type: Sinking, AP Type and BP Type: Sourcing, BE Type: No alarm output.
✻10. S8VS-06024A, S8VS-09024A/AP, S8VS-12024A/AP, S8VS-18024A/AP, and S8VS-24024A/AP only
✻11. The range for compliance with EC Directives and safety standards (UL, EN, etc.) is 100 to 240 VAC (85 to 264 VAC).
✻12. The value is when both rated output voltage and rated output current are satisfied.

| Item | | Power ratings / Type | 90 W | | |
|---|---|---|---|---|---|
| | | | Standard | Maintenance forecast monitor | Total run time monitor |
| Efficiency | | With 100-VAC input | 83% typical | 83% typical | |
| | | With 200-VAC input | 84% typical | 85% typical | |
| Input | Voltage ✻1 | | 100 to 240 VAC (allowable range: 85 to 264 VAC or 80 to 370 VDC ✻11) | | |
| | Frequency ✻1 | | 50/60 Hz (47 to 450 Hz) | | |
| | Current | With 100-VAC input | 2.3 A max., 1.9 A typical | 2.3 A max., 1.9 A typical | |
| | | With 200-VAC input | 1.4 A max., 1.0 A typical | 1.4 A max., 1.2 A typical | |
| | Power factor ✻12 | | --- | | |
| | Harmonic current regulation | | Conforms to EN61000-3-2 | | |
| | Leakage current | With 100-VAC input | 0.5 mA max. | | |
| | | With 200-VAC input | 1.0 mA max. | | |
| | Inrush current ✻2 | With 100-VAC input | 17.5 A max., 14 A typical | | |
| | | With 200-VAC input | 35 A max., 28 A typical | | |
| Output | Voltage adjustment range ✻3 | | −10% to 15% (with V. ADJ) (The voltage cannot be adjusted for the S8VS-09024□□□S-□.) | | |
| | Ripple noise voltage (at rated I/O) | | 250 mV max. | 150 mV max. | |
| | Input variation influence | | 0.5% max. (at 85- to 264-VAC input, 100% load) | | |
| | Load variation influence (rated input voltage) | | 1.5% max. (with rated input, 0 to 100% load) | | |
| | Temperature variation influence | | 0.05%/°C max. | | |
| | Startup time (at rated I/O) ✻2 | With 100-VAC input | 460 ms typical | 660 ms typical | |
| | | With 200-VAC input | 300 ms typical | 420 ms typical | |
| | Output hold time (at rated I/O) ✻2 | With 100-VAC input | 28 ms typical | 28 ms typical | |
| | | With 200-VAC input | 132 ms typical | 136 ms typical | |
| Additional functions | Overload protection ✻2 | | 105% to 160% of rated load current (101% to 110% of rated load current for the S8VS-09024□□□S-□), inverted L voltage drop, intermittent, automatic reset | | |
| | Overvoltage protection ✻2, ✻4 | | Yes | | |
| | Output voltage indication ✻5 | | No | Yes (selectable) ✻6 | |
| | Output current indication ✻5 | | No | Yes (selectable) ✻7 | |
| | Peak-hold current indication ✻5 | | No | Yes (selectable) ✻8 | |
| | Maintenance forecast monitor indication ✻5 | | No | Yes (selectable) | No |
| | Maintenance forecast monitor output | | No | Yes (transistor output), 30 VDC max., 50 mA max. ✻9 | No |
| | Total run time monitor indication ✻5 | | No | | Yes (selectable) |
| | Total run time monitor output ✻5 | | No | | Yes (transistor output), 30 VDC max., 50 mA max. ✻9 |
| | Undervoltage alarm indication ✻5 | | No | Yes (selectable) | |
| | Undervoltage alarm output terminals | | No | Yes (transistor output), 30 VDC max., 50 mA max. ✻9 | |
| | Parallel operation | | No (However, backup operation is possible. An external diode is required.) | | |
| | Series operation | | Yes for up to 2 Power Supplies (with external diode) | | |
| Other | Operating ambient temperature | | Refer to the derating curve in . (with no icing or condensation) | | |
| | Storage temperature | | −25 to 65°C | | |
| | Operating ambient humidity | | 25% to 85% (Storage humidity: 25% to 90%) | | |
| | Dielectric strength | | 3.0 kVAC for 1 min. (between all inputs and outputs/ alarm outputs; detection current: 20 mA)<br>2.0 kVAC for 1 min. (between all inputs and PE terminals; detection current: 20 mA)<br>1.0 kVAC for 1 min. (between all outputs/ alarm outputs and PE terminals; detection current for standard models: 30 mA, detection current for models with indication monitor: 20 mA)<br>500 VAC for 1 min. (between all outputs and alarm outputs; detection current: 20 mA) | | |
| | Insulation resistance | | 100 MΩ min. (between all outputs/ alarm outputs and all inputs/ PE terminals) at 500 VDC | | |
| | Vibration resistance | | 10 to 55 Hz, 0.375-mm single amplitude for 2 h each in X, Y, and Z directions<br>10 to 150 Hz, 0.35-mm single amplitude (5 G max.) for 80 min each in X, Y, and Z directions | | |
| | Shock resistance | | 150 m/s$^2$, 3 times each in ±X, ±Y, and ±Z directions | | |
| | Output indicator | | Yes (color: green) | | |
| | EMI | Conducted Emissions | Models with indication monitor: Conforms to EN55011 Group1 Class A and based on FCC Class A, Conforms to EN55011 Group1 Class B ✻11<br>Standard models: Conforms to EN61204-3 EN55011 Group 1 Class B and based on FCC Class A | | |
| | | Radiated Emissions | Models with indication monitor: Conforms to EN55011 Group1 Class A, Conforms to EN55011 Group1 Class B ✻11<br>Standard models: Conforms to EN55011 Group1 Class B | | |
| | EMS | | Conforms to EN61204-3 high severity levels | | |
| | Approved standards ✻11 | | Standard model: UL 508 (Listing)<br>(S8VS-09024S-□ only): UL 508 (Listing, Class2 Output: Per 1310)<br>UL 62368-1<br>CSA C22.2 No.107.1 (cUL)<br>(S8VS-09024S-□ only): CSA C22.2 No.107.1 (cUL) (Class2 Output: Per CSA C22.2 No.223)<br>CSA C22.2 No.62368-1 (cUR)<br>EN 62477-1, EN 62368-1<br>EAC mark, RCM mark<br>With indication monitor: UL 508 (Listing)<br>(S8VS-09024□□S-□ only): UL 508 (Listing, Class2 Output: Per 1310)<br>CSA C22.2 No.107.1<br>(S8VS-09024□□S-□ only): CSA C22.2 No.107.1 (cUL) (Class2 Output: Per CSA C22.2 No.223)<br>EN 62477-1<br>EAC mark, RCM mark, KOSHA S Mark ✻10 | | |
| | SEMI ✻11 | | F47-0706 (With 200-VAC input) | | |
| | Weight | | 490 g max. | | |

✻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. For a cold start at 25°C. Refer to *Engineering Data* on page 18 for details.
✻3. If the output voltage adjuster (V. ADJ) is turned, the voltage will increase by more than +15% of the voltage adjustment range (by more than +10% for 240-W models with indication monitor). 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 reset the protection, turn OFF the input power for three minutes or longer and then turn it back ON.
✻5. Displayed on 7-segment LED. (character height: 8 mm)
✻6. Resolution of output voltage indication: 0.1 V, Precision of output voltage indication: ±2% (percentage of output voltage value, ±1 digit)
✻7. Resolution of output current indication: 0.1 A; Precision of output current indication: ±5% F.S. ±1 digit max. (specified by rated output voltage)
✻8. Resolution of peak-hold current indication: 0.1 A; Precision of peak-hold current indication: ±5% F.S. ±1 digit max. (specified by rated output voltage); Signal width required for peak-hold current: 20 ms
✻9. A Type and B Type: Sinking, AP Type and BP Type: Sourcing, BE Type: No alarm output.
✻10. S8VS-06024A, S8VS-09024A/AP, S8VS-12024A/AP, S8VS-18024A/AP, and S8VS-24024A/AP only
✻11. The range for compliance with EC Directives and safety standards (UL, EN, etc.) is 100 to 240 VAC (85 to 264 VAC).
✻12. The value is when both rated output voltage and rated output current are satisfied.

| Item | | Power ratings / Type | 120 W | | | 180 W | | |
|---|---|---|---|---|---|---|---|---|
| | | | Standard | Maintenance forecast monitor | Total run time monitor | Standard | Maintenance forecast monitor | Total run time monitor |
| Efficiency | | With 100-VAC input | 84% typical | 83% typical | | 85% typical | 85% typical | |
| | | With 200-VAC input | 87% typical | 85% typical | | 88% typical | 87% typical | |
| Input | Voltage ✻1 | | 100 to 240 VAC (allowable range: 85 to 264 VAC or 80 to 370 VDC ✻11) | | | | | |
| | Frequency ✻1 | | 50/60 Hz (47 to 63 Hz) | | | | | |
| | Current | With 100-VAC input | 1.9 A max., 1.5 A typical | | | 2.9 A max., 2.2 A typical | | |
| | | With 200-VAC input | 1.1 A max., 0.71 A typical | 1.1 A max., 0.72 A typical | | 1.6 A max., 1.1 A typical | | |
| | Power factor ✻12 | | 0.9 min. | | | | | |
| | Harmonic current regulation | | Conforms to EN61000-3-2 | | | | | |
| | Leakage current | With 100-VAC input | 0.5 mA max. | | | | | |
| | | With 200-VAC input | 1.0 mA max. | | | | | |
| | Inrush current ✻2 | With 100-VAC input | 17.5 A max., 14 A typical | | | | | |
| | | With 200-VAC input | 35 A max., 28 A typical | | | | | |
| Output | Voltage adjustment range ✻3 | | −10% to 15% (with V.ADJ) | | | | | |
| | Ripple noise voltage (at rated I/O) | | 60 mV max. | 130 mV max. | | 50 mV max. | 180 mV max. | |
| | Input variation influence | | 0.5% max. (at 85- to 264-VAC input, 100% load) | | | | | |
| | Load variation influence (rated input voltage) | | 1.5% max. (with rated input, 0 to 100% load) | | | | | |
| | Temperature variation influence | | 0.05%/°C max. | | | | | |
| | Startup time (at rated I/O) ✻2 | With 100-VAC input | 550 ms typical | 650 ms typical | | 570 ms typical | 580 ms typical | |
| | | With 200-VAC input | 400 ms typical | 520 ms typical | | 470 ms typical | 490 ms typical | |
| | Output hold time (at rated I/O) ✻2 | With 100-VAC input | 52 ms typical | 56 ms typical | | 58 ms typical | 70 ms typical | |
| | | With 200-VAC input | 54 ms typical | 56 ms typical | | 62 ms typical | 70 ms typical | |
| Additional functions | Overload protection ✻2 | | 105% to 160% of rated load current, inverted L voltage drop, automatic reset | | | | | |
| | Overvoltage protection ✻2, ✻4 | | Yes | | | | | |
| | Output voltage indication ✻5 | | No | Yes (selectable) ✻6 | | No | Yes (selectable) ✻6 | |
| | Output current indication ✻5 | | No | Yes (selectable) ✻7 | | No | Yes (selectable) ✻7 | |
| | Peak-hold current indication ✻5 | | No | Yes (selectable) ✻8 | | No | Yes (selectable) ✻8 | |
| | Maintenance forecast monitor indication ✻5 | | No | Yes (selectable) | No | No | Yes (selectable) | No |
| | Maintenance forecast monitor output | | No | Yes (transistor output), 30 VDC max., 50 mA max. ✻9 | No | No | Yes (transistor output), 30 VDC max., 50 mA max. ✻9 | No |
| | Total run time monitor indication ✻5 | | No | | Yes (selectable) | No | | Yes (selectable) |
| | Total run time monitor output ✻5 | | No | | Yes (transistor output), 30 VDC max., 50 mA max. ✻9 | No | | Yes (transistor output), 30 VDC max., 50 mA max. ✻9 |
| | Undervoltage alarm indication ✻5 | | No | Yes (selectable) | | No | Yes (selectable) | |
| | Undervoltage alarm output terminals | | No | Yes (transistor output), 30 VDC max., 50 mA max. ✻9 | | No | Yes (transistor output), 30 VDC max., 50 mA max. ✻9 | |
| | Parallel operation | | No (However, backup operation is possible. An external diode is required.) | | | | | |
| | Series operation | | Yes for up to 2 Power Supplies (with external diode) | | | | | |
| Other | Operating ambient temperature | | Refer to the derating curve in . (with no icing or condensation) | | | | | |
| | Storage temperature | | −25 to 65°C | | | | | |
| | Operating ambient humidity | | 25% to 85% (Storage humidity: 25% to 90%) | | | | | |
| | Dielectric strength | | 3.0 kVAC for 1 min. (between all inputs and outputs/ alarm outputs; detection current: 20 mA)<br>2.0 kVAC for 1 min. (between all inputs and PE terminals; detection current: 20 mA)<br>1.0 kVAC for 1 min. (between all outputs/ alarm outputs and PE terminals; detection current for standard models: 30 mA, detection current for models with indication monitor: 20 mA<br>500 VAC for 1 min. (between all outputs and alarm outputs; detection current: 20 mA) | | | | | |
| | Insulation resistance | | 100 MΩ min. (between all outputs/ alarm outputs and all inputs/ PE terminals) at 500 VDC | | | | | |
| | Vibration resistance | | 10 to 55 Hz, 0.375-mm single amplitude for 2 h each in X, Y, and Z directions<br>10 to 150 Hz, 0.35-mm single amplitude (5 G max.) for 80 min each in X, Y, and Z directions | | | | | |
| | Shock resistance | | 150 m/s$^2$, 3 times each in ±X, ±Y, and ±Z directions | | | | | |
| | Output indicator | | Yes (color: green) | | | | | |
| | EMI | Conducted Emissions | Models with indication monitor: Conforms to EN55011 Group1 Class A and based on FCC Class A, Conforms to EN55011 Group1 Class B ✻11<br>Standard models: Conforms to EN55011 Group1 Class B and based on FCC Class A | | | | | |
| | | Radiated Emissions | Models with indication monitor: Conforms to EN55011 Group1 Class A, Conforms to EN55011 Group1 Class B ✻11<br>Standard models: Conforms to EN55011 Group1 Class B | | | | | |
| | EMS | | Conforms to EN61204-3 high severity levels | | | | | |
| | Approved standards ✻11 | | UL 508 (Listing)<br>CSA C22.2 No. 107.1 (cUL)<br>EN 62477-1<br>EAC mark, RCM mark, KOSHA S Mark ✻10 | | | | | |
| | SEMI ✻11 | | F47-0706 (200-VAC input) | | | | | |
| | Weight | | 550 g max. | | | 850 g max. | | |

**Note:** Refer to page 5 for notes 1 to 12.

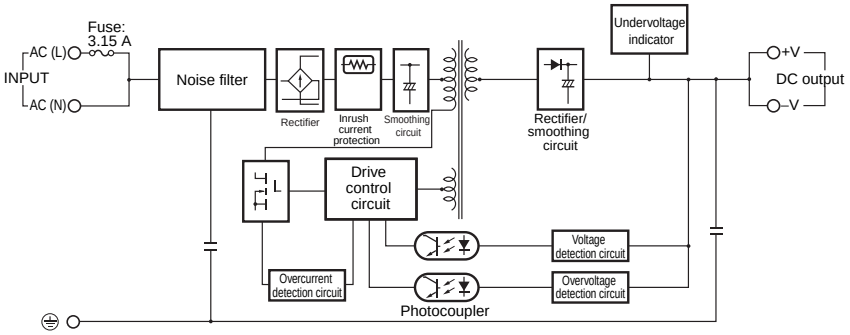
| Item | | Power ratings / Type | 240 W | | | 480 W | | |
|---|---|---|---|---|---|---|---|---|
| | | | Standard | Maintenance forecast monitor | Total run time monitor | Standard | Maintenance forecast monitor | Total run time monitor |
| Efficiency | | With 100-VAC input | 85% typical | | | 89% typical | | |
| | | With 200-VAC input | 88% typical | | | 93% typical | | |
| Input | Voltage ✻1 | | 100 to 240 VAC (allowable range: 85 to 264 VAC or 80 to 370 VDC ✻11) | | | 100 to 240 VAC (allowable range: 85 to 264 VAC) | | |
| | Frequency ✻1 | | 50/60 Hz (47 to 63 Hz) | | | | | |
| | Current | With 100-VAC input | 3.8 A max., 2.9 A typical | | | 7.4 A max., 5.8 A typical | | |
| | | With 200-VAC input | 2.0 A max., 1.5 A typical | | | 3.9 A max., 2.8 A typical | | |
| | Power factor ✻12 | | 0.9 min. | | | 0.95 min. | | |
| | Harmonic current regulation | | Conforms to EN61000-3-2 | | | | | |
| | Leakage current | With 100-VAC input | 0.5 mA max. | | | | | |
| | | With 200-VAC input | 1.0 mA max. | | | | | |
| | Inrush current ✻2 | With 100-VAC input | 17.5 A max., 14 A typical | | | | | |
| | | With 200-VAC input | 35 A max., 28 A typical | | | | | |
| Output | Voltage adjustment range ✻3 | | −10% to 15% (with V.ADJ) | | | −10% to 15% (with V.ADJ) | | |
| | Ripple noise voltage (at rated I/O) | | 140 mV max. | 160 mV max. | | 310 mV max. | | |
| | Input variation influence | | 0.5% max. (at 85- to 264-VAC input, 100% load) | | | | | |
| | Load variation influence (rated input voltage) | | 1.5% max. (with rated input, 0 to 100% load) | | | | | |
| | Temperature variation influence | | 0.05%/°C max. | | | | | |
| | Startup time (at rated I/O) ✻2 | With 100-VAC input | 540 ms typical | 510 ms typical | | 550 ms typical | | |
| | | With 200-VAC input | 230 ms typical | 510 ms typical | | 550 ms typical | | |
| | Output hold time (at rated I/O) ✻2 | With 100-VAC input | 64 ms typical | 46 ms typical | | 37 ms typical | | |
| | | With 200-VAC input | 64 ms typical | 46 ms typical | | 41 ms typical | | |
| Additional functions | Overload protection ✻2 | | 105% to 160% of rated load current, inverted L voltage drop, automatic reset | | | 151% to 165% of rated load current, inverted L voltage drop, intermittent, automatic reset | | |
| | Overvoltage protection ✻2, ✻4 | | Yes | | | | | |
| | Output voltage indication ✻5 | | No | Yes (selectable) ✻6 | | No | Yes (selectable) ✻6 | |
| | Output current indication ✻5 | | No | Yes (selectable) ✻7 | | No | Yes (selectable) ✻7 | |
| | Peak-hold current indication ✻5 | | No | Yes (selectable) ✻8 | | No | Yes (selectable) ✻8 | |
| | Maintenance forecast monitor indication ✻5 | | No | Yes (selectable) | No | | Yes (selectable) | No |
| | Maintenance forecast monitor output | | No | Yes (transistor output), 30 VDC max., 50 mA max. ✻9 | No | | Yes (transistor output), 30 VDC max., 50 mA max. | No |
| | Total run time monitor indication ✻5 | | No | | Yes (selectable) | No | | Yes (selectable) |
| | Total run time monitor output ✻5 | | No | | Yes (transistor output), 30 VDC max., 50 mA max. ✻9 | No | | Yes (transistor output), 30 VDC max., 50 mA max. ✻9 |
| | Undervoltage alarm indication ✻5 | | No | Yes (selectable) | | No | Yes (selectable) | |
| | Undervoltage alarm output terminals | | No | Yes (transistor output), 30 VDC max., 50 mA max. ✻9 | | No | Yes (transistor output), 30 VDC max., 50 mA max. ✻9 | |
| | Parallel operation | | No (However, backup operation is possible. An external diode is required.) | | | | | |
| | Series operation | | Yes for up to 2 Power Supplies (with external diode) | | | | | |
| Other | Operating ambient temperature | | Refer to the derating curve in . (with no icing or condensation) | | | | | |
| | Storage temperature | | −25 to 65°C | | | | | |
| | Operating ambient humidity | | 25% to 85% (Storage humidity: 25% to 90%) | | | | | |
| | Dielectric strength | | 3.0 kVAC for 1 min. (between all inputs and outputs/alarm outputs; detection current: 20 mA)<br>2.0 kVAC for 1 min. (between all inputs and PE terminals; detection current: 20 mA)<br>1.0 kVAC for 1 min. (between all outputs/ alarm outputs and PE terminals; detection current for standard 240-W and 480-W models: 30 mA, detection current for 240-W models with indication monitor: 20 mA)<br>500 VAC for 1 min. (between all outputs and alarm outputs; detection current: 20 mA) | | | | | |
| | Insulation resistance | | 100 MΩ min. (between all outputs/ alarm outputs and all inputs/ PE terminals) at 500 VDC | | | | | |
| | Vibration resistance | | 10 to 55 Hz, 0.375-mm single amplitude for 2 h each in X, Y, and Z directions<br>10 to 150 Hz, 0.35-mm single amplitude (5 G max.) for 80 min each in X, Y, and Z directions: 240 W<br>10 to 150 Hz, 0.35-mm single amplitude (3 G max.) for 80 min each in X, Y, and Z directions: 480 W | | | | | |
| | Shock resistance | | 150 m/s², 3 times each in ±X, ±Y, and ±Z directions | | | | | |
| | Output indicator | | Yes (color: green) | | | | | |
| | EMI | Conducted Emissions | Models with indication monitor: Conforms to EN55011 Group1 Class A and based on FCC Class A, Conforms to EN55011 Group1 Class B ✻11<br>Standard models: Conforms to EN55011 Group1 Class B and based on FCC Class A | | | Conforms to EN55011 Group1 Class A and based on FCC Class A<br>Conforms to EN55011 Group1 Class B ✻11 | | |
| | | Radiated Emissions | Models with indication monitor: Conforms to EN55011 Group1 Class A, Conforms to EN55011 Group1 Class B ✻11<br>Standard models: Conforms to EN55011 Group1 Class B | | | Conforms to EN55011 Group1 Class A<br>Conforms to EN55011 Group1 Class B ✻11 | | |
| | EMS | | Conforms to EN61204-3 high severity levels | | | | | |
| | Approved standards ✻11 | | UL 508 (Listing)<br>CSA C22.2 No.107.1 (cUL)<br>EN 62477-1<br>EAC mark, RCM mark, KOSHA S Mark ✻10 | | | UL 508 (Listing)<br>UL 62368-1 (Recognition)<br>CSA C22.2 No.107.1 (cUL)<br>CSA C22.2 No. 62368-1 (cUR)<br>EN 62477-1 (=VDE 0160), EN 62368-1<br>EAC mark, RCM mark | | |
| | SEMI ✻11 | | F47-0706 (200-VAC input) | | | | | |
| | Weight | | 1,150 g max. | | | 1,700 g max. | | |

**Note:** Refer to page 5 for notes 1 to 12.

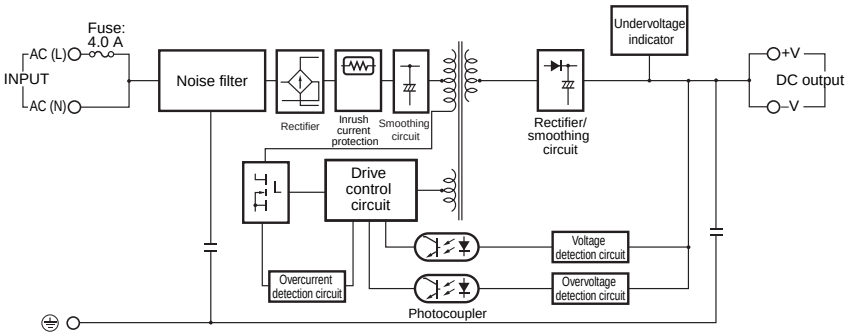
# Connections

## Block Diagrams

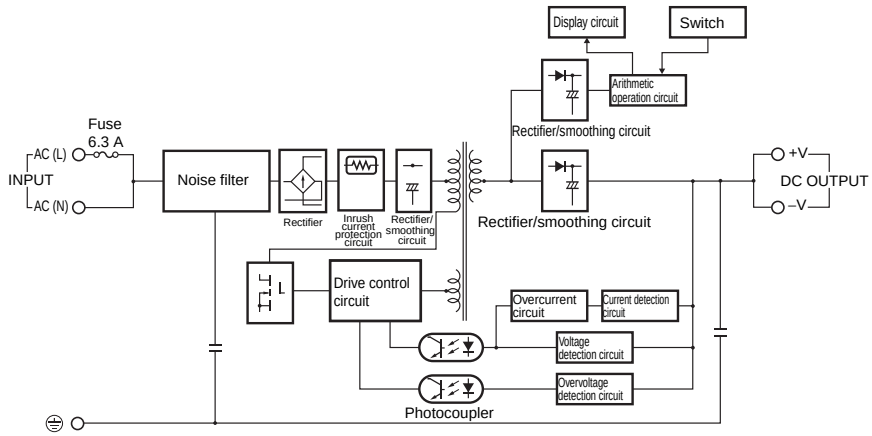
### S8VS-015□□ (15 W)



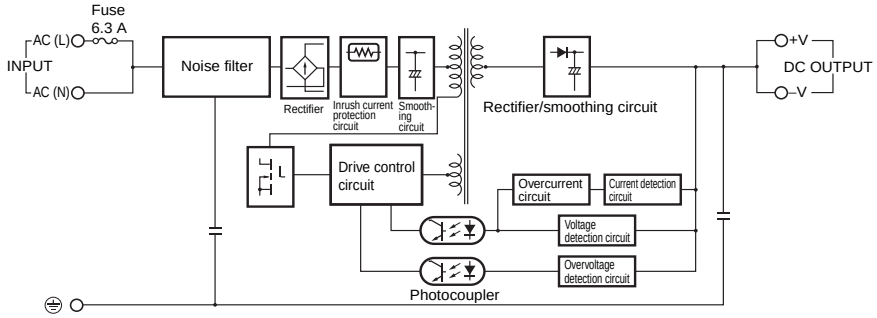

### S8VS-030□□ (30 W)



**S8VS-06024A-□ (60 W)**
**S8VS-06024B-□ (60 W)**

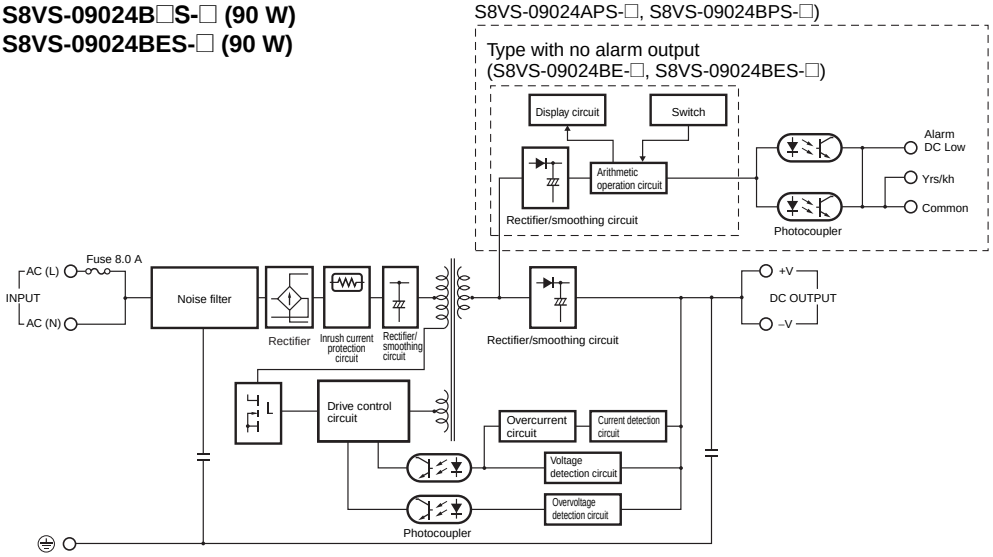



**S8VS-06024-□ (60 W)**

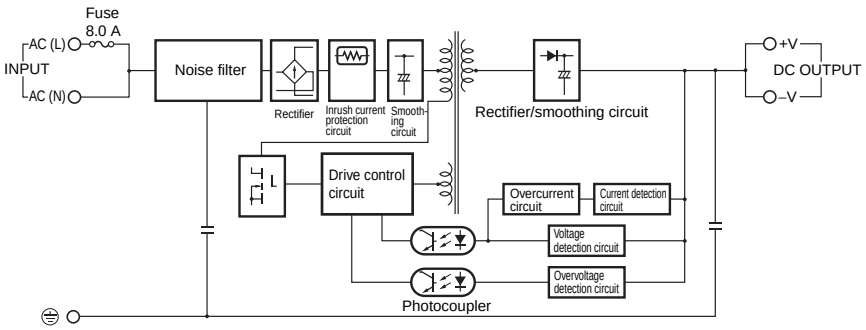


**S8VS-09024A□-□ (90 W)**
**S8VS-09024B□-□ (90 W)**
**S8VS-09024BE-□ (90 W)**
**S8VS-09024A□S-□ (90 W)**
**S8VS-09024B□S-□ (90 W)**
**S8VS-09024BES-□ (90 W)**

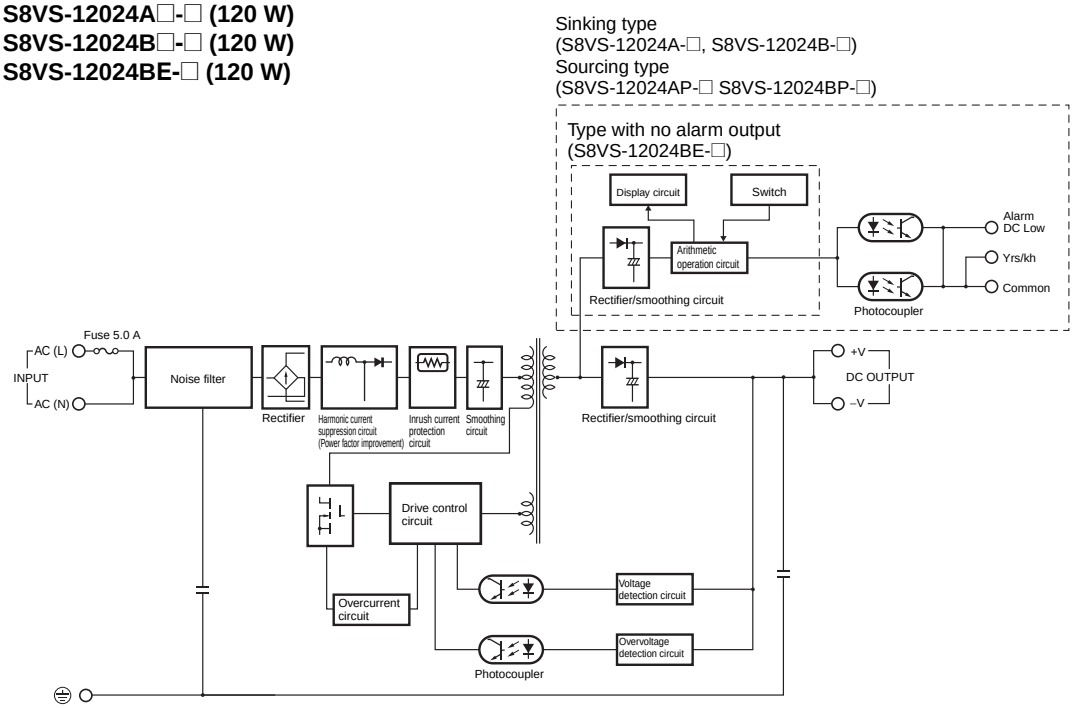
Sinking type
(S8VS-09024A-□, S8VS-09024B-□,
S8VS-09024AS-□, S8VS-09024BS-□)
Sourcing type
(S8VS-09024AP-□, S8VS-09024BP-□,
S8VS-09024APS-□, S8VS-09024BPS-□)



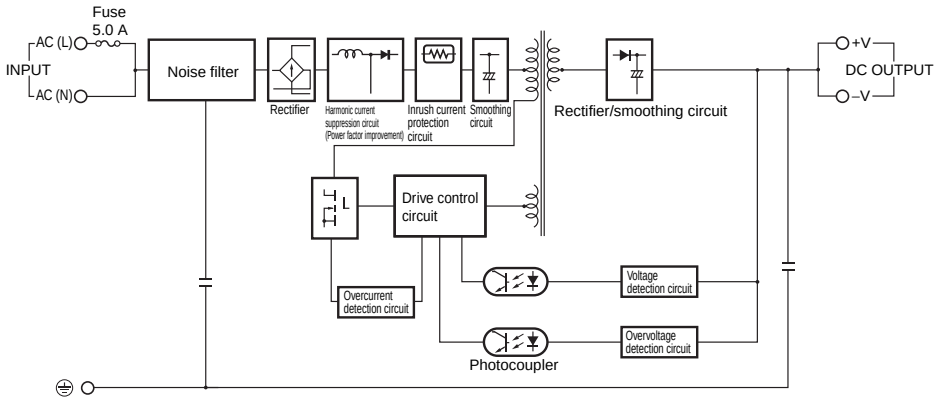

**S8VS-09024-□ (90 W)**
**S8VS-09024S-□ (90 W)**



**S8VS-12024A□-□ (120 W)**
**S8VS-12024B□-□ (120 W)**
**S8VS-12024BE-□ (120 W)**

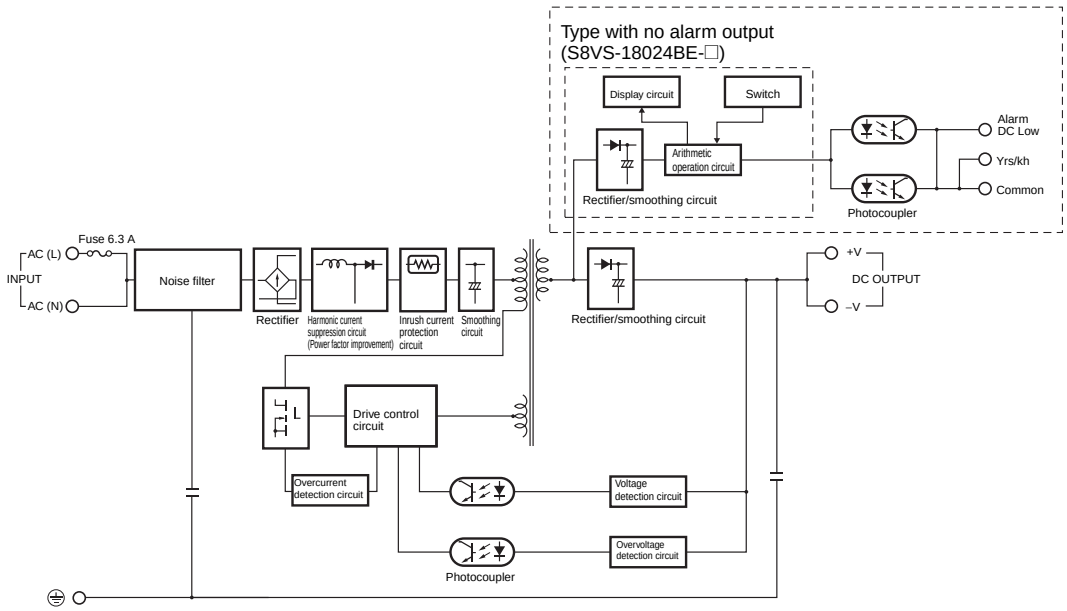



**S8VS-12024-□ (120 W)**

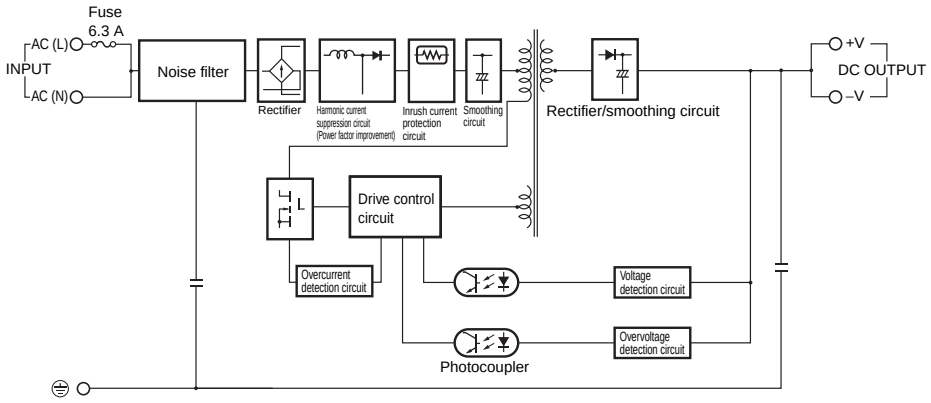


**S8VS-18024A□-□ (180 W)**
**S8VS-18024B□-□ (180 W)**
**S8VS-18024BE-□ (180 W)**

Sinking type
(S8VS-18024A-□, S8VS-18024B-□)
Sourcing type
(S8VS-18024AP-□, S8VS-18024BP-□)

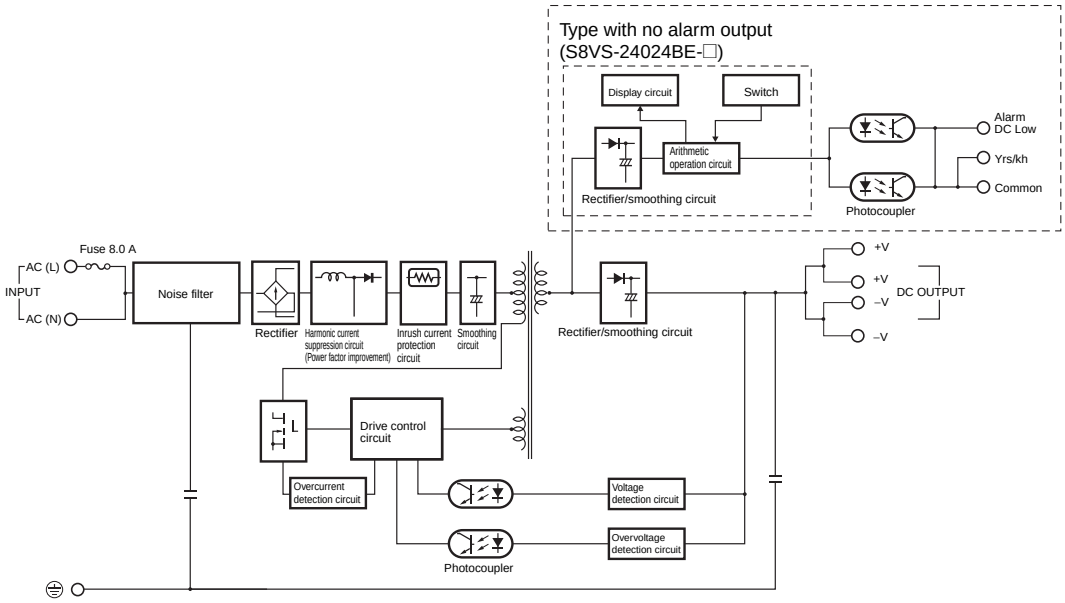



**S8VS-18024-□ (180 W)**

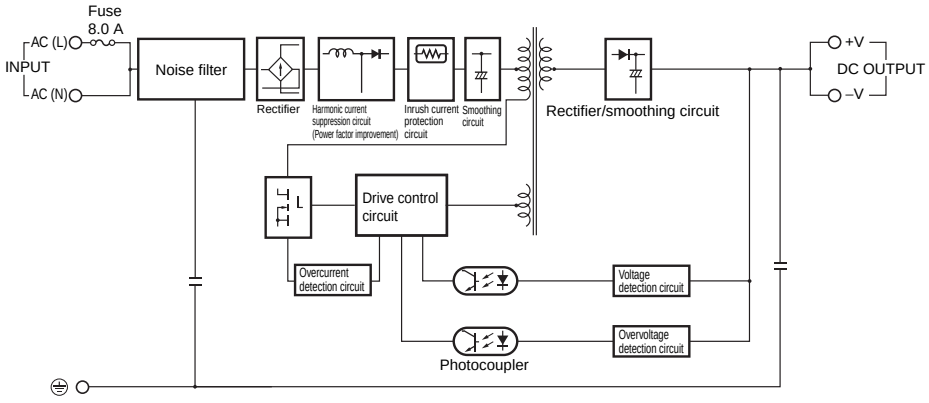


**S8VS-24024A□-□ (240 W)**
**S8VS-24024B□-□ (240 W)**
**S8VS-24024BE-□ (240 W)**

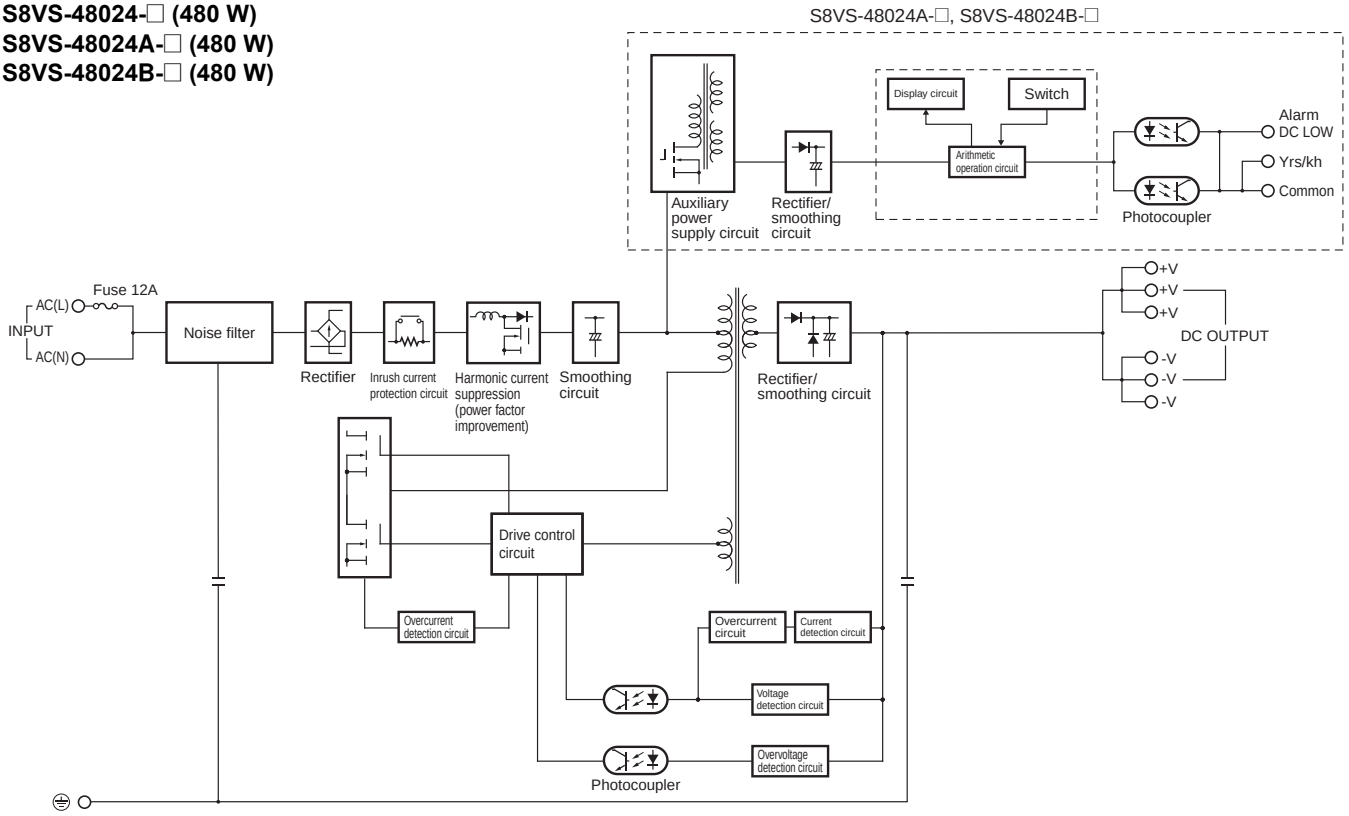
Sinking type
(S8VS-24024A-□, S8VS-24024B-□)
Sourcing type
(S8VS-24024AP-□, S8VS-24024BP-□)




**S8VS-24024-□ (240 W)**

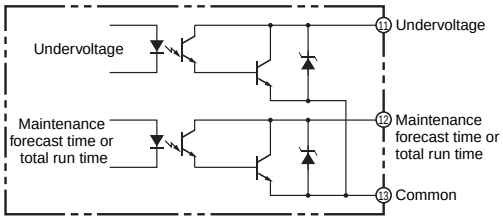


**S8VS-48024-□ (480 W)**
**S8VS-48024A-□ (480 W)**
**S8VS-48024B-□ (480 W)**

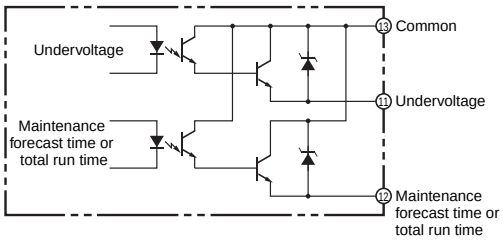



## Alarm Output Connections

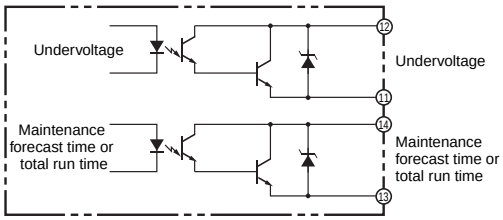
90, 120, 180, and 240 W (Sinking type)




90, 120, 180, and 240 W (Sourcing type)




480 W

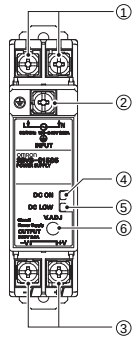


# Construction and Nomenclature

## Nomenclature

### 15-W, 30-W Models

**S8VS-015□□/S8VS-030□□**




| No. | Name | Function |
|---|---|---|
| 1 | Input terminals (L), (N) | Connect the input lines to these terminals. *1 |
| 2 | Protective Earth terminal (PE) | Connect the ground line to this terminal. *2 |
| 3 | DC Output terminals (–V), (+V) | Connect the load lines to these terminals. |
| 4 | Output indicator (DC ON: Green) | Lights while a direct current (DC) output is ON. |
| 5 | Undervoltage indicator (DC LOW: Red) | Lights when a drop is detected in the output voltage. |
| 6 | Output voltage adjuster (V.ADJ) | Use to adjust the voltage. |

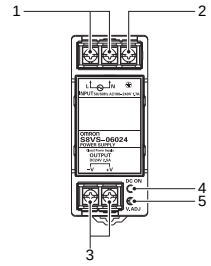
***1.** The fuse is located on the (L) side. For a DC input, connect the positive voltage to the L terminal.
***2.** This is the protective earth terminal specified in the safety standards. Always ground this terminal.

**Note:** The S8VS-01505 is shown above.

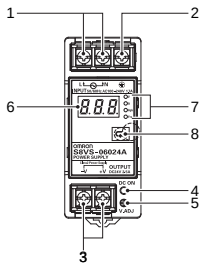
## Nomenclature

### 60-W Models

**Standard Model**
**S8VS-06024**



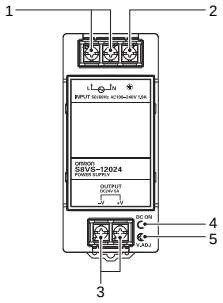

**Models with Indication Monitor**
**S8VS-06024□**



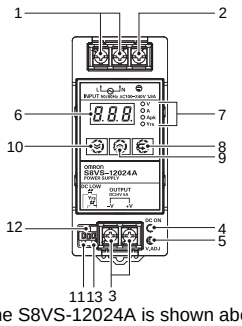

**Note:** The S8VS-06024A is shown above.

### 90-W/120-W Models

**Standard Models**
**S8VS-09024/S8VS-0924S/**
**S8VS-12024**



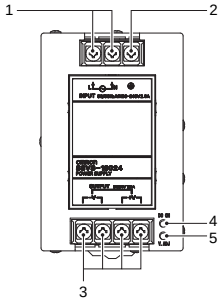

**Models with Indication Monitor**
**S8VS-09024□□□/**
**S8VS-09024□□□S/S8VS-12024□□□**



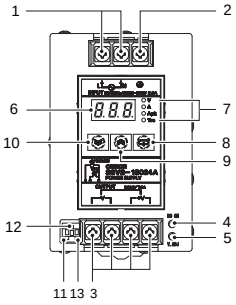

**Note:** The S8VS-12024A is shown above.

### 180-W Models

**Standard Model**
**S8VS-18024**



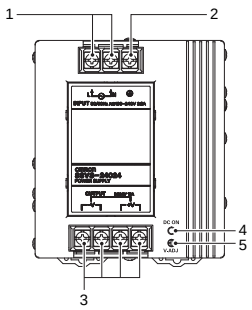

**Models with Indication Monitor**
**S8VS-18024□□□**



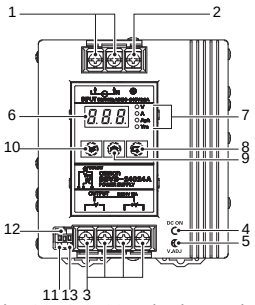

**Note:** The S8VS-18024A is shown above.

### 240-W Models

**Standard Model**
**S8VS-24024**




**Models with Indication Monitor**
**S8VS-24024□□□**




**Note:** The S8VS-24024A is shown above.

***** The terminal arrangement is the same for models with screwless terminal blocks and standard models.

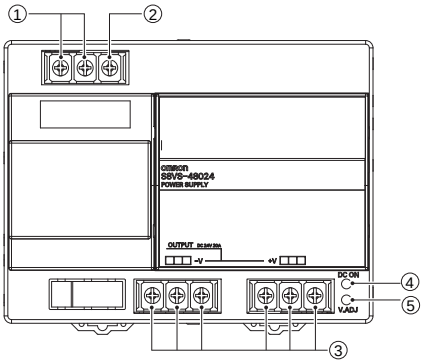
| No. | Name | | Function |
|---|---|---|---|
| 1 | Input terminals (L), (N) | | Connect the input lines to these terminals. *****1 |
| 2 | Protective Earth terminal (PE) | | Connect the ground line to this terminal. *****2 |
| 3 | DC Output terminals (–V), (+V) | | Connect the load lines to these terminals. |
| 4 | Output indicator (DC ON: Green) | | Lights while a direct current (DC) output is ON. |
| 5 | Output voltage adjuster (V.ADJ) | | Use to adjust the voltage. *****3 |
| 6 | Main display (Red) *****4 | | Indicates the measurement or set value. |
| 7 | Operation indicator (Orange) *****4 | V | Lights up when the output voltage is indicated. Blinks during setup of undervoltage alarm value. |
| | | A | Lights up during indication of output current. |
| | | Apk | Lights up during indication of peak hold current. |
| | | Yrs | Lights up during indication of maintenance forecast monitor. Blinks during setup of maintenance forecast monitor setting. (S8VS-□□□24A□□) |
| | | kh | Lights up during indication of total run time monitor. Blinks during setup of total run time monitor. (S8VS-□□□24B□□) |
| 8 | Mode Key *****4 | | Use the Mode Key to change the indicated parameter or reset the peak hold current value. |
| 9 | Up Key *****5 | | Use the Up Key to change to the setting mode or to increase the set value. |
| 10 | Down Key *****5 | | Use the Down Key to change to the setting mode or to decrease the set value. |
| 11 | Alarm outputs *****5, *****6 | Undervoltage output terminal (DC Low) | Output when a drop is detected in the output voltage (voltage drop = transistor OFF). |
| 12 | | Maintenance Forecast output terminal (Yrs) *****7 | Output when the set value for maintenance is reached (transistor OFF). |
| | | Total run time output terminal (kh) *****8 | Output when the set value for total run time is reached (transistor OFF). |
| 13 | | Common terminal | Common terminal for terminals 11 and 12. |

***1.** The fuse is located on the (L) side. For a DC input, connect the positive voltage to the L terminal.
***2.** This is the protective earth terminal specified in the safety standards. Always ground this terminal.
***3.** The output voltage cannot be adjusted for the S8VS-09024□□□S.
***4.** S8VS-□□□24A□□/B□□/BE□ only.
***5.** S8VS-□□□24A□□/B□□ only (except the S8VS-06024□).
***6.** Both sinking and sourcing outputs are available.
***7.** S8VS-□□□24A□□ only (excluding S8VS-06024A).
***8.** S8VS-□□□24B□□ only (excluding S8VS-06024B).

## 480-W Models

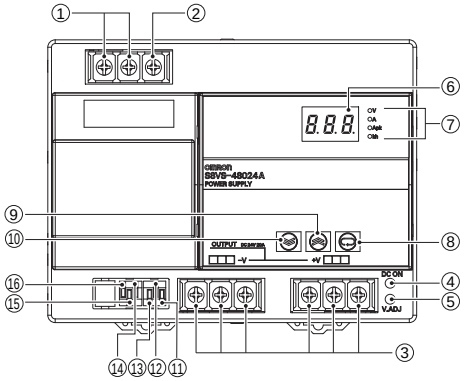
### Standard Model

**S8VS-48024**




### Models with Indication Monitor

**S8VS-48024□**




**Note:** The illustration shows the S8VS-48024A model.

* The terminal arrangement is the same for models with screwless terminal blocks and standard models.

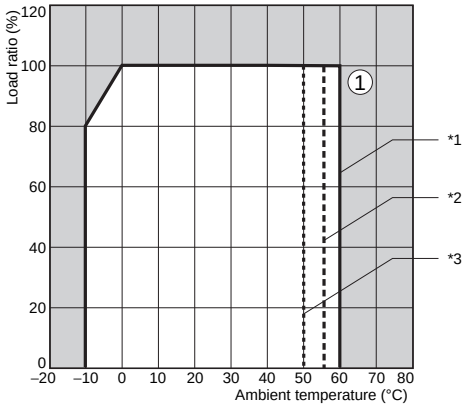
| No. | Name | | Function |
|---|---|---|---|
| 1 | AC Input terminals (L), (N) | | Connect the input lines to these terminals. *1 |
| 2 | Protective Earth terminal (PE) | | Connect the ground line to this terminal. *2 |
| 3 | DC Output terminals (–V), (+V) | | Connect the load lines to these terminals. |
| 4 | Output indicator (DC ON: Green) | | Lights while a direct current (DC) output is ON. |
| 5 | Output voltage adjuster (V.ADJ) | | Use to adjust the voltage. |
| 6 | Main display (Red) *3 | | Indicates the measurement or set value. |
| 7 | Operation indicator (Orange) *3 | V | Lights up when the output voltage is indicated. Blinks during setup of undervoltage alarm value. |
| | | A | Lights up during indication of output current. |
| | | Apk | Lights up during indication of peak hold current. |
| | | Yrs | Lights up during indication of maintenance forecast monitor. Blinks during setup of maintenance forecast monitor setting. (S8VS-48024A) |
| | | kh | Lights up during indication of total run time monitor. Blinks during setup of total run time monitor. (S8VS-48024B) |
| 8 | Mode Key *3 | | Use the Mode Key to change the indicated parameter or reset the peak hold current value. |
| 9 | Up Key *3 | | Use the Up Key to change to the setting mode or to increase the set value. |
| 10 | Down Key *3 | | Use the Down Key to change to the setting mode or to decrease the set value. |
| 11 | Alarm outputs *3 | Undervoltage output terminal (DC Low) (Emitter side) | Output when a drop is detected in the output voltage (voltage drop = transistor OFF). |
| 12 | | Undervoltage output terminal (DC Low) (Collector side) | |
| 13 | | Maintenance Forecast output terminal (Yrs) *4 (Emitter side) | Output when the set value for maintenance is reached (transistor OFF). |
| | | Total run time output terminal (kh) *5 (Emitter side) | Output when the set value for total run time is reached (transistor OFF). |
| 14 | | Maintenance Forecast output terminal (Yrs) *4 (Collector side) | Output when the set value for maintenance is reached (transistor OFF). |
| | | Total run time output terminal (kh) *5 (Collector side) | Output when the set value for total run time is reached (transistor OFF). |
| 15, 16 | NC (Not connected) | | |

***1.** The fuse is located on the (L) side. It is NOT user replaceable.
***2.** This is the protective earth terminal specified in the safety standards. Always ground this terminal.
***3.** S8VS-48024A/B only.
***4.** S8VS-48024A only.
***5.** S8VS-48024B only.

# Engineering Data

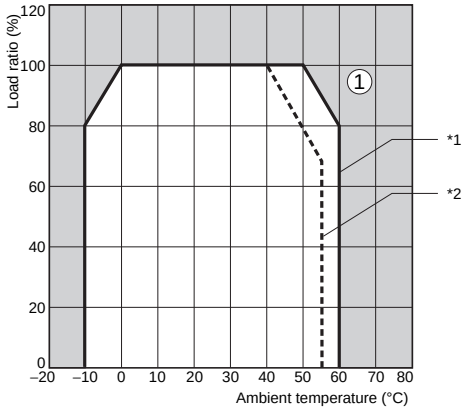
## Derating Curve

### 15 W <S8VS-015□□>



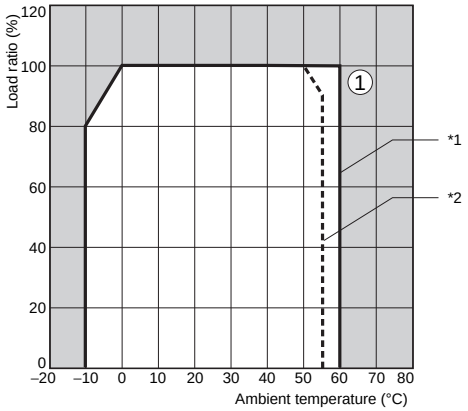

*1 Standard mounting
*2 Face-up mounting
*3 Horizontal mounting

### 30 W <S8VS-03005/S8VS-03012>




*1 Standard mounting
*2 Face-up mounting/Horizontal mounting

### 30 W <S8VS-03024>




*1 Standard mounting
*2 Face-up mounting/Horizontal mounting

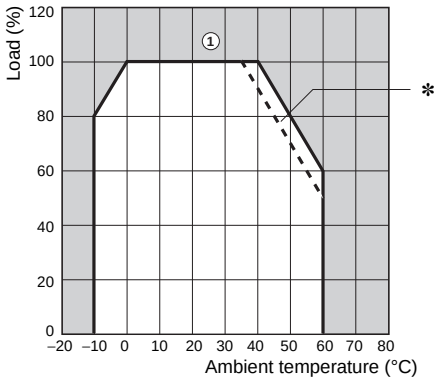
**Note: 1.** Internal parts may occasionally deteriorate or be damaged. Do not use the Power Supply in areas outside the derating curve (i.e., the area shown by shading A in the above graph).

**2.** If there is a derating problem, use forced air-cooling.

**3.** Provide a space of at least 20 mm when using standard mounting and horizontal mounting. If 20 mm is not available, make sure that the space is at least 10 mm. In this case, reduce the corresponding derating curve by 5°C.

**4.** DC Inputs
If the input voltage is less than 100 VDC, reduce the load given in the above derating curve by at least the following factor.
S8VS-03005: 0.7 max.
S8VS-03012/03024: 0.85 max.

### 60, 90, 120, 180, 240, and 480 W




***** Using side mounting bracket for right-side mounting (excluding 240-W models). UL certification conditions do not apply if the side mounting bracket is used.

**Note: 1.** Internal parts may occasionally deteriorate or be damaged. Do not use the Power Supply in areas outside the derating curve (i.e., the area shown by shading A in the above graph).

**2.** If there is a derating problem, use forced air-cooling.

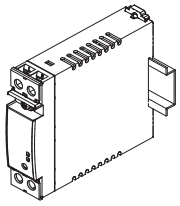
**3.** When using a 480-W model at an input voltage of 95 VAC or less, derate the load by at least 80%.

**4.** DC Inputs
If the input voltage is less than 100 VDC, reduce the load given in the above derating curve by at least the following factor.
60-W models: 0.9 max.
90-W models: 0.85 max.
120-W/180-W/240-W models: 0.8 max.

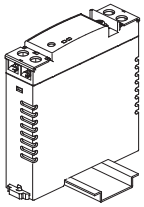
## Mounting

### 15 and 30 W

Standard mounting with DIN rail

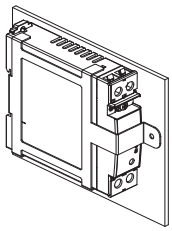


Face-up mounting with DIN rail

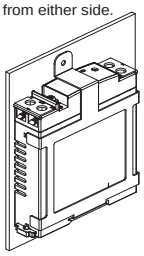


Standard mounting with S82Y-VS30P

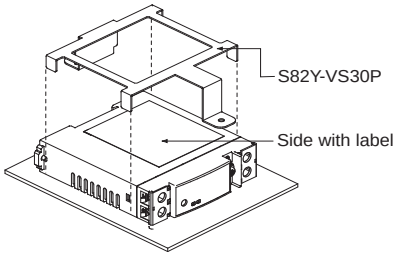
**Note:** The Side-mounting Bracket can be mounted from either side.



Face-up mounting with S82Y-VS30P



Horizontal mounting with S82Y-VS30P*



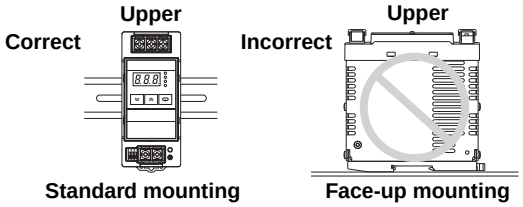

**Note: 1.** Improper mounting will interfere with heat dissipation and may occasionally result in deterioration or damage of internal parts. Use the Product within the derating curve for the mounting direction that is used. Do not use the Power Supply mounted in any way not shown above.

**2.** Use a mounting bracket (S82Y-VS30P, sold separately) when the Product is mounted horizontally.

**3.** Heat dissipation will be adversely affected. When the Product is mounted facing horizontally, always place the side with the label facing horizontally.

**4.** Use PFP-M End Plates on the top and bottom of the Power Supply when mounting horizontally on a DIN rail.

### 60, 90, 120, 180, 240, and 480 W



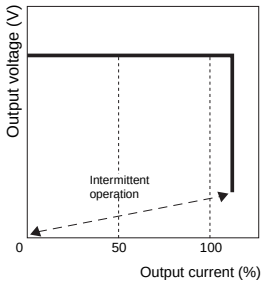

**Note:** Improper mounting will interfere with heat dissipation and may occasionally result in deterioration or damage of internal parts. It may also result in failure of the maintenance forecast monitor function. Use the standard mounting method only.

## Overload Protection

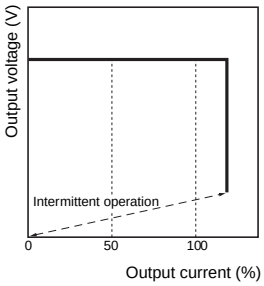
The load and the power supply are automatically protected from overcurrent damage by this function. Overload protection is activated if the output current rises above 105% (151% with S8VS-48024□) of the rated current.

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

15-W/30-W Models

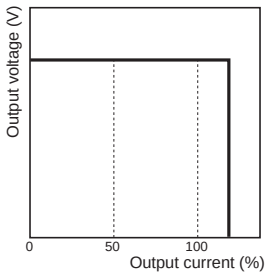



60-W/90-W Models

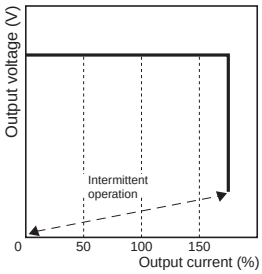



The values shown in the above diagrams are for reference only.

120-W/180-W/240-W Models




480-W Models




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 overcurrent state continues during operation.

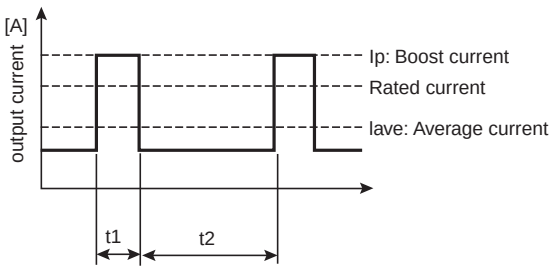
**2.** Internal parts may possibly deteriorate or be damaged if the Power Supply is used for applications with frequent inrush current or overloading at the load end. Do not use the Power Supply for such applications.

## Peak Output Current (S8VS-48024□ only)

The boost current is a temporary current that exceeds the rated current. However, it should meet the following four boost current conditions.

- Time that the boost current flows: t1 ≤ 10 s
- The boost current: Ip ≤ Maximum boost current
- The average output current: Iave ≤ Rated output current
- The time ratio of the boost current flow: Duty ≤ 30%

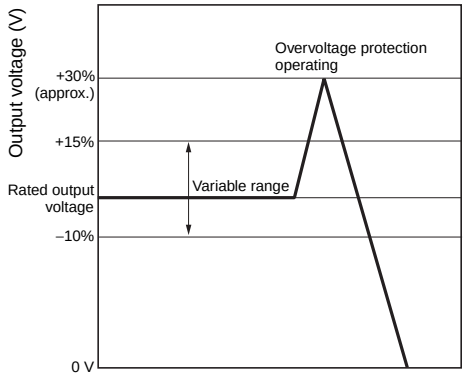
$$\text{Duty} = \frac{t1}{t1 + t2} \times 100\ [\%] \leq 30\%$$




- Do not allow a boost current to flow for more than 10 s. Do not allow the duty to exceed 30%. These conditions may damage the Power Supply.
- Do not allow the average current for one cycle of the boost current to exceed the rated current. The Power Supply may be damaged.
- Derate the boost current and the average output current loads according to the ambient operating temperature and mounting direction.

## Overvoltage Protection

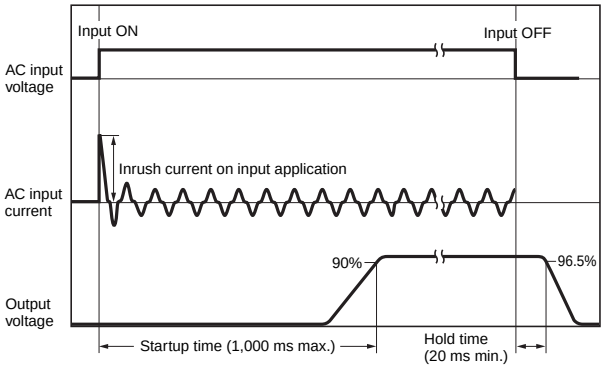
Consider the possibility of an overvoltage and design the system so that the load will not be subjected to an excessive voltage even if the feedback circuit in the Power Supply fails. If an excessive voltage that is approximately 130% of the rated voltage (but approximately 110% of the rated voltage for the S8VS-09024□□□S) or more is output, the output voltage is shut OFF. 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 is for reference only.

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

## Inrush Current, Startup Time, Output Hold Time




## Undervoltage Alarm Indication

LED (DC LOW: red) lights to warn of output voltage drop.

Detection voltage is set to approx. 80% (75 to 90%) of the rated output voltage.

**Note:** This function monitors the voltage at the power supply output terminals. To check actual voltage, measure voltage on the load side.

## Undervoltage Alarm Function (Indication and Output) (S8VS-□□□24A□□/S8VS-□□□24B□□/ S8VS-□□□24BE□ Only)

When output voltage drop is detected, an alarm (AO 1) and lowest output voltage value are indicated alternately. (AO 1 can not be displayed when the output voltage drops below 18.0 V.) The preset value of detection voltage can be changed in the setting mode. (From 18.5 to 27.5 V in 0.1-V steps. The value is fixed at 20.0 V for the S8VS-06024A/S8VS-06024B.)

Further, an output (undervoltage output terminal (DC LOW)) to an external device is given from the transistor to notify of the error (excluding S8VS-06024A/S8VS-06024B/S8VS-□□□24BE□). (Output voltage drop = OFF, i.e., no continuity at the undervoltage output terminal (DC LOW).)

Example: Outputting an Alarm When the Voltage Output by the S8VS-09024A□□ Drops to the Set Value (19.0 V) or Lower




In the case that the output voltage drops below the set value (19.0 V) and an alarm is issued

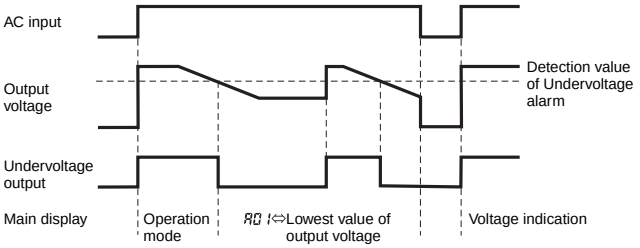
**Note: 1.** Operation begins after about three seconds since the AC power is supplied.

**2.** The alarm is not indicated in the setting mode.

**3.** Press the (Mode Key (8)) after the output voltage is restored, to reset alarm indication.

**4.** The undervoltage alarm function may also operate when an interruption in AC input is not restored within 20 ms.

**5.** The undervoltage alarm function monitors the output terminal voltage of the Power Supply. To check the voltage accurately, measure the voltage at the load end.




**Note:** Operation begins after about three seconds since the AC power is supplied.

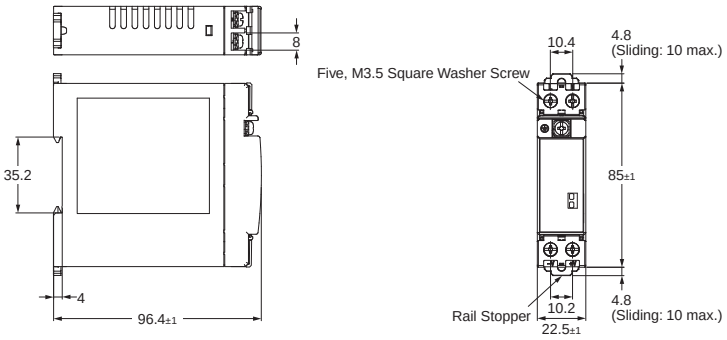
# Dimensions

## Power Supplies with Screw Terminal Blocks

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

**S8VS-015□□ (15 W)**
**S8VS-030□□ (30 W)**

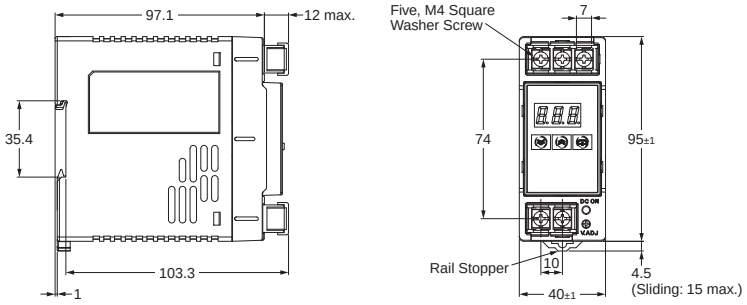





**Note:** The illustration is the S8VS-03024 model.

**S8VS-06024 (60 W)**
**S8VS-06024A (60 W)**
**S8VS-06024B (60 W)**

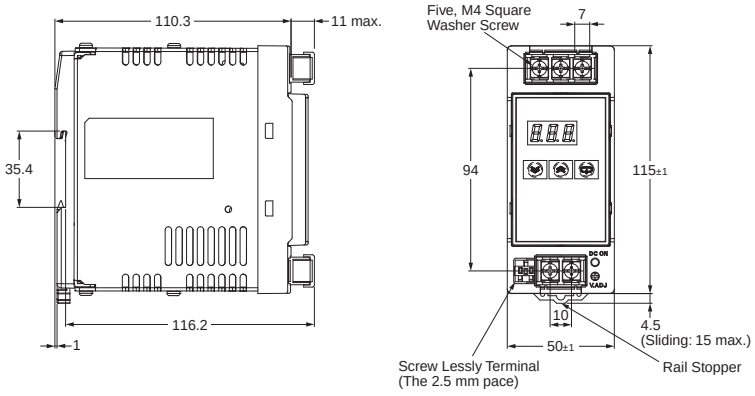





**Note:** The illustration is the S8VS-06024A model.

**S8VS-09024 (90 W) /S8VS-09024S (90 W) /S8VS-12024 (120 W)**
**S8VS-09024A□ (90 W) /S8VS-09024A□S (90 W) /S8VS-12024A□ (120 W)**
**S8VS-09024B□ (90 W) /S8VS-09024B□S (90 W) /S8VS-12024B□ (120 W)**
**S8VS-09024BE (90 W) /S8VS-09024BES (90 W) /S8VS-12024BE (120 W)**

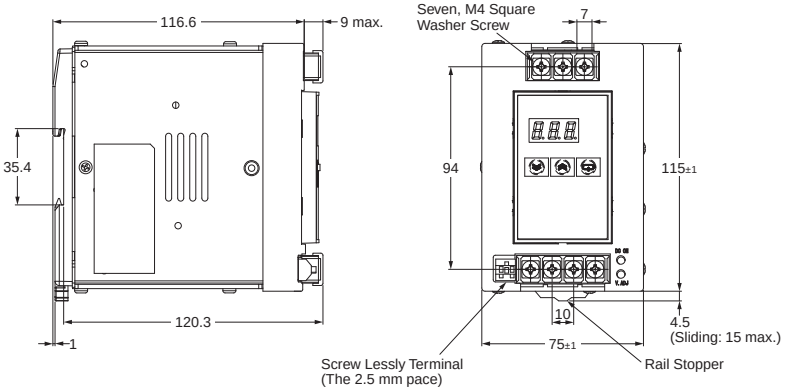





**Note:** The illustration is the S8VS-12024A model.

**S8VS-18024 (180 W)**
**S8VS-18024A□ (180 W)**
**S8VS-18024B□ (180 W)**
**S8VS-18024BE (180 W)**

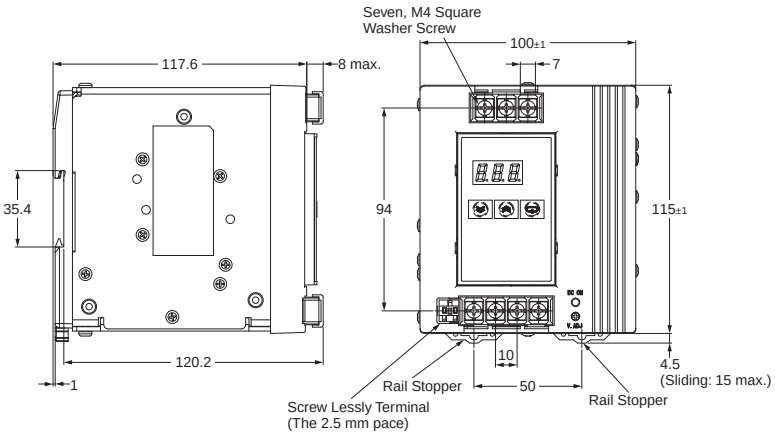





**Note:** The illustration is the S8VS-18024A model.

**S8VS-24024 (240 W)**
**S8VS-24024A□ (240 W)**
**S8VS-24024B□ (240 W)**
**S8VS-24024BE (240 W)**

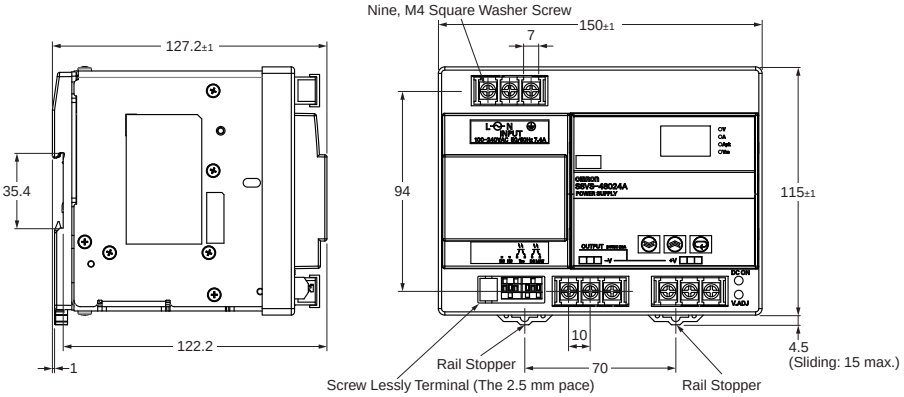





**Note:** The illustration shows the S8VS-24024A model.

**S8VS-48024 (480 W)**
**S8VS-48024A (480 W)**
**S8VS-48024B (480 W)**



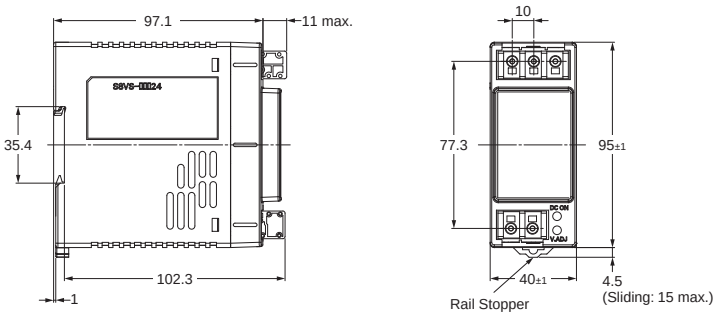



**Note:** The illustration shows the S8VS-48024A model.

## Power Supplies with Screwless Terminal Blocks

**S8VS-06024-F (60 W)**
**S8VS-06024A-F (60 W)**
**S8VS-06024B-F (60 W)**

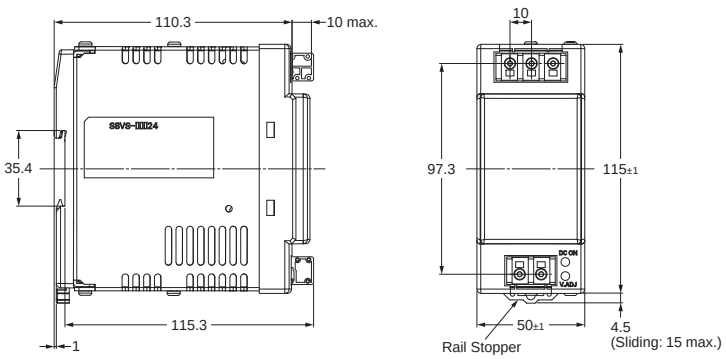





**Note:** The illustration shows the S8VS-06024-F model.

**S8VS-09024-F (90 W) /S8VS-09024S-F (90 W) /S8VS-12024-F (120 W)**
**S8VS-09024A□-F (90 W) /S8VS-09024A□S-F (90 W ) /S8VS-12024A□-F (120 W)**
**S8VS-09024B□-F (90 W) /S8VS-09024B□S-F (90 W) /S8VS-12024B□-F (120 W)**
**S8VS-09024BE-F (90 W) /S8VS-09024BES-F (90 W) /S8VS-12024BE-F (120 W)**

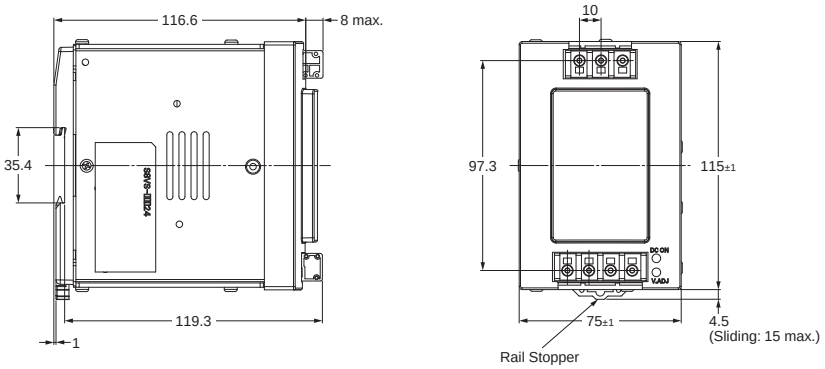





**Note:** The illustration shows the S8VS-12024-F model.

**S8VS-18024-F (180 W)**
**S8VS-18024A□-F (180 W)**
**S8VS-18024B□-F (180 W)**
**S8VS-18024BE-F (180 W)**

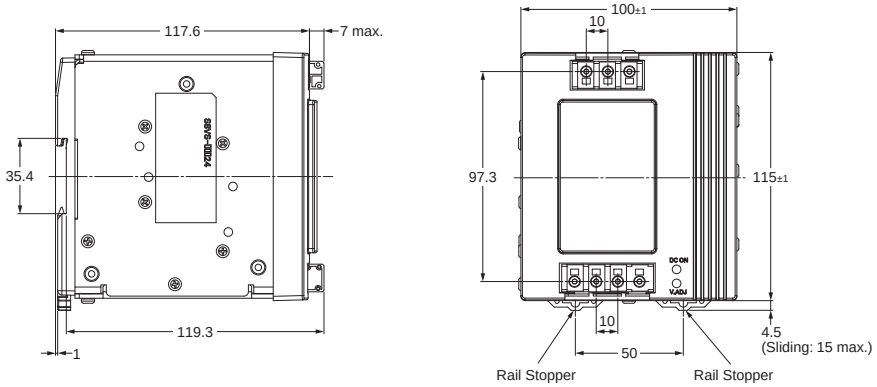





**Note:** The illustration shows the S8VS-18024-F model.

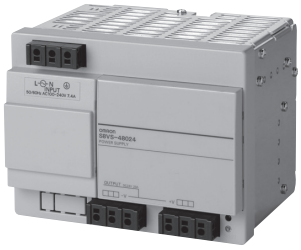
**S8VS-24024-F (240 W)**
**S8VS-24024A□-F (240 W)**
**S8VS-24024B□-F (240 W)**
**S8VS-24024BE-F (240 W)**

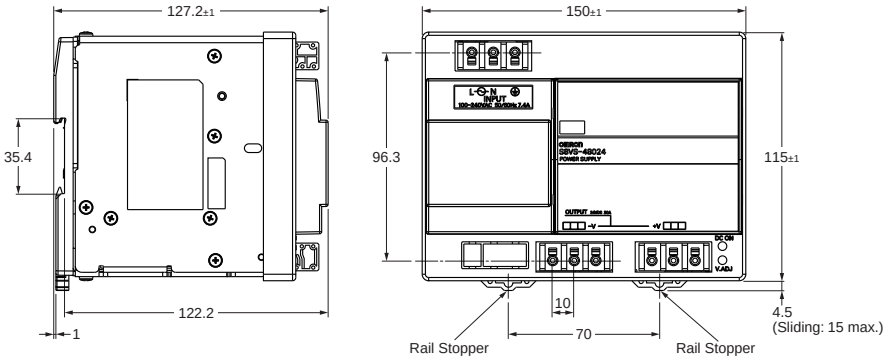





**Note:** The illustration shows the S8VS-24024-F model.

**S8VS-48024-F (480 W)**
**S8VS-48024A-F (480 W)**
**S8VS-48024B-F (480 W)**





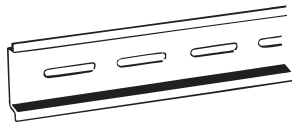

**Note:** The illustration shows the S8VS-48024-F model.

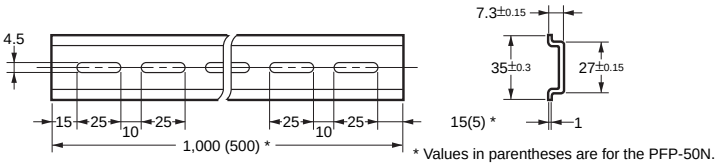
## DIN Rail (Order Separately)

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

### Mounting Rail (Material: Aluminum)

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

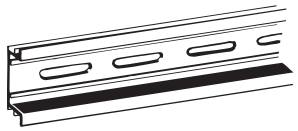


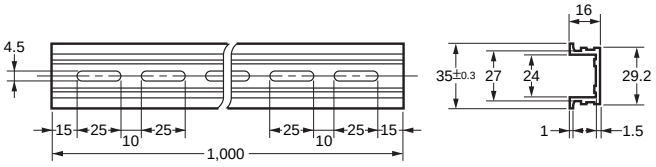



* Values in parentheses are for the PFP-50N.

### Mounting Rail (Material: Aluminum)

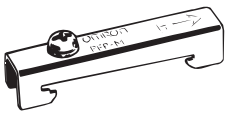
**PFP-100N2**

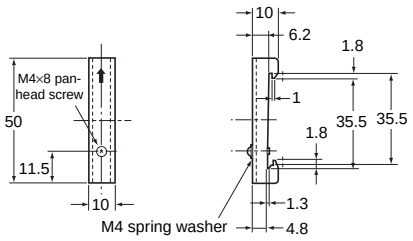





### End Plate

**PFP-M**






**Note:** If there is a possibility that the Unit will be subject to vibration or shock, use a steel DIN Rail. Otherwise, metallic filings may result from aluminum abrasion.

## Terminal Block Cover (Order Separately)

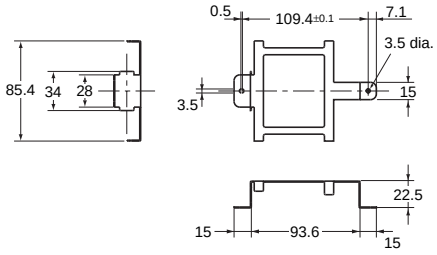
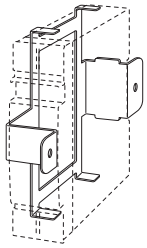
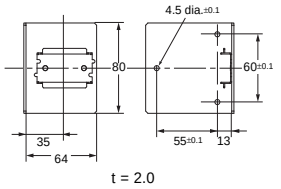
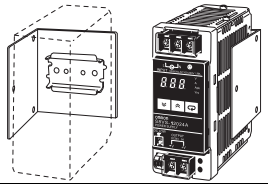
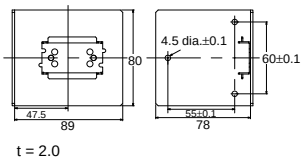
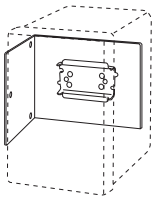
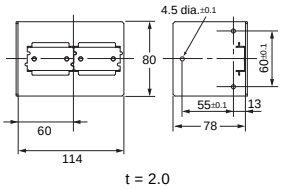
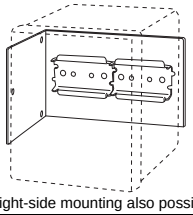
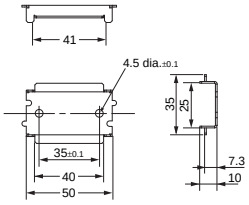
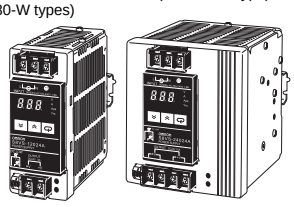
| S8VS | Input side | Output side |
|---|---|---|
| **15W** | **S82Y-VS-C2P-S** | |
| **30W** | **S82Y-VS-C2P-S** | |
| **60W** | **S82Y-VS-C3P** | **S82Y-VS-C2P-M** |
| **90W** | **S82Y-VS-C3P** | **S82Y-VS-C2P-M** |
| **120W** | **S82Y-VS-C3P** | **S82Y-VS-C2P-M** |
| **180W** | **S82Y-VS-C3P** | **S82Y-VS-C4P** |
| **240W** | **S82Y-VS-C3P** | **S82Y-VS-C4P** |
| **480W** | **S82Y-VS-C3P** | |

**Note:** Terminal block cover attaches to the body. Please order from the loss time.

## Mounting Brackets

| Name | Model |
|---|---|
| Side-mounting Bracket (for 15- and 30-W models) | **S82Y-VS30P** |
| Side-mounting Bracket (for 60-, 90-, and 120-W models) | **S82Y-VS10S** |
| Side-mounting Bracket (for 180-W models) | **S82Y-VS15S** |
| Side-mounting Bracket (for 240-W models) | **S82Y-VS20S** |
| Front-mounting Bracket (for 60-, 90-, 120-, 180-, and 240-W models) * | **S82Y-VS10F** |

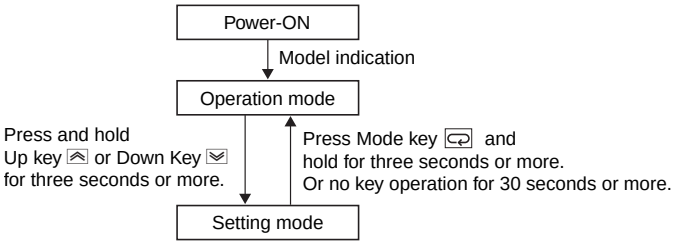
**Note:** Brackets cannot be used for 480-W models.
* Two required to mount a 240-W model.

| Type | Model | Dimensions | Appearance |
|---|---|---|---|
| **Side-mounting Bracket (For 15-, 30-W models)** | **S82Y-VS30P** |  |  |
| **Side-mounting Bracket (For 60-, 90-, 120-W models)** | **S82Y-VS10S** |  | Left-side mounting Right-side mounting<br> |
| **Side-mounting Bracket (For 180-W models)** | **S82Y-VS15S** |  | Left-side mounting<br><br>*Right-side mounting also possible. |
| **Side-mounting Bracket (For 240-W models)** | **S82Y-VS20S** |  | Left-side mounting<br><br>*Right-side mounting also possible. |
| **Front-mounting Bracket (For 60-, 90-, 120-, 180-, and 240-W models)** | **S82Y-VS10F** |  | (For 60-, 90-, 120-, 180-W types) (For 240-W type)<br><br>*Use two S82Y-VS10F brackets for the 240-W type. |

# Display and Alarm Output Functions and Operating Procedures

S8VS-□□□24A□□ models (with display monitor) can display the output voltage, output current, peak hold current, or maintenance forecast monitor time. S8VS-□□□24B□□/S8VS-□□□24B**E**□ models (with display monitor) can display the output voltage, output current, peak hold current, or total run time.

## Mode Change

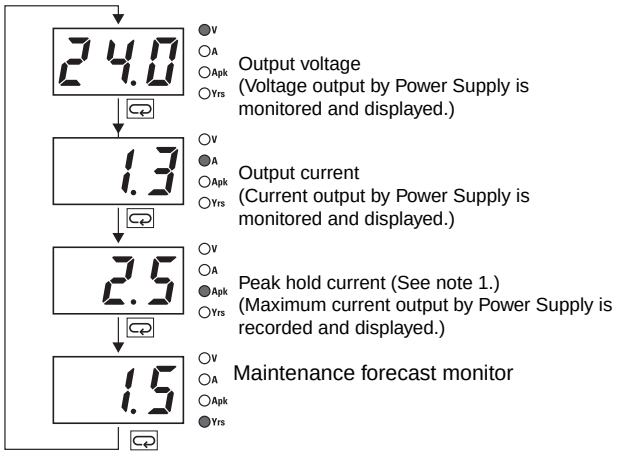



**Note:** No setting mode is provided for the S8VS-06024□.

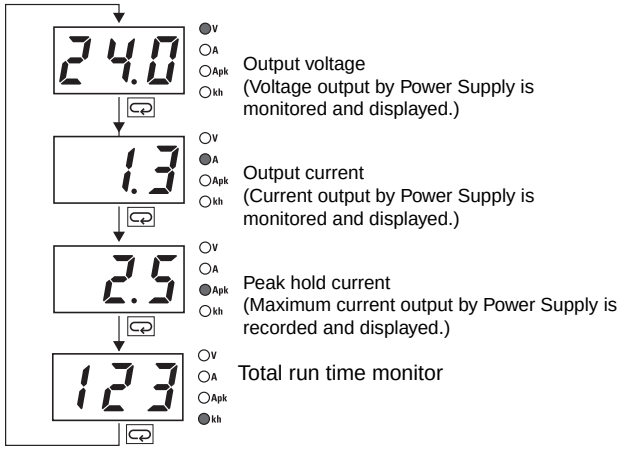
## Operation Mode

Various states of the Power Supply are indicated.

**Models with Maintenance Forecast Monitor (S8VS-□□□24A□□)**




**Models with Total Run Time Monitor (S8VS-□□□24B□□/ S8VS-□□□24BE□)**

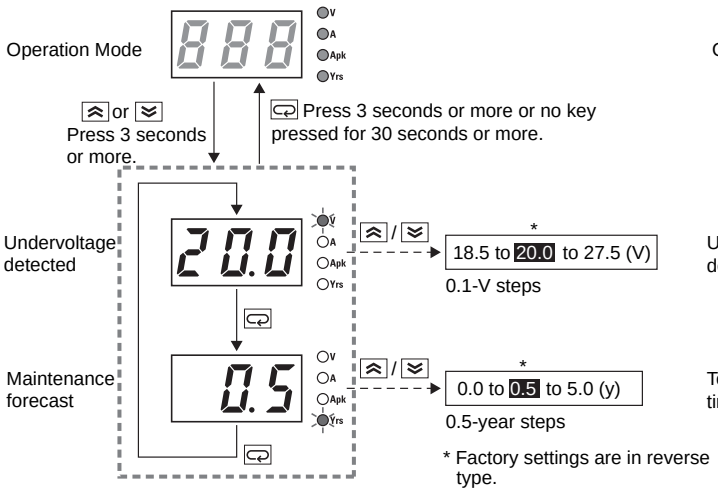



**Note: 1.** The peak hold current starts measuring the current 3 seconds after the Power Supply is started. Inrush current is thus not measured.
**2.** For the factory setting, the output voltage will be displayed when the power supply is first turned ON. Thereafter, the output voltage will be indicated in the same display when shutting down.

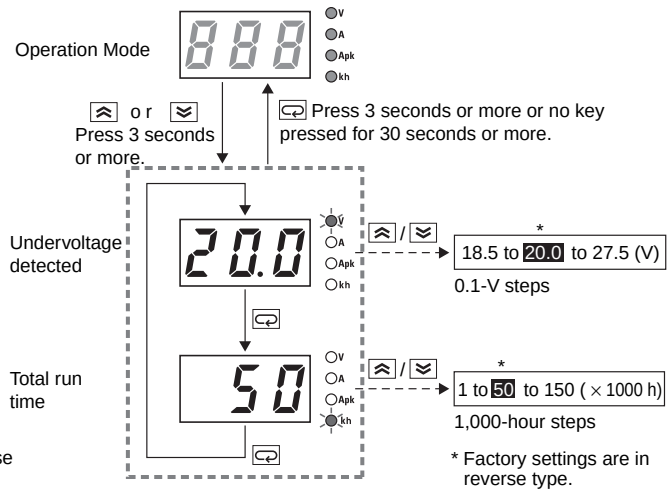
## Setting Mode (Except for S8VS-06024□)

Set various parameters of the Power Supply.

**Models with Maintenance Forecast Monitor (S8VS-□□□24A□□)**



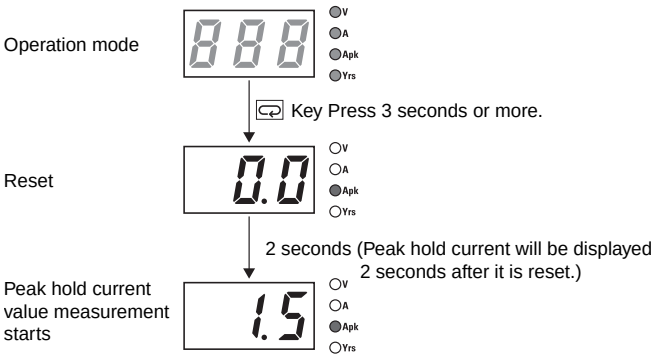

**Models with Total Run Time Monitor (S8VS-□□□24B□□/S8VS-□□□24BE□)**




**Note: 1.** Press and hold the (9) Up Key or (10) Down Key for two seconds or more to increase or decrease the value rapidly.
**2.** The S8VS-06024□ is not provided with the setting mode and its parameters are fixed at the shipment setting.

## Peak Hold Current Reset

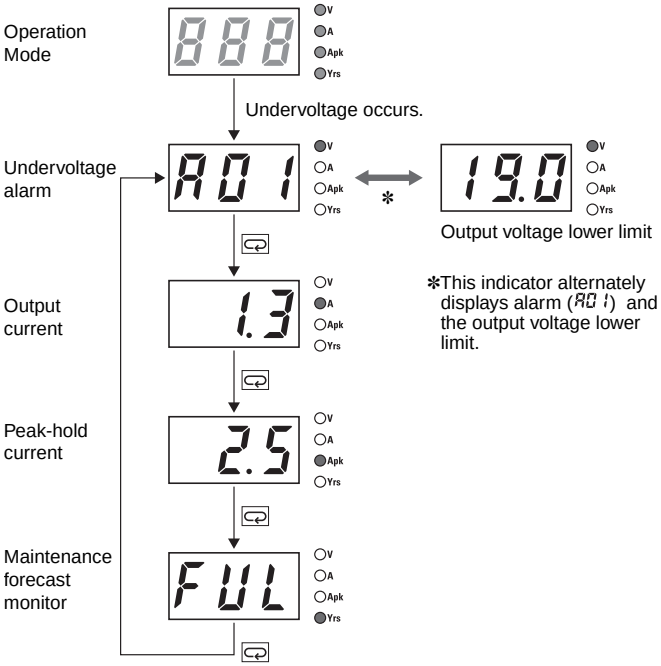
The peak value of the output current (i.e., the peak hold current) can be reset on the display.




**Note:** The peak hold current value is not reset in the setting mode.

## Undervoltage Alarm Indication

This indicator lights when the output voltage lowers.

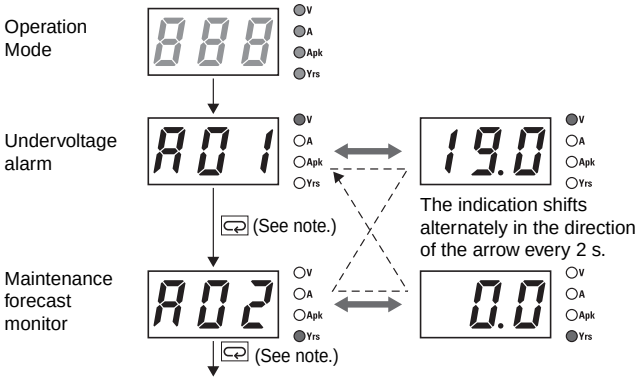



**Note: 1.** When the voltage is restored to the set value or higher and the Key is pressed at the A01 display to return to the output current display, the A01 alarm will be cleared and the normal output display will return.

**2.** The above displays are for models with a maintenance forecast monitor (S8VS-□□□24A□□).

## Multiple Alarms

When two or more different alarms occur at the same time




* When undervoltage alarm is indicated: Press Key → output load indication
When the maintenance forecast monitor or overheat alarm is indicated: Press Key → undervoltage alarm indication

**Note: 1.** The above displays are for models with a maintenance forecast monitor (S8VS-□□□24A□□).

## Self-Diagnostics Function

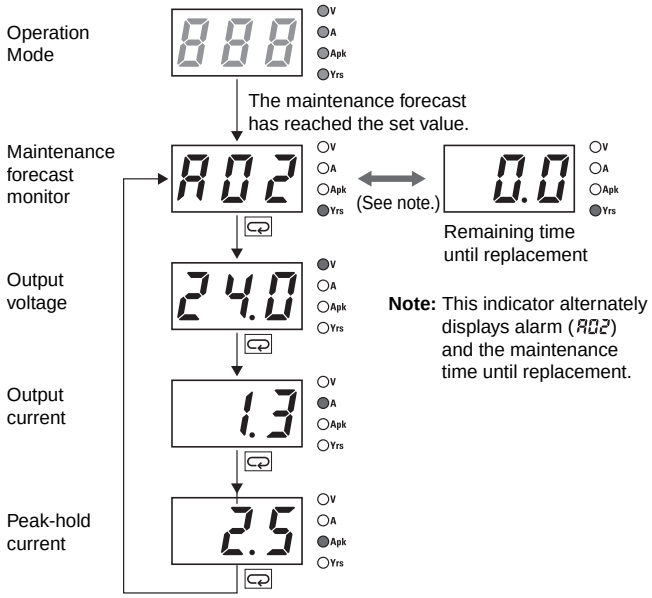
Numbers in the following table indicate the number used in *Nomenclature* on pages 15 and 17.

| (6) Main display | Description | Output status | Restoration method | Setting after restoration |
|---|---|---|---|---|
| - - - | Noise detected in voltage or current | No change | Automatic reset. | No change |
| Hot | Overheated | Maintenance forecast output terminal (Yrs) turns OFF. | Automatic reset. | No change |
| E01 | Undervoltage alarm set value memory error | Undervoltage output terminal (DC LOW) turns OFF. | Press and hold the Up Key (9) or Down Key (10) for three seconds and check the set value of the corresponding point. The set value must return to the shipment setting | Shipment setting or value set in the setting mode again |
| E02 | Memory error of alarm set value of maintenance forecast monitor or total run time monitor | Maintenance forecast output terminal (Yrs) turns OFF or total run time output terminal (kh) turns OFF. | | |
| E03 | Other memory error | Undervoltage output terminal (DC LOW) turns OFF. Maintenance forecast output terminal (Yrs) turns OFF or total run time output terminal (kh) turns OFF. | Turn the AC input OFF then ON again. If the Product is not reset, contact the dealer. | No change |

**Note: 1.** External noise is probable as a cause of "- - -", "E01", "E02", and "E03" errors.
**2.** Operation out of the derating curve area, ventilation error, and incorrect mounting direction are probable as a cause of "Hot" error.
**3.** If the "Hot" error state continues for more than three hours, the maintenance forecast monitor function becomes invalid. The Yrs output (Maintenance forecast output terminal (Yrs)) will remain OFF (no continuity).
Replace the power supply if this condition occurs even if the output is correct, as internal parts may be deteriorated.
**4.** The "Hot" error detection function is only for the S8VS-□□□24A□□.

## Maintenance Forecast (S8VS-□□□24A□□)

Displays when the maintenance forecast has reached the set value.




**Note:** This indicator alternately displays alarm (A02) and the maintenance time until replacement.

### Indication and Output

When the Product is purchased, "FUL" will be indicated. As electrolytic capacitors deteriorate, indication changes to "HLF" (Refer to page 30). "FUL" will be indicated for the maintenance forecast display for approximately one month after the Power Supply is first turned ON. The accumulated value will then be displayed depending on the ambient conditions thereafter. (However, the "HLF" indication may not appear, depending on the usage environment and the set value for maintenance forecast.)

**S8VS-06024A:**

After the remaining time to maintenance is reduced to less than two years, indication automatically changes to a value, which decreases from " 1.5" to " 1.0" to "0.5" to "0.0" (year) as the running hours increase. If the remaining time becomes less than 0.5 year, an alarm (A02) and "0.0" are indicated alternately.

**S8VS-09024A□□/S8VS-12024A□, S8VS-18024A□/S8VS-24024A□/S8VS-48024A:**

If the maintenance forecast setting L (which can be set arbitrarily from 0.0 to 5.0 years in 0.5-year steps) is set to a value larger than two years, the indication automatically changes to a value (L - 0.5) after the remaining time to maintenance is reduced to the set years, and an alarm (A02) and the remaining time are indicated alternately.
If the setting is less than 2.0 years, the indication changes to a value ( 1.5) after the remaining time becomes less than two years, and after the remaining time becomes less than the set time, an alarm (A02) and the remaining time (L - 0.5) are indicated alternately.
If the alarm (A02) and a numeric value are indicated alternately, a transistor (maintenance forecast output terminal (Yrs)) will turn OFF to indicate the need for maintenance. (The transistor turns OFF when the maintenance forecast time is reached, i.e., there will be no continuity at the maintenance forecast output terminal.)




In the case that the remaining time is reduced to smaller than 0.5 year and an alarm is issued.

**Note: 1.** The remaining time to maintenance is based on continuous operation, not including the time when the power supply is turned OFF.

**2.** "FUL" will be indicated until approximately one month of time is accumulated to estimate the speed of deterioration and the output will remain ON (continuity at the maintenance forecast output terminal (Yrs)).

**3.** For details on the display, refer to *Relationship between Indicated Values and Output of Set Values* under *Maintenance Forecast Monitor Function* on page 30.

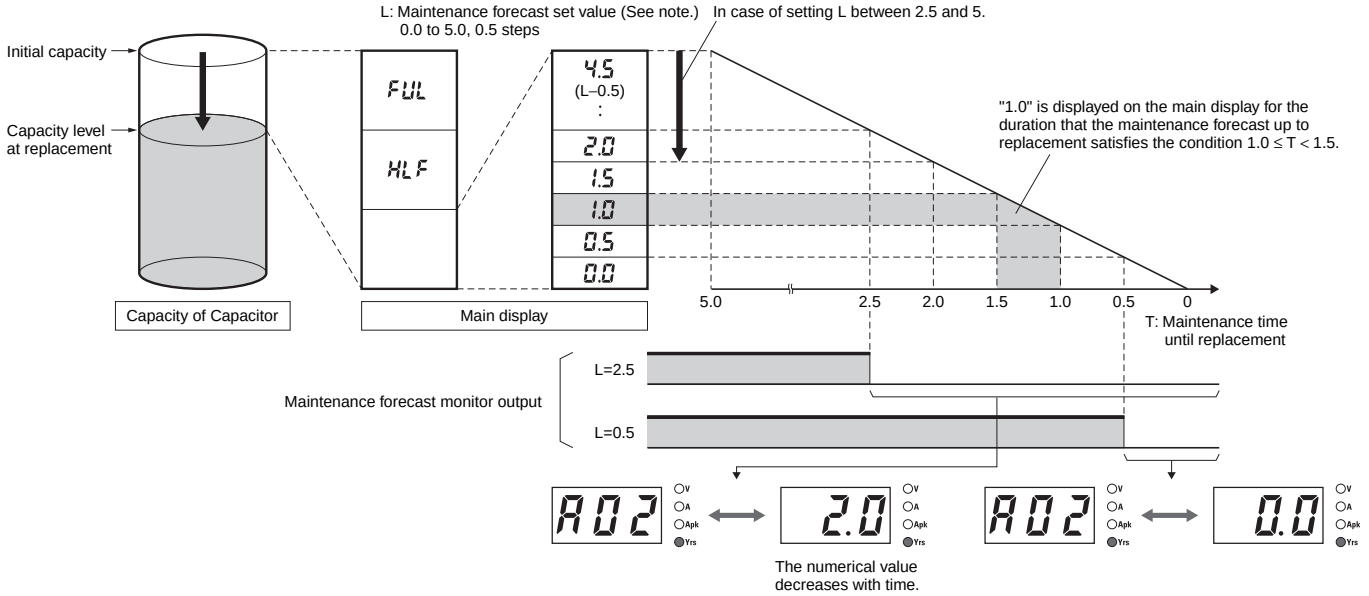
### Maintenance Forecast Monitor Function

The Power Supply is equipped with electrolytic capacitors.
The electrolyte inside the electrolytic capacitor penetrates the sealing rubber and evaporates as time passes since it is manufactured, which causes deterioration of characteristics such as decreasing the capacitance, etc.
Due to this deterioration of the characteristics of the electrolytic capacitor, the Power Supply decreases its performance as time passes.

The maintenance forecast monitor function shows an approximate period left for maintenance of the Power Supply due to deterioration of electrolytic capacitors. When the period left for maintenance that the power supply forecasts reaches the set value, an alarm is indicated and an output signal is triggered.
Use this function to know the approximate replacement timing of the Power Supply.

**Note:** The maintenance forecast monitor function indicates an approximate period left for maintenance, based on deterioration of the electrolytic capacitor. It does not predict failures caused by other reasons.

### Relationship between Indicated Values and Output of Set Values




**Note:** This function can be set only on the S8VS-09024A□□, S8VS-12024A□, S8VS-18024A□, S8VS-24024A□, and S8VS-48024A.

### Principle of Operation

The deterioration speed of the electrolytic capacitor varies considerably according to the ambient temperature. (Generally the speed follows “Rule of Two for every 10°C”; for every 10°C increase in temperature the rate of degradation doubles according to Arrhenius’s equation.) The S8VS-□□□24A□□ monitors the temperature inside the power supply, and calculates the amount of deterioration according to the running hours and inside temperature. Judging by this amount of deterioration, the power supply will give the alarm indication and output when the period left for maintenance reaches the set value.

**Note: 1.** Due to degradation of internal electronic parts, replace the power supply approximately 15 years after purchase even if indication and output of maintenance forecast monitor are not issued.
**2.** The maintenance forecast is accelerated or decelerated according to operating conditions. Periodically check indication.
**3.** Acceleration or deceleration of the maintenance forecast may cause the output to repeatedly go ON/OFF. Only the S8VS-09024A□□, S8VS-12024A□, S8VS-18024A□, S8VS-24024A□, and S8VS-48024A are equipped with output.
**4.** The accuracy of the maintenance forecast function may be adversely affected by applications in which the AC input is frequently turned ON/OFF.

### Reference Values (15-W to 480-W Models)

| Item | Value | Definition |
|---|---|---|
| Reliability (MTBF) | 15 W to 240 W: 135,000 hr min.<br>480 W: 60,000 hr min. | MTBF stands for Mean Time Between Failures, which is calculated according to the probability of accidental device failures, and indicates reliability of devices.<br>Therefore, it does not necessarily represent the life of the Product. |
| Life expectancy | 10 yr 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. |

**Note:** The maintenance forecast is the service life (the power supply’s internal temperature is monitored at all times) of the internal electrolytic capacitor in actual operating conditions, and varies according to the customer’s operating conditions. 15 years is taken as the maximum period of the maintenance forecast.

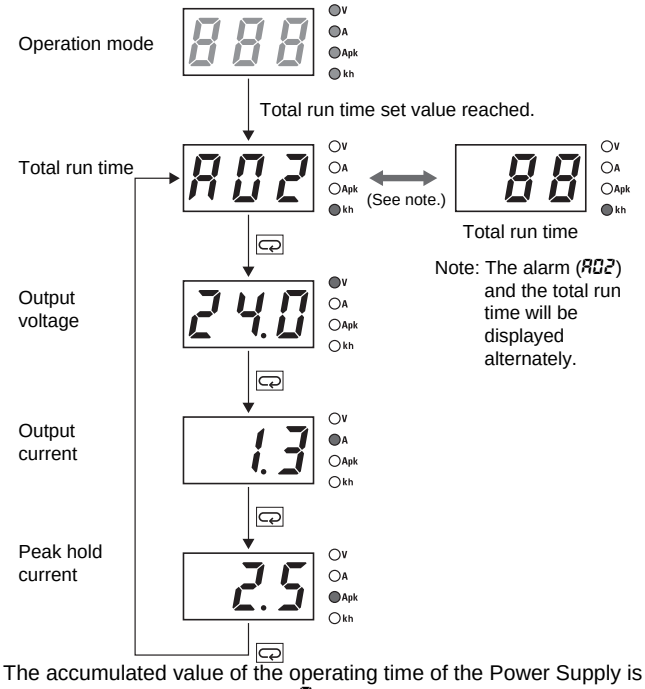
## Models with Total Run Time Monitor (S8VS-□□□24B□□/S8VS-□□□24BE□)

### S8VS-06024B

The accumulated value of the operating time of the Power Supply is displayed as the total run time. 0 (kh) will be displayed initially after purchase and then the display will advance in 1-kh steps as the operating time accumulates. The S8VS-06024B, however, does not have an alarm function (setting, display, or output).

### S8VS-09024B□□/S8VS-09024BE□/ S8VS-12024B□/S8VS-12024BE/ S8VS-18024B□/S8VS-18024BE/ S8VS-24024B□/S8VS-24024BE/S8VS-48024B

The display will appear when the set value for the total run time has been reached.



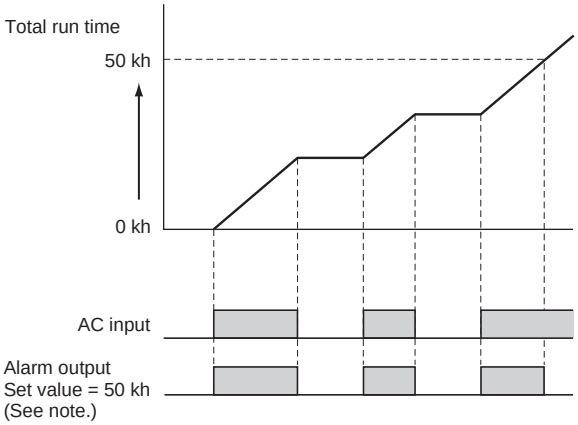

The accumulated value of the operating time of the Power Supply is displayed as the total run time. 0 (kh) will be displayed initially after purchase and then the display will advance in 1-kh steps as the operating time accumulates. When the total run time reaches the alarm set value, the alarm (A02) and the total run time will be displayed alternately and a transistor (total run time output terminal (kh)) will output the status externally.
(Alarm set value reached = OFF, i.e., no continuity at the total run time output terminal (kh))
The alarm set value can be changed in the setting mode.
The S8VS-09024BE□, S8VS-12024BE, S8VS-18024BE, and S8VS-24024BE do not have an alarm output.

**Example: Alarm Displays When a Total Run Time Set Value of 88 kh Is Reached**



**Note:** The total run time cannot be reset. To clear the alarm, change the alarm set value to a value higher than the value displayed for the total run time.

### Time Chart




* Setting is possible for the following models only: S8VS-09024B□□, S8VS-09024BE□, S8VS-12024B□, S8VS-12024BE, S8VS-18024B□, S8VS-18024BE, S8VS-24024B□, S8VS-24024BE, S8VS-48024B

**Note: 1.** The total run time does not include the time that the Power Supply is OFF.

**2.** The total run time measures the total time that power is being supplied and is not related in any way to deterioration in the electrolytic capacitor built into the Power Supply or to the effects of the ambient temperature.

# 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 (15- and 30-W models: 0.8 to 1.0 N·m/60-, 90-,120-, 180-, 240-, and 480-W models: 1.08 N·m).**



**Minor injury due to electric shock may occasionally occur. Do not touch the terminals while power is being supplied. Always close the terminal cover after wiring.**



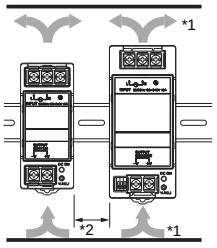
**Minor electric shock, fire, or Product failure may occasionally occur. Do not allow any pieces of metal or conductors or any clippings or cuttings resulting from installation work to enter the Product.**



## Precautions for Safe Use

### Mounting

- Take adequate measures to ensure proper heat dissipation to increase the long-term reliability of the Product. Be sure to allow convection in the atmosphere around devices when mounting. Do not use in locations where the ambient temperature exceeds the range of the derating curve.
- When cutting out holes for mounting, make sure that cuttings do not enter the interior of the Products.




*1. Convection of air
*2. 20 mm min.

#### 15-W and 30-W Models

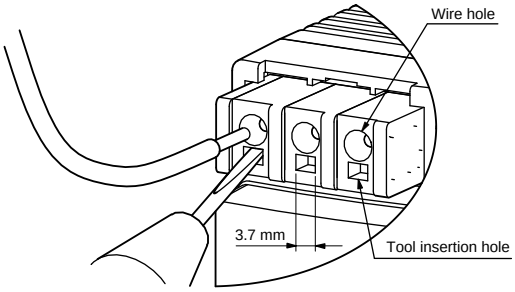
- Improper mounting will interfere with heat dissipation and may occasionally result in deterioration or damage of internal parts. Use the Product within the derating curve for the mounting direction that is used.
- Use a mounting bracket when the Product is mounted facing horizontally.
- Heat dissipation will be adversely affected. When the Product is mounted facing horizontally, always place the side with the label facing upward.
- Operate the Power Supply within a range that is 5°C less than the values in the derating curve in *Engineering Data* on page 18 if the Power Supply is used with an installation spacing of 10 mm min. (20 mm max.) on the left and right.

#### 60-W, 90-W, 120-W, 180-W, 240-W, and 480-W Models

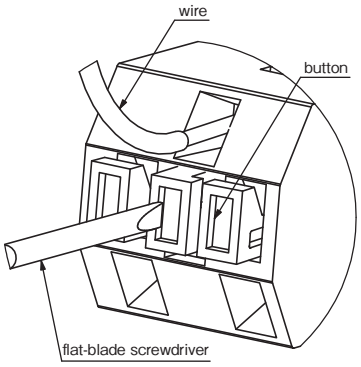
- Improper mounting will interfere with heat dissipation and may occasionally result in deterioration or damage of internal parts. Use the standard mounting method only.
- The internal parts may occasionally deteriorate and be broken due to adverse heat radiation. Do not loosen the screw on the side face of the main body.

### Wiring

- Connect the ground completely. A protective earthing terminal 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 Product for machining before power-ON so that it does not interfere with heat dissipation.
- When wiring a screwless terminal block, do not insert more than one wire into a single terminal.
- When using a screwless terminal block, connect or disconnect the I/O wire to each terminal while inserting an appropriate tool, such as a flat-blade screwdriver, into the tool insertion hole. Make sure that the wire is securely connected to the terminal after wiring. Do not insert wires into the tool insertion holes.
  If a wire is not inserted far enough or if it is loose, electric shock, fire, or equipment failure may occur. Strip the wires according to specifications. Insert an appropriate tool, such as a flat-blade screwdriver, into the tool insertion hole, insert the wire until the stripped portion is no longer visible, and then remove the tool. Make sure that the wires are securely connected to the terminal block after wiring. Never insert wires into the tool insertion holes.




- The method of use Alarm output terminal
  The method of use Alarm output terminal is push the button then insert or pull out the wire.
  Please make sure that the wire is already fixed on the terminal.



- Use the following material for the wires to be connected to the S8VS to prevent smoking or ignition caused by abnormal loads.

### Recommended Wire Type

**15-W and 30-W Models**

| Model | Stranded wire | Solid wire |
|---|---|---|
| S8VS-03005 | AWG18 to 14 (0.9 to 2.0 mm$^2$) | AWG18 to 16 (0.9 to 1.1 mm$^2$) |
| Other models | AWG20 to 14 (0.5 to 2.0 mm$^2$) | AWG20 to 16 (0.5 to 1.1 mm$^2$) |

**60-W, 90-W, 120-W, 180-W, 240-W, and 480-W Models**

| Model | Recommended wire size | | |
|---|---|---|---|
| | Input terminals | Output terminals | Alarm output terminals |
| **S8VS-06024□** | AWG14 to 20 (Cross section: 0.517 to 2.081 mm$^2$) | AWG14 to 20 (Cross section: 0.517 to 2.081 mm$^2$) | --- |
| **S8VS-09024□□□□** | | AWG14 to 18 (Cross section: 0.823 to 2.081 mm$^2$) | AWG18 to 28 (Cross section: 0.081 to 0.823 mm$^2$) (Wires to be stripped: 9 to 10 mm) |
| **S8VS-12024□□□** | | | |
| **S8VS-18024□□□** | | AWG14 to 16 (Cross section: 1.309 to 2.081 mm$^2$) | |
| **S8VS-24024□□□** | | AWG14 (Cross section: 2.081 mm$^2$) | |
| **S8VS-48024□** | AWG 14 to 16 (Cross section: 1,309 to 2,081 mm$^2$) | | |

- Strip I/O wires for 11 mm when using a screwless terminal block.

✻ The rated current for output terminals is 10 A per terminal. Be sure to use multiple terminals simultaneously for current that exceeds the terminal rating. When applying a current of 10 A or more, use at least two terminals each for the positive and negative wires.

## 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 cut in half 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%.
- Do not use the Power Supply in areas outside the derating curve otherwise, internal parts may occasionally deteriorate or be damaged.
- Use the Power Supply at a humidity of 25% to 85%.
- Do not use the Power Supply in locations subject to direct sunlight.
- Do not use locations where liquids, foreign matter, or corrosive gases may enter the interior of Products.

**S8VS-□□□24A□□ Models only**

Satisfy the following conditions when storing the Power Supply for long periods of time to maintain its remaining service life function. When storing for more than three months, store within an ambient temperature range of –25 to +30°C and the humidity range of 25% to 70%.

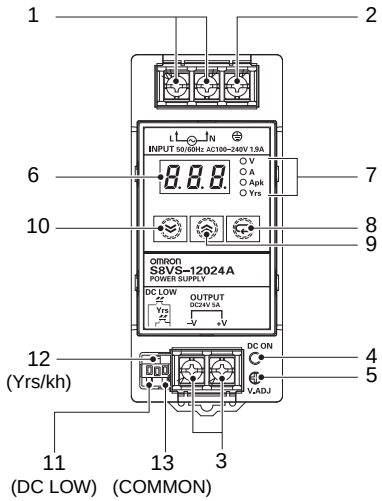
## Periodic Check for Models with Indication Monitor Except 60-W Models

It may take from several years to more than 10 years under general operating conditions for the power supply to output the maintenance forecast monitor alarm (S8VS-□□□24A□□). The total run time monitor (S8VS-□□□24B□□/S8VS-□□□24BE□) may be a similar number of years as the maintenance forecast monitor according to some settings. During operation over an extended period of time, periodically check if the maintenance forecast monitor output (Yrs) or total run time monitor output (kh) is correctly functioning by the following procedure.

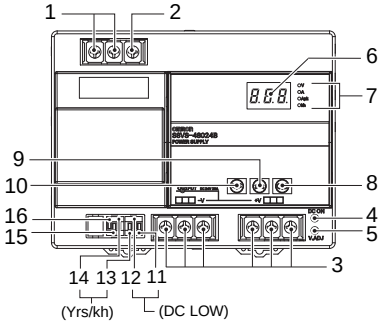
1. Select the operation mode.
2. Check that the output (Yrs/kh) is turned ON (with continuity).
3. In the operation mode, press and hold the Down Key (10) and the Mode Key (8) simultaneously for at least three seconds. The main display (6) changes to "A02."
   An inactive output (Yrs/kh) (no continuity) in the "A02" indication indicates the correct function.
4. Release keys to return to the regular state.

**Note:** DC output stays ON during the periodical check.

**60-, 90-, 120-, 180-, 240-W Models**




**480-W Models**




## Overcurrent Protection

- Internal parts may possibly deteriorate or be damaged if a short-circuited or overcurrent state continues during operation.
- Internal parts may possibly deteriorate or be 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.
- The DC ON indicator (green) flashes if the overload protection function operates.

## Alarm Output for Models with Indication Monitor Except 60-W and BE Models

When using the alarm output, sufficiently consider the maximum ratings, residual voltage, and leakage current.

Transistor output: Sinking for S8VS-24A□/□□□24B□ models
Sourcing for S8VS-□□□24AP□/□□□24BP□ models
Sinking/Sourcing for S8VS-48024A/B models

30 VDC max., 50 mA max.
ON residually voltage: 2 V max.
OFF leakage current: 0.1 mA max.

## Charging a Battery

If you connect a battery as the load, install overcurrent control and overvoltage protection circuits.

## Output Voltage Adjuster (V.ADJ)

- 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.

### 15-W, 30-W Models

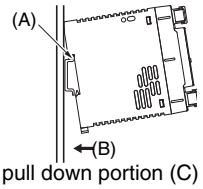
- If the output voltage is set to a value less than –10%, the undervoltage alarm function may operate.

### 60-W, 90-W, 120-W, 180-W, 240-W, and 480-W Models

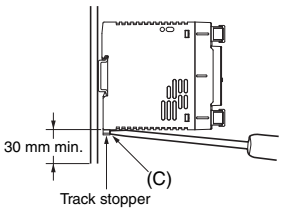
- If the detection voltage of the undervoltage alarm function is at the factory setting and the output voltage is set to a value of 20 V or less, the undervoltage alarm function may operate.

## DIN Rail Mounting

To mount the Block on a DIN Rail, hook portion (A) of the Block onto the rail and press the Block in direction (B).




To dismount the Block, pull down portion (C) with a flat-blade screwdriver and pull out the Block.

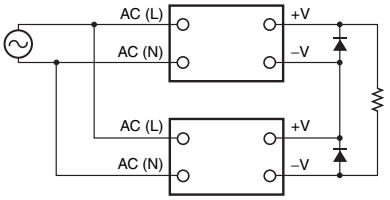



## Series Operation

### (24-V Model)

Two power supplies can be connected in series.

**Correct**



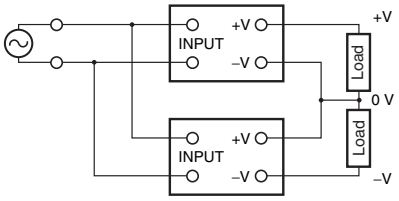

**Note: 1.** The diode is connected as shown in the figure. If the load is short-circuited, a reverse voltage will be generated inside the Power Supply. If this occurs the Power Supply may possibly deteriorate or be damaged. Always connect a diode as shown in the figure.
Select a diode having the following ratings.

| Type | Schottky Barrier diode |
|---|---|
| Dielectric strength ($V_{RRM}$) | Twice the rated output voltage or above |
| Forward current ($I_F$) | Twice the rated output current or above |

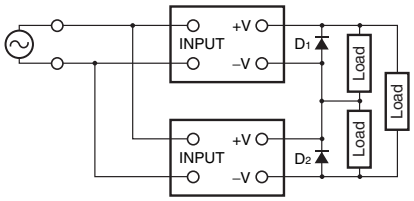
**2.** Although Products having different specifications can be connected in series, the current flowing through the load must not exceed the smaller rated output current.
**3.** Serial operation is not possible with 5-V and 12-V models.

### Making Positive/Negative Outputs

- The outputs are floating outputs (i.e., the primary circuits and secondary circuits are separated). You can therefore make positive and negative outputs by using two Power Supplies.
If positive and negative outputs are used, connect Power Supplies of the same series as in the following figure. (Combinations with different output capacities or output voltages can be made. However, use the lower of the two maximum rated output currents as the current to the loads.)




- Depending on the model, internal circuits may be damaged due to startup failure when the power is turned ON if loads such as a servomotor or operational amplifier may operate in series. Therefore, connect bypass diodes (D1, D2) as shown in the following figure.



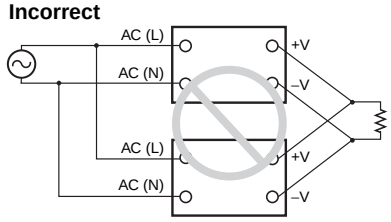

- Use the following information as a guide to the diode type, dialectic strength, and current.

- Type: Schottky barrier diode
- Dielectric strength ($V_{RRM}$): Twice the rated Power Supply output voltage or higher
- Forward current ($I_F$): Twice the rated Power Supply output current or higher

## Parallel Operation

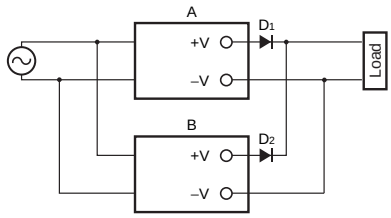
The Product is not designed for parallel operation.

**Incorrect**




## Backup Operation

- Backup operation can be performed. Backup operation provides protection by using an extra Power Supply even if the output current is sufficient with one Power Supply. If one of the Power Supplies fails, the second Power Supply still provides sufficient power.




  Use the same model for Power Supplies A and B.
- Use a load capacity that can be supplied by either Power Supply A or Power Supply B alone.
- If backup operation is used, be sure to connect a diode to both Power Supply A and Power Supply B as shown in the above figure so that the backup Power Supply is not affected by a failed Power Supply.
  Use the following information as a guide to the diode type, dialectic strength, and current.

- Type: Schottky barrier diode
- Dielectric strength ($V_{RRM}$): Rated Power Supply output voltage or higher
- Forward current ($I_F$): Twice the rated Power Supply output current or higher

- Increase the output voltage setting of Power Supply A and Power Supply B by the drop in the forward voltage ($V_F$) of diodes D1 and D2.
  Also, the diodes will cause a power loss equivalent to the Power Supply output current ($I_{OUT}$) times the diode forward voltage ($V_F$). Therefore, cooling measures must be implemented so that the temperature of the diodes decreases to the catalog value or lower.
- Because of the load power and power loss due to the diodes, do not exceed the rated power of one Power Supply (rated output voltage x rated output current).

## In Case There Is No Output Voltage

The possible cause for no output voltage may be that the overcurrent or overvoltage protection has operated. The internal protection may operate if a large amount of surge voltage such as a lightening surge occurs while turning ON the power supply.
In case there is no output voltage, please check the following points before contacting us:

- Checking overload protected status:
  Check whether the load is in overload status or is short-circuited. Remove wires to load when checking.
- Checking overvoltage or internal protection:
  Turn the power supply OFF once, and leave it OFF for at least 3 minutes. Then turn it ON again to see if this clears the condition.

## Audible Noise at Power ON

**(120-W, 180-W, 240-W, and 480-W Models)**

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

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

In the interest of product improvement, specifications are subject to change without notice.

MEMO

# Terms and Conditions Agreement

## Read and understand this catalog.

Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments.

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**CSM_7_10** Printed in Japan
**Cat. No. T026-E1-13** 0222 (0312)

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