

## Switch Mode Power Supply

**S8VK-G** (15/30/60/120/240/480-W Models)

**Reliable and Easy Operation**  
**Resistant in tough environments**  
**Easy and fast installation**  
**The most compact size on the market**

- Universal input for worldwide applications:  
100 to 240 VAC (85 to 264 VAC)
- DC input available: 90 to 350 VDC
- Possible 2 phases input usage.
- Wide operation temperature range: -40 to 70 °C
- Power Boost function at 120%
- Safety standards:  
UL508/60950-1, CSA C22.2 No. 107.1/60950-1  
EN50178 (= VDE0160), EN60950-1 (= VDE0805).  
Lloyd's standards\*, EN60204-1 PELV  
Safety of Power Transformers: EN61558-2-16
- 15-W, 30-W, and 60-W models conform to  
UL Class 2 output Standards
- EMS: EN 61204-3  
EMI: EN61204-3 Class B

\* Scheduled to obtain certification in June, 2013.



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

# S8VK-G

## Model Number Structure

### Model Number Legend

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

S8VK- 

|  |  |  |  |  |
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| 1 | 2 | 3 |
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- 1. Input voltage types**  
G: Single phase
- 2. Power Ratings**  
015: 15 W  
030: 30 W  
060: 60 W  
120: 120 W  
240: 240 W  
480: 480 W
- 3. Output voltage**  
05: 5 V  
12: 12 V  
24: 24 V  
48: 48 V

## Ordering Information

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

| Power ratings | Input voltage                                   | Output Voltage | Output current | Boost Current | Model number |
|---------------|-------------------------------------------------|----------------|----------------|---------------|--------------|
| 15 W          | Single phase<br>100 to 240 VAC<br>90 to 350 VDC | 5 V            | 3 A            | 3.6 A         | S8VK-G01505  |
|               |                                                 | 12 V           | 1.2 A          | 1.44 A        | S8VK-G01512  |
|               |                                                 | 24 V           | 0.65 A         | 0.78 A        | S8VK-G01524  |
| 30 W          |                                                 | 5 V            | 5 A            | 6 A           | S8VK-G03005  |
|               |                                                 | 12 V           | 2.5 A          | 3 A           | S8VK-G03012  |
|               |                                                 | 24 V           | 1.3 A          | 1.56 A        | S8VK-G03024  |
| 60 W          |                                                 | 12 V           | 4.5 A          | 5.4 A         | S8VK-G06012  |
|               |                                                 | 24 V           | 2.5 A          | 3 A           | S8VK-G06024  |
| 120 W         |                                                 | 24 V           | 5 A            | 6 A           | S8VK-G12024  |
| 240 W         |                                                 | 24 V           | 10 A           | 12 A          | S8VK-G24024  |
|               |                                                 | 48 V           | 5 A            | 6 A           | S8VK-G24048  |
| 480 W         |                                                 | 24 V           | 20 A           | 24 A          | S8VK-G48024  |
|               |                                                 | 48 V           | 10 A           | 12 A          | S8VK-G48048  |

# Specifications

## Ratings, Characteristics, and Functions

|                      |                                                | Power ratings       | 15 W                                                                                                                                                                                                                                                              |        |        | 30 W    |        |        |
|----------------------|------------------------------------------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|---------|--------|--------|
| Item                 |                                                | Output voltage      | 5 V                                                                                                                                                                                                                                                               | 12 V   | 24 V   | 5 V     | 12 V   | 24 V   |
| Efficiency (Typical) |                                                | 230 VAC input       | 77%                                                                                                                                                                                                                                                               |        | 80%    | 79%     | 82%    | 86%    |
| Input                | Voltage *1                                     |                     | 100 to 240 VAC, 90 to 350 VDC (allowable range: 85 to 264 VAC) *6                                                                                                                                                                                                 |        |        |         |        |        |
|                      | Frequency *1                                   |                     | 50/60 Hz (47 to 450 Hz)                                                                                                                                                                                                                                           |        |        |         |        |        |
|                      | Current (Typical)                              | 115 VAC input       | 0.32 A                                                                                                                                                                                                                                                            | 0.3 A  | 0.31 A | 0.5 A   | 0.57 A | 0.58 A |
|                      |                                                | 230 VAC input       | 0.2 A                                                                                                                                                                                                                                                             | 0.21 A | 0.2 A  | 0.32 A  | 0.37 A | 0.36 A |
|                      | Power factor (Typical)                         | 230 VAC input       | 0.42                                                                                                                                                                                                                                                              |        |        | 0.43    | 0.42   | 0.43   |
|                      | Harmonic current emissions                     |                     | Conforms to EN61000-3-2                                                                                                                                                                                                                                           |        |        |         |        |        |
|                      | Leakage current (Typical)                      | 115 VAC input       | 0.14 mA                                                                                                                                                                                                                                                           |        |        | 0.13 mA |        |        |
|                      |                                                | 230 VAC input       | 0.25 mA                                                                                                                                                                                                                                                           |        |        | 0.24 mA |        |        |
|                      | Inrush current (Typical) *2                    | 115 VAC input       | 16 A                                                                                                                                                                                                                                                              |        |        |         |        |        |
| 230 VAC input        |                                                | 32 A                |                                                                                                                                                                                                                                                                   |        |        |         |        |        |
| Output               | Voltage adjustment range *3                    |                     | −10% to 15% (with V.ADJ) (guaranteed)                                                                                                                                                                                                                             |        |        |         |        |        |
|                      | Ripple *4                                      | at 20 MHz (Typical) | 60 mV                                                                                                                                                                                                                                                             | 50 mV  | 30 mV  | 30 mV   | 30 mV  | 30 mV  |
|                      | Input variation influence                      |                     | 0.5% max. (at 85 to 264 VAC input, 100% load)                                                                                                                                                                                                                     |        |        |         |        |        |
|                      | Load variation Influence (Rated Input voltage) |                     | 3.0% max. (5 V), 2.0% max. (12 V), 1.5% max. (24 V), at 0% to 100% load                                                                                                                                                                                           |        |        |         |        |        |
|                      | Temperature variation influence                |                     | 0.05%/°C max.                                                                                                                                                                                                                                                     |        |        |         |        |        |
|                      | Start up time (Typical) *2                     | 115 VAC input       | 530 ms                                                                                                                                                                                                                                                            | 520 ms | 580 ms | 550 ms  | 550 ms | 600 ms |
|                      |                                                | 230 VAC input       | 330 ms                                                                                                                                                                                                                                                            | 400 ms | 400 ms | 430 ms  | 490 ms | 480 ms |
|                      | Hold time (Typical) *2                         | 115 VAC input       | 28 ms                                                                                                                                                                                                                                                             | 29 ms  | 32 ms  | 33 ms   | 36 ms  | 23 ms  |
|                      |                                                | 230 VAC input       | 134 ms                                                                                                                                                                                                                                                            | 138 ms | 134 ms | 177 ms  | 170 ms | 154 ms |
| Additional functions | Overload protection *2                         |                     | 121% to 160% of rated load current (130% typ value)                                                                                                                                                                                                               |        |        |         |        |        |
|                      | Overvoltage protection *2                      |                     | Yes *5                                                                                                                                                                                                                                                            |        |        |         |        |        |
|                      | Power Boost                                    |                     | 120% of rated current (Refer to Engineering Data)                                                                                                                                                                                                                 |        |        |         |        |        |
|                      | Parallel operation                             |                     | Yes (Refer to Engineering Data)                                                                                                                                                                                                                                   |        |        |         |        |        |
|                      | Series operation                               |                     | Possible for up to two Power Supplies (with external diode)                                                                                                                                                                                                       |        |        |         |        |        |
| Others               | Ambient operating temperature                  |                     | −40 to 70°C (Refer to Engineering Data)                                                                                                                                                                                                                           |        |        |         |        |        |
|                      | Storage temperature                            |                     | −40 to 85°C                                                                                                                                                                                                                                                       |        |        |         |        |        |
|                      | Ambient operating humidity                     |                     | 0% to 95% (Storage humidity: 0% to 95%)                                                                                                                                                                                                                           |        |        |         |        |        |
|                      | Dielectric strength (detection current: 20 mA) |                     | 3.0 kVAC for 1 min. (between all inputs and outputs)<br>2.0 kVAC for 1 min. (between all inputs and PE terminal)<br>1.0 kVAC for 1 min. (between all outputs and PE terminal)                                                                                     |        |        |         |        |        |
|                      | Insulation resistance                          |                     | 100 MΩ min. (between all outputs and 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 <sup>2</sup> , 3 times each in ±X, ±Y, and ±Z directions                                                                                                                                                                                                  |        |        |         |        |        |
|                      | Output indicator                               |                     | Yes (color: green), lighting from 80% to 90% or more of rated voltage                                                                                                                                                                                             |        |        |         |        |        |
|                      | EMI                                            | Conducted Emission  | Conforms to EN61204-3 EN55011 Class B and based on FCC Class A                                                                                                                                                                                                    |        |        |         |        |        |
|                      |                                                | Radiated Emission   | Conforms to EN61204-3 EN55011 Class B                                                                                                                                                                                                                             |        |        |         |        |        |
|                      | EMS                                            |                     | Conforms to EN61204-3 high severity levels                                                                                                                                                                                                                        |        |        |         |        |        |
|                      | Approved Standards                             |                     | UL Listed: UL508 (Listing, Class2 Output: Per UL1310)<br>UL UR: UL60950-1 (Recognition)<br>cUL: CSA C22.2 No.107.1 (Class2 Output: Per CSA C22.2 No.223)<br>cUR: CSA C22.2 No.60950-1<br>EN/VDE: EN50178 (=VDE0160), EN60950-1 (=VDE0805)<br>Lloyd's standards *7 |        |        |         |        |        |
|                      | Fulfilled Standards                            |                     | SELV (EN60950-1/EN50178/UL60950-1), PELV (EN60204-1, EN50178),<br>Safety of Power Transformers (EN61558-2-16)<br>EN50274 for Terminal parts                                                                                                                       |        |        |         |        |        |
|                      | Degree of protection                           |                     | IP20 by EN / IEC60529                                                                                                                                                                                                                                             |        |        |         |        |        |
|                      | SEMI                                           |                     | F47-0706 (200 to 240 VAC)                                                                                                                                                                                                                                         |        |        |         |        |        |
|                      | Weight                                         |                     | 150 g                                                                                                                                                                                                                                                             |        |        | 195 g   |        |        |

\*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 11 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. A characteristic when the ambient operating temperature is between −25 to 70°C.

\*5. To reset the protection, turn OFF the input power for three minutes or longer and then turn it back ON.

\*6. 90 to 350 VDC's UL standards are scheduled to obtain certification in June, 2013.

\*7. Scheduled to obtain certification in June, 2013.

| Power ratings        |                                                |                        | 60 W                                                                                                                                                                                                                                                                                          |        | 120 W                                               |
|----------------------|------------------------------------------------|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----------------------------------------------------|
| Item                 | Output voltage                                 |                        | 12 V                                                                                                                                                                                                                                                                                          | 24 V   | 24 V                                                |
| Efficiency (Typical) |                                                | 230 VAC input          | 85%                                                                                                                                                                                                                                                                                           | 88%    | 89%                                                 |
| Input                | Voltage *1                                     |                        | 100 to 240 VAC, 90 to 350 VDC (allowable range: 85 to 264 VAC) *6                                                                                                                                                                                                                             |        |                                                     |
|                      | Frequency *1                                   |                        | 50/60 Hz (47 to 450 Hz)                                                                                                                                                                                                                                                                       |        | 50/60 Hz (47 to 63 Hz)                              |
|                      | Current (Typical)                              | 115 VAC input          | 1.0 A                                                                                                                                                                                                                                                                                         | 1.1 A  | 1.3 A                                               |
|                      |                                                | 230 VAC input          | 0.6 A                                                                                                                                                                                                                                                                                         | 0.7 A  |                                                     |
|                      | Power factor (Typical)                         | 230 VAC input          | 0.46                                                                                                                                                                                                                                                                                          | 0.45   | 0.94                                                |
|                      | Harmonic current emissions                     |                        | Conforms to EN61000-3-2                                                                                                                                                                                                                                                                       |        |                                                     |
|                      | Leakage current (Typical)                      | 115 VAC input          | 0.16 mA                                                                                                                                                                                                                                                                                       |        | 0.24 mA                                             |
|                      |                                                | 230 VAC input          | 0.30 mA                                                                                                                                                                                                                                                                                       |        | 0.38 mA                                             |
|                      | Inrush current (Typical) *2                    | 115 VAC input          | 16 A                                                                                                                                                                                                                                                                                          |        |                                                     |
|                      |                                                | 230 VAC input          | 32 A                                                                                                                                                                                                                                                                                          |        |                                                     |
| Output               | Voltage adjustment range *3                    |                        | -10% to 15% (with V.ADJ) (guaranteed)                                                                                                                                                                                                                                                         |        |                                                     |
|                      | Ripple *4                                      | at 20 MHz (Typical)    | 150 mV                                                                                                                                                                                                                                                                                        | 50 mV  | 150 mV                                              |
|                      | Input variation influence                      |                        | 0.5% max. (at 85 to 264 VAC input, 100% load)                                                                                                                                                                                                                                                 |        |                                                     |
|                      | Load variation Influence (Rated Input voltage) |                        | 2.0% max. (12 V), 1.5% max. (24 V), at 0% to 100% load                                                                                                                                                                                                                                        |        |                                                     |
|                      | Temperature variation influence                |                        | 0.05%/°C max.                                                                                                                                                                                                                                                                                 |        |                                                     |
|                      | Start up time (Typical) *2                     | 115 VAC input          | 570 ms                                                                                                                                                                                                                                                                                        | 650 ms | 790 ms                                              |
|                      |                                                | 230 VAC input          | 430 ms                                                                                                                                                                                                                                                                                        | 500 ms | 750 ms                                              |
|                      |                                                | Hold time (Typical) *2 | 115 VAC input                                                                                                                                                                                                                                                                                 | 26 ms  | 25 ms                                               |
| 230 VAC input        |                                                |                        | 139 ms                                                                                                                                                                                                                                                                                        | 129 ms | 42 ms                                               |
| Additional functions | Overload protection *2                         |                        | 121% to 160% of rated load current, (130% typ value)                                                                                                                                                                                                                                          |        | 121% to160% of rated load current, (125% typ value) |
|                      | Overvoltage protection *2                      |                        | Yes *5                                                                                                                                                                                                                                                                                        |        |                                                     |
|                      | Power Boost                                    |                        | 120% of rated current (Refer to Engineering Data)                                                                                                                                                                                                                                             |        |                                                     |
|                      | Parallel operation                             |                        | Yes (Refer to Engineering Data)                                                                                                                                                                                                                                                               |        |                                                     |
|                      | Series operation                               |                        | Possible for up to two Power Supplies (with external diode)                                                                                                                                                                                                                                   |        |                                                     |
| Others               | Ambient operating temperature                  |                        | -40 to 70°C (Refer to Engineering Data)                                                                                                                                                                                                                                                       |        |                                                     |
|                      | Storage temperature                            |                        | -40 to 85°C                                                                                                                                                                                                                                                                                   |        |                                                     |
|                      | Ambient operating humidity                     |                        | 0% to 95% (Storage humidity: 0% to 95%)                                                                                                                                                                                                                                                       |        |                                                     |
|                      | Dielectric strength (detection current: 20 mA) |                        | 3.0 kVAC for 1 min. (between all inputs and outputs)<br>2.0 kVAC for 1 min. (between all inputs and PE terminal)<br>1.0 kVAC for 1 min. (between all outputs and PE terminal)                                                                                                                 |        |                                                     |
|                      | Insulation resistance                          |                        | 100 MΩ min. (between all outputs and 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/s², 3 times each in ±X, ±Y, and ±Z directions                                                                                                                                                                                                                                           |        |                                                     |
|                      | Output indicator                               |                        | Yes (color: green), lighting from 80% to 90% or more of rated voltage                                                                                                                                                                                                                         |        |                                                     |
|                      | EMI                                            | Conducted Emission     | Conforms to EN61204-3 EN55011 Class B and based on FCC Class A                                                                                                                                                                                                                                |        |                                                     |
|                      |                                                | Radiated Emission      | Conforms to EN61204-3 EN55011 Class B                                                                                                                                                                                                                                                         |        |                                                     |
|                      | EMS                                            |                        | Conforms to EN61204-3 high severity levels                                                                                                                                                                                                                                                    |        |                                                     |
|                      | Approved Standards                             |                        | UL Listed: UL508 (Listing, For 60 W only Class2 Output: Per UL1310)<br>UL UR: UL60950-1 (Recognition)<br>cUL: CSA C22.2 No.107.1 (For 60 W only Class2 Output: Per CSA C22.2 No.223)<br>cUR: CSA C22.2 No.60950-1<br>EN/VDE: EN50178 (=VDE0160), EN60950-1 (=VDE0805)<br>Lloyd's standards *7 |        |                                                     |
|                      | Fulfilled Standards                            |                        | SELV (EN60950-1/EN50178/UL60950-1), PELV(EN60204-1, EN50178),<br>Safety of Power Transformers (EN61558-2-16)<br>EN50274 for Terminal parts                                                                                                                                                    |        |                                                     |
|                      | Degree of protection                           |                        | IP20 by EN / IEC60529                                                                                                                                                                                                                                                                         |        |                                                     |
|                      | SEMI                                           |                        | F47-0706 (200 to 240 VAC)                                                                                                                                                                                                                                                                     |        |                                                     |
| Weight               |                                                | 260 g                  |                                                                                                                                                                                                                                                                                               | 620 g  |                                                     |

\*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 11 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. A characteristic when the ambient operating temperature is between -25 to 70°C.

\*5. To reset the protection, turn OFF the input power for three minutes or longer and then turn it back ON.

\*6. 90 to 350 VDC's UL standards are scheduled to obtain certification in June, 2013.

\*7. Scheduled to obtain certification in June, 2013.

| Power ratings        |                                                |                                                                                                                          | 240 W                                                                                                                                                                                            |                                                                | 480 W   |        |
|----------------------|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|---------|--------|
| Item                 | Output voltage                                 |                                                                                                                          | 24 V                                                                                                                                                                                             | 48 V                                                           | 24 V    | 48 V   |
| Efficiency (Typical) |                                                | 230 VAC input                                                                                                            | 92%                                                                                                                                                                                              |                                                                | 93%     |        |
| Input                | Voltage *1                                     |                                                                                                                          | 100 to 240 VAC, 90 to 350 VDC (allowable range: 85 to 264 VAC) *6                                                                                                                                |                                                                |         |        |
|                      | Frequency *1                                   |                                                                                                                          | 50/60 Hz (47 to 63 Hz)                                                                                                                                                                           |                                                                |         |        |
|                      | Current (Typical)                              | 115 VAC input                                                                                                            | 2.4 A                                                                                                                                                                                            |                                                                | 4.7 A   |        |
|                      |                                                | 230 VAC input                                                                                                            | 1.3 A                                                                                                                                                                                            |                                                                | 2.3 A   |        |
|                      | Power factor (Typical)                         | 230 VAC input                                                                                                            | 0.9                                                                                                                                                                                              |                                                                | 0.97    |        |
|                      | Harmonic current emissions                     |                                                                                                                          | Conforms to EN61000-3-2                                                                                                                                                                          |                                                                |         |        |
|                      | Leakage current (Typical)                      | 115 VAC input                                                                                                            | 0.23 mA                                                                                                                                                                                          |                                                                | 0.3 mA  |        |
|                      |                                                | 230 VAC input                                                                                                            | 0.33 mA                                                                                                                                                                                          |                                                                | 0.49 mA |        |
|                      | Inrush current (Typical) *2                    | 115 VAC input                                                                                                            | 16 A                                                                                                                                                                                             |                                                                |         |        |
|                      |                                                | 230 VAC input                                                                                                            | 32 A                                                                                                                                                                                             |                                                                |         |        |
| Output               | Voltage adjustment range *3                    |                                                                                                                          | −10% to 15% (with V.ADJ) (guaranteed)                                                                                                                                                            |                                                                |         |        |
|                      | Ripple *4                                      | at 20 MHz (Typical)                                                                                                      | 180 mV                                                                                                                                                                                           | 350 mV                                                         | 230 mV  | 470 mV |
|                      | Input variation influence                      |                                                                                                                          | 0.5% max. (at 85 to 264 VAC input, 100% load)                                                                                                                                                    |                                                                |         |        |
|                      | Load variation Influence (Rated Input voltage) |                                                                                                                          | 1.5% max. (24 V, 48 V), at 0% to 100% load                                                                                                                                                       |                                                                |         |        |
|                      | Temperature variation influence                |                                                                                                                          | 0.05%/°C max.                                                                                                                                                                                    |                                                                |         |        |
|                      | Start up time (Typical) *2                     | 115 VAC input                                                                                                            | 250 ms                                                                                                                                                                                           | 290 ms                                                         | 380 ms  |        |
|                      |                                                | 230 VAC input                                                                                                            | 250 ms                                                                                                                                                                                           | 290 ms                                                         | 260 ms  |        |
|                      |                                                | Hold time (Typical) *2                                                                                                   | 115 VAC input                                                                                                                                                                                    | 44 ms                                                          | 43 ms   | 40 ms  |
| 230 VAC input        |                                                |                                                                                                                          | 44 ms                                                                                                                                                                                            |                                                                | 50 ms   |        |
| Additional functions | Overload protection *2                         |                                                                                                                          | 121% to 160% of rated load current (130% typ value)                                                                                                                                              |                                                                |         |        |
|                      | Overvoltage protection *2                      |                                                                                                                          | Yes *5                                                                                                                                                                                           |                                                                |         |        |
|                      | Power Boost                                    |                                                                                                                          | 120% of rated current (Refer to Engineering Data)                                                                                                                                                |                                                                |         |        |
|                      | Parallel operation                             |                                                                                                                          | Yes (Refer to Engineering Data)                                                                                                                                                                  |                                                                |         |        |
|                      | Series operation                               |                                                                                                                          | Possible for up to two Power Supplies (with external diode)                                                                                                                                      |                                                                |         |        |
| Others               | Ambient operating temperature                  |                                                                                                                          | −40 to 70°C (Refer to Engineering Data)                                                                                                                                                          |                                                                |         |        |
|                      | Storage temperature                            |                                                                                                                          | −40 to 85°C                                                                                                                                                                                      |                                                                |         |        |
|                      | Ambient operating humidity                     |                                                                                                                          | 0% to 95% (Storage humidity: 0% to 95%)                                                                                                                                                          |                                                                |         |        |
|                      | Dielectric strength (detection current: 20 mA) |                                                                                                                          | 3.0 kVAC for 1 min. (between all inputs and outputs)<br>2.0 kVAC for 1 min. (between all inputs and PE terminal)<br>1.0 kVAC for 1 min. (between all outputs and PE terminal)                    |                                                                |         |        |
|                      | Insulation resistance                          |                                                                                                                          | 100 MΩ min. (between all outputs and 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                                            |                                                                                                                                                                                                  |                                                                |         |        |
|                      |                                                | 10 to 150 Hz, 0.35-mm single amplitude (5 G max for 240 W, 3 G max for 480 W) for 80 min. 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), lighting from 80% to 90% or more of rated voltage                                                                                                                            |                                                                |         |        |
|                      |                                                | EMI                                                                                                                      | Conducted Emission                                                                                                                                                                               | Conforms to EN61204-3 EN55011 Class B and based on FCC Class A |         |        |
|                      |                                                |                                                                                                                          | Radiated Emission                                                                                                                                                                                | Conforms to EN61204-3 EN55011 Class B                          |         |        |
|                      | EMS                                            |                                                                                                                          | Conforms to EN61204-3 high severity levels                                                                                                                                                       |                                                                |         |        |
|                      | Approved Standards                             |                                                                                                                          | UL Listed: UL508 (Listing)<br>UL UR: UL60950-1 (Recognition)<br>cUL: CSA C22.2 No.107.1<br>cUR: CSA C22.2 No.60950-1<br>EN/VDE: EN50178 (=VDE0160), EN60950-1 (=VDE0805)<br>Lloyd's standards *7 |                                                                |         |        |
|                      | Fulfilled Standards                            |                                                                                                                          | SELV (EN60950-1/EN50178/UL60950-1), PELV(EN60204-1, EN50178),<br>Safety of Power Transformers (EN61558-2-16)<br>EN50274 for Terminal parts                                                       |                                                                |         |        |
|                      | Degree of protection                           |                                                                                                                          | IP20 by EN / IEC60529                                                                                                                                                                            |                                                                |         |        |
| SEMI                 |                                                | F47-0706 (200 to 240 VAC)                                                                                                |                                                                                                                                                                                                  |                                                                |         |        |
| Weight               |                                                | 900 g                                                                                                                    |                                                                                                                                                                                                  | 1,500 g                                                        |         |        |

\*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 11 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. A characteristic when the ambient operating temperature is between -25 to 70°C.

\*5. To reset the protection, turn OFF the input power for three minutes or longer and then turn it back ON.

\*6. 90 to 350 VDC's UL standards are scheduled to obtain certification in June, 2013.

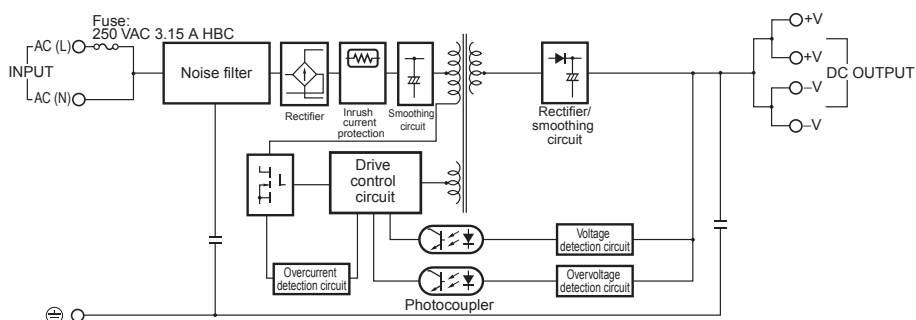
\*7. Scheduled to obtain certification in June, 2013.

# S8VK-G

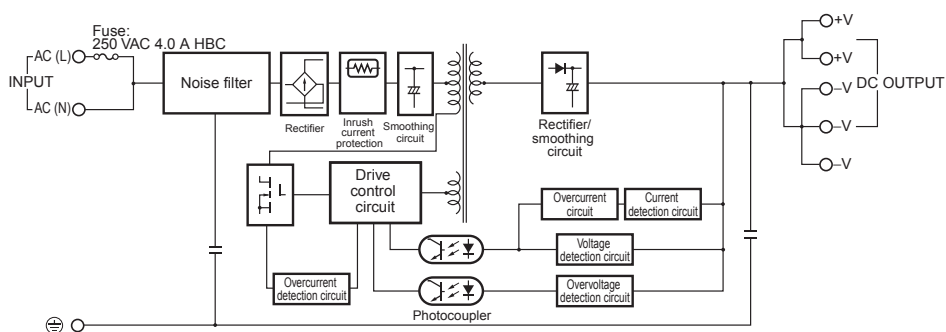
## Connections

### Block Diagrams

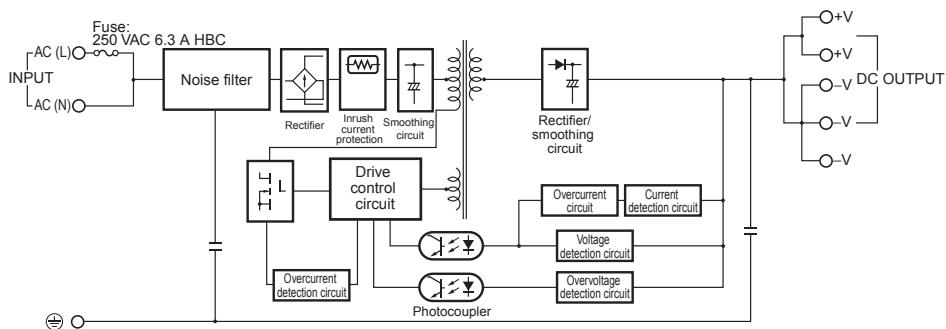
#### S8VK-G015□□ (15 W)



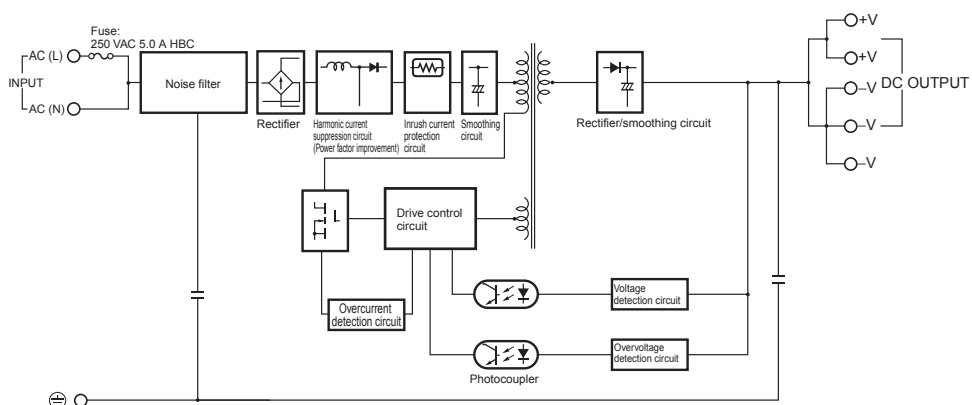
#### S8VK-G030□□ (30 W)



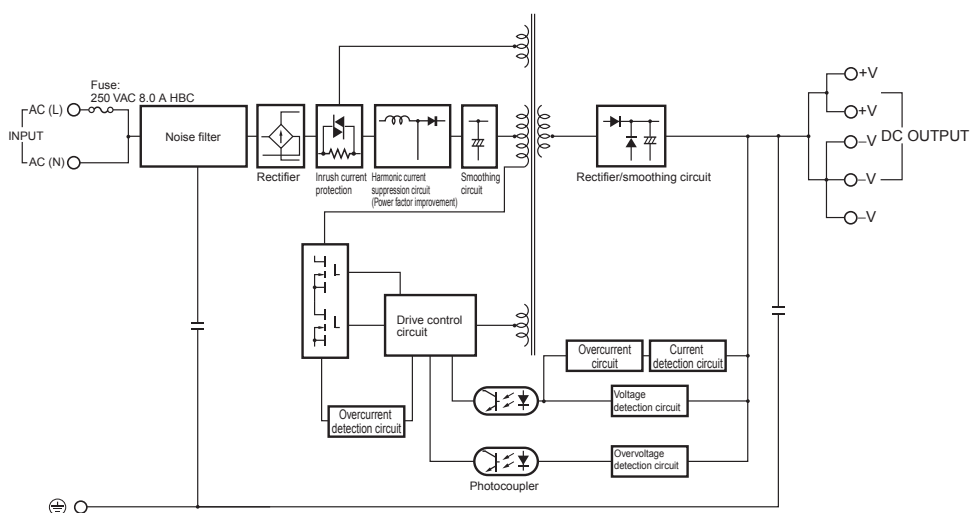
#### S8VK-G060□□ (60 W)



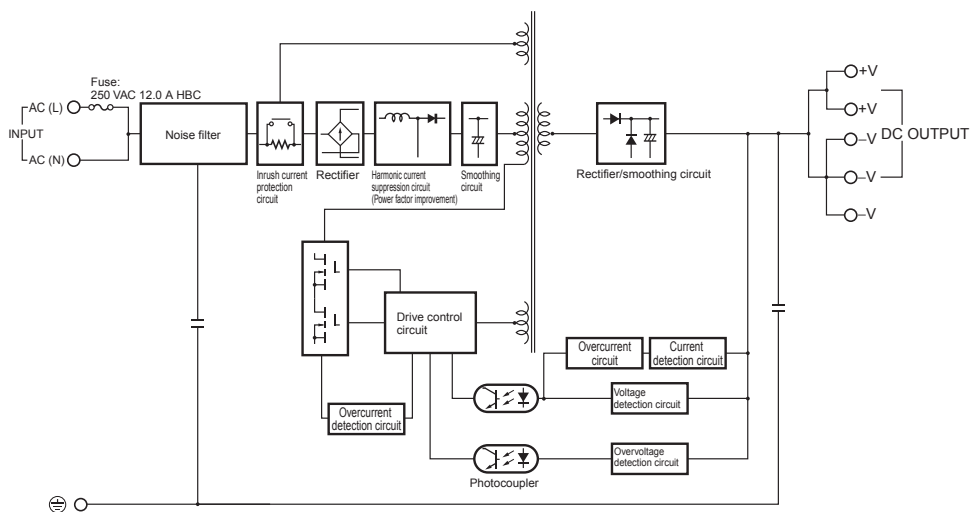
## S8VK-G12024 (120 W)



## S8VK-G240 (240 W)



## S8VK-G480 (480 W)



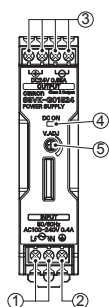
# S8VK-G

## Construction and Nomenclature

### Nomenclature

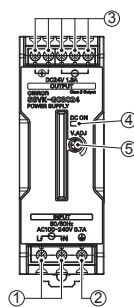
#### 15-W Models

S8VK-G015□□



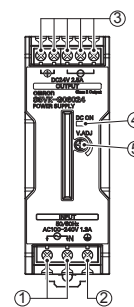
#### 30-W Models

S8VK-G030□□



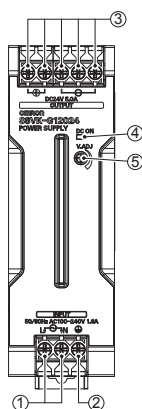
#### 60-W Models

S8VK-G060□□



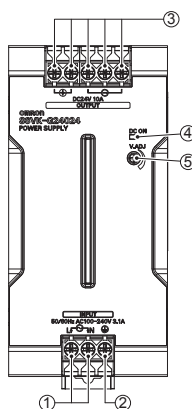
#### 120-W Models

S8VK-G12024



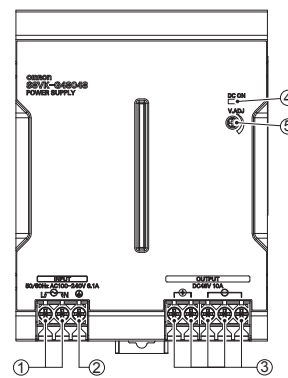
#### 240-W Models

S8VK-G240□□



#### 480-W Models

S8VK-G480□□



| 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.                       |

\*1. The fuse is located on the (L) side. It is not user-replaceable. For a DC input, connect the positive voltage to the L terminal.

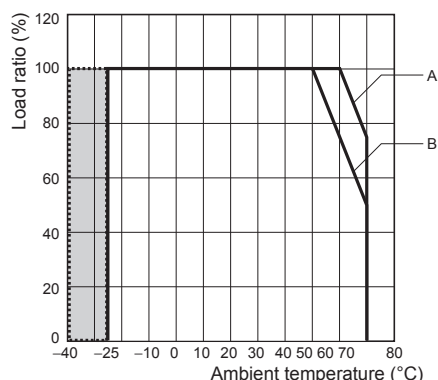
\*2. This is the protective earth terminal specified in the safety standards. Always ground this terminal.



## Engineering Data

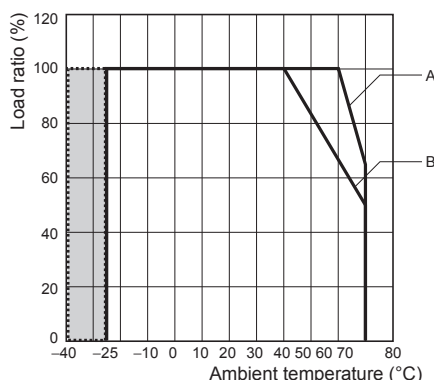
### Derating Curve

15, 30, 240 W (S8VK-G015□□, S8VK-G030□□, S8VK-G240□□)



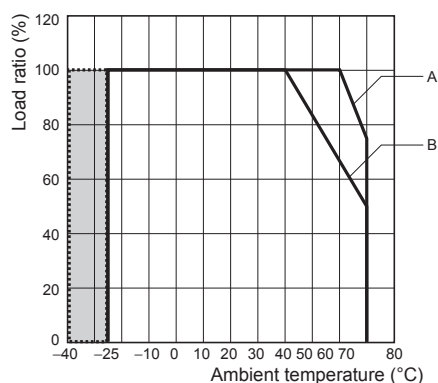
- Note:**
- At less than 90 VAC, the derating is 2.5%/V
  - For a DC power input, reduce the load given in the above derating curve by multiplying the following coefficients.  
S8VK-G015□□: 1.0  
S8VK-G030□□: 0.9  
S8VK-G240□□: 0.8
  - See “-40°C Operation Guarantee Condition”
- A.** Standard mounting  
60°C and over: the derating is 2.5%/°C
- B.** Face-up mounting / Side mounting (15W only)  
50°C and over: the derating is 2.5%/°C

120 W (S8VK-G12024)



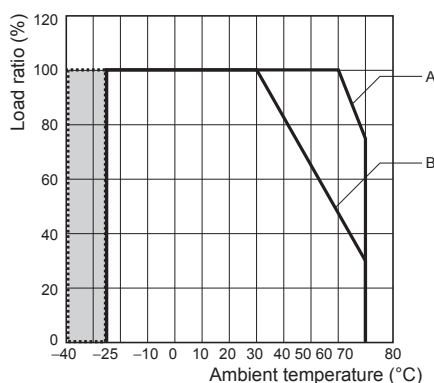
- Note:**
- At less than 90 VAC, the derating is 2.5%/V
  - For a DC power input, reduce the load given in the above derating curve by multiplying the following coefficients.  
S8VK-G12024: 0.9
  - See “-40°C Operation Guarantee Condition”
- A.** Standard mounting  
60°C and over: the derating is 3.5%/°C
- B.** Face-up mounting  
40°C and over: the derating is 1.67%/°C

60 W (S8VK-G060□□)



- Note:**
- At less than 90 VAC, the derating is 2.5%/V
  - For a DC power input, reduce the load given in the above derating curve by multiplying the following coefficients.  
S8VK-G060□□: 0.9
  - See “-40°C Operation Guarantee Condition”
- A.** Standard mounting  
60°C and over: the derating is 2.5%/°C
- B.** Face-up mounting  
40°C and over: the derating is 1.67%/°C

480 W (S8VK-G480□□)



- Note:**
- At less than 90 VAC, the derating is 2.5%/V
  - For a DC power input, reduce the load given in the above derating curve by multiplying the following coefficients.  
S8VK-G480□□: 0.8
  - See “-40°C Operation Guarantee Condition”
- A.** Standard mounting  
60°C and over: the derating is 2.5%/°C
- B.** Face-up mounting  
30°C and over: the derating is 1.75%/°C

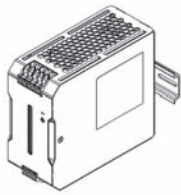
### -40°C Operation Guarantee Condition

The unit can start up and operate normally at -40°C, but the following criteria will be inferior to the values of datasheet. Please consider these influences.

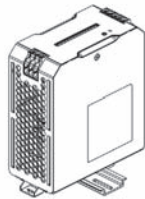
|                      |               | 15 W<br>5 V | 15 W<br>12 V | 15 W<br>24 V | 30 W<br>5 V | 30 W<br>12 V | 30 W<br>24 V | 60 W<br>12 V | 60 W<br>24 V | 120 W<br>24 V | 240 W<br>24 V | 240 W<br>48 V | 480 W<br>24 V | 480 W<br>48 V |
|----------------------|---------------|-------------|--------------|--------------|-------------|--------------|--------------|--------------|--------------|---------------|---------------|---------------|---------------|---------------|
| Ripple (Typ.)        | 230 VAC input | 280 mV      | 170 mV       | 100 mV       | 110 mV      | 330 mV       | 180 mV       | 200 mV       | 420 mV       | 440 mV        | 840 mV        | 1220 mV       | 460 mV        | 580 mV        |
| Ripple (Max.)        | 230 VAC input | 830 mV      | 450 mV       | 220 mV       | 240 mV      | 630 mV       | 290 mV       | 480 mV       | 430 mV       | 450 mV        | 1030 mV       | 1320 mV       | 670 mV        | 870 mV        |
| Start up time (Typ.) | 230 VAC input | 420 ms      | 440 ms       | 490 ms       | 410 ms      | 440 ms       | 480 ms       | 420 ms       | 490 ms       | 760 ms        | 230 ms        | 280 ms        | 260 ms        | 260 ms        |
| Hold time (Typ.)     | 230 VAC input | 88 ms       | 110 ms       | 109 ms       | 137 ms      | 112 ms       | 114 ms       | 124 ms       | 118 ms       | 20 ms         | 35 ms         | 37 ms         | 39 ms         | 41 ms         |

## Mounting

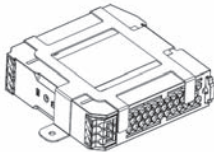
(A) Standard (Vertical) mounting



(B) Face-up mounting



(C) Side mounting only for 15 W

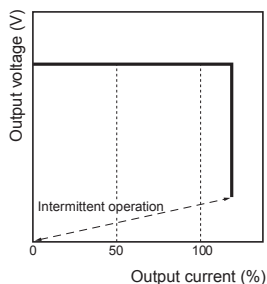


## Overload Protection

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 121% of the rated current.

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



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

- Note: 1.** Internal parts may occasionally deteriorate or be damaged if a short-circuited or 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.

## Power Boost Function

### For All Models

Power Boost is a function that can output the temporary repeated boost current larger than the rated current.

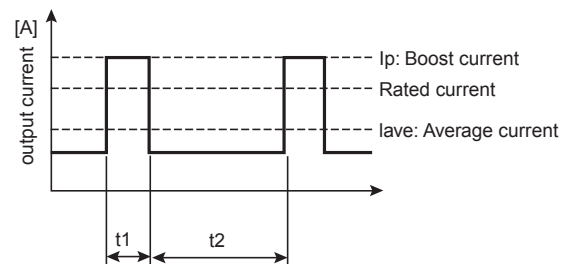
However, it should meet the following four Boost current conditions.

1. Time that the boost current flows:  $t_1$
2. The maximum value of the boost current:  $I_p$
3. The average output current:  $I_{ave}$
4. The time ratio of the boost current flow: Duty

### Note: Boost current conditions

- $t_1 \leq 10$  s
- $I_p \leq \text{Rated boost current}$
- $I_{ave} \leq \text{Rated current}$

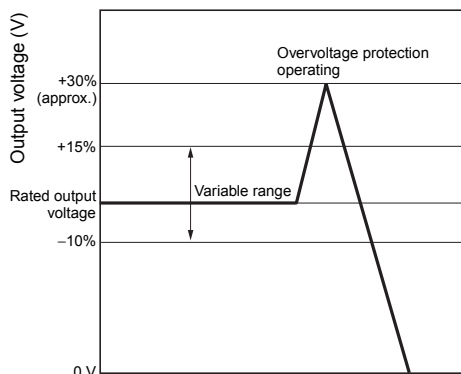
$$\text{Duty} = \frac{t_1}{t_1 + t_2} \times 100 [\%] \leq 30\%$$



- Do not allow the boost current to continue for more than 10 seconds.  
Also, do not let the duty cycle exceed the boost current conditions. These conditions may damage the Power supply.
- Ensure that the average current of one cycle of the boost current does not exceed the rated output current.  
This may damage the Power Supply.
- Lessen the load of the boost load current by adjusting the ambient temperature and the mounting direction.

## Overvoltage Protection

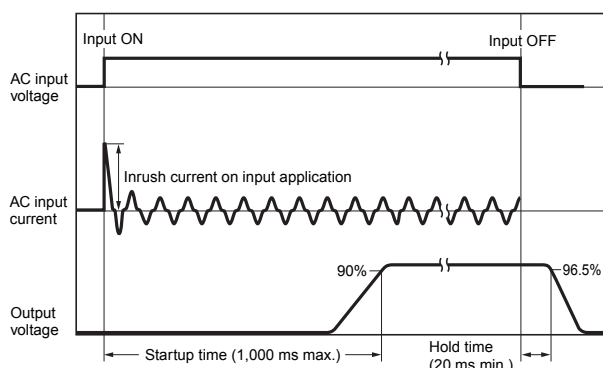
Consider the possibility of an overvoltage and design the system so that the load will not be subjected to an excessive voltage even if the feedback circuit in the Power Supply fails. If an excessive voltage that is approximately 130% of the rated voltage or more is output, the output voltage is shut 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

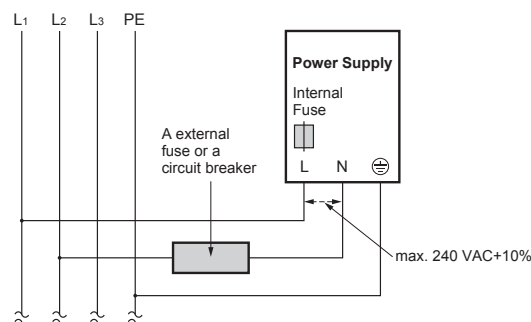


**Note:** Twice the input current or above will flow during the parallel operation or redundant system. Therefore, check the fusing characteristics of fuses and operating characteristics of breakers making sure that the external fuses will not burn out and the circuit breakers will not be activated by the inrush current.

## Two phases application for Single phase models For All Single phase Models, S8VK-G

Basically OMRON single phase power supply can be used on two-phases of a 3-phase-system when some of conditions satisfy like below.

1. The supplying voltage is below the maximum rated input. OMRON Power supply allows the input voltage equivalent or less than 240 VAC+10%. Please confirm the input voltage between two lines if the input voltage satisfies this condition before connecting.
2. The external protector is needed on N input line to secure a safety. N line has no protection of a fuse internally. An appropriate fuse or circuit breaker should be connected on N input line like the following.

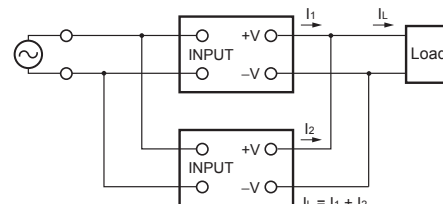


## Parallel Operation

The parallel operation of S8VK-G is possible to increase the output power.

However please consider the following notes when the parallel operation must be done.

1. The range of ambient temperature for Parallel operation is  $-25$  to  $40^{\circ}\text{C}$ .
2. Up to two of the same model can be connected in parallel.
3. Adjust the output voltage difference of each Power Supply to 50 mV or less, using the output voltage adjuster (V. ADJ).
4. There is no current balancing function for S8VK-G. A high output voltage unit may work at overcurrent state and in this situation, a life of a Power Supply will be extremely short. After adjusting the output voltage, confirm the output current of the two Power Supplies balances.
5. Using the parallel operation will not satisfy UL1310 Class2 output.
6. For Parallel Operation, to balance the current of the each unit, the length and thickness of each wire connected to the load and each unit must be same as much as possible.
7. For Parallel Operation with units 120 W or less, connect diodes or S8VK-R to the outputs of each unit if sudden load variation influence occurs in the ambient operation environment.



## Reference Value

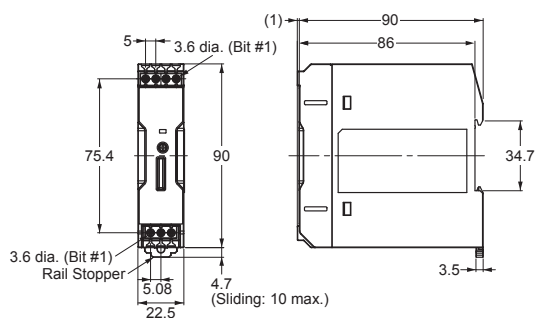
|                    | Value                                                                                                                                                                                                                                   |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reliability (MTBF) | Single phase model                                                                                                                                                                                                                      |
|                    | 15 W: 600,000 hrs                                                                                                                                                                                                                       |
|                    | 30 W: 580,000 hrs                                                                                                                                                                                                                       |
|                    | 60 W: 590,000 hrs                                                                                                                                                                                                                       |
|                    | 120 W: 450,000 hrs                                                                                                                                                                                                                      |
|                    | 240 W: 360,000 hrs                                                                                                                                                                                                                      |
|                    | 480 W: 230,000 hrs                                                                                                                                                                                                                      |
| Definition         | MTBF stands for Mean Time Between Failures, which is calculated according to the probability of accidental device failures, and indicates reliability of devices. Therefore, it does not necessarily represent a life of the product.   |
| Life expectancy    | 10 yrs. Min.                                                                                                                                                                                                                            |
| Definition         | The life expectancy indicates average operating hours under the ambient temperature of $40^{\circ}\text{C}$ and a load rate of 50%. Normally this is determined by the life expectancy of the built-in aluminum electrolytic capacitor. |

# S8VK-G

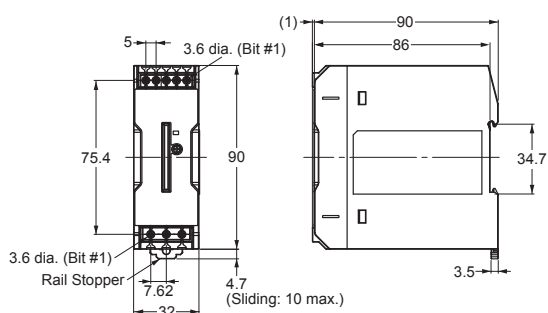
## Dimensions

(Unit: mm)

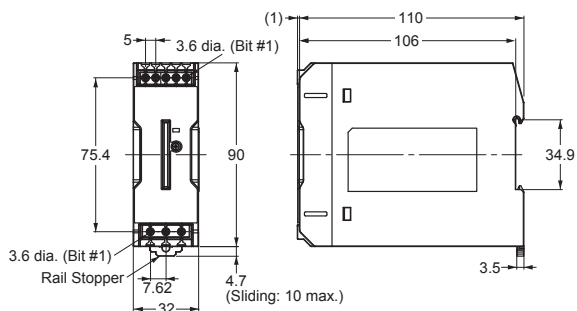
### S8VK-G015□□ (15 W)



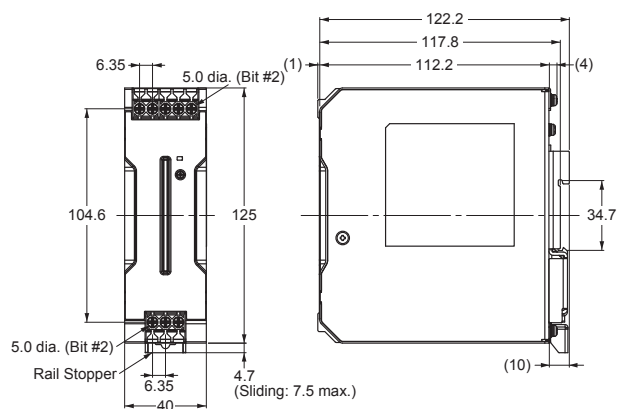
### S8VK-G030□□ (30 W)



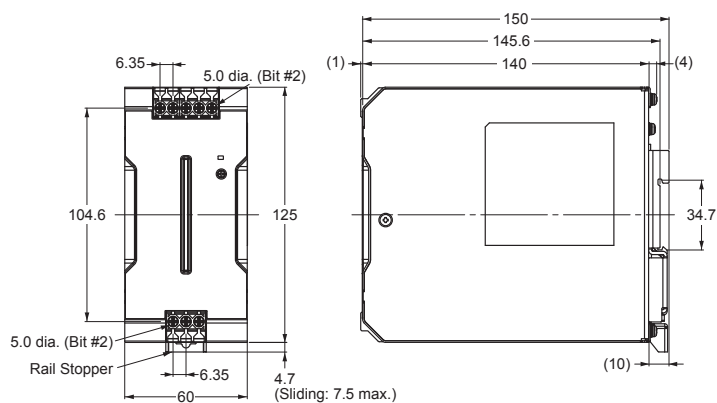
### S8VK-G060□□ (60 W)



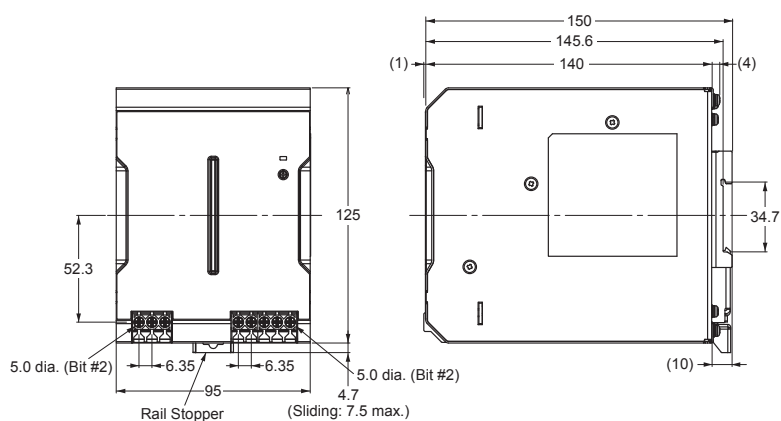
## S8VK-G12024 (120 W)



## S8VK-G240 (240 W)



## S8VK-G480 (480 W)



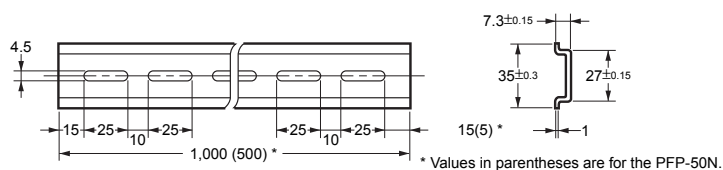
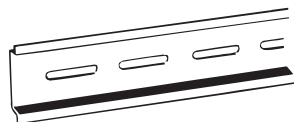
## DIN Rail (Order Separately)

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

### Mounting Rail (Material: Aluminum)

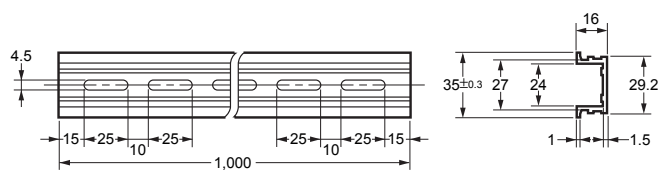
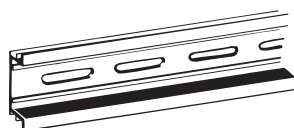
PFP-100N

PFP-50N



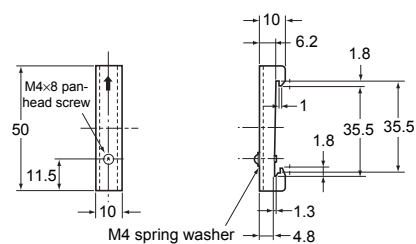
### Mounting Rail (Material: Aluminum)

PFP-100N2



### End Plate

PFP-M

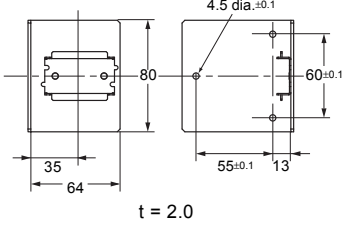
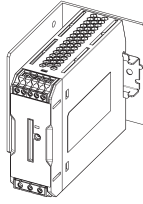
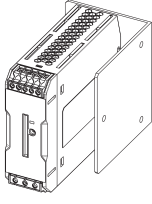
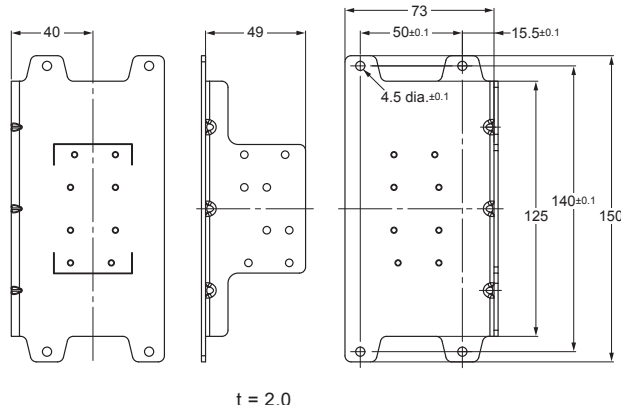
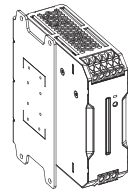
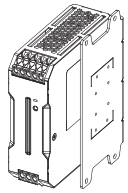
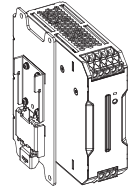
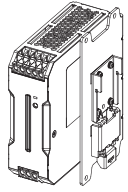
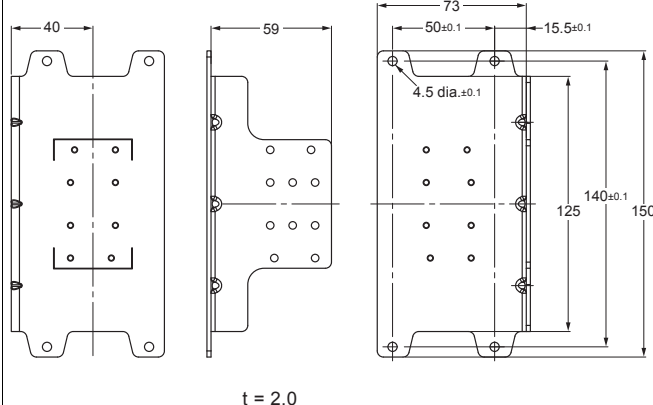
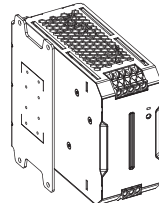
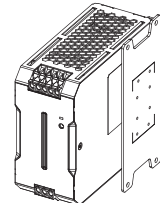
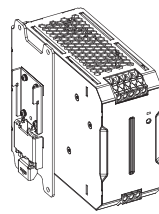
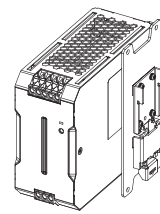


**Note:** If there is a possibility that the Unit will be subject to vibration or shock, use a steel DIN Rail. Otherwise, metallic filings may result from aluminum abrasion.

## Mounting Brackets

| Name                                                   | Model             |
|--------------------------------------------------------|-------------------|
| Front-mounting bracket (for 15, 30 and 60 W models)    | <b>S82Y-VS10F</b> |
| Front-mounting bracket (for 120, 240 and 480 W models) | <b>S82Y-VK10F</b> |
| Side-mounting bracket (for 15 W models)                | <b>S82Y-VK15P</b> |
| Side-mounting bracket (for 30 and 60 W models)         | <b>S82Y-VS10S</b> |
| Side-mounting bracket (for 120 W models)               | <b>S82Y-VK10S</b> |
| Side-mounting bracket (for 240 W models)               | <b>S82Y-VK20S</b> |

| Type                                                      | Model      | Dimensions | Appearance                                                                                                                                     |
|-----------------------------------------------------------|------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Front-mounting bracket<br>(For 15, 30 and 60 W models)    | S82Y-VS10F |            |                                                                                                                                                |
| Front-mounting bracket<br>(For 120, 240 and 480 W models) | S82Y-VK10F |            | <div style="display: flex; justify-content: space-around;"> <div> <p>(For 120 W types)</p> </div> <div> <p>(For 240 W types)</p> </div> </div> |
| Side-mounting bracket<br>(For 15 W Models)                | S82Y-VK15P |            | <p>Right-side mounting</p>                                                                                                                     |

| Type                                              | Model      | Dimensions                                                                                          | Appearance                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------------------------------|------------|-----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Side-mounting bracket<br>(For 30 and 60 W models) | S82Y-VS10S |  <p>t = 2.0</p>    | Left-side mounting    Right-side mounting<br>                                                                                                                                                                                     |
| Side-mounting bracket<br>(For 120 W models)       | S82Y-VK10S |  <p>t = 2.0</p>  | Left-side mounting    Right-side mounting<br> <br>        |
| Side-mounting bracket<br>(For 240 W models)       | S82Y-VK20S |  <p>t = 2.0</p> | Left-side mounting    Right-side mounting<br> <br>  |



## Safety Precautions

### Warning Indications

|                                                                                                  |                                                                                                                                               |
|--------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
|  <b>CAUTION</b> | Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or in property damage.              |
| <b>Precautions for Safe Use</b>                                                                  | Supplementary comments on what to do or avoid doing, to use the product safely.                                                               |
| <b>Precautions for Correct Use</b>                                                               | Supplementary comments on what to do or avoid doing, to prevent failure to operate, malfunction or undesirable effect on product performance. |

### Meaning of Product Safety Symbols

|                                                                                    |                                                                                                                                        |
|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
|   | Used to warn of the risk of electric shock under specific conditions.                                                                  |
|   | Used to warn of the risk of minor injury caused by high temperatures.                                                                  |
|   | Used for general mandatory action precautions for which there is no specified symbol.                                                  |
|  | Use to indicate prohibition when there is a risk of minor injury from electrical shock or other source if the product is disassembled. |

### 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 (0.5 to 0.6 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

### 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 75-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.
- Use the following material for the wires to be connected to the S8VK-G to prevent smoking or ignition caused by abnormal loads.

### Terminals and Wiring

| Model       | INPUT               |                                                        | OUTPUT              |                                                        | PE                  |                                                                |
|-------------|---------------------|--------------------------------------------------------|---------------------|--------------------------------------------------------|---------------------|----------------------------------------------------------------|
|             | American Wire Gauge | Solid Wire /Stranded Wire                              | American Wire Gauge | Solid Wire /Stranded Wire                              | American Wire Gauge | Solid Wire /Stranded Wire                                      |
| S8VK-G01505 | AWG24 to 12         | 0.25 to 4 mm <sup>2</sup> /0.25 to 2.5 mm <sup>2</sup> | AWG20 to 12         | 0.5 to 4 mm <sup>2</sup> /0.5 to 2.5 mm <sup>2</sup>   | AWG14 or thicker    | 2.5 mm <sup>2</sup> or thicker /2.5 mm <sup>2</sup> or thicker |
| S8VK-G01512 |                     |                                                        | AWG22 to 12         | 0.35 to 4 mm <sup>2</sup> /0.35 to 2.5 mm <sup>2</sup> |                     |                                                                |
| S8VK-G01524 |                     |                                                        | AWG24 to 12         | 0.25 to 4 mm <sup>2</sup> /0.25 to 2.5 mm <sup>2</sup> |                     |                                                                |
| S8VK-G03005 | AWG24 to 12         | 0.25 to 4 mm <sup>2</sup> /0.25 to 2.5 mm <sup>2</sup> | AWG18 to 12         | 0.75 to 4 mm <sup>2</sup> /0.75 to 2.5 mm <sup>2</sup> |                     |                                                                |
| S8VK-G03012 |                     |                                                        | AWG20 to 12         | 0.5 to 4 mm <sup>2</sup> /0.5 to 2.5 mm <sup>2</sup>   |                     |                                                                |
| S8VK-G03024 |                     |                                                        | AWG22 to 12         | 0.35 to 4 mm <sup>2</sup> /0.35 to 2.5 mm <sup>2</sup> |                     |                                                                |
| S8VK-G06012 | AWG22 to 12         | 0.35 to 4 mm <sup>2</sup> /0.35 to 2.5 mm <sup>2</sup> | AWG18 to 12         | 0.75 to 4 mm <sup>2</sup> /0.75 to 2.5 mm <sup>2</sup> |                     |                                                                |
| S8VK-G06024 |                     |                                                        | AWG20 to 12         | 0.5 to 4 mm <sup>2</sup> /0.5 to 2.5 mm <sup>2</sup>   |                     |                                                                |
| S8VK-G12024 | AWG22 to 10         | 0.35 to 6 mm <sup>2</sup> /0.35 to 4 mm <sup>2</sup>   | AWG18 to 10         | 0.75 to 6 mm <sup>2</sup> /0.75 to 4 mm <sup>2</sup>   |                     |                                                                |
| S8VK-G24024 | AWG20 to 10         | 0.5 to 6 mm <sup>2</sup> /0.5 to 4 mm <sup>2</sup>     | AWG14 to 10         | 2.5 to 6 mm <sup>2</sup> /2.5 to 4 mm <sup>2</sup>     |                     |                                                                |
| S8VK-G24048 |                     |                                                        | AWG18 to 10         | 0.75 to 6 mm <sup>2</sup> /0.75 to 4 mm <sup>2</sup>   |                     |                                                                |
| S8VK-G48024 | AWG16 to 10         | 1.5 to 6 mm <sup>2</sup> /1.5 to 4 mm <sup>2</sup>     | AWG12 to 10         | 4 to 6 mm <sup>2</sup> /4 mm <sup>2</sup>              |                     |                                                                |
| S8VK-G48048 |                     |                                                        | AWG14 to 10         | 2.5 to 6 mm <sup>2</sup> /2.5 to 4 mm <sup>2</sup>     |                     |                                                                |

- Strip I/O wires for 8 mm when using a screwless terminal block.

**Note:** 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.

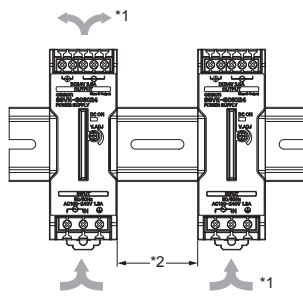
### Ambient Operating and Storage Environments

- Store the Power Supply at a temperature of -40 to 85°C and a humidity of 0% to 95%.
- 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 0% to 95%.
- 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.

## Precautions for Correct 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.

- 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 9 if the Power Supply is used with an installation spacing of 10 mm min. (20 mm max.) on the left and right.

### 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.

### Charging a Battery

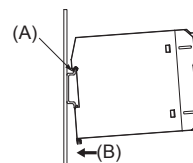
If you connect a battery as the load, install overcurrent control and overvoltage protection circuits.

### Output Voltage Adjuster (V.ADJ)

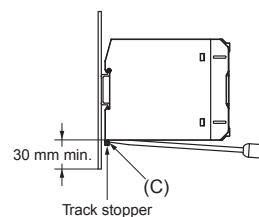
- The output voltage adjuster (V.ADJ) may possibly be damaged if it is turned with unnecessary force. Do not turn the adjuster with excessive force.
- After completing output voltage adjustment, be sure that the output capacity or output current does not exceed the rated output capacity or rated output current.

### 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).

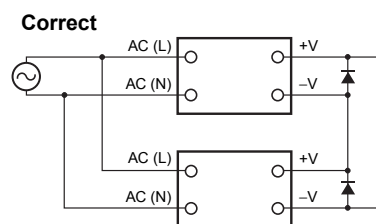


To dismount the Block, pull down portion (C) with a flat-blade screwdriver and pull out the Block.



### Series Operation

Two power supplies can be connected in series.



**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.

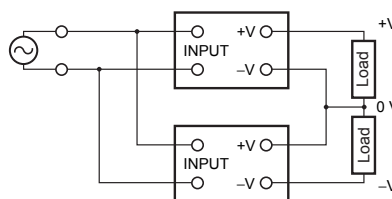
| Type                              | Schottky Barrier diode                  |
|-----------------------------------|-----------------------------------------|
| Dielectric strength ( $V_{RRM}$ ) | Twice the rated output voltage or above |
| Forward current ( $I_F$ )         | Twice the rated output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

### 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. You can make positive and negative outputs with any of the models.

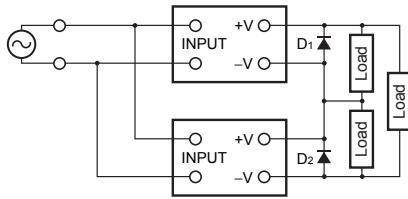
If positive and negative outputs are used, connect Power Supplies of the same model as in the following figure. (Combinations with different output capacities or output voltages can be made. However, use the lower of the two maximum rated output currents as the current to the loads.)



- 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.

If the list of models that support series connection of outputs says that an external diode is not required, an external diode is also not required for positive/negative outputs.



- Use the following information as a guide to the diode type, dielectric 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

## Backup Operation

Backup operation can be performed with S8VK-R.  
Refer to the S8VK-R Datasheet for detail.

## 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.

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