

## Switch Mode Power Supply


**S8VK-C** (60/120/240/480-W Models)

**Cost-effective Single Phase Power Supply**  
**Universal input and Safety standards**  
**for worldwide applications**  
**Space-saving Compact Design**



- Universal input for worldwide applications:  
100 to 240 VAC (85 to 264 VAC)
- DC input can be available: 90 to 350 VDC
- Operation temperature range: -25 to 60 °C
- Compact Dimension for small space
- Flexible installation by special mounting brackets
- Safety standards:  
UL508/62368-1, CSA C22.2 No.107.1/62368-1  
EN62477-1, EN62368-1
- EMS: Conform to EN61204-3  
EMI: EN55011 Class A
- Three years Warranty

**Note:** Three years warranty conditions: Rated input voltage, 80% load,  
Ambient operating temperature: 40 °C, Standard mounting

 Refer to *Safety Precautions for All Power Supplies* and *Safety Precautions* on page 11.



## Model Number Structure

### Model Number Legend

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

**S8VK-C**        **24**  
                   1                  2

#### 1. Power Ratings

060: 60 W  
120: 120 W  
240: 240 W  
480: 480 W

#### 2. Output voltage (VDC)

24: 24 V

## Ordering Information

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

Power ratings	Input voltage	Output Voltage (VDC)	Output current *1	Model number
60 W	Single phase 100 to 240 VAC 90 to 350 VDC	24 V	2.5 A	<b>S8VK-C06024</b>
120 W		24 V	5 A	<b>S8VK-C12024</b>
240 W		24 V	10 A	<b>S8VK-C24024</b>
480 W		24 V	20 A	<b>S8VK-C48024</b>

\*1. For rated output current of DC input, refer to Derating Curve on Page 4.

# S8VK-C

## Specifications

### Ratings, Characteristics, and Functions

Item	Power ratings		60 W	120 W	240 W	480 W	
	Output voltage (VDC)		24 V	24 V	24 V	24 V	
Efficiency (Typical)	230 VAC input		88%	88%	87%	91%	
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	2.2 A	2.5 A	4.8 A	
		230 VAC input	0.7 A	1.4 A	1.3 A	2.4 A	
	Power factor (Typical) *7	230 VAC input	0.44	0.45	0.92	0.97	
	Harmonic current emissions		---				
	Leakage current (Typical)	115 VAC input	0.19 mA	0.19 mA	0.24 mA	0.26 mA	
		230 VAC input	0.34 mA	0.36 mA	0.54 mA	0.65 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 at 20 MHz (Typical) *4	230 VAC input	70 mV	120 mV	150 mV	130 mV	
		Input variation influence					0.5% max. (at 85 to 264 VAC input, 100% load)
	Load variation influence (Rated input voltage)		1.5% max., at 0% to 100% load				
	Temperature variation influence		0.05%/°C max.				
	Start up time (Typical) *2	115 VAC input	530 ms	800 ms	790 ms	770 ms	
		230 VAC input	410 ms	760 ms	750 ms	670 ms	
	Hold time (Typical) *2	115 VAC input	24 ms	27 ms	34 ms	21 ms	
230 VAC input		117 ms	128 ms	36 ms	22 ms		
Additional functions	Overload protection *2		105% to 160% of rated load current				
	Overvoltage protection *2		Yes *5				
	Parallel operation		No				
	Series operation		Possible for up to two Power Supplies (with external diode)				
Others	Ambient operating temperature		-25 to 60°C (Refer to Engineering Data)				
	Storage temperature		-25 to 65°C				
	Ambient operating humidity		20% to 90% (Storage humidity: 10% to 95%)				
	Dielectric strength (detection current: 20 mA)		3.0 kVAC for 1 min. (between all inputs and outputs)				
			2.0 kVAC for 1 min. (between all inputs and PE terminal)				
			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 60W, 120W, 240 W, 3 G max for 480 W) 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 A and based on FCC Class A			
		Radiated Emission		Conforms to EN61204-3 EN55011 Class A			
	EMS		Conforms to EN61204-3 high severity levels				
	Safety standards		UL Listed: UL508 (Listing) UL UR: UL No. 62368-1 (Recognition) cUL: CSA C22.2 No.107.1 cUR: CSA C22.2 No.62368-1 EN: EN 62477-1, EN 62368-1 BIS: IS 13252 (Part1)				
Fulfilled Standards		SELV (EN 62368-1/EN 62477-1/UL No. 62368-1)					
Degree of protection		IP20 by EN / IEC60529					
SEMI		F47-0706 (200 to 240 VAC)					
Weight		260 g	580 g	940 g	1,550 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 5 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 60°C.

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

\*6. Safety Standard for a DC Input

The following safety standards apply to a DC input: UL No. 62368-1, cUR (CSA C22.2 No.62368-1), EN 62477-1, EN62368-1.

For a DC input, safety is ensured by external fuse.

Select an external fuse that meets the following conditions.

S8VK-C06024: 350 VDC min, 6A

S8VK-C12024: 350 VDC min, 8A

S8VK-C24024: 350 VDC min, 8A

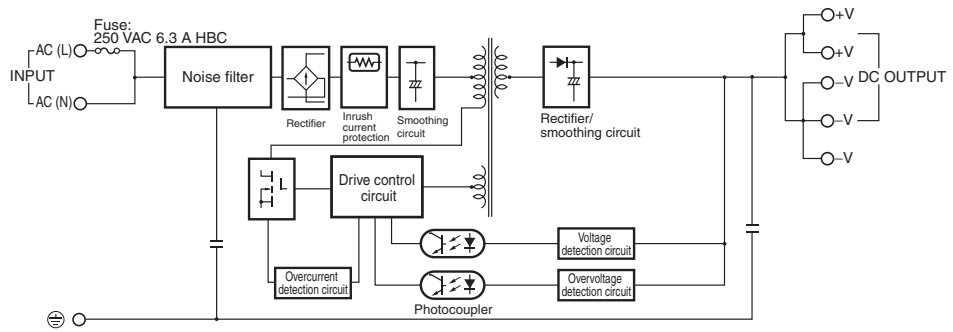
S8VK-C48024: 350 VDC min, 12A

\*7. The value is when both rated output voltage and rated output current are satisfied.

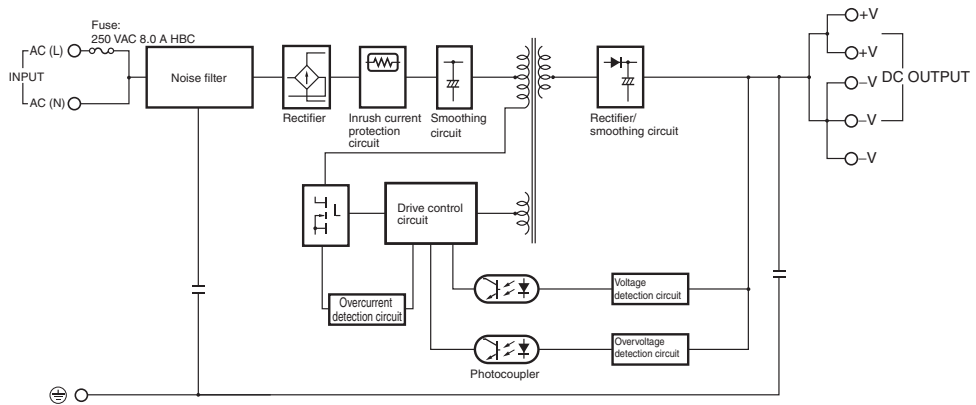
# Connections

## Block Diagrams

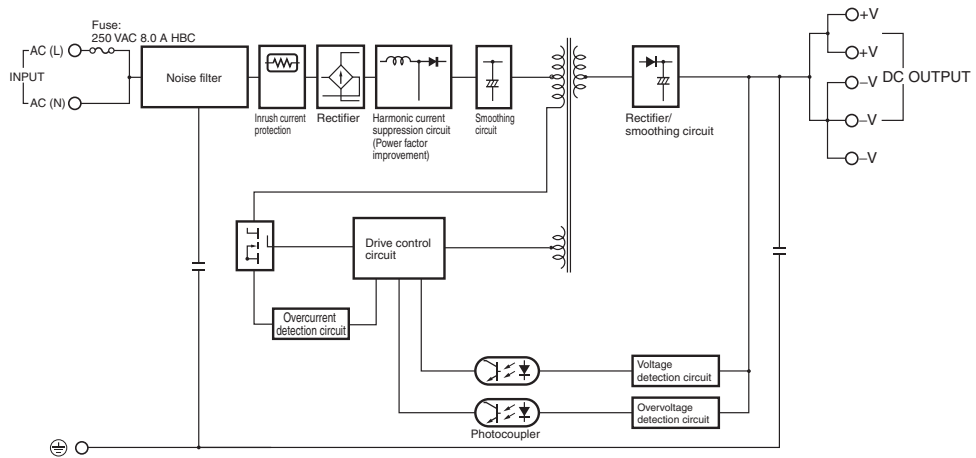
S8VK-C06024 (60W)



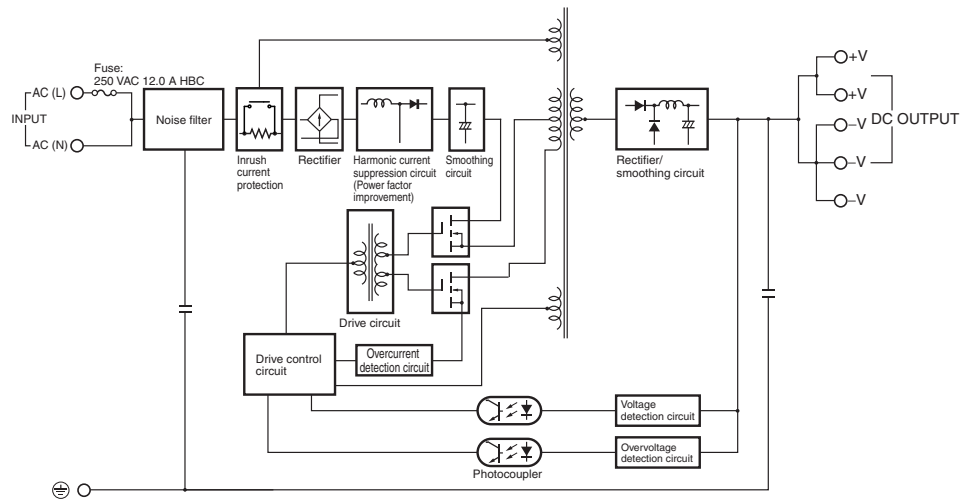
S8VK-C12024 (120W)



S8VK-C24024 (240W)



S8VK-C48024 (480W)



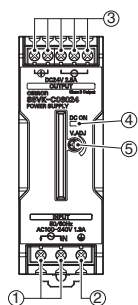
# S8VK-C

## Construction and Nomenclature

### Nomenclature

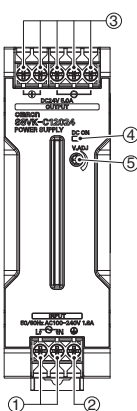
#### 60-W Models

S8VK-C06024



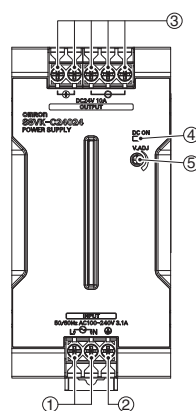
#### 120-W Models

S8VK-C12024



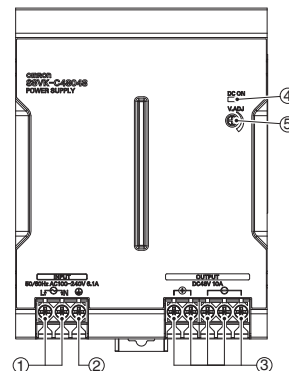
#### 240-W Models

S8VK-C24024



#### 480-W Models

S8VK-C48024



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

60, 120, 240, 480 W



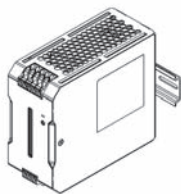
**Note:** 1. At less than 90 VAC, the derating is 2.5%/V  
 2. For a DC power input, reduce the load given in the above derating curve by multiplying the following coefficients.  
 S8VK-C06024/S8VK-C12024: 0.8  
 S8VK-C24024/S8VK-C48024: 0.7

- A. Standard mounting  
 40°C and over: the derating is 2.0%/°C
- B. Face-up mounting  
 30°C and over: the derating is 1.67%/°C

### Mounting

(A) Standard (Vertical) mounting

(B) Face-up mounting

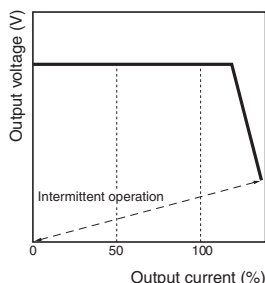


### Overload Protection

The load and the power supply are automatically protected from overcurrent damage by this function.

Overload protection is activated if the output current rises above 105% of the rated current.

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

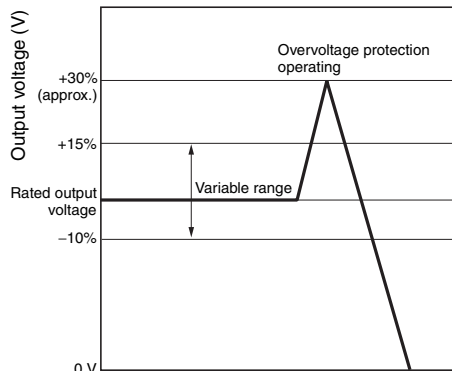


The values shown in the above diagrams are for reference only.

- 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.

### Overvoltage Protection

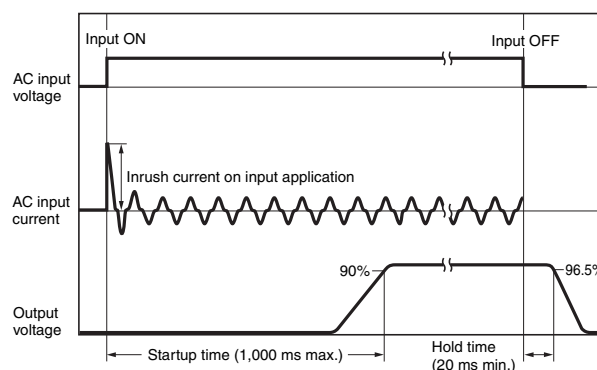
Consider the possibility of an overvoltage and design the system so that the load will not be subjected to an excessive voltage even if the feedback circuit in the Power Supply fails. If an excessive voltage that is approximately 130% of the rated voltage or more is output, the output voltage is shut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



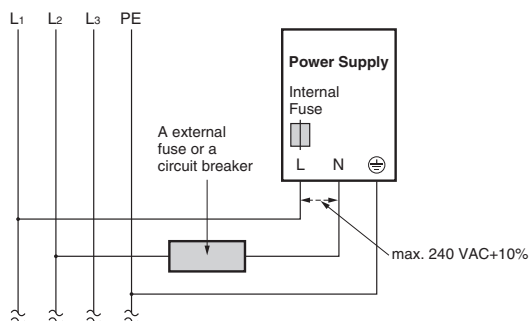
**Note:** Twice the input current or above will flow during the redundant system.

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-C

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.

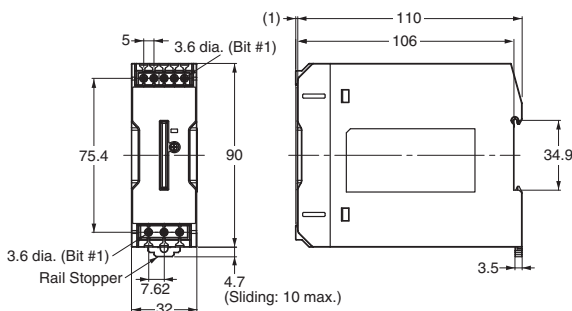


## Reference Value

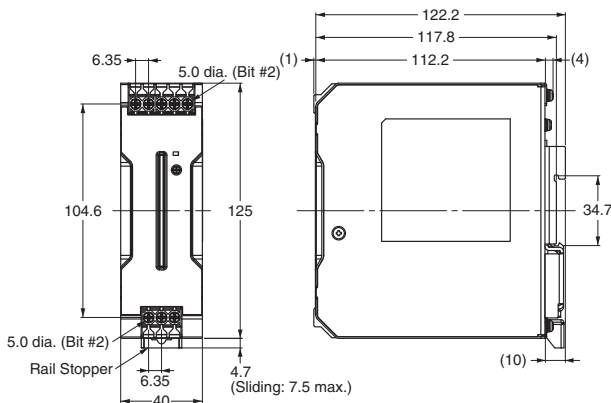
	Value
<b>Reliability (MTBF)</b>	Single phase model 60 W: 630,000 hrs 120 W: 490,000 hrs 240 W: 270,000 hrs 480 W: 190,000 hrs
<b>Definition</b>	MTBF stands for Mean Time Between Failures, which is calculated according to the probability of accidental device failures, and indicates reliability of devices. Therefore, it does not necessarily represent a life of the product.
<b>Life expectancy</b>	10 yrs. Min.
<b>Definition</b>	The life expectancy indicates average operating hours under the ambient temperature of 40°C and a load rate of 50%. Normally this is determined by the life expectancy of the built-in aluminum electrolytic capacitor.

# Dimensions

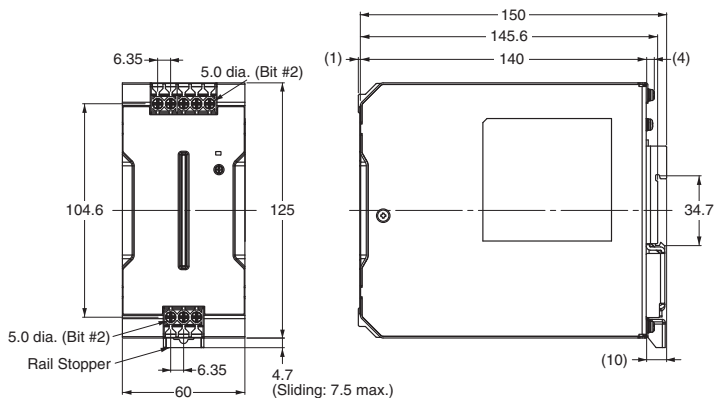
## S8VK-C06024 (60 W)



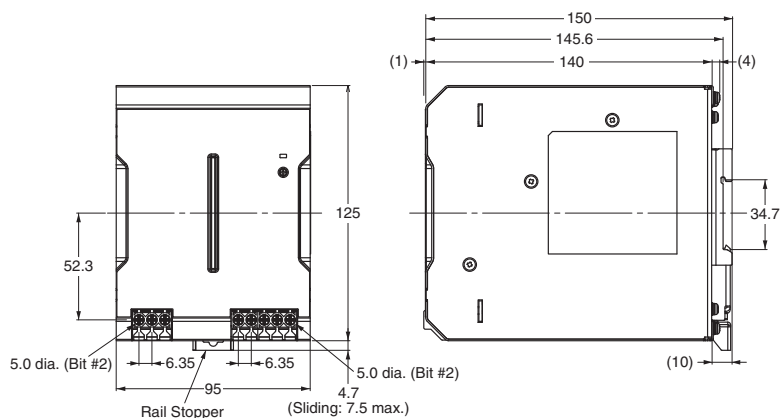
## S8VK-C12024 (120 W)



## S8VK-C24024 (240 W)



## S8VK-C48024 (480 W)



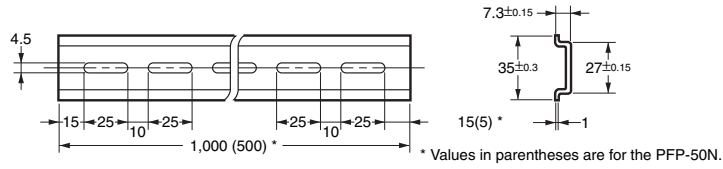
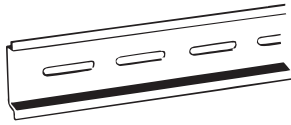
## DIN Rail (Order Separately)

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

### Mounting Rail (Material: Aluminum)

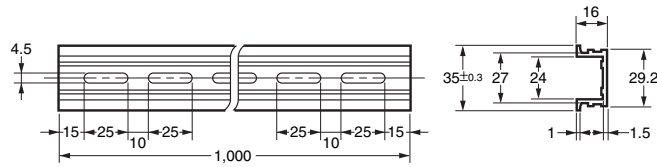
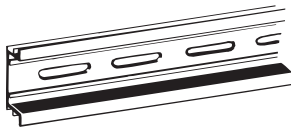
PFP-100N

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 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 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 (For 60 W models)	<b>S82Y-VS10F</b>	<p>t = 1.0</p>	
Front-mounting bracket (for 120, 240 and 480 W models)	<b>S82Y-VK10F</b>	<p>t = 2.0</p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>(For 120 W types)</p> </div> <div style="text-align: center;"> <p>(For 240 W types)</p> </div> </div>

# S8VK-C

Type	Model	Dimensions	Appearance
Side-mounting bracket (For 60 W models)	S82Y-VS10S	<p style="text-align: center;"><math>t = 2.0</math></p>	<p>Left-side mounting    Right-side mounting</p>
Side-mounting bracket (For 120 W models)	S82Y-VK10S	<p style="text-align: center;"><math>t = 2.0</math></p>	<p>Left-side mounting    Right-side mounting</p> <p>Left-side mounting (DIN Rail) *    Right-side mounting (DIN Rail) *</p>
Side-mounting bracket (For 240 W models)	S82Y-VK20S	<p style="text-align: center;"><math>t = 2.0</math></p>	<p>Left-side mounting    Right-side mounting</p> <p>Left-side mounting (DIN Rail) *    Right-side mounting (DIN Rail) *</p>

\* You can mount the side of the Power Supply to a DIN Rail by removing the DIN Rail Back-mounting Bracket and then attaching a Side-mounting Bracket to the Power Supply.

## 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-C 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-C06024	AWG22 to 12	0.35 to 4 mm <sup>2</sup> /0.35 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 to 12	2.5 to 4 mm <sup>2</sup>
S8VK-C12024	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>	AWG14 to 10	
S8VK-C24024	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-C48024	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>		

- 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 -25 to 65°C and a humidity of 10% 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 20% to 90%.
- 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.