

S8VK POWER SUPPLIES

Reliable and easy operation - worldwide



- » The most compact class on the market
- » Resistant in tough environments
- » Easy and fast installation

Compact power supplies...

Omron has developed a new and exciting family of compact power supplies. With the same high quality and practical design that made our previous series safe, reliable, and easy to install, the new S8VK series is even tougher, more compact and easier to use. Omron is a world leader in the development and manufacture of industrial power supplies. We launched our first compact product, the S82K, in 1987 and our S8VS compact series has been an automatic choice with customers since 2002.

To ensure that we provide the perfect solution to match every customer's need, Omron has launched 3 different families: the cost effective S8VK-C, the standard S8VK-G/T, and the top of the range S8VK-R (redundancy unit).



...that make a world of difference!



Three compelling reasons why the S8VK is the right power supply for you:

Resistant in tough environments

Omron is confident that the quality of the S8VK will exceed your high expectations. Its robust design and construction withstand harsh environments and provide stable operation over a wide operating temperature range. Because of high MTBF figures, your S8VK will keep running in stable condition for a long term.

Easy and fast installation

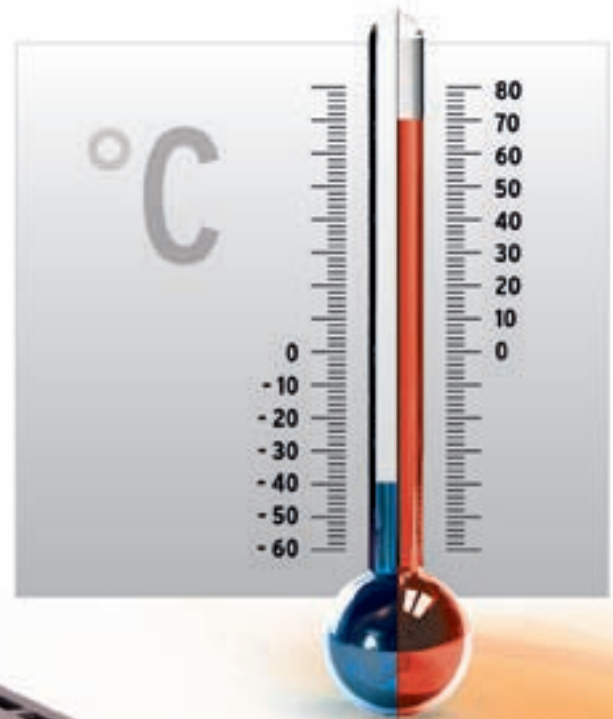
The S8VK series not only offers you greater flexibility when designing your machine, it also saves you time and reduces costs thanks to the minimal wiring requirements and easy one-handed mounting provided by the enhanced DIN-rail mounting clip.

The most compact class on the market

Designed with space saving in mind, the S8VK series is our most compact power-supply range ever and the most compact class on today's market.

Resistant in tough environments

Wherever the S8VK is installed within the range of the S8VK derating curve, it will give the same reliable performance for the duration of its service life. The wide operating temperature range of between -40 to 70°C guarantees stable operation in any environment where other power supplies may be found lacking. But its robust design advantages don't end there because the S8VK also offers high resistance to the vibration transmitted by machinery in close proximity, this is due to the vibration-resistant DIN-rail mounting clip.



The image is for illustration purposes only.

Easy and fast installation

Making your life easier

Simply click onto a standard DIN rail using one hand to mount in a flash. Effortless and time saving! In addition, the S8VK features a double set of DC output terminals (three for the negative terminal), which means you also spend less time and effort on wiring.



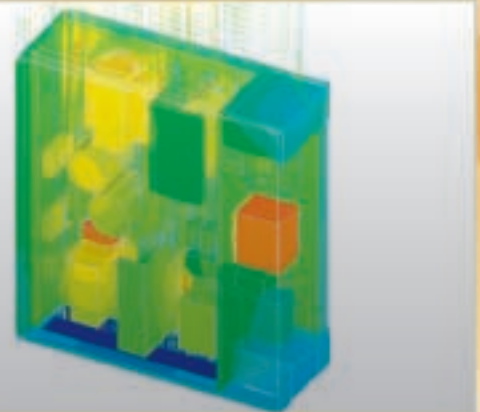
Long-life guaranteed

Designed to international safety standards for global markets, the S8VK even has approvals for marine applications and carries an across-the-board, warranty on all models no matter which country your machine is exported to! Because of high MTBF figures, your S8VK will keep running in stable condition for a long term.

The most compact class on the market

Designed with downsizing in mind

Omron knows that size is important for machine designers, which is why we have applied our developed technology using thermal simulation for the design of the S8VK. This enabled the S8VK compact size body. This gives a high power density in a compact package. And the S8VK has an even sleeker exterior than any previous models.



Thermal view

Component view

The S8VK series line up

The perfect match for your needs

To ensure that we have the perfect solution to match every need, Omron offers three different families:

- The cost effective S8VK-C line with uncompromising quality.
- The standard S8VK-G, our “install & forget” option, offering longer lifetime, higher protection and more features.
- The top of the range S8VK-R (redundancy unit) designed for specific applications and special demands.

Featuring	S8VK-C	S8VK-G	S8VK-R
CE & Safety standard	CE, EN60950-1 EN50178, cULus, cURus		For high reliability redundancy system Features 1. Redundancy OK LED 2. Voltage balance LED 3. Signal output for the status confirmation.
INPUT	100-240VAC, 90-350VDC		
Operation Temperature	-25 to 60 °C	-40 to 70 °C	
EMI	EN55011 Class A	EN55011 Class B	
EN 61000-3-2	Yes(240/480w)	Yes	
Parallel Operation	No	Yes	
Following Standards	No	Safety transformer, EN561558-2-16, EN60204-1 PELV, Lloyd's standards	
Additional features	No	Power Boost 120%	



Ordering information

S8VK-G series

Type	Power ratings	Input voltage	Output voltage	Output current	Size (W × H × D) [mm]	Order code
Power supply Single phase	15 W	100 to 240 VAC, 90 to 350 VDC	5 V	3 A	22.5 × 90 × 90	S8VK-G01505
			12 V	1.2 A		S8VK-G01512
			24 V	0.65 A		S8VK-G01524
	30 W		5 V	5 A	32 × 90 × 90	S8VK-G03005
			12 V	2.5 A		S8VK-G03012
			24 V	1.3 A		S8VK-G03024
	60 W		12 V	4.5 A	32 × 90 × 110	S8VK-G06012
			24 V	2.5 A		S8VK-G06024
	120 W		24 V	5 A	40 × 125 × 112.2	S8VK-G12024
	240 W		24 V	10 A	60 × 125 × 140	S8VK-G24024
			48 V	5 A	S8VK-G24048	
	480 W		24 V	20 A	95 × 125 × 140	S8VK-G48024
48 V		10 A	S8VK-G48048			

S8VK-C series

Type	Power ratings	Input voltage	Output voltage	Output current	Size (W × H × D) [mm]	Order code
Power supply Single phase	60 W	100 to 240 VAC, 90 to 350 VDC	24 V	2.5 A	32 × 90 × 110	S8VK-C06024
	120 W		24 V	5 A	40 × 125 × 112.2	S8VK-C12024
	240 W		24 V	10 A	60 × 125 × 140	S8VK-C24024
	480 W		24 V	20 A	95 × 125 × 140	S8VK-C48024

S8VK-R series

Type	Input voltage	Output current	Size (W × H × D) [mm]	Order code
Redundancy Module	5 to 30 VDC	10 A	32 × 90 × 110	S8VK-R10
	10 to 60 VDC	20 A	40 × 125 × 112.2	S8VK-R20

Specifications

S8VK-G series

Type			S8VK-G					
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%	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 (Typiccal)		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 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)						

*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 S8VK-G Datasheet (Cat. No. T056).

*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. Safety Standards for a DC Input

The following safety standards apply to a DC input: UL 60950-1, cUR (CSA C22.2 No. 60950-1), EN 50178, EN 60950-1, and Lloyd's.

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

Select an external fuse that meets the following conditions.

S8VK-G240□□: 350 VDC min, 8 A

S8VK-G480□□: 350 VDC min, 12 A

Type			S8VK-G								
			Power ratings		60 W	120 W	240 W	480 W			
Item			Output voltage		12 V	24 V	24 V	24 V	48 V	24 V	48 V
Efficiency (Typical)			230 VAC input	85%	88%	89%	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 450 Hz)				50/60 Hz (47 to 63 Hz)				
	Current (Typical)	115 VAC input	1.0 A	1.1 A	1.3 A	2.4 A		4.7 A			
		230 VAC input	0.6 A	0.7 A	0.7 A	1.3 A		2.3 A			
	Power factor (Typical)		0.46	0.45	0.94	0.9		0.97			
	Harmonic current emissions		Conforms to EN61000-3-2								
	Leakage current (Typical)	115 VAC input	0.16 mA			0.24 mA	0.23 mA		0.30 mA		
		230 VAC input	0.30 mA			0.38 mA	0.33 mA		0.49 mA		
	Inrush current (Typical) *2	115 VAC input	16 A			16 A		16 A			
230 VAC input		32 A			32 A		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	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)		2.0% max. (12 V), 1.5% max. (24 V), at 0 to 100% load					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	570 ms	650 ms	790 ms	250 ms	290 ms	380 ms			
		230 VAC input	430 ms	500 ms	750 ms	250 ms	290 ms	260 ms			
	Hold time (Typical) *2	115 VAC input	26 ms	25 ms	42 ms	44 ms	43 ms	40 ms			
		230 VAC input	139 ms	129 ms	42 ms	44 ms	44 ms	50 ms			
Additional functions	Overload protection *2		121 to 160% of rated current, (130% typ value)			121 to 160% of rated load current, (125% typ value)	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)								

- *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 S8VK-G Datasheet (Cat. No. T056).
- *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. Safety Standards for a DC Input
The following safety standards apply to a DC input: UL 60950-1, cUR (CSA C22.2 No. 60950-1), EN 50178, EN 60950-1, and Lloyd's.
- For a DC input, safety is ensured by an external fuse.
Select an external fuse the meets the following conditions.
S8VK-G240□□: 350 VDC min, 8 A
S8VK-G480□□: 350 VDC min, 12 A

S8VK-C series

Type			S8VK-C			
Power ratings			60 W	120 W	240 W	480 W
Item	Output voltage		24 V	24 V	24 V	24 V
Efficiency (Typical)		230 VAC input	88%	89%	89%	92%
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	1.0 A	2.0 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)	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	70 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	720 ms	790 ms	770 ms
		230 VAC input	410 ms	510 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)				

- *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 S8VK-C Datasheet (Cat. No. T058).
- *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 Standards for a DC Input
The following safety standards apply to a DC input: UL 60950-1, cUR (CSA C22.2 No. 60950-1), EN 50178, EN 60950-1, and Lloyd's.
- For a DC input, safety is ensured by an external fuse.
Select an external fuse the meets the following conditions.
S8VK-G240□□: 350 VDC min, 8 A
S8VK-G480□□: 350 VDC min, 12 A

S8VK-R Series (Redundancy Units)

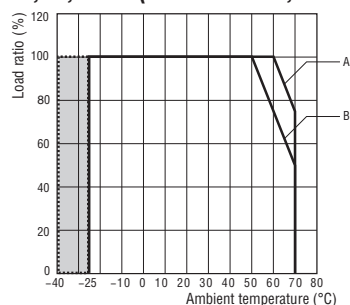
Item		Output Current	10 A	20 A
Input	Voltage		5 to 30 VDC	10 to 60 VDC
	Current		2x 0 to 5 A 1x 0 to 10 A	2x 0 to 10 A 1x 0 to 20 A
Output	Current	Continuous	10 A	20 A
		Power Boost	12 A (Refer to Engineering Data)	24 A (Refer to Engineering Data)
Power losses	Input to Output		0.56 V typ. 2x5 A	0.67 V typ. 2x10 A
			0.63 V typ. 1x10 A	0.78 V typ. 1x20 A
			0.7 V max. (-40°C 1x10 A)	0.9 V max. (-40°C 1x20 A)
Voltage drop			6.5 W 2x5 A	15.8 W 2x10 A
			7.1 W 1x10 A	18.0 W 1x20 A
			0.8 W 0 A	0.8 W 0 A
Additional functions	REDUNDANCY OK	Indicator	Lighting: Voltage difference between Vin1 and Vin2 is less than 2.4 V typ. (color: green)	
		Contact	Photo switch contact ON: Voltage difference between Vin1 and Vin2 is less than 2.4 V typ. Contact Ratings: 30 VDC, 50 mA	
	BALANCE	Indicator	Lighting: Voltage difference between Vin1 and Vin2 is less than 50 mV typ. (color: green)	

Specifications

S8VK-G Series

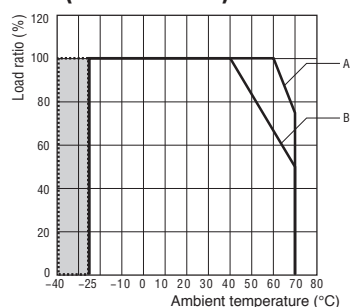
Derating Curve

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



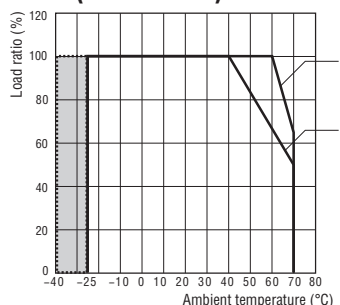
- Note:**
- At less than 90 VAC, the derating is 2.5%/V
 - For a DC power input, reduce the load given in the above derating curve by multiplying the following coefficients.
S8VK-G015□□: 1.0
S8VK-G030□□: 0.9
S8VK-G240□□: 0.8
 - See “-40°C Operation Guarantee Condition”
- A.** Standard mounting
60°C and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

60 W (S8VK-G060□□)



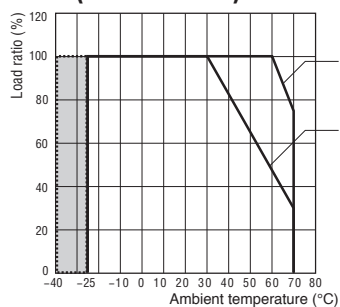
- Note:**
- At less than 90 VAC, the derating is 2.5%/V
 - For a DC power input, reduce the load given in the above derating curve by multiplying the following coefficients.
S8VK-G060□□: 0.9
 - See “-40°C Operation Guarantee Condition”
- A.** Standard mounting
60°C and over: the derating is 2.5%/°C
-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

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

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 5 V	15 W 12 V	15 W 24 V	30 W 5 V	30 W 12 V	30 W 24 V	60 W 12 V	60 W 24 V	120 W 24 V	240 W 24 V	240 W 48 V	480 W 24 V	480 W 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

Power Boost Function

For All Models

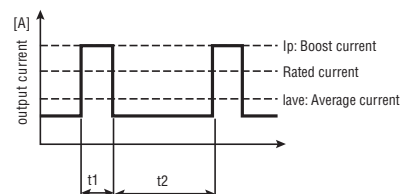
Power Boost is a function that can output the temporary repeated boost current larger than the rated current. However, it should meet the following four Boost current conditions.

- Time that the boost current flows: t_1
- The maximum value of the boost current: I_p
- The average output current: I_{ave}
- The time ratio of the boost current flow: Duty

Note: Boost current conditions

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

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



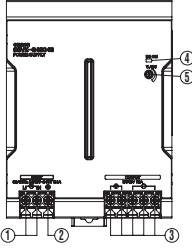

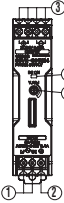
- Do not allow the boost current to continue for more than 10 seconds. Also, do not let the duty cycle exceed boost current conditions. These conditions may damage the Power supply.
- Ensure that the average current of one cycle of the boost current does not exceed the rated output current. This may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

S8VK-G Nomenclature

S8VK-G015□□

S8VK-G060□□

S8VK-G480□□



S8VK-G030□□

S8VK-G12024

S8VK-G240□□

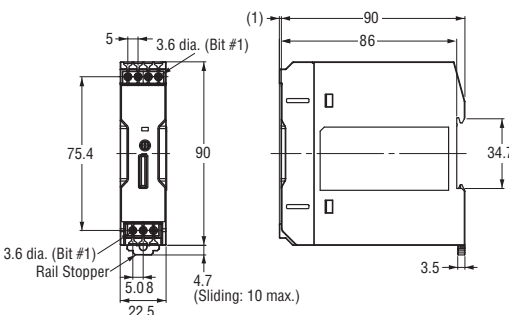
No.	Name	Function
1	Input terminals (L), (N)	Connect the input lines to these terminals. *1
2	Protective Earth terminal (PE)	Connect the ground line to this terminal. *2
3	DC Output terminals (-V), (+V)	Connect the load lines to these terminals.
4	Output indicator (DC ON: Green)	Lights while a direct 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.

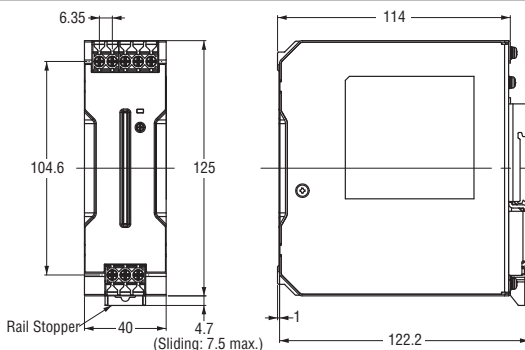
*2. This is the protective earth terminal specified in the safety standards. Always ground this terminal.

S8VK-G Dimensions

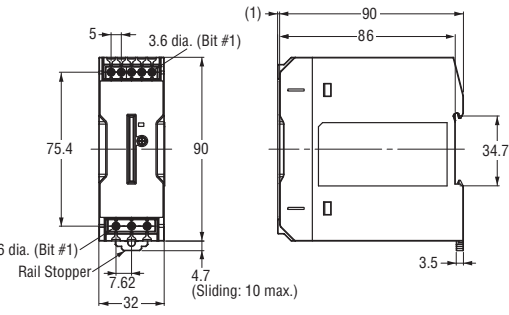
S8VK-G015□□



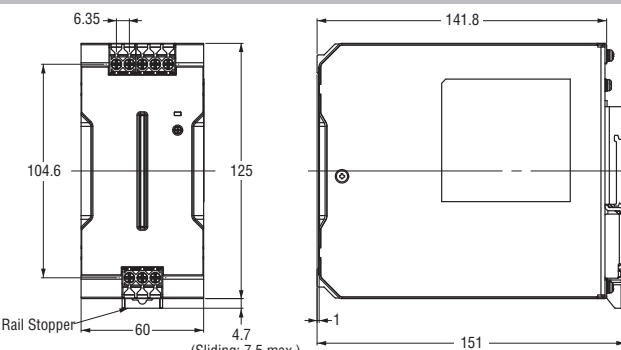
S8VK-G12024



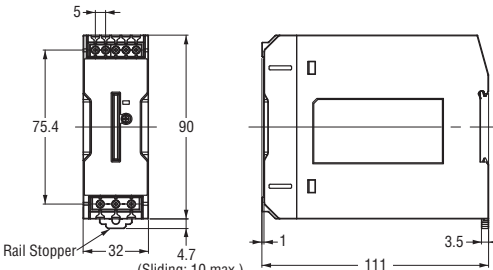
S8VK-G030□□



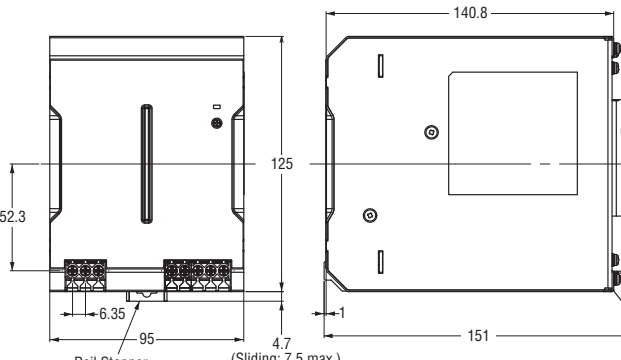
S8VK-G240□□



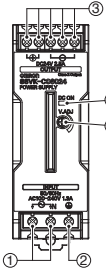
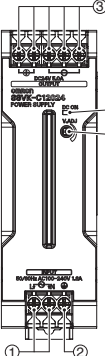
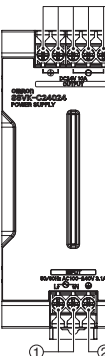
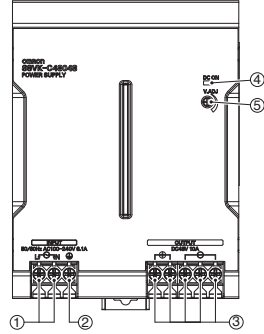
S8VK-G060□□



S8VK-G480□□



S8VK-C Nomenclature

60-W Models S8VK-C06024	120-W Models S8VK-C12024	240-W Models S8VK-C24024	480-W Models S8VK-C48024
			

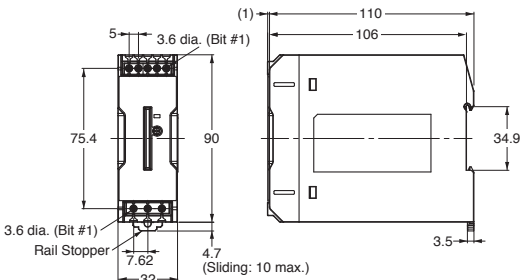
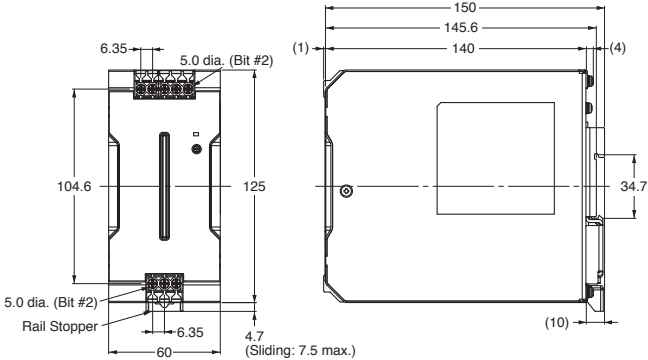
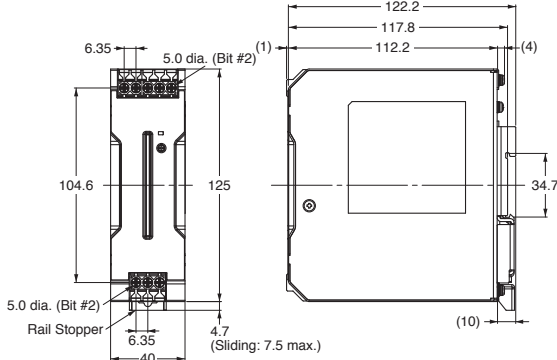
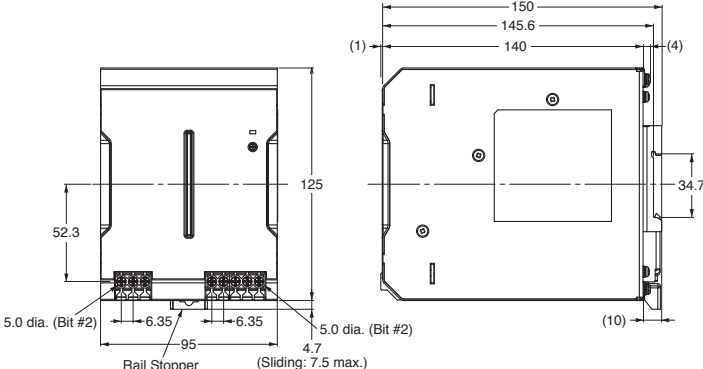
No.	Name	Function
1	Input terminals (L, (N))	Connect the input lines to these terminals. *1
2	Protective Earth terminal (PE)	Connect the ground line to this terminal. *2
3	DC Output terminals (-V), (+V)	Connect the load lines to these terminals.
4	Output indicator (DC ON: Green)	Lights while a direct 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.

S8VK-C Dimensions

(Unit: mm)

S8VK-C06024 (60 W)	S8VK-C24024 (240 W)
	
S8VK-C12024 (120 W)	S8VK-C48024 (480 W)
	

S8VK-R Nomenclature

10 A Models S8VK-R10	20 A Models S8VK-R20
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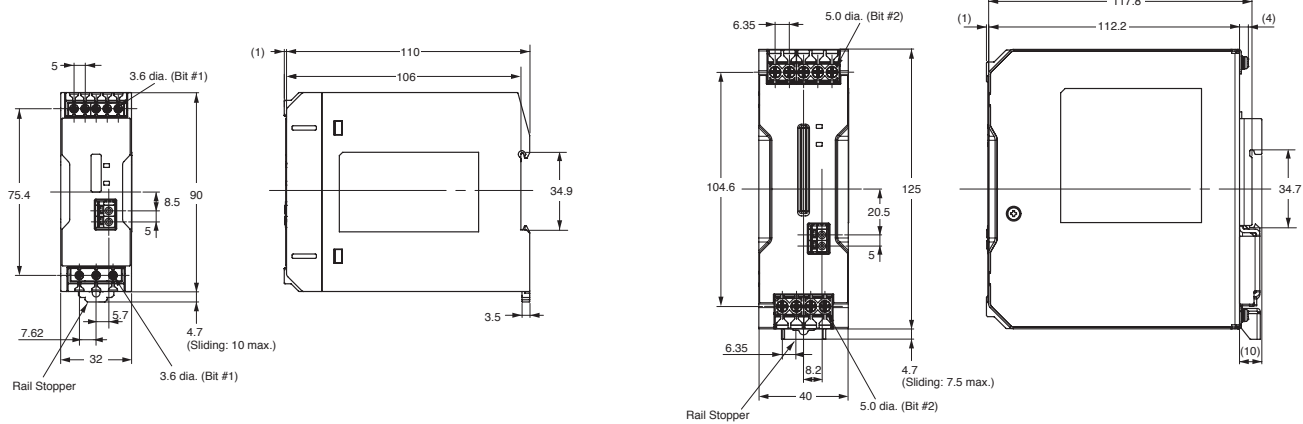


No.	Name	Function
1	Input terminal 1	Connect the input 1 lines to these terminals.
2	Input terminal 2	Connect the input 2 lines to these terminals.
3	terminal	Connect the ground line to these terminals.
4	Output terminal	Connect the load lines to these terminals.
5	Status indicator (redundancy OK: Green)	Lighting: Voltage difference between Vin1 and Vin2 is less than 2.4 V typ.
6	Status indicator (voltage balance: Green)	Lighting: Voltage difference between Vin1 and Vin2 is less than 50 mV typ.
7	Status contact (redundancy OK: photo switch)	Photo switch contact ON: Voltage difference between Vin1 and Vin2 is less than 2.4 V typ.

S8VK-R Dimensions

(Unit: mm)

S8VK-R10	S8VK-R20
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