

Item	Power rating		240 W	480 W	
	Output voltage		24 V	24 V	
Efficiency	115 VAC input *1		91% typ.	91% typ.	
	230 VAC input *1		93% typ.	93% typ.	
Input	Voltage range *2		Single-phase, 85 to 264 VAC, 90 to 350 VDC *12, 265 to 300 VAC (1 second)		
	Frequency *2		50/60 Hz (47 to 63 Hz)		
	Input current	115 VAC input *1		2.4 A typ.	4.6 A typ.
		230 VAC input *1		1.3 A typ.	2.3 A typ.
	Power factor			0.9 min.	0.9 min.
	Leakage current *3	115 VAC input		0.5 mA max.	
		230 VAC input		1 mA max.	
Inrush current *4 (for a cold start at 25°C)	115 VAC input		16 A typ.		
	230 VAC input		32 A typ.		
Output	Rated output current		10 A	20 A	
	Rated output electric power		240 W	480 W	
	Maximum boost current		15 A	30 A	
	Voltage adjustment range *5		21.6 to 28 V (with V.ADJ)		
	Ripple & Noise voltage *6	100 to 240 VAC input *1		100 mVp-p max. at 20 MHz of bandwidth	130 mVp-p max. at 20 MHz of bandwidth
	Input variation influence *7		0.5% max.		
	Load variation influence *8		1.5% max.		
	Temperature variation influence	115 to 230 VAC input		0.05%/°C max.	
Start up time *4	115 VAC input *1		1000 ms max.	1000 ms max.	
	230 VAC input *1		1000 ms max.	1000 ms max.	
Hold time *6	115 VAC input *1		35 ms typ.	30 ms typ.	
	230 VAC input *1		35 ms typ.	30 ms typ.	
Additional functions	Overload protection		Yes, automatic reset		
	Overvoltage protection *9		Yes, 130% or higher of rated output voltage, power shut off (shut off the input voltage and turn on the input again)		
	Series operation		Yes (For up to two Power Supplies, external diodes are required.)		
	Parallel operation		Yes (For up to two Power Supplies), Refer to <i>Parallel Operation</i> on page 21 for details.		
	Output indicator		Yes (LED: Green)		
	Low-voltage detection output		Yes (Photoswitch output: 30 VDC max., 50 mA max.)		
Insulation	Withstand voltage		3.0 kVAC for 1 min. (between all input terminals and output terminals), current cutoff 20 mA		
			2.0 kVAC for 1 min. (between all input terminals and PE terminals), current cutoff 20 mA		
			1.0 kVAC for 1 min. (between all output terminals and PE terminals), current cutoff 20 mA		
Insulation resistance		500 VAC for 1 min (between all output terminals and all low-voltage detection output terminals), current cutoff 10 mA			
		100 MΩ min. (between all output terminals/all low-voltage detection output terminals and all input terminals/PE terminals) at 500 VDC			
Environment	Ambient operating temperature *10		-40 to 70°C (Derating is required according to the temperature. Refer to <i>Engineering Data</i> ) (with no condensation or icing)		
	Storage temperature		-40 to 85°C (with no condensation or icing)		
	Ambient operating humidity		95% RH max. (Storage humidity: 95% RH max.)		
	Vibration resistance		10 to 55 Hz, maximum 5G, 0.42 mm half amplitude for 2 h each in X, Y, and Z directions		
	Shock resistance		150 m/s <sup>2</sup> , 3 times each in ±X, ±Y, ±Z directions		
Reliability	MTBF		Refer to page 12 <i>Reference Value</i>		
	Life expectancy *11		10 years min.		
Construction	Weight		700 g max.	1150 g max.	
	Cooling fan		No		
	Degree of protection		IP20 by EN/IEC 60529		
Standards	Harmonic current emissions		Conforms to EN 61000-3-2		
	EMI	Conducted Emissions	Conforms to EN 61204-3 Class B, EN 55011 Class B		
		Radiated Emissions	Conforms to EN 61204-3 Class B, EN 55011 Class B		
	EMS		Conforms to EN 61204-3 high severity levels		
	Approved Standards		UL Listing: UL 508, ANSI/ISA 12.12.01 cUL: CSA C22.2 No107.1, CSA C22.2 No213 UL UR: UL 60950-1 (Recognition) OVCII (≤ 3000 m) Pol2 cUR: CSA C22.2 No.60950-1 OVCII (≤ 3000 m) Pol2 EN: EN 50178 OVCIII (≤ 2000 m) OVCII (2000 m ≤ and ≤ 3000) Pol2, EN 60950-1 OVCII (≤ 3000 m) Pol2 ATEX: EN 60079-0, EN 60079-15 Cert. DEMKO 16 ATEX 1737X 240W: Ex II3G Ex nA IIC T3 Gc, 480W: Ex II3G Ex nA nC IIC T3 Gc IECEX: IEC 60079-0, IEC60079-15 Cert. IECEX UL 16.0105X 240W: Ex nA IIC T3 Gc, 480W: Ex nA nC IIC T3 Gc		
			Conformed Standards		PELV (EN/IEC 60204-1) *12 EN/IEC 61558-2-16:2009+A1:2013 *12
			Marine Standards *12		Lloyd's register DNV GL
	SEMI		Conforms to F47-0706 (200 to 240 VAC input)		

Note: For notes \*1 to \*12, refer to page 4.

- \*1. The value is when both rated output voltage and rated output current are satisfied.
- \*2. Do not use an inverter output for the product. Inverters with an output frequency of 50/60 Hz are available, but the rise in the internal temperature of the product may result in ignition or burning.  
If the input is connected to a UPS, do not connect a UPS with a square-wave output.  
Doing so will cause the internal temperature of the product to increase, possibly causing smoking or burning.
- \*3. The value for the leakage current is determined according to the Electrical Appliances and Material Safety Act.
- \*4. Refer to *Inrush Current, Startup Time, Output Hold Time* on page 12 for details.
- \*5. If the output voltage adjuster (V. ADJ) is turned, the voltage will increase by more than 28 V min of the voltage adjustment range. When adjusting the output voltage, confirm the actual output voltage from the product and be sure that the load is not damaged.
- \*6. A characteristic when the ambient operating temperature of 25°C.
- \*7. This is the maximum variation in the output voltage when the input voltage is gradually changed within the allowable input voltage range at the rated output voltage and rated output current.
- \*8. 100 to 240 VAC input, in the range of 0 A to the rated output current.
- \*9. Refer to *Overvoltage Protection* on page 12 for the time when input voltage shuts off and input turns on again.
- \*10. At -40 to -25°C, time will be required before the rated output voltage is output after the input voltage is input.  
Also, the ripple noise value may exceed the value shown in the above table.
- \*11. Refer to *Recommended Replacement Periods and Periodic Replacement for Preventive Maintenance* on page 23 for details.
- \*12. Refer to *Standard Compliance*, below.

## Standard Compliance

- EN/IEC 61558-2-16  
The S8VK-S was designed based on EN/IEC 61558-2-16.  
Currently, IEC 61558-2-17 has been replaced by IEC 61558-2-16.  
When certification was received for EN/IEC 60204-1 (Machinery Safety), it was necessary to go through a control transformer to the control circuits. However, a control transformer is not always necessary for product that have been certified for the safety standard for OVCIII or for product that use a transformer that conforms to EN/IEC 61558-2-16.
- Safety Standards for a DC Input  
The following safety standards are applicable for when a DC input is used: UL 60950-1, cUR (CSA C22.2 No. 60950-1), EN 50178, EN 60950-1, Lloyd's, and DNV GL.  
Safety standard compliance is achievable by connecting a UL-certified fuse as specified below.  
Select an external fuse that satisfies the following conditions:
  - S8VK-S03024: 350 VDC min., 6 A
  - S8VK-S06024: 350 VDC min., 6 A
  - S8VK-S12024: 350 VDC min., 8 A
  - S8VK-S24024: 350 VDC min., 8 A
  - S8VK-S48024: 350 VDC min., 12 A
- Conformance to Marine Standards  
Noise filter "FN2080-10-06" manufactured by SCHAFFNER Corporation. or equivalent should be connected to the Input terminals of S8VK-S series (Except 60 W).  
End Plate (PFP-M) to both sides of the Power Supply to hold the Power Supply in place.  
Install clamp filters ("ZCAT2035-0930" manufactured by TDK) on the cables connected to the input and output terminals for 240- and 480-W models.
- To comply with PELV output requirements for EN/IEC 60204-1, ground the negative side of the output (-V) to a protective earth (PE).
- ATEX/IECEX  
The Power Supply must be built-in an IP54 enclosure.