

Ratings, Characteristics, and Functions

Item	Power rating Output voltage	240 W	480 W	
		24 V	24 V	
Efficiency *1	Three-phase 200 VAC input	93% typ.	94% typ.	
	Single-phase 200 VAC input	92% typ.	93% typ.	
	Three-phase 230 VAC input	93% typ.	94% typ.	
	Single-phase 230 VAC input	93% typ.	94% typ.	
Input conditions	Input voltage range *2	Three-phase/single-phase 170 to 264 VAC, 265 to 300 VAC (1 second) 240 to 350 VDC		
	Frequency *2	50/60 Hz (47 to 63 Hz)		
	Input current *1	Three-phase 200 VAC input	0.80 A typ.	1.6 A typ.
		Single-phase 200 VAC input	1.4 A typ.	2.6 A typ.
		Three-phase 230 VAC input	0.70 A typ.	1.4 A typ.
		Single-phase 230 VAC input	1.2 A typ.	2.3 A typ.
	Power factor	0.9 min.		
	Leakage current *3	Three-phase 200 VAC input	1 mA max.	
		Three-phase 230 VAC input	1 mA max.	
	Inrush current *4 (for a cold start at 25°C)	Three-phase 200 VAC input	13 A typ.	13 A typ.
Three-phase 230 VAC input		15 A typ.	15 A typ.	
Output characteristics	Rated output current	10 A	20 A	
	Power Boost Function	15 A	30 A	
	Voltage adjustment range *5	24 to 29.5 V (with V.ADJ)		
	Ripple noise voltage *6	Three-phase 200 to 240 VAC input	50 mVp-p max. at 20 MHz of bandwidth	120 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	200 to 240 VAC input	0.05%/°C max.	
	Startup time *9	Three-phase 200 VAC input	1,000 ms max.	
		Three-phase 230 VAC input	1,000 ms max.	
	Output hold time *9	Three-phase 200 VAC input	35 ms typ.	30 ms typ.
Three-phase 230 VAC input		35 ms typ.	30 ms typ.	
Additional functions	Overload protection	Yes, automatic reset, intermittent operation type Refer to <i>Overload Protection</i> on page 5.		
	Overvoltage protection	Yes, 130% or higher of rated output voltage, power shut off (shut off the input voltage and turn on the input again), Refer to <i>Overvoltage Protection</i> on page 5.		
	Series operation	Yes (For up to two Power Supplies; external diodes required.)		
	Parallel operation	Yes (For up to two Power Supplies), Refer to <i>Parallel Operation</i> on page 15.		
	INPUT OK Indicator	Yes (LED: Green)		
	DC OK Indicator	Yes (LED: Green)		
	Iout > 100% Indicator	Yes (LED: Yellow)		
	DC OK Signal Output	Yes (MOS FET relay output 30 VDC max., 50 mA max.)		
Insulation	Withstand voltage	3.0 kVAC for 1 min. (between all input terminals and all output terminals), cutoff current 20 mA		
		2.0 kVAC for 1 min. (between all input terminals and PE terminals), cutoff current 20 mA		
		1.0 kVAC for 1 min. (between all output terminals, signal output terminals and PE terminals), cutoff current 25 mA		
	Insulation resistance	0.5 kVAC for 1 min. (between all output terminals and all signal output terminals), cutoff current 10 mA		
Environment	Ambient operating temperature *10	-40 to 70°C (Derating is required according to the temperature. Refer to <i>Engineering Data</i> on page 9.) (with no condensation or icing)		
	Storage temperature	-40 to 85°C (with no condensation or icing)		
	Ambient operating humidity	95% max. (Storage humidity: 95% max.)		
	Vibration resistance	10 to 55 Hz, maximum 5 G, 0.42 mm single amplitude for 2 h each in X, Y, and Z directions		
	Shock resistance	294 m/s ² , 3 times each in ±X, ±Y, ±Z directions		
Reliability	MTBF *11	290,000 hrs typ.	230,000 hrs typ.	
	Expected life *12	10 years min.		
Construction	Weight	800 g max.	1050 g max.	
	Cooling fan	No		
	Degree of protection	IP20 by EN/IEC 60529		

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

Item	Power rating Output voltage	240 W	480 W
		24 V	24 V
Standards	Harmonic current emissions		Conforms to EN 61000-3-2
	EMI	Conducted emissions	Conforms to EN 61204-3 Class B, EN 55011 Class B (three-phase) Conforms to EN 61204-3 Class A, EN 55011 Class A (single-phase)
		Radiated emissions	Conforms to EN 61204-3 Class B, EN 55011 Class B (three-phase) Conforms to EN 61204-3 Class A, EN 55011 Class A (single-phase)
	EMS		Conforms to EN 61204-3 high severity levels
	Safety standards		UL 508, UL121201 (Listing) CSA C22.2 No.107.1, CSA C22.2 No.213 (cUL) UL 62368-1 (Recognition) OVC II (≤ 3000 m) Pol2 CSA C22.2 No.62368-1 (cUR) OVC II (≤ 3000 m) Pol2 EN 62477-1 OVC III (≤ 2000 m) OVC II (2000 m < and ≤ 3000 m) Pol2 EN 50178 OVC III (≤ 2000 m) OVC II (2000 m < and ≤ 3000 m) Pol2 EN 62368-1 OVC II (≤ 3000 m) Pol2 EAC (TR CU 004 / 2011, TR CU 020 / 2011) RCM (EN61000-6-4) Conforms to PELV (EN/IEC 60204-1) Conforms to EN/IEC 61558-2-16
SEMI		Conforms to SEMI F47-0706 (three-phase / single-phase 200 to 240 VAC input)	

- *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 is determined according to the Electrical Appliances and Material Safety Act.
- *4. Values for a cold start at 25°C. Refer to *Inrush Current, Startup Time, and Output Hold Time* on page 5.
- *5. If the output voltage adjuster (V. ADJ) is turned, the voltage will increase by more than 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. The value is when both rated output voltage and rated output current are satisfied. A characteristic when the ambient operating temperature is 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. 200 to 240 VAC input, in the range of 0 A to the rated output current.
- *9. This is the value when both rated output voltage and rated output current are satisfied and at room temperature (25°C). Refer to *Inrush Current, Startup Time, and Output Hold Time* on page 5 for details.
- *10. At -40 to -25°C, time will be required before the rated output voltage is output after the input voltage is input.
- *11. MTBF is calculated according to JEITA RCR-9102.
- *12. Refer to *Recommended Replacement Periods and Periodic Replacement for Preventive Maintenance* on page 19 for details.

Standard Compliance

- To comply with PELV output requirements for EN/IEC 60204-1, ground the negative side of the output (-V) to a protective earth (PE).
- EN/IEC 61558-2-16
The S8VK-WA 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 apply to a DC input: UL 62368-1, cUR (CSA C22.2 No. 62368-1), EN/IEC 62368-1, EN 50178, EN/IEC62477-1, EN/IEC 61558-2-16. Safety standard compliance is achievable by connecting a UL-certified fuse as specified below to the (L1/+) side.
For a DC power input, connect (L1/+) side to (+), and (L3/-) side to (-).
To select a UL certified fuse, refer to *Recommended circuit breakers and fuses* on page 13.