

### **Switch Mode Power Supply**

## **S8VS** (15/30/60/90/120/180/240/480-W Models)

## Multi-Function Indication Monitor for Production Site Visualization \*



- Status displayed on 3-digit, 7-segment display. \*
- Signal output notifications at 90 W or more. \*
- Conformity to various safety standards for global usability.
- Varied coverage with 3-year warranty.
- \* Models with indication monitor



Refer to Safety Precautions for All Power Supplies and Safety Precautions on page 32.



For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

### Recommended Noise Filter



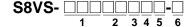
Noise filter S8V-NF

For more information, refer to S8V-NF Noise Filter Data Sheet (Cat. No. T212-E1).

### **Model Number Structure**

### **Model Number Legend**

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



### 1. Power Ratings

015: 15 W 030: 30 W 060: 60 W 090: 90 W 120: 120 W 180: 180 W 240: 240 W 480: 480 W

### 2. Output voltage

05: 5 V 12: 12 V 24: 24 V

### 3. Indication monitor

None: Without indication monitor (standard model)

A: With indication monitor (maintenance forecast monitor)

B: With indication monitor (total run time monitor)
BE: With indication monitor but without alarm output

 With indication monitor but without alarm output (total run time monitor)

### 4. Alarm output

None: Sinking (Emitter COM) \*
P: Sourcing (Collector COM)

Note: No alarm output possible with 60-W models.\* Both sinking and sourcing outputs are available for 480-W models.

### 5. UL Class 2 Output Standards (UL 1310)

None: Does not conform. \*

S: Conforms.

\*15-W, 30-W, and 60-W models conform to Class 2 output standards (UL 1310).

Note: The S option is available only for 90-W models.

#### 6. Terminal Block Form

None: Screw terminal block
F: Screwless terminal block

Note: Estimates can be provided for coatings and other specifications that are not given in the datasheet. Ask your OMRON representative for details.

### **Ordering Information**

### **List of Models**

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

### **Models without Indication Monitor (Standard Models)**

Power ratings	Input voltage	Output voltage	Output current	UL Class 2 Output standards	Model number (screw terminal block)	Model number (screwless terminal block)
		5 V	2.0 A	Yes	S8VS-01505 *1	
15 W		12 V	1.2 A	Yes	S8VS-01512	
		24 V	0.65 A	Yes	S8VS-01524	
		5 V	4.0 A	Yes	S8VS-03005 *2	<del></del>
30 W	100 to 240 VAC	12 V	2.5 A	Yes	S8VS-03012	
	(allowable range:	24 V	1.3 A	Yes	S8VS-03024	
60 W	85 to 264 VAC or 80 to 370 VDC		2.5 A	Yes	S8VS-06024	S8VS-06024-F
00.14/	*3)		2.75. 4		S8VS-09024	S8VS-09024-F
90 W			3.75 A	Yes	S8VS-09024S	S8VS-09024S-F
120 W			5 A		S8VS-12024	S8VS-12024-F
180 W		24 V	7.5 A		S8VS-18024	S8VS-18024-F
240 W			10 A		S8VS-24024	S8VS-24024-F
480 W	100 to 240 VAC		20 A Peak current 30 A (200 VAC)		S8VS-48024	S8VS-48024-F

### **Models with Indication Monitor (Maintenance Forecast Monitor)**

Power ratings	Input voltage	Output voltage	Output current	Alarm output *2	UL Class 2 Output standards	Model number (screw terminal block)	Model number (screwless terminal block)
60 W			2.5 A		Yes	S8VS-06024A	S8VS-06024A-F
				Sinking		S8VS-09024A	S8VS-09024A-F
00.11/			0.75 A	Sinking	Yes	S8VS-09024AS	S8VS-09024AS-F
90 W	100 to 240		3.75 A	Sourcing		S8VS-09024AP	S8VS-09024AP-F
	VAC (allowable			Sourcing	Yes	S8VS-09024APS	S8VS-09024APS-F
400 144	range: 85 to					S8VS-12024A	S8VS-12024A-F
120 W	264 VAC or 80 to 370 VDC	24 V	5 A	Sourcing		S8VS-12024AP	S8VS-12024AP-F
400 144	*1)		7.5.4	Sinking		S8VS-18024A	S8VS-18024A-F
180 W			7.5 A	Sourcing		S8VS-18024AP	S8VS-18024AP-F
040144			40.4	Sinking		S8VS-24024A	S8VS-24024A-F
240 W			10 A	Sourcing		S8VS-24024AP	S8VS-24024AP-F
480 W	100 to 240 VAC		20 A Peak current 30 A (200 VAC)	Sinking/ sourcing		S8VS-48024A	S8VS-48024A-F

<sup>\*1.</sup> The range for compliance with EC Directives and safety standards (UL, EN, etc.) is 100 to 240 VAC (85 to 264 VAC). \*2. In the Alarm output column, "sinking" indicates an emitter COM and "sourcing" indicates a collector COM.

### **Models with Indication Monitor (Total Run Time Monitor)**

Power ratings	Input voltage	Output voltage	Output current	Alarm output *2	UL Class 2 Output standards	Model number (screw terminal block)	Model number (screwless terminal block)
60 W			2.5 A		Yes	S8VS-06024B	S8VS-06024B-F
						S8VS-09024BE	S8VS-09024BE-F
					Yes	S8VS-09024BES	S8VS-09024BES-F
90 W			3.75 A	Sinking		S8VS-09024B	S8VS-09024B-F
90 W			3.75 A	Sinking	Yes	S8VS-09024BS	S8VS-09024BS-F
				Sourcing		S8VS-09024BP	S8VS-09024BP-F
	100 to 240 VAC			Sourcing	Yes	S8VS-09024BPS	S8VS-09024BPS-F
	(allowable					S8VS-12024BE	S8VS-12024BE-F
120 W	range: 85 to 264 VAC or 80		5 A	Sinking		S8VS-12024B	S8VS-12024B-F
	to 370 VDC) *1	24 V		Sourcing		S8VS-12024BP	S8VS-12024BP-F
						S8VS-18024BE	S8VS-18024BE-F
180 W			7.5 A	Sinking		S8VS-18024B	S8VS-18024B-F
				Sourcing		S8VS-18024BP	S8VS-18024BP-F
						S8VS-24024BE	S8VS-24024BE-F
240 W			10 A	Sinking		S8VS-24024B	S8VS-24024B-F
				Sourcing		S8VS-24024BP	S8VS-24024BP-F
480 W	100 to 240 VAC		20 A Peak current 30 A (200 VAC)	Sinking/ sourcing		S8VS-48024B	S8VS-48024B-F

<sup>\*1.</sup> The range for compliance with EC Directives and safety standards (UL, EN, etc.) is 100 to 240 VAC (85 to 264 VAC).

\*2. In the Alarm output column, "sinking" indicates an emitter COM and "sourcing" indicates a collector COM.

Note: Refer to pages 24 to 25 for the options that available.

<sup>\*1.</sup> The output capacity of the S8VS-01505 is 10 W.
\*2. The output capacity of the S8VS-03005 is 20 W.
\*3. The range for compliance with EC Directives and safety standards (UL, EN, etc.) is 100 to 240 VAC (85 to 264 VAC).

### **Specifications**

### Ratings/Characteristics

		Power ratings		15 W			30 W		
Item Output voltage		5 V	12 V	24 V	5 V	12 V	24 V		
With		With 100-VAC input	74% typical	79% typical	83% typical	74% typical	81% typical	85% typical	
fficiency		With 200-VAC input	73% typical	78% typical	80% typical	74% typical	80% typical	86% typical	
	Voltage *1		100 to 240 VAC (allowable range: 85 to 264 VAC, 80 to 370 VDC \$5)						
	Frequency *1		50/60 Hz (47 to 450 Hz)						
		With 100-VAC input	0.45 A max., 0.34 A typical 0.9 A max., 0.66 A typical						
	Current	With 200-VAC input	0.25 A max., 0.22	A typical		0.6 A max., 0.4 A			
	Power factor	•		,,		,	**		
nput	Harmonic current regulat	ion	Conforms to EN61	000-3-2					
		With 100-VAC input	0.5 mA max.						
	Leakage current	With 200-VAC input	1.0 mA max.						
		With 100-VAC input	17.5 A max., 14 A typical						
	Inrush current *2	With 200-VAC input	35 A max., 28 A ty						
	Voltage adjustment range	1	-10% to 15% (with						
	Ripple noise voltage (at r		60 mV max.	70 mV max.	60 mV max.	60 mV max.	90 mV max.	150 mV max.	
	Input variation influence			to 264-VAC input, 10		oo my maxi	oo my maxi	100 mv max	
	Load variation influence		·	<u> </u>	·				
	(rated input voltage)		2.0% max. (5 V), 1	.5% max. (12 V, 24 V	/), (with rated input,	0 to 100% load)			
Output	Temperature variation inf	luence	0.05%/°C max.						
	Startup time	With 100-VAC input	580 ms typical	530 ms typical	600 ms typical	500 ms typical	560 ms typical	560 ms typica	
	(at rated I/O) *2  Output hold time	With 200-VAC input	340 ms typical	360 ms typical	400 ms typical	360 ms typical	380 ms typical	400 ms typica	
		With 100-VAC input	39 ms typical	27 ms typical	28 ms typical	31 ms typical	22 ms typical	31 ms typical	
	(at rated I/O) *2	With 200-VAC input	187 ms typical	134 ms typical	134 ms typical	174 ms typical	123 ms typical	140 ms typica	
Overload protection *2			The range for com	pliance with EC Dire	ctives and safety sta	ndards (UL, EN, etc.)	is 100 to 240 VAC (8	5 to 264 VAC).	
	Overvoltage protection *2		Yes *4						
-	Output voltage indication		No						
	Output current indication		No						
	Peak-hold current indication		No						
-	Maintenance forecast mo	nitor indication	No						
dditional	Maintenance forecast mo	nitor output	No						
unctions	Total run time monitor in	•	No						
	Total run time monitor ou		No						
	Undervoltage alarm indic	•	Yes (color: red)						
	Undervoltage alarm outp		Yes (color: red) No						
	Parallel operation								
			No (However, backup operation is possible. An external diode is required.)  Models with 24-V output: Possible for up to 2 Power Supplies (with external diode)						
	Series operation			12-V output: Not poss			-		
	Operating ambient tempe	erature	Refer to the deration	ng curve in <i>Engineer</i>	ng Data. (with no ici	ng or condensation)			
	Storage temperature		−25 to 65°C						
	Operating ambient humid	lity	25% to 85% (Storage humidity: 25% to 90%)						
	Dielectric strength		3.0 kVAC for 1 min. (between all inputs and outputs; detection current: 20 mA)						
	Dielectric strength		2.0 kVAC for 1 min. (between all inputs and PE terminals; detection current: 20 mA)     1.0 kVAC for 1 min. (between all outputs and PE terminals; detection current: 20 mA)						
	Insulation resistance		100 M $\Omega$ min. (between all outputs and all inputs/ PE terminals) at 500 VDC						
	Vibration resistance		` `	•		*			
	Shock resistance		10 to 55 Hz, 0.375-mm single amplitude for 2 h each in X, Y, and Z directions  150 m/s², 3 times each in ±X, ±Y, and ±Z directions						
	Output indicator		Yes (color: green)	<u> </u>					
Other		Conducted	, ,	O11 Croup1 Class D	and based at ECC	Close A			
	EMI	Emissions	Conionnis to EN55	i011 Group1 Class B	and based on FCC	UIASS A			
		Radiated Emissions	Conforms to EN55011 Group1 Class B						
	EMS		Conforms to EN61	204-3 high severity I	evels				
	Approved standards		Conforms to EN61204-3 high severity levels  UL 508 (Listing, Class2 Output: Per 1310) UL 60950-1, UL 62368-1 CSA C22.2 No.107.1 (cUL) (Class2 Output: Per CSA C22.2 No.223) CSA C22.2 No.60950-1 (cUR), No.62368-1 EN 50178, EN 60950-1, EN 62368-1						
			EAC mark, RCM n	EAC mark, RCM mark F47-0706 (With 200-VAC input)					
	SEMI								

<sup>\*1.</sup> 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 18 for details.

<sup>\*3.</sup> 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.** To reset the protection, turn OFF the input power for three minutes or longer and then turn it back ON. **\*5.** The range for compliance with EC Directives and safety standards (UL, EN, etc.) is 100 to 240 VAC (85 to 264 VAC).

		Power ratings		60 W				
Item		Туре	Standard	Maintenance forecast monitor Total run time monitor				
		With 100-VAC input	84% typical	83% typical				
Efficiency		With 200-VAC input	83% typical	85% typical				
	Voltage *1		100 to 240 VAC (allowable range: 85 to 264 VAC or 80 to 370 VDC <b>*</b> 11)					
	Frequency *1		50/60 Hz (47 to 450 Hz)					
		With 100-VAC input	1.7 A max., 1.3 A typical	1.7 A max., 1.3 A typical				
	Current	With 200-VAC input	1.0 A max., 0.68 A typical	1.0 A max., 0.78 A typical				
	Power factor	zooput						
nput	Harmonic current re	adulation	Conforms to EN61000-3-2					
	marmonio carrent i	With 100-VAC input						
	Leakage current	With 200-VAC input						
			17.5 A max., 14 A typical					
	Inrush current *2	With 100-VAC input	35 A max., 28 A typical					
		With 200-VAC input	. ,,					
	Voltage adjustment		, ,, ,	cannot be adjusted for the S8VS-09024 CS-C.)				
	Ripple noise voltage		70 mV max.	90 mV max.				
	Input variation influence		0.5% max. (at 85- to 264-VAC input, 100	,				
	Load variation influence (rated input voltage)		1.5% max. (with rated input, 0 to 100% lo	ad)				
Output	Temperature variati	on influence	0.05%/°C max.					
	Startup time	With 100-VAC input	620 ms typical	460 ms typical				
	(at rated I/O) *2	With 200-VAC input	400 ms typical	290 ms typical				
	Output hold time	With 100-VAC input	34 ms typical	33 ms typical				
	(at rated I/O) *2	With 200-VAC input	158 ms typical	154 ms typical				
	Overload protection	ı <b>*</b> 2	105% to 160% of rated load current (101% to 110	$9\%$ of rated load current for the S8VS-09024 $\square\square\square$ S- $\square$ ), inverted L voltage drop, intermittent, automatic restricted L				
	Overvoltage protection *2, *4		Yes					
	Output voltage indi	cation *5	No	Yes (selectable) *6				
-	Output current indication *5		No	Yes (selectable) *7				
	Peak-hold current in	ndication *5	No	Yes (selectable) *8				
	Maintenance forecast monitor indication *5		No	Yes (selectable) No				
Additional	Maintenance forecast monitor output		No	· · · · · · · · · · · · · · · · · · ·				
functions	Total run time monitor indication *5		No	Yes (selectable)				
	Total run time monitor output *5		No					
	Undervoltage alarm indication *5		No	Yes (selectable)				
	Undervoltage alarm output terminals		No	100 (00.00000)				
	Parallel operation	output terminus	No (However, backup operation is possible. An external diode is required.)					
	Series operation		Yes for up to 2 Power Supplies (with external diode)					
	Operating ambient t	tomporaturo						
	Storage temperature		Refer to the derating curve in . (with no icing or condensation)					
			-25 to 65°C					
	Operating ambient I	numiaity	25% to 85% (Storage humidity: 25% to 90%)					
	Dielectric strength		3.0 kVAC for 1 min. (between all inputs and outputs/ alarm outputs; detection current: 20 mA) 2.0 kVAC for 1 min. (between all inputs and PE terminals; detection current: 20 mA) 1.0 kVAC for 1 min. (between all outputs/ alarm outputs and PE terminals; detection current for standard models: 30 mA, detection current for models with indication monitor: 20 mA) 500 VAC for 1 min. (between all outputs and alarm outputs; detection current: 20 mA)					
	Insulation resistance	e	100 M $\Omega$ min. (between all outputs/ alarm	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 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)					
Other	ЕМІ	Conducted Emissions	Class B *11	to EN55011 Group1 Class A and based on FCC Class A, Conforms to EN55011 Group 3 EN55011 Group 1 Class B and based on FCC Class A				
		Radiated Emissions		to EN55011 Group1 Class A, Conforms to EN55011 Group1 Class B *11				
	EMS		Conforms to EN61204-3 high severity lev	,				
	Approved standards *11		Standard model: UL 508 (Listing; Class 2 Output: Per UL1310) UL 60950-1 (Recognition), UL 62368-1 CSA C22.2 No.107.1 (cUL) (Class 2 Output: Per CSA C22.2 No. 223) CSA C22.2 No.60950-1 (cUR), No.62368-1 EN 50178, EN 60950-1, EN 62368-1 EAC mark, RCM mark With indication monitor: UL 508 (Listing, Class2 Output: Per 1310) CSA C22.2 No.107.1 (cUL) (Class2 Output: Per CSA C22.2 No.223) EN 62477-1					
			EAC mark, RCM mark, KOSHA S Mark *10					
	SEMI *11		F47-0706 (With 200-VAC input)					

Itom		Power ratings	Standard	90 W	Total run time meniter			
Item		Type	Standard (1997)	Maintenance forecast monitor	Total run time monitor			
Efficiency		With 100-VAC input	,,	83% typical				
	T	With 200-VAC input	• • • • • • • • • • • • • • • • • • • •	85% typical				
	Voltage *1		100 to 240 VAC (allowable range: 85 to 264 VAC or 80 to 370 VDC *11)					
	Frequency *1	T	50/60 Hz (47 to 450 Hz)					
	Current	With 100-VAC input	2.3 A max., 1.9 A typical 2.3 A max., 1.9 A typical					
		With 200-VAC input	1.4 A max., 1.0 A typical	1.4 A max., 1.2 A typical				
nput	Power factor							
put	Harmonic current re	gulation	Conforms to EN61000-3-2					
	Leakage current	With 100-VAC input	0.5 mA max.					
	Leakage Current	With 200-VAC input	1.0 mA max.					
	Inrush current *2	With 100-VAC input	17.5 A max., 14 A typical					
	illiusii cuiteiit *2	With 200-VAC input	35 A max., 28 A typical					
	Voltage adjustment range *3 Ripple noise voltage (at rated I/O)		-10% to 15% (with V. ADJ) (The voltage can	not be adjusted for the S8VS-09024	-□.)			
			250 mV max.	150 mV max.				
	Input variation influ	ence	0.5% max. (at 85- to 264-VAC input, 100% lo	pad)				
	Load variation influen	ce (rated input voltage)	1.5% max. (with rated input, 0 to 100% load)					
Output	Temperature variati	on influence	0.05%/°C max.					
	Startup time	With 100-VAC input		660 ms typical				
	(at rated I/O) *2	With 200-VAC input	• • • • • • • • • • • • • • • • • • • •	420 ms typical				
	Output hold time	With 100-VAC input		28 ms typical				
	(at rated I/O) *2	With 200-VAC input	,,	136 ms typical				
	Overload protection	· · · · · · · · · · · · · · · · · · ·	105% to 160% of rated load current (101% to 110% of	**	nverted L voltage drop, intermittent, automatic re-			
Overvoltage protection *2, *4 Output voltage indication *5			Yes	), II				
				Yes (selectable) *6				
	Output voltage indication *5 Output current indication *5			Yes (selectable) *7				
	Peak-hold current indication *5			, ,				
				Yes (selectable) *8				
Additional	Maintenance forecast monitor indication *5			Yes (selectable)	No			
unctions	Maintenance forecast monitor output			Yes (transistor output), 30 VDC max., 50 mA max. *9	No			
	Total run time moni	tor indication *5	No		Yes (selectable)			
	Total run time monitor output *5		No		Yes (transistor output), 30 VDC max., 50 mA max.			
	Undervoltage alarm indication *5		No	Yes (selectable)				
	Undervoltage alarm	output terminals	No Yes (transistor output), 30 VDC max., 50 mA max. *9					
	Parallel operation		No (However, backup operation is possible. An external diode is required.)					
	Series operation		Yes for up to 2 Power Supplies (with external diode)					
	Operating ambient t	emperature	Refer to the derating curve in . (with no icing or condensation)					
	Storage temperature	е	−25 to 65°C					
	Operating ambient I	numidity	25% to 85% (Storage humidity: 25% to 90%)					
	Dielectric strength		3.0 kVAC for 1 min. (between all inputs and outputs/ alarm outputs; detection current: 20 mA) 2.0 kVAC for 1 min. (between all inputs and PE terminals; detection current: 20 mA) 1.0 kVAC for 1 min. (between all outputs/ alarm outputs and PE terminals; detection current for standard models: 30 mA, detection current for models with indication monitor: 20 mA) 500 VAC for 1 min. (between all outputs and alarm outputs; detection current: 20 mA)					
	Insulation resistance	е	100 $\text{M}\Omega$ min. (between all outputs/ alarm outputs/	·	С			
	Vibration resistance		10 to 55 Hz, 0.375-mm single amplitude for 2	h each in X, Y, and Z directions				
	Vibration resistance		10 to 55 Hz, 0.375-mm single amplitude for 2 10 to 150 Hz, 0.35-mm single amplitude (5 G	h each in X, Y, and Z directions max.) for 80 min each in X, Y, and Z direct				
	Vibration resistance Shock resistance		10 to 55 Hz, 0.375-mm single amplitude for 2 10 to 150 Hz, 0.35-mm single amplitude (5 G 150 m/s $^2$ , 3 times each in $\pm$ X, $\pm$ Y, and $\pm$ Z dires	h each in X, Y, and Z directions max.) for 80 min each in X, Y, and Z direct				
	Vibration resistance		10 to 55 Hz, 0.375-mm single amplitude for 2 10 to 150 Hz, 0.35-mm single amplitude (5 G 150 m/s $^2$ , 3 times each in $\pm$ X, $\pm$ Y, and $\pm$ Z dire Yes (color: green)	h each in X, Y, and Z directions max.) for 80 min each in X, Y, and Z direct actions	ions			
	Vibration resistance Shock resistance		10 to 55 Hz, 0.375-mm single amplitude for 2 10 to 150 Hz, 0.35-mm single amplitude (5 G 150 m/s $^2$ , 3 times each in $\pm$ X, $\pm$ Y, and $\pm$ Z dires	h each in X, Y, and Z directions max.) for 80 min each in X, Y, and Z direct actions  EN55011 Group1 Class A and based on FC	ions CC Class A, Conforms to EN55011 Group			
Other	Vibration resistance Shock resistance Output indicator	Conducted Emissions	10 to 55 Hz, 0.375-mm single amplitude for 2 10 to 150 Hz, 0.35-mm single amplitude (5 G 150 m/s², 3 times each in ±X, ±Y, and ±Z dire Yes (color: green)  Models with indication monitor: Conforms to E Class B *11  Models with indication monitor: Conforms to E Natadard models: Conforms to EN61204-3 El  Models with indication monitor: Conforms to E	h each in X, Y, and Z directions max.) for 80 min each in X, Y, and Z direct ections  EN55011 Group1 Class A and based on FC N55011 Group 1 Class B and based on FC EN55011 Group1 Class A, Conforms to EN	ions CC Class A, Conforms to EN55011 Group C Class A			
Other	Vibration resistance Shock resistance Output indicator EMI	Conducted Emissions	10 to 55 Hz, 0.375-mm single amplitude for 2 10 to 150 Hz, 0.35-mm single amplitude (5 G 150 m/s², 3 times each in ±X, ±Y, and ±Z dire Yes (color: green)  Models with indication monitor: Conforms to E Class B *11  Models with indication monitor: Conforms to E Standard models: Conforms to EN61204-3 El  Models with indication monitor: Conforms to E Standard models: Conforms to EN55011 Gro	h each in X, Y, and Z directions max.) for 80 min each in X, Y, and Z direct ections  EN55011 Group1 Class A and based on FC N55011 Group 1 Class B and based on FC EN55011 Group1 Class A, Conforms to EN	ions CC Class A, Conforms to EN55011 Group C Class A			
Other	Vibration resistance Shock resistance Output indicator	Conducted Emissions	10 to 55 Hz, 0.375-mm single amplitude for 2 10 to 150 Hz, 0.35-mm single amplitude (5 G 150 m/s², 3 times each in ±X, ±Y, and ±Z dire Yes (color: green)  Models with indication monitor: Conforms to E Class B *11  Models with indication monitor: Conforms to E Standard models: Conforms to EN61204-3 El Models with indication monitor: Conforms to E Standard models: Conforms to EN55011 Gro Conforms to EN61204-3 high severity levels	h each in X, Y, and Z directions max.) for 80 min each in X, Y, and Z direct ections  EN55011 Group1 Class A and based on FC N55011 Group 1 Class B and based on FC EN55011 Group1 Class A, Conforms to EN	ions CC Class A, Conforms to EN55011 Group C Class A			
Other	Vibration resistance Shock resistance Output indicator EMI	Conducted Emissions Radiated Emissions	10 to 55 Hz, 0.375-mm single amplitude for 2 10 to 150 Hz, 0.35-mm single amplitude (5 G 150 m/s², 3 times each in ±X, ±Y, and ±Z dire Yes (color: green)  Models with indication monitor: Conforms to E Class B ±11  Standard models: Conforms to EN61204-3 El  Models with indication monitor: Conforms to E Standard models: Conforms to EN55011 Gro  Conforms to EN61204-3 high severity levels  Standard model:  UL 508 (Listing) (S8VS-09024S-□ on UL 60950-1 (Recogn CSA C22.2 No.107.1 (S8VS-09024S-□ on CSA C22.2 No.6095 EAC mark, RCM mark)  With indication monitor: UL 508 (Listing) (S8VS-09024□□S-□ CSA C22.2 No.107.1 (S8VS-09024□S-□ S-□ CSA C22.2 No.107.1 (S8VS-09024	th each in X, Y, and Z directions max.) for 80 min each in X, Y, and Z direct actions  EN55011 Group1 Class A and based on FC N55011 Group 1 Class B and based on FC EN55011 Group1 Class A, Conforms to ENup1 Class B  Ily): UL 508 (Listing, Class2 Output: Per 13: 1 (cUL)  I): CSA C22.2 No.107.1 (cUL) (Class2 Ou 0-1 (cUR), No.62368-1 rk  Only): UL 508 (Listing, Class2 Output: Per I3: 1 (cUL)  Only): UL 508 (Listing, Class2 Output: Per I3: 1 (cUL)  Only): UL 508 (Listing, Class2 Output: Per I3: 1 (cUL)	ions CC Class A, Conforms to EN55011 Group C Class A 55011 Group1 Class B *11  10) tput: Per CSA C22.2 No.223)			
Other	Vibration resistance Shock resistance Output indicator  EMI  EMS	Conducted Emissions Radiated Emissions	10 to 55 Hz, 0.375-mm single amplitude for 2 10 to 150 Hz, 0.35-mm single amplitude (5 G 150 m/s², 3 times each in ±X, ±Y, and ±Z dire Yes (color: green)  Models with indication monitor: Conforms to E Class B ±11  Standard models: Conforms to EN61204-3 El  Models with indication monitor: Conforms to E Standard models: Conforms to EN55011 Gro  Conforms to EN61204-3 high severity levels  Standard model:  UL 508 (Listing) (S8VS-09024S-□ on UL 60950-1 (Recogn CSA C22.2 No.107.1 (S8VS-09024S-□ on CSA C22.2 No.6095 EAC mark, RCM mark)  With indication monitor: UL 508 (Listing) (S8VS-09024□□S-□ CSA C22.2 No.107.1 (S8VS-09024□S-□ S-□ CSA C22.2 No.107.1 (S8VS-09024	th each in X, Y, and Z directions max.) for 80 min each in X, Y, and Z direct actions  EN55011 Group1 Class A and based on FC N55011 Group1 Class B and based on FC EN55011 Group1 Class A, Conforms to EN1011 Class B  Hy): UL 508 (Listing, Class2 Output: Per 13: 1 (cUL)  Hy): CSA C22.2 No.107.1 (cUL) (Class2 Output: Class2 Output: Per 13: 1 (cUL)  Hy): CSA C22.2 No.107.1 (cUL) (Class2 Output: Per 13: 1 (cUL)  Hy): CSA C22.2 No.107.1 (cUL) (Class2 Output: Per 13: 1 (cul)  Hy): CSA C22.2 No.107.1 (cUL) (Class2 Output: Per 13: 1 (cul)	ions CC Class A, Conforms to EN55011 Group C Class A 55011 Group1 Class B *11  10) tput: Per CSA C22.2 No.223)			

<sup>###</sup> Weight ### 490 g max.

#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 18 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 (by more than +10% for 240-W models with indication monitor). When adjusting the output voltage, confirm the actual output voltage from the Power Supply and be sure that the load is not damaged.

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

#5. Displayed on 7-segment LED. (character height: 8 mm)

#6. Resolution of output voltage indication: 0.1 V, Precision of output voltage indication: ±2% (percentage of output voltage value, ±1 digit)

#7. Resolution of output current indication: 0.1 Å; Precision of output current indication: ±5% F.S. ±1 digit max. (specified by rated output voltage)

#8. Resolution of peak-hold current indication: 0.1 Å; Precision of peak-hold current indication: ±5% F.S. ±1 digit max. (specified by rated output voltage);

#8. Resolution of peak-hold current indication: 0.1 A; Precision of peak-hold current indication: ±5% F.S. ±1 digit max. (specified by rated output voltage);

#8. Resolution of peak-hold current and BP Type: Sourcing, BE Type: No alarm output.

#9. A Type and B Type: Sinking, AP Type and BP Type: Sourcing, AP Type and BP Type: Sinking, AP Type and BP T

		Power ratings		120 W			180 W			
Item Type			Standard	Maintenance	Total run time	Standard	Maintenance	Total run time		
iteiii				forecast monitor	monitor		forecast monitor	monitor		
Efficiency		With 100-VAC input	84% typical	83% typical		85% typical	85% typical			
		With 200-VAC input		87% typical         85% typical         87% typical						
	Voltage *1		100 to 240 VAC (allowable range: 85 to 264 VAC or 80 to 370 VDC *11)							
	Frequency *1	1	50/60 Hz (47 to 63 Hz)							
		With 100-VAC input	1.9 A max., 1.5 A typical 2.9 A max., 2.2 A typical							
	Current	With 200-VAC input	1.1 A max., 0.71 A typical	1.1 A max., 0.72 A t	ypical	1.6 A max., 1.1 A	typical			
	Power factor									
nput		latia	0.9 min. Conforms to EN610	00.0.0						
	Harmonic current reg	With 100-VAC input		00-3-2						
	Leakage current	•	0.5 mA max.							
		With 200-VAC input	1.0 mA max.	minal						
	Inrush current *2	With 100-VAC input	17.5 A max., 14 A ty							
	W-14	With 200-VAC input	35 A max., 28 A typ							
	Voltage adjustment ra		-10% to 15% (with	1		50 \	400 1/			
	Ripple noise voltage (	,	60 mV max.	130 mV max.	/ I . B	50 mV max.	180 mV max.			
	Input variation influer		0.5% max. (at 85- to	264-VAC input, 100%	6 load)					
	Load variation influen (rated input voltage)	ice	1.5% max. (with rate	ed input, 0 to 100% loa	ad)					
Output	Temperature variation influence		0.05%/°C max.							
	-	With 100-VAC input	550 ms typical	650 ms typical		570 ms typical	580 ms typical			
	Startup time (at rated I/O) *2	With 200-VAC input	400 ms typical			470 ms typical	490 ms typical			
	,	With 100-VAC input	52 ms typical	56 ms typical		58 ms typical	70 ms typical			
	Output hold time (at rated I/O) *2	With 200-VAC input	54 ms typical	56 ms typical		62 ms typical	70 ms typical			
	,	•			tad L valtaga dran a	,,,	70 ms typicai			
	Overload protection *			ted load current, inver	ieu L voltage drop, at	nomanc reset				
=	Overvoltage protection *2, *4		Yes	V ( l l- l-) +0		N-	Yes (selectable) *6			
	Output voltage indication *5		No	Yes (selectable) *6		No	,			
	Output current indication *5		No Yes (selectable) *7			No	Yes (selectable) *7			
	Peak-hold current indication *5		No	Yes (selectable) *8	T	No	Yes (selectable) *8	1		
	Maintenance forecast monitor indication *5		No	Yes (selectable)	No	No	Yes (selectable)	No		
Additional	Maintenance forecast monitor output		No	Yes (transistor output), 30 VDC max., 50 mA max.	No	No	Yes (transistor output), 30 VDC max., 50 mA max.	No		
unctions	Total run time monitor indication *5		No		Yes (selectable)	No		Yes (selectable)		
	Total run time monitor output *5		No		Yes (transistor output), 30 VDC max., 50 mA max.	No output), 30		Yes (transistor output), 30 VDC max., 50 mA ma		
	Undervoltage alarm ir	ndication #5	No	Yes (selectable)	40	No	Yes (selectable)	1.0		
	Onder voltage alarm in	Idication 45	140	· · · · · · · · · · · · · · · · · · ·	it) 30 VDC may	Yes (transistor output), 30 VDC max.,				
	Undervoltage alarm o	utput terminals	No Yes (transistor output), 30 VDC max., 50 mA max. *9 No Yes (transistor output), 30 VD					ut), 30 VDC max.,		
	Parallel operation		No (However, backup operation is possible. An external diode is required.)							
	Series operation		Yes for up to 2 Power Supplies (with external diode)							
	Operating ambient ter	mperature	Refer to the derating curve in . (with no icing or condensation)							
	Storage temperature		-25 to 65°C							
	Operating ambient hu	midity	25% to 85% (Storage humidity: 25% to 90%)							
	Dielectric strength		3.0 kVAC for 1 min. (between all inputs and outputs/ alarm outputs; detection current: 20 mA) 2.0 kVAC for 1 min. (between all inputs and PE terminals; detection current: 20 mA) 1.0 kVAC for 1 min. (between all outputs/ alarm outputs and PE terminals; detection current for standard models: 30 mA, detection current for models with indication monitor: 20 mA 500 VAC for 1 min. (between all outputs and alarm outputs; detection current: 20 mA)							
	Insulation resistance			een all outputs/ alarm	•		,			
	Vibration resistance		10 to 55 Hz, 0.375-r	mm single amplitude for mm single amplitude (	or 2 h each in X, Y, ar	d Z directions				
	Shock resistance		150 m/s², 3 times ea	ach in ±X, ±Y, and ±Z	directions					
Other	Output indicator		Yes (color: green)							
		Conducted		on monitor: Conforms t	o EN55011 Group1 C	lass A and based on	FCC Class A, Conforms	s to EN55011 Grou		
	ЕМІ	Emissions			to EN55011 Group1 Class A and based on FCC Class A, Conforms to EN55011 Group  Group1 Class B and based on FCC Class A					
		Radiated Emissions		on monitor: Conforms onforms to EN55011		Diass A, Conforms to	o EN55011 Group1 Cla	ss B *11		
	EMS		Conforms to EN612	04-3 high severity leve	els					
	Approved standards :	*11	UL 508 (Listing) CSA C22.2 No. 107 EN 62477-1 EAC mark, RCM ma	.1 (cUL) ark, KOSHA S Mark *	10					
			F47-0706 (200-VAC	(input)						
	SEMI *11		1 47-0700 (200-VAC	put)						

Note: Refer to page 5 for notes 1 to 11.

		Power ratings		240 W			480 W			
Item		Type	Standard	Maintenance forecast monitor	Total run time monitor	Standard	Maintenance forecast monitor	Total run time monitor		
		With 100-VAC input	85% typical			89% typical				
Efficiency		With 200-VAC input	88% typical			93% typical				
	Voltage *1	•	100 to 240 VAC (allowable range: 85 to 264 VAC or 80 to 370 VDC *11) 100 to 240 VAC (allowable range: 85 to 264 VAC)							
	Frequency *1		50/60 Hz (47 to 63 H	Hz)	,	,		,		
		With 100-VAC input	3.8 A max., 2.9 A typical 7.4 A max., 5.8 A typical							
	Current	With 200-VAC input	2.0 A max., 1.5 A typical 3.9 A max., 2.8 A typical							
	Power factor		0.9 min. 0.95 min.							
nput	Harmonic current reg	ulation	Conforms to EN61000-3-2							
	Leakage current	With 100-VAC input	0.5 mA max.							
	Leakage current	With 200-VAC input	1.0 mA max.							
	Inrush current *2	With 100-VAC input	17.5 A max., 14 A ty	pical						
	middir darrent 42	With 200-VAC input	35 A max., 28 A typical							
	Voltage adjustment ra	ange *3	-10% to 15% (with \	1		-10% to 15% (with	V.ADJ)			
	Ripple noise voltage	,	140 mV max.	160 mV max.		310 mV max.				
	Input variation influer		0.5% max. (at 85- to	264-VAC input, 100%	6 load)					
	Load variation influer (rated input voltage)	nce	1.5% max. (with rate	ed input, 0 to 100% loa	ad)					
Output	Temperature variation influence		0.05%/°C max.							
	Startup time With 100-VAC input		540 ms typical 510 ms typical			550 ms typical				
	(at rated I/O) *2			510 ms typical		550 ms typical				
	Output hold time	With 100-VAC input	64 ms typical	46 ms typical		37 ms typical				
	(at rated I/O) *2	With 200-VAC input	64 ms typical	46 ms typical		41 ms typical				
	Overload protection *2		105% to 160% of rat automatic reset	ted load current, inver	ted L voltage drop,	151% to 165% of ra intermittent, automa	ted load current, inver tic reset	ted L voltage drop		
	Overvoltage protection	on *2, *4	Yes	1		T				
	Output voltage indication *5		No	Yes (selectable) *6		No	Yes (selectable) *6			
	Output current indication *5		No	Yes (selectable) *7	,		Yes (selectable) *7			
=	Peak-hold current indication *5		No	Yes (selectable) *8	I	No	Yes (selectable) *8	1		
	Maintenance forecast monitor indication *5		No	Yes (selectable)	No		Yes (selectable)	No		
Additional	Maintenance forecast monitor output		No	Yes (transistor output), 30 VDC max., 50 mA max. *9	No		Yes (transistor output), 30 VDC max., 50 mA max.	No		
unctions	Total run time monito	Total run time monitor indication *5		No Yes (selectable)			No Yes (selecta			
	Total run time monitor output *5		No 3		Yes (transistor output), 30 VDC max., 50 mA max. *9	No		Yes (transistor outpu 30 VDC max., 50 mA max. *9		
	Undervoltage alarm in	ndication *5	No	Yes (selectable)		No	Yes (selectable)	man 10		
	Undervoltage alarm o		No	Yes (transistor output), 30 VDC max., 50 mA max. *9  No  Yes (transistor output), 30 VDC max., 50 mA max. *9				ut), 30 VDC max.,		
	Parallel operation		No (However, backu	up operation is possible	e. An external diode is	s required.)	1			
	Series operation		Yes for up to 2 Power	er Supplies (with exter	nal diode)					
	Operating ambient ter	mperature	Refer to the derating curve in . (with no icing or condensation)							
	Storage temperature		−25 to 65°C							
	Operating ambient hu	Operating ambient humidity  Dielectric strength		25% to 85% (Storage humidity: 25% to 90%)  3.0 kVAC for 1 min. (between all inputs and outputs/alarm outputs; detection current: 20 mA)  2.0 kVAC for 1 min. (between all inputs and PE terminals; detection current: 20 mA)  1.0 kVAC for 1 min. (between all outputs/ alarm outputs and PE terminals; detection current for standard 240-W and 480-W models: 30 mA, detection current for 240-W models with indication monitor: 20 mA)						
			500 VAC for 1 min. (	(between all outputs a	nd alarm outputs; dete	ection current: 20 mA)				
	Insulation resistance		100 MΩ min. (between all outputs/ alarm 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 80 min each in X, Y, and Z directions: 240 W 10 to 150 Hz, 0.35-mm single amplitude (3 G max.) for 80 min each in X, Y, and Z directions: 480 W							
	Shock resistance			ach in ±X, ±Y, and ±Z						
	Output indicator		Yes (color: green)							
Other	ЕМІ	Conducted Emissions	Class A and based of Group1 Class B *11	onforms to EN55011 (	orms to EN55011	Class A	11 Group1 Class A ar			
		Radiated Emissions	Class A, Conforms to	on monitor: Conforms to EN55011 Group1 C onforms to EN55011 (	lass B *11	Conforms to EN550 Conforms to EN550	11 Group1 Class A 11 Group1 Class B *	11		
	EMS				•	1				
	Approved standards *11		Conforms to EN61204-3 high severity levels  UL 508 (Listing) CSA C22.2 No.107.1 (cUL) EN 62477-1 EAC mark, RCM mark, KOSHA S Mark *10			UL 508 (Listing) UL 60950-1 (Recognition) UL 62368-1 (Recognition) US A C22.2 No. 107.1 (cUL) CSA C22.2 No. 60950-1 (cUR), No. 62368-1 (cUR) EN 50178 (=VDE 0160), EN 60950-1 (=VDE 0805 Teil 1)				
			EAC mark, HOW ma	ark, KOSHA S Mark &	10			DE 0805 Teil 1)		
	SEMI *11		F47-0706 (200-VAC			EN 50178 (=VDE 0° EAC mark, RCM ma		DE 0805 Teil 1)		

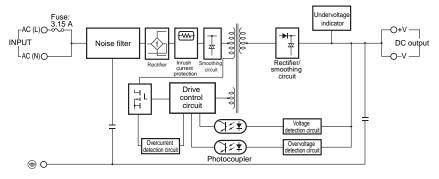
Note: Refer to page 5 for notes 1 to 11.

### S8VS

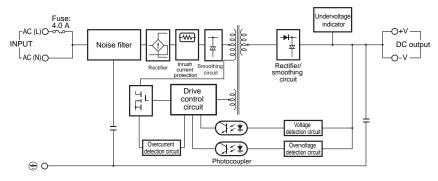
### **Connections**

### **Block Diagrams**

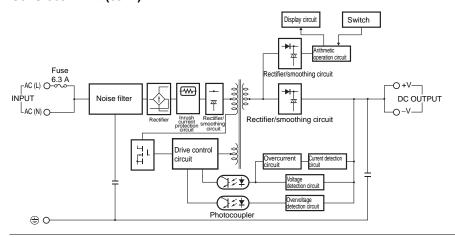
### S8VS-015□□ (15 W)



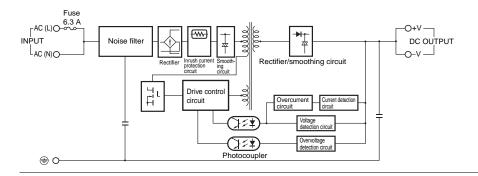
### S8VS-030□□ (30 W)

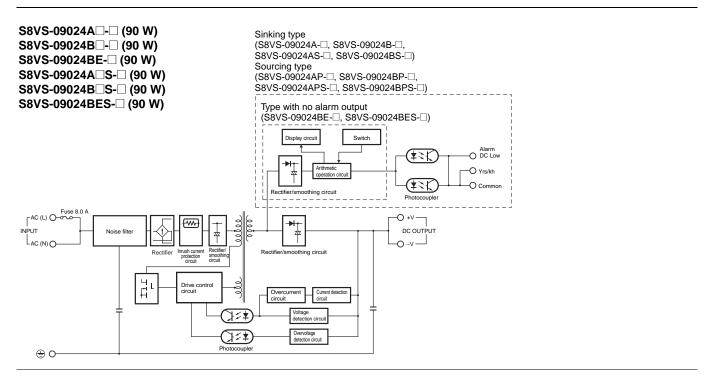


### S8VS-06024A-□ (60 W) S8VS-06024B-□ (60 W)

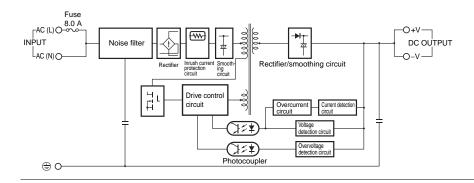


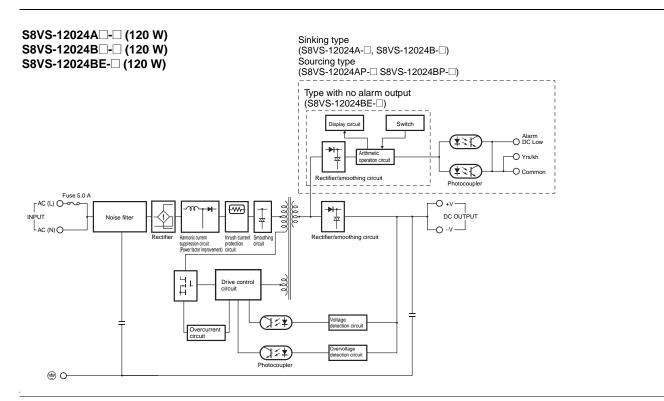
### S8VS-06024-□ (60 W)



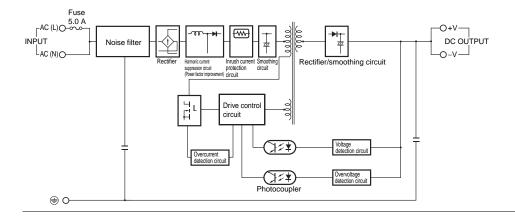


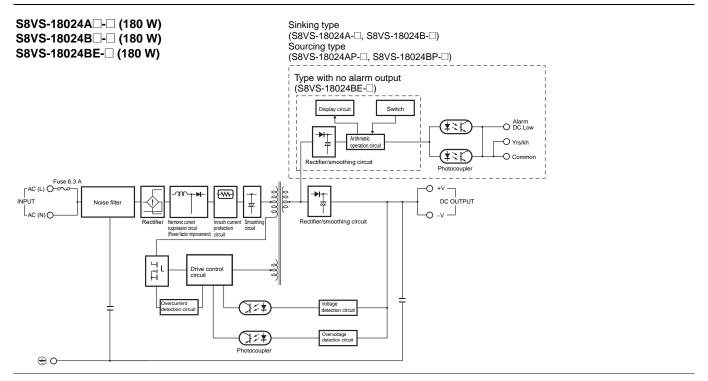
### S8VS-09024-□ (90 W) S8VS-09024S-□ (90 W)



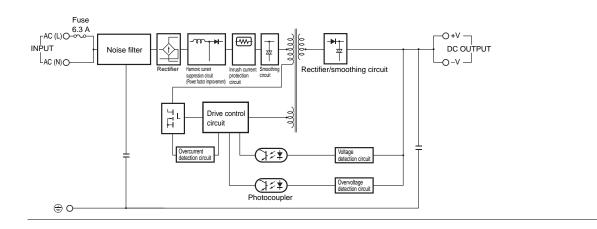


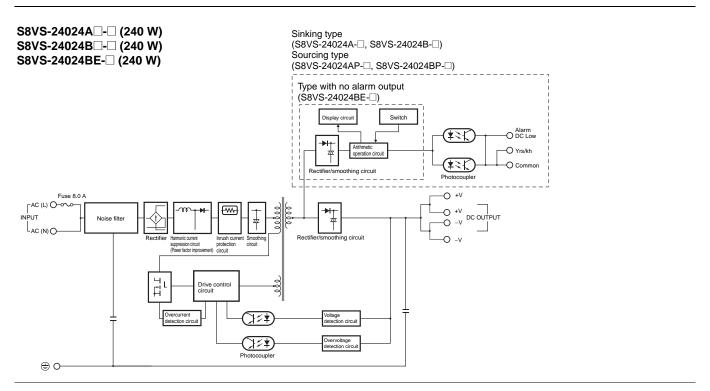
### S8VS-12024- (120 W)



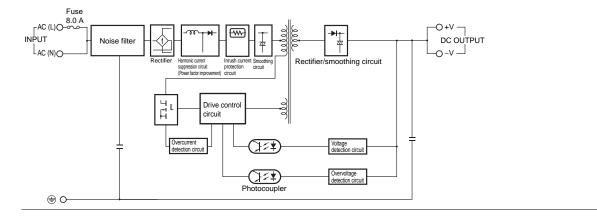


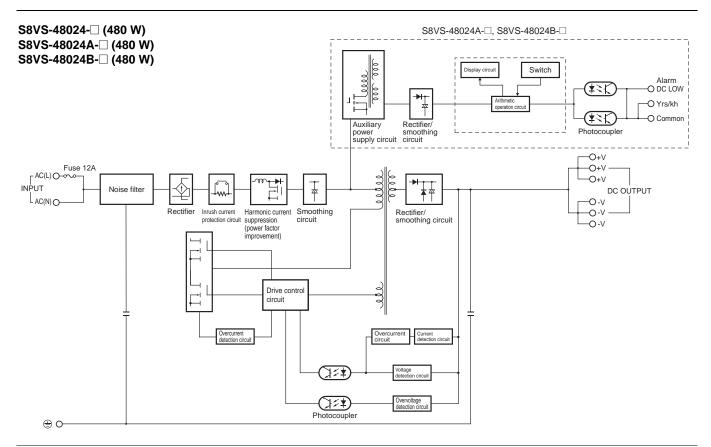
### S8VS-18024-□ (180 W)





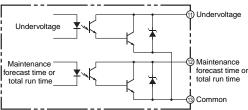
### S8VS-24024- (240 W)



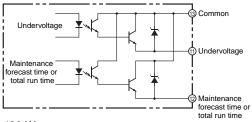


### **Alarm Output Connections**

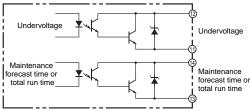




### 90, 120, 180, and 240 W (Sourcing type)



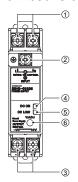
480 W



### **Construction and Nomenclature**

### **Nomenclature**

15-W, 30-W Models



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	Undervoltage indicator (DC LOW: Red)	Lights when a drop is detected in the output voltage.
6	Output voltage adjuster (V.ADJ)	Use to adjust the voltage.

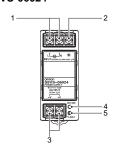
Note: The S8VS-01505 is shown above.

<sup>\*1.</sup> The fuse is located on the (L) side. 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.

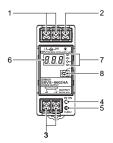
### **Nomenclature**

### 60-W Models

### Standard Model S8VS-06024



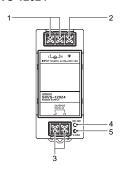
### Models with Indication Monitor S8VS-06024□



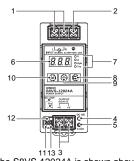
Note: The S8VS-06024A is shown above.

### 90-W/120-W Models

### Standard Models \$8VS-09024/\$8VS-0924S/ \$8VS-12024



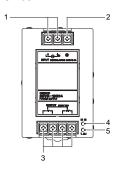
### 



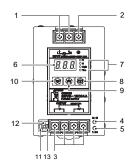
Note: The S8VS-12024A is shown above.

### 180-W Models

### Standard Model S8VS-18024



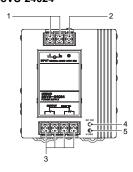
### Models with Indication Monitor S8VS-18024□□□



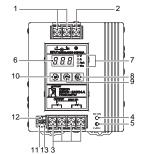
Note: The S8VS-18024A is shown above.

### 240-W Models

### Standard Model S8VS-24024



### Models with Indication Monitor S8VS-24024□□□



Note: The S8VS-24024A is shown above.

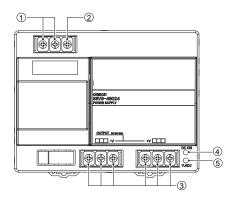
No.		Name		Function
1	Input teri			Connect the input lines to these
	(L), (N)			terminals. *1
2	Protectiv terminal			Connect the ground line to this terminal. *2
3	DC Outp (-V), (+V	ut termina ')	als	Connect the load lines to these terminals.
4	Output ir (DC ON:			Lights while a direct current (DC) output is ON.
5	Output v			Use to adjust the voltage. *3
6	Main dis	play (Red	) *4	Indicates the measurement or set value.
			V	Lights up when the output voltage is indicated. Blinks during setup of undervoltage alarm value.
			Α	Lights up during indication of output current.
	Operatio	n	Apk	Lights up during indication of peak hold current.
7	(Orange) *4		Yrs	Lights up during indication of maintenance forecast monitor. Blinks during setup of maintenance forecast monitor setting. (S8VS-
			kh	Lights up during indication of total run time monitor. Blinks during setup of total run time monitor. (S8VS-
8	Mode Ke	ey *4		Use the Mode Key to change the indicated parameter or reset the peak hold current value.
9	Up Key *	5		Use the Up Key to change to the setting mode or to increase the set value.
10	Down Ke	ey *5		Use the Down Key to change to the setting mode or to decrease the set value.
11		Undervo output terminal Low)	•	Output when a drop is detected in the output voltage (voltage drop = transistor OFF).
12	Alarm outputs *5, *6	Maintena Forecast output terminal (		Output when the set value for maintenance is reached (transistor OFF).
				Output when the set value for total run time is reached (transistor OFF).
13		Commor terminal	1	Common terminal for terminals 11 and 12.
			_	

- \*1. The fuse is located on the (L) side. 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.
- \*3. The output voltage cannot be adjusted for the S8VS-09024□□□S.
- \*4. S8VS-\(\sigma\)24A\(\sigma\)/B\(\sigma\)/BE\(\sigma\) only.
- \*5. S8VS-□□24A□□/B□□ only (except the S8VS-06024□).
- **\*6.** Both sinking and sourcing outputs are available.
- \*7. S8VS-\(\subseteq \operatorname{2} 24A\(\subseteq \operatorname{2} \ope
- \*8. S8VS-0024B only (excluding S8VS-06024B).

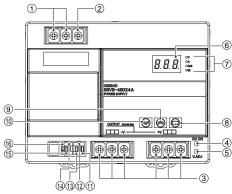
<sup>\*</sup> The terminal arrangement is the same for models with screwless terminal blocks and standard models.

### 480-W Models

### **Standard Model** S8VS-48024



### **Models with Indication Monitor** S8VS-48024



Note: The illustration shows the S8VS-48024A model.

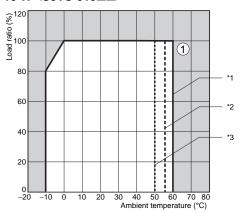
\* The terminal arrangement is the same for models with screwless terminal blocks and standard models.

No.		Name		Function
1		t terminals		Connect the input lines to these
2	(L), (N) Protective			terminals. *1  Connect the ground line to this
3		out termina	als	terminal. *2  Connect the load lines to these
4	(–V), (+\	ndicator		Lights while a direct current (DC)
_	(DC ON Output v	: Green) /oltage adj	uster	output is ON.
5	(V.ADJ)			Use to adjust the voltage.
6	Main dis	play (Red)	*3	Indicates the measurement or set value.
			٧	Lights up when the output voltage is indicated. Blinks during setup of undervoltage alarm value.
			Α	Lights up during indication of output current.
	Operation	on	Apk	Lights up during indication of peak hold current.
7	indicator (Orange	r	Yrs	Lights up during indication of maintenance forecast monitor. Blinks during setup of maintenance forecast monitor setting. (S8VS-48024A)
				Lights up during indication of total run time monitor. Blinks during setup of total run time monitor. (S8VS- 48024B)
8	Mode K	ey *3		Use the Mode Key to change the indicated parameter or reset the peak hold current value.
9	Up Key	*3		Use the Up Key to change to the setting mode or to increase the set value.
10	Down K	ey *3		Use the Down Key to change to the setting mode or to decrease the set value.
11		Undervoloutput ter (DC Low) (Emitter s	minal	Output when a drop is detected in
12		Undervoloutput ter (DC Low) (Collector	minal	the output voltage (voltage drop = transistor OFF).
13	Alarm outputs	Maintena Forecast output ter (Yrs) *4 (Emitter s	nce	Output when the set value for maintenance is reached (transistor OFF).
	*3	Total run output ter (kh) *5 (Emitter s	minal	Output when the set value for total run time is reached (transistor OFF).
14		Maintena Forecast output ter (Yrs) *4 (Collector	minal	Output when the set value for maintenance is reached (transistor OFF).
		Total run output ter (kh) *5 (Collector	minal	Output when the set value for total run time is reached (transistor OFF).
15, 16	NC (Not	connected	d)	

<sup>\*1.</sup> The fuse is located on the (L) side. It is NOT user replaceable.
\*2. This is the protective earth terminal specified in the safety standards. Always ground this terminal.
\*3. S8VS-48024A/B only.
\*4. S8VS-48024A only.
\*5. S8VS-48024B only.

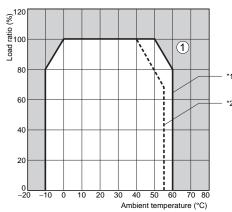
### **Engineering Data**

### **Derating Curve** 15 W <S8VS-015□□>



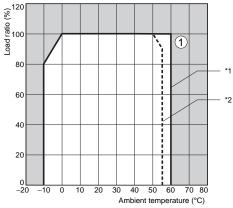
- \*1 Standard mounting
- \*2 Face-up mounting
  \*3 Horizontal mounting

### 30 W <S8VS-03005/S8VS-03012>



- \*1 Standard mounting
- \*2 Face-up mounting/Horizontal mounting

### 30 W <S8VS-03024>



- \*1 Standard mounting
- \*2 Face-up mounting/Horizontal mounting

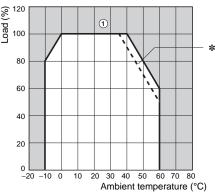
Note: 1. Internal parts may occasionally deteriorate or be damaged. Do not use the Power Supply in areas outside the derating curve (i.e., the area shown by shading A in the above

- 2. If there is a derating problem, use forced air-cooling.
- Provide a space of at least 20 mm when using standard mounting and horizontal mounting. If 20 mm is not available, make sure that the space is at least 10 mm. In this case, reduce the corresponding derating curve by 5°C.
- DC Inputs

If the input voltage is less than 100 VDC, reduce the load given in the above derating curve by at least the following factor.

S8VS-03005: 0.7 max. S8VS-03012/03024: 0.85 max.

#### 60, 90, 120, 180, 240, and 480 W



\* Using side mounting bracket for right-side mounting (excluding 240-W models). UL certification conditions do not apply if the side mounting bracket is used.

Note: 1. Internal parts may occasionally deteriorate or be damaged. Do not use the Power Supply in areas outside the derating curve (i.e., the area shown by shading A in the above

If there is a derating problem, use forced air-cooling.

3. When using a 480-W model at an input voltage of 95 VAC or less, derate the load by at least 80%.

DC Inputs

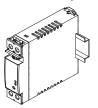
If the input voltage is less than 100 VDC, reduce the load given in the above derating curve by at least the following factor.

60-W models: 0.9 max. 90-W models: 0.85 max.

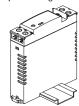
120-W/180-W/240-W models: 0.8 max.

### Mounting 15 and 30 W

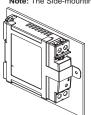
Standard mounting with DIN rail

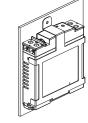


Face-up mounting with DIN rail

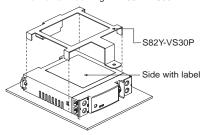


Standard mounting with S82Y-VS30P Face-up mounting with S82Y-VS30P Note: The Side-mounting Bracket can be mounted from either side.



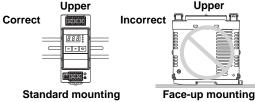


Horizontal mounting with S82Y-VS30P\*



- Note: 1. 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. Do not use the Power Supply mounted in any way not shown above.
  - Use a mounting bracket (\$82Y-VS30P, sold separately) when the Product is mounted horizontally.
  - Heat dissipation will be adversely affected. When the Product is mounted facing horizontally, always place the side with the label facing horizontally.
  - Use PFP-M End Plates on the top and bottom of the Power Supply when mounting horizontally on a DIN rail.

### 60, 90, 120, 180, 240, and 480 W

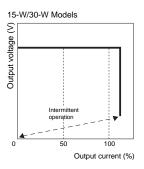


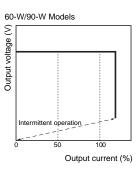
Note: Improper mounting will interfere with heat dissipation and may occasionally result in deterioration or damage of internal parts. It may also result in failure of the maintenance forecast monitor function. Use the standard mounting method only.

#### **Overload Protection**

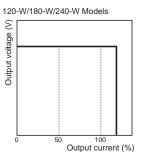
The load and the power supply are automatically protected from overcurrent damage by this function. Overload protection is activated if the output current rises above 105% (151% with S8VS-48024□) of the rated current.

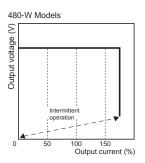
When the output current returns within the rated range overload protection is automatically cleared.





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





The values shown in the above diagrams are for reference only

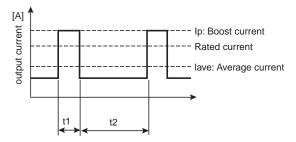
- **Note: 1.** Internal parts may occasionally deteriorate or be damaged if a short-circuited or overcurrent state continues during operation.
  - Internal parts may possibly deteriorate or be damaged if the Power Supply is used for applications with frequent inrush current or overloading at the load end. Do not use the Power Supply for such applications.

### Peak Output Current (S8VS-48024 only)

The boost current is a temporary current that exceeds the rated current. However, it should meet the following four boost current conditions.

- Time that the boost current flows:  $t1 \le 10 \text{ s}$
- The boost current:  $Ip \le Maximum$  boost current
- The average output current: lave ≤ Rated output current
- The time ratio of the boost current flow: Duty  $\leq 30\%$

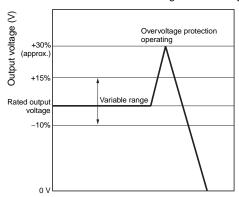
Duty=
$$\frac{t1}{t1+t2}$$
 × 100 [%]  $\leq$  30%



- Do not allow a boost current to flow for more than 10 s.
   Do not allow the duty to exceed 30%. These conditions may damage the Power Supply.
- Do not allow the average current for one cycle of the boost current to exceed the rated current. The Power Supply may be damaged.
- Derate the boost current and the average output current loads according to the ambient operating temperature and mounting direction.

### **Overvoltage Protection**

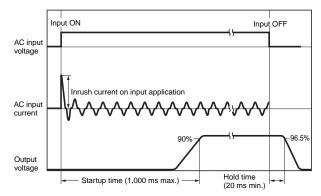
Consider the possibility of an overvoltage and design the system so that the load will not be subjected to an excessive voltage even if the feedback circuit in the Power Supply fails. If an excessive voltage that is approximately 130% of the rated voltage (but approximately 110% of the rated voltage for the S8VS-09024 DDDS) 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



### **Undervoltage Alarm Indication**

LED (DC LOW: red) lights to warn of output voltage drop. Detection voltage is set to approx. 80% (75 to 90%) of the rated output voltage.

Note: This function monitors the voltage at the power supply output terminals. To check actual voltage, measure voltage on the load side.

### 

When output voltage drop is detected, an alarm (RC 1) and lowest output voltage value are indicated alternately. (RC 1 can not be displayed when the output voltage drops below 18.0 V.) The preset value of detection voltage can be changed in the setting mode. (From 18.5 to 27.5 V in 0.1-V steps. The value is fixed at 20.0 V for the S8VS-06024A/S8VS-06024B.)

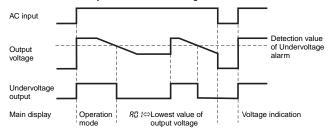
Further, an output (undervoltage output terminal (DC LOW)) to an external device is given from the transistor to notify of the error (excluding S8VS-06024A/S8VS-06024B/S8VS-□□□24BE□). (Output voltage drop = OFF, i.e., no continuity at the undervoltage output terminal (DC LOW).)

Example: Outputting an Alarm When the Voltage Output by the S8VS-09024A□□ Drops to the Set Value (19.0 V) or Lower



**Note: 1.** Operation begins after about three seconds since the AC power is supplied.

- 2. The alarm is not indicated in the setting mode.
- 3. Press the (Mode Key (8)) after the output voltage is restored, to reset alarm indication.
- 4. The undervoltage alarm function may also operate when an interruption in AC input is not restored within 20 ms.
- The undervoltage alarm function monitors the output terminal voltage of the Power Supply. To check the voltage accurately, measure the voltage at the load end.

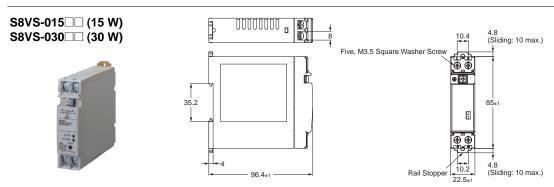


**Note:** Operation begins after about three seconds since the AC power is supplied.

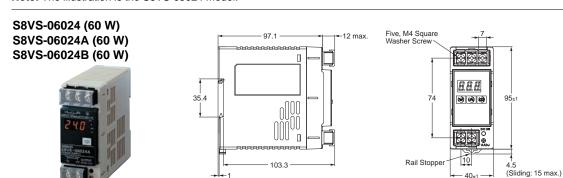
### **Dimensions**

### **Power Supplies with Screw Terminal Blocks**

Note: All units are in millimeters unless otherwise indicated.

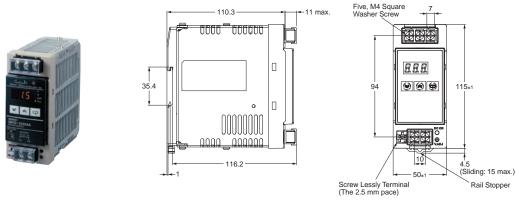


Note: The illustration is the S8VS-03024 model.



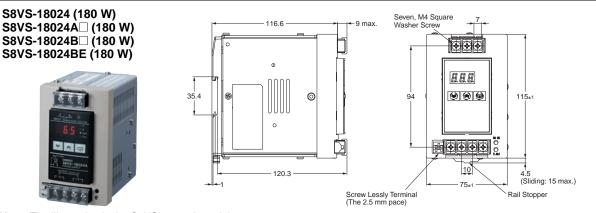
Note: The illustration is the S8VS-06024A model.

S8VS-09024 (90 W) /S8VS-09024S (90 W) /S8VS-12024 (120 W) S8VS-09024A (90 W) /S8VS-09024A (90 W) /S8VS-12024A (120 W) S8VS-09024B□ (90 W) /S8VS-09024B□S (90 W) /S8VS-12024B□ (120 W) S8VS-09024BE (90 W) /S8VS-09024BES (90 W) /S8VS-12024BE (120 W)

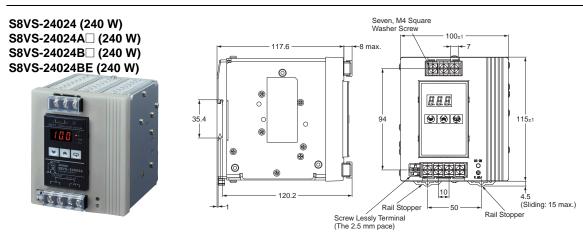


40+1

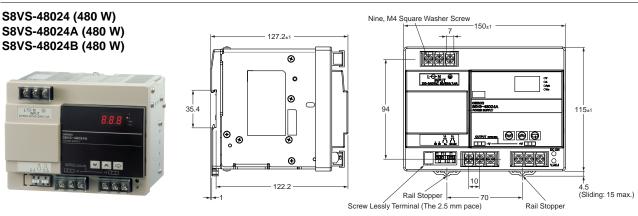
Note: The illustration is the S8VS-12024A model.



Note: The illustration is the S8VS-18024A model.



Note: The illustration shows the S8VS-24024A model.

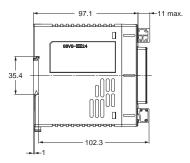


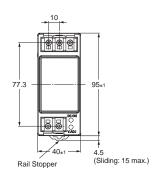
Note: The illustration shows the S8VS-48024A model.

### **Power Supplies with Screwless Terminal Blocks**

S8VS-06024-F (60 W) S8VS-06024A-F (60 W) S8VS-06024B-F (60 W)



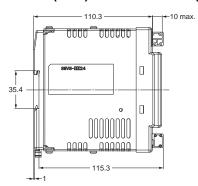


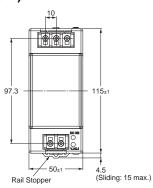


Note: The illustration shows the S8VS-06024-F model.

S8VS-09024-F (90 W) /S8VS-09024S-F (90 W) /S8VS-12024-F (120 W) S8VS-09024A - F (90 W) /S8VS-09024A - F (90 W) /S8VS-12024A - F (120 W) S8VS-09024B - F (90 W) /S8VS-09024B - F (120 W) S8VS-09024B - F (90 W) /S8VS-09024B - F (120 W) S8VS-09024B - F (120 W)



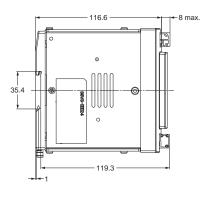


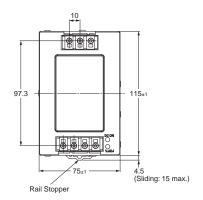


Note: The illustration shows the S8VS-12024-F model.

S8VS-18024-F (180 W) S8VS-18024A□-F (180 W) S8VS-18024B□-F (180 W) S8VS-18024BE-F (180 W)



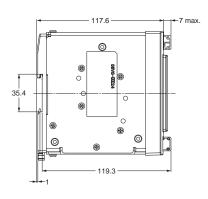


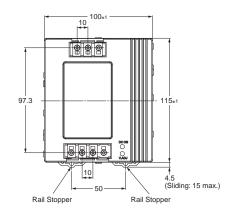


Note: The illustration shows the S8VS-18024-F model.

S8VS-24024-F (240 W) S8VS-24024A□-F (240 W) S8VS-24024B□-F (240 W) S8VS-24024BE-F (240 W)



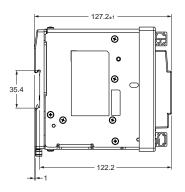


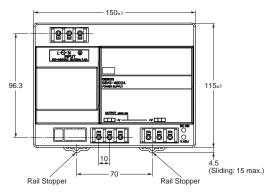


Note: The illustration shows the S8VS-24024-F model.

S8VS-48024-F (480 W) S8VS-48024A-F (480 W) S8VS-48024B-F (480 W)







Note: The illustration shows the S8VS-48024-F model.

### **DIN Rail (Order Separately)**

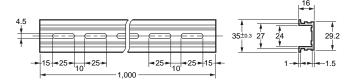
Note: All units are in millimeters unless otherwise indicated.

# Mounting Rail (Material: Aluminum) PFP-100N PFP-50N 7.3±0.15 1,000 (500) Values in parentheses are for the PFP-50N.

### **Mounting Rail (Material: Aluminum)**

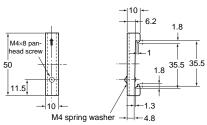
### PFP-100N2





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.

### **Terminal Block Cover (Order Separately)**

S8VS	Input side	Output side
15W	S82Y-V	S-C2P-S
30W	S82Y-V	S-C2P-S
60W	S82Y-VS-C3P	S82Y-VS-C2P-M
90W	S82Y-VS-C3P	S82Y-VS-C2P-M
120W	S82Y-VS-C3P	S82Y-VS-C2P-M
180W	S82Y-VS-C3P	S82Y-VS-C4P
240W	S82Y-VS-C3P	S82Y-VS-C4P
480W	S82Y-1	VS-C3P

Note: Terminal block cover attaches to the body. Please order from the loss time.

### **Mounting Brackets**

Name	Model
Side-mounting Bracket (for 15- and 30-W models)	S82Y-VS30P
Side-mounting Bracket (for 60-, 90-, and 120-W models)	S82Y-VS10S
Side-mounting Bracket (for 180-W models)	S82Y-VS15S
Side-mounting Bracket (for 240-W models)	S82Y-VS20S
Front-mounting Bracket (for 60-, 90-, 120-, 180-, and 240-W models) *	S82Y-VS10F

Note: Brackets cannot be used for 480-W models.

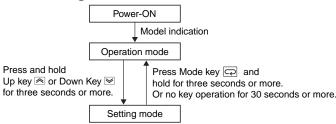
\* Two required to mount a 240-W model.

Туре	Model	Dimensions	Appearance
Side-mounting Bracket (For 15-, 30-W models)	S82Y-VS30P	$\begin{array}{c} 0.5 \\ \hline 109.4 \pm 0.1 \end{array}$ $\begin{array}{c} 7.1 \\ 3.5 \text{ dia.} \end{array}$ $\begin{array}{c} 3.5 \text{ dia.} \end{array}$ $t = 0.8$	
Side-mounting Bracket (For 60-, 90-, 120-W models)	S82Y-VS10S	4.5 dia.so.1 4.5 dia.so.1 60:0.1 1 = 2.0	Left-side mounting Right-side mounting
Side-mounting Bracket (For 180-W models)	S82Y-VS15S	4.5 dia±0.1 4.5 dia±0.1 47.5 89 t = 2.0	Left-side mounting  *Right-side mounting also possible.
Side-mounting Bracket (For 240-W models)	S82Y-VS20S	4.5 dia::0.1 4.5 dia::0.1 60 114 t = 2.0	Left-side mounting  *Right-side mounting also possible.
Front-mounting Bracket (For 60-, 90-, 120-, 180-, and 240-W models)	S82Y-VS10F	4.5 dia.so.1  35so.1  7.3  50  10	(For 60-, 90-, 120-, 180-W type) 180-W types)  *Use two S82Y-VS10F brackets for the 240-W type.

### **Display and Alarm Output Functions and Operating Procedures**

S8VS-\undersigned 24A\undersigned models (with display monitor) can display the output voltage, output current, peak hold current, or maintenance forecast monitor time. S8VS-\undersigned 24B\undersigned \undersigned 8VS-\undersigned 24B\undersigned 8VS-\undersigned 8VS-

### **Mode Change**

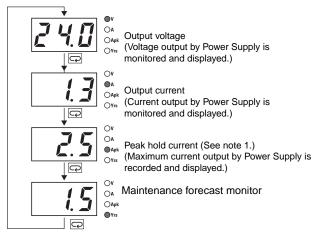


**Note:** No setting mode is provided for the S8VS-06024 $\square$ .

### **Operation Mode**

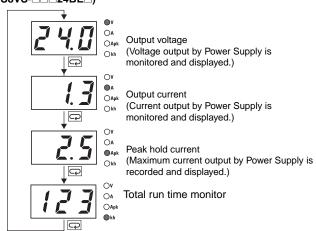
Various states of the Power Supply are indicated.

Models with Maintenance Forecast Monitor (S8VS-DD24ADD)



be indicated in the same display when shutting down.

### Models with Total Run Time Monitor (S8VS-□□□24B□□/S8VS-□□□24BE□)



Note: 1. The peak hold current starts measuring the current 3 seconds after the Power Supply is started. Inrush current is thus not measured.

2. For the factory setting, the output voltage will be displayed when the power supply is first turned ON. Thereafter, the output voltage will

### Setting Mode (Except for S8VS-06024□)

Set various parameters of the Power Supply.

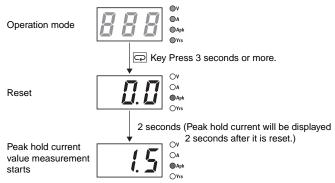
Models with Maintenance Forecast Monitor (S8VS-D24AD) Models with Total Run Time Monitor (S8VS-024B0/S8VS-024BE0) **⊚**A Operation Mode Operation Mode ○ Ap Press 3 seconds or more or no key Press 3 seconds or more or no key Press 3 seconds pressed for 30 seconds or more Press 3 seconds pressed for 30 seconds or more. or more. or more.\_ Undervoltage Undervoltage ÓΑ 18.5 to 20.0 to 27.5 (V) 18.5 to 20.0 to 27.5 (V) detected ○Apl detected 0.1-V steps 0.1-V steps Maintenance Total run 0.0 to 0.5 to 5.0 (y) 1 to 50 to 150 ( × 1000 h) OA time 0.5-year steps 1,000-hour steps Q Q \* Factory settings are in \* Factory settings are in reverse type. reverse type.

**Note: 1.** Press and hold the (9) Up Key 🔊 or (10) Down Key 🗹 for two seconds or more to increase or decrease the value rapidly.

2. The S8VS-06024□ is not provided with the setting mode and its parameters are fixed at the shipment setting.

### **Peak Hold Current Reset**

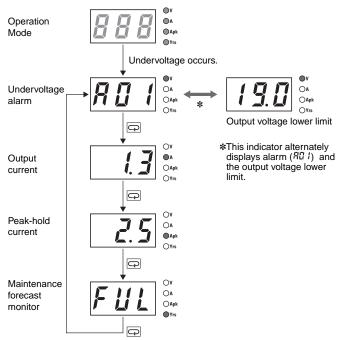
The peak value of the output current (i.e., the peak hold current) can be reset on the display.



Note: The peak hold current value is not reset in the setting mode.

### **Undervoltage Alarm Indication**

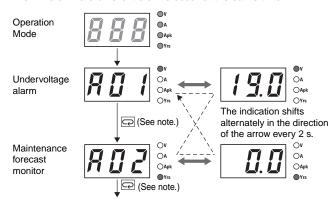
This indicator lights when the output voltage lowers.



- Note: 1. When the voltage is restored to the set value or higher and the Key is pressed at the RD I display to return to the output current display, the RD I alarm will be cleared and the normal output display will return.
  - The above displays are for models with a maintenance forecast monitor (S8VS-\(\sigma\) (24A\(\sigma\)).

### **Multiple Alarms**

When two or more different alarms occur at the same time



\* When undervoltage alarm is indicated: Press  $\bigcirc$  Key  $\rightarrow$  output load indication When the maintenance forecast monitor or overheat alarm is

### **Self-Diagnostics Function**

Numbers in the following table indicate the number used in Nomenclature on pages 15 and 17.

(6) Main display	Description	Output status	Restoration method	Setting after restoration
	Noise detected in voltage or current	No change	Automatic reset.	No change
Hot	Overheated	Maintenance forecast output terminal (Yrs) turns OFF.	Automatic reset.	No change
EO I	Undervoltage alarm set value memory error	Undervoltage output terminal (DC LOW) turns OFF.	Press and hold the Up Key ⚠ (9) or Down	Shipment setting or value set in the setting mode again
E02	Memory error of alarm set value of maintenance forecast monitor or total run time monitor	Maintenance forecast output terminal (Yrs) turns OFF or total run time output terminal (kh) turns OFF.	Key № (10) for three seconds and check the set value of the corresponding point. The set value must return to the shipment setting	
E03	Other memory error	Undervoltage output terminal (DC LOW) turns OFF. Maintenance forecast output terminal (Yrs) turns OFF or total run time output terminal (kh) turns OFF.	Turn the AC input OFF then ON again. If the Product is not reset, contact the dealer.	No change

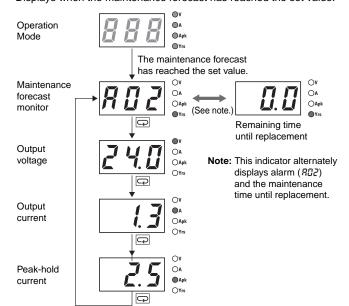
- Note: 1. External noise is probable as a cause of "---", "ED !", "ED2", and "ED3" errors.

  2. Operation out of the derating curve area, ventilation error, and incorrect mounting direction are probable as a cause of "Hob" error.

  3. If the "Hob" error state continues for more than three hours, the maintenance forecast monitor function becomes invalid. The Yrs output (Maintenance forecast output terminal (Yrs)) will remain OFF (no continuity). Replace the power supply if this condition occurs even if the output is correct, as internal parts may be deteriorated.
  - 4. The "Hot" error detection function is only for the S8VS-□□□24A□□.

### **Maintenance Forecast (S8VS-□□□24A□□)**

Displays when the maintenance forecast has reached the set value.



#### **Indication and Output**

When the Product is purchased, "FUL" will be indicated. As electrolytic capacitors deteriorate, indication changes to "HLF" (Refer to page 30). "FUL" will be indicated for the maintenance forecast display for approximately one month after the Power Supply is first turned ON. The accumulated value will then be displayed depending on the ambient conditions thereafter. (However, the "HLF" indication may not appear, depending on the usage environment and the set value for maintenance forecast.)

#### S8VS-06024A:

After the remaining time to maintenance is reduced to less than two years, indication automatically changes to a value, which decreases from "1.5" to "1.5" as the running hours increase. If the remaining time becomes less than 0.5 year, an alarm (1.5) and "1.5" are indicated alternately.

### S8VS-09024A□□/S8VS-12024A□, S8VS-18024A□/S8VS-24024A□/S8VS-48024A:

If the maintenance forecast setting L (which can be set arbitrarily from 0.0 to 5.0 years in 0.5-year steps) is set to a value larger than two years, the indication automatically changes to a value (L - 0.5) after the remaining time to maintenance is reduced to the set years, and an alarm (RD2) and the remaining time are indicated alternately. If the setting is less than 2.0 years, the indication changes to a value (1.5) after the remaining time becomes less than two years, and after the remaining time becomes less than the set time, an alarm (RD2) and the remaining time (L - 0.5) are indicated alternately. If the alarm (RD2) and a numeric value are indicated alternately, a transistor (maintenance forecast output terminal (Yrs)) will turn OFF to indicate the need for maintenance. (The transistor turns OFF when the maintenance forecast time is reached, i.e., there will be no continuity at the maintenance forecast output terminal.)



- **Note: 1.** The remaining time to maintenance is based on continuous operation, not including the time when the power supply is turned OFF.
  - 2. "FUL" will be indicated until approximately one month of time is accumulated to estimate the speed of deterioration and the output will remain ON (continuity at the maintenance forecast output terminal (Yrs)).
  - 3. For details on the display, refer to Relationship between Indicated Values and Output of Set Values under Maintenance Forecast Monitor Function on page 30.

#### **Maintenance Forecast Monitor Function**

The Power Supply is equipped with electrolytic capacitors.

The electrolyte inside the electrolytic capacitor penetrates the sealing rubber and evaporates as time passes since it is manufactured, which causes deterioration of characteristics such as decreasing the capacitance, etc.

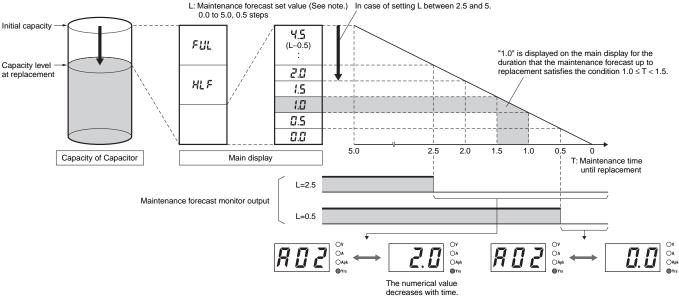
Due to this deterioration of the characteristics of the electrolytic capacitor, the Power Supply decreases its performance as time passes.

The maintenance forecast monitor function shows an approximate period left for maintenance of the Power Supply due to deterioration of electrolytic capacitors. When the period left for maintenance that the power supply forecasts reaches the set value, an alarm is indicated and an output signal is triggered.

Use this function to know the approximate replacement timing of the Power Supply.

Note: The maintenance forecast monitor function indicates an approximate period left for maintenance, based on deterioration of the electrolytic capacitor. It does not predict failures caused by other reasons.

### Relationship between Indicated Values and Output of Set Values



**Note:** This function can be set only on the S8VS-09024A $\square$  $\square$ , S8VS-12024A $\square$ , S8VS-18024A $\square$ , S8VS-24024A $\square$ , and S8VS-48024A.

### **Principle of Operation**

The deterioration speed of the electrolytic capacitor varies considerably according to the ambient temperature. (Generally the speed follows "Rule of Two for every 10°C"; for every 10°C increase in temperature the rate of degradation doubles according to Arrhenius's equation.) The S8VS-\u2014\u2012 4A\u2014\u2014 monitors the temperature inside the power supply, and calculates the amount of deterioration according to the running hours and inside temperature. Judging by this amount of deterioration, the power supply will give the alarm indication and output when the period left for maintenance reaches the set value.

- Note: 1. Due to degradation of internal electronic parts, replace the power supply approximately 15 years after purchase even if indication and output of maintenance forecast monitor are not issued.
  - The maintenance forecast is accelerated or decelerated according to operating conditions. Periodically check indication.
  - Acceleration or deceleration of the maintenance forecast may cause the output to repeatedly go ON/OFF.
     Only the S8VS-09024A□□, S8VS-12024A□, S8VS-18024A□, S8VS-24024A□, and S8VS-48024A are equipped with output.
  - 4. The accuracy of the maintenance forecast function may be adversely affected by applications in which the AC input is frequently turned ON/OFF.

### Reference Values (15-W to 480-W Models)

Item	Value	Definition
Reliability (MTBF)	15 W to 240 W: 135,000 hr min. 480 W: 60,000 hr min.	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 the life of the Product.
Life expectancy	10 yr min.	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.

Note: The maintenance forecast is the service life (the power supply's internal temperature is monitored at all times) of the internal electrolytic capacitor in actual operating conditions, and varies according to the customer's operating conditions.

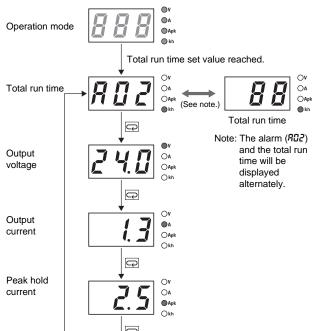
15 years is taken as the maximum period of the maintenance forecast.

# Models with Total Run Time Monitor (S8VS-\( \square\) 24B\( \square\)/S8VS-\( \square\) 24BE\( \square\) S8VS-06024B

The accumulated value of the operating time of the Power Supply is displayed as the total run time. I (kh) will be displayed initially after purchase and then the display will advance in I-kh steps as the operating time accumulates. The S8VS-06024B, however, does not have an alarm function (setting, display, or output).

S8VS-24024B / S8VS-24024BE / S8VS-48024B

The display will appear when the set value for the total run time has been reached.



The accumulated value of the operating time of the Power Supply is displayed as the total run time.  $\square$  (kh) will be displayed initially after purchase and then the display will advance in I-kh steps as the operating time accumulates. When the total run time reaches the alarm set value, the alarm ( $R\square 2$ ) and the total run time will be displayed alternately and a transistor (total run time output terminal (kh)) will output the status externally.

(Alarm set value reached = OFF, i.e., no continuity at the total run time output terminal (kh))

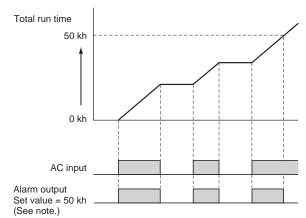
The alarm set value can be changed in the setting mode. The S8VS-09024BE□, S8VS-12024BE, S8VS-18024BE, and S8VS-24024BE do not have an alarm output.

Example: Alarm Displays When a Total Run Time Set Value of 88 kh Is Reached



**Note:** The total run time cannot be reset. To clear the alarm, change the alarm set value to a value higher than the value displayed for the total run time.

#### **Time Chart**



\* Setting is possible for the following models only: \$8VS-09024B□□, \$8VS-09024BE□, \$8VS-12024B□, \$8VS-12024BE, \$8VS-18024B□, \$8VS-18024BE, \$8VS-24024B□, \$8VS-24024BE, \$8VS-48024B

**Note: 1.** The total run time does not include the time that the Power Supply is OFF.

The total run time measures the total time that power is being supplied and is not related in any way to deterioration in the electrolytic capacitor built into the Power Supply or to the effects of the ambient temperature.

### **Safety Precautions**

### / 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 (15- and 30-W models: 0.8 to 1.0 N·m/60-, 90-,120-, 180-, 240-, and 480-W models: 1.08 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.



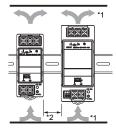
Minor electric shock, fire, or Product failure may occasionally occur. Do not allow any pieces of metal or conductors or any clippings or cuttings resulting from installation work to enter the Product.



#### **Precautions for Safe Use**

### 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.

### 15-W and 30-W Models

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

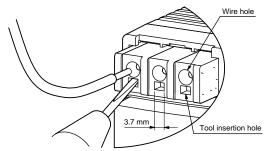
### 60-W, 90-W, 120-W, 180-W, 240-W, and 480-W Models

- Improper mounting will interfere with heat dissipation and may occasionally result in deterioration or damage of internal parts. Use the standard mounting method only.
- The internal parts may occasionally deteriorate and be broken due to adverse heat radiation. Do not loosen the screw on the side face of the main body.

### Wiring

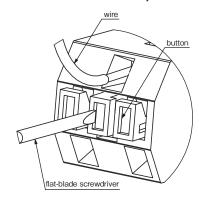
- Connect the ground completely. A protective earthing terminal stipulated in safety standards is used. Electric shock or malfunction may occur if the ground is not connected completely.
- Minor fire may possibly occur. Ensure that input and output terminals are wired correctly.
- Do not apply more than 100-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.
- When wiring a screwless terminal block, do not insert more than one wire into a single terminal.
- When using a screwless terminal block, connect or disconnect the I/O wire to each terminal while inserting an appropriate tool, such as a flat-blade screwdriver, into the tool insertion hole. Make sure that the wire is securely connected to the terminal after wiring. Do not insert wires into the tool insertion holes.

If a wire is not inserted far enough or if it is loose, electric shock, fire, or equipment failure may occur. Strip the wires according to specifications. Insert an appropriate tool, such as a flat-blade screwdriver, into the tool insertion hole, insert the wire until the stripped portion is no longer visible, and then remove the tool. Make sure that the wires are securely connected to the terminal block after wiring. Never insert wires into the tool insertion holes.



 The method of use Alarm output terminal
 The method of use Alarm output terminal is push the button then insert or pull out the wire.

Please make sure that the wire is already fixed on the terminal.



 Use the following material for the wires to be connected to the S8VS to prevent smoking or ignition caused by abnormal loads.

### Recommended Wire Type 15-W and 30-W Models

Model	Stranded wire	Solid wire
S8VS-03005	AWG18 to 14 (0.9 to 2.0 mm <sup>2</sup> )	AWG18 to 16 (0.9 to 1.1 mm <sup>2</sup> )
Other models	AWG20 to 14 (0.5 to 2.0 mm <sup>2</sup> )	AWG20 to 16 (0.5 to 1.1 mm <sup>2</sup> )

#### 60-W, 90-W, 120-W, 180-W, 240-W, and 480-W Models

	Recommended wire size		
Model	Input terminals	Output terminals	Alarm output terminals
S8VS-06024		AWG14 to 20	
S8VS- 09024	AWG14 to 20 (Cross section: 0.517 to 2.081 mm <sup>2</sup> )	(Cross section: 0.517 to 2.081 mm <sup>2</sup> )	
S8VS- 12024		AWG14 to 18 (Cross section: 0.823 to 2.081 mm <sup>2</sup> )	AWG18 to 28
S8VS- 18024□□□		AWG14 to 16 (Cross section: 1.309 to 2.081 mm <sup>2</sup> )	section: 0.081 to 0.823 mm <sup>2</sup> ) (Wires to be stripped:
S8VS- 24024		AWG14	9 to 10 mm)
S8VS-48024□	AWG 14 to 16 (Cross section: 1,309 to 2,081 mm <sup>2</sup> )	(Cross section: 2.081 mm <sup>2</sup> )	

- Strip I/O wires for 11 mm when using a screwless terminal block.
- \*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 25% to 90%.
- 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 25% to 85%.
- 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.

### S8VS-UU24AUU Models only

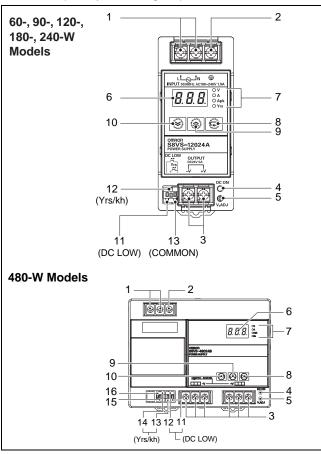
Satisfy the following conditions when storing the Power Supply for long periods of time to maintain its remaining service life function. When storing for more than three months, store within an ambient temperature range of -25 to  $+30^{\circ}$ C and the humidity range of 25% to 70%.

### Periodic Check for Models with Indication Monitor Except 60-W Models

- 1. Select the operation mode.
- 2. Check that the output (Yrs/kh) is turned ON (with continuity).
- 3. In the operation mode, press and hold the Down Key ☑ (10) and the Mode Key ☑ (8) simultaneously for at least three seconds. The main display (6) changes to "RŪ2".

  An inactive output (Yrs/kh) (no continuity) in the "RŪ2" indication.
  - An inactive output (Yrs/kh) (no continuity) in the "#\$\mathbb{H}\mathbb{Z}" indication indicates the correct function.
- 4. Release keys to return to the regular state.

Note: DC output stays ON during the periodical check.



### **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.

### Alarm Output for Models with Indication Monitor Except 60-W and BE Models

When using the alarm output, sufficiently consider the maximum ratings, residual voltage, and leakage current.

Transistor output:

Sinking for S8VS-24A \( \textsquare \) \( \textsquare \) 24B \( \textsquare \) models Sourcing for S8VS-\( \textsquare \) 24AP \( \textsquare \) \( \textsquare \) 24BP \( \textsquare \)

models

Sinking/Sourcing for S8VS-48024A/B models

30 VDC max., 50 mA max. ON residually voltage: 2 V max. OFF leakage current: 0.1 mA max.

### 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.

#### 15-W, 30-W Models

 If the output voltage is set to a value less than -10%, the undervoltage alarm function may operate.

#### 60-W, 90-W, 120-W, 180-W, 240-W, and 480-W Models

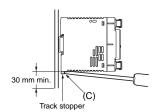
 If the detection voltage of the undervoltage alarm function is at the factory setting and the output voltage is set to a value of 20 V or less, the undervoltage alarm function may operate.

### **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).



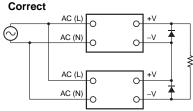
To dismount the Block, pull down portion (C) with a flat-blade screwdriver and pull out the Block.



### **Series Operation**

#### (24-V Model)

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.

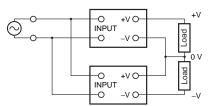
Туре	Schottky Barrier diode
Dielectric strength (VRRM)	Twice the rated output voltage or above
Forward current (IF)	Twice the rated output current or above

- Although Products having different specifications can be connected in series, the current flowing through the load must not exceed the smaller rated output current.
- 3. Serial operation is not possible with 5-V and 12-V models.

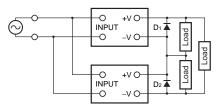
#### **Making Positive/Negative Outputs**

 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.



- Use the following information as a guide to the diode type, dialectic strength, and current.
- Type: Schottky barrier diode
- Dielectric strength (VRRM): Twice the rated Power Supply output voltage or higher
- Forward current (IF): Twice the rated Power Supply output current or higher

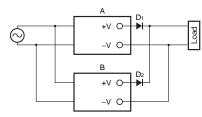
### **Parallel Operation**

The Product is not designed for parallel operation.

# AC (L) O +V AC (N) O -V AC (N) O -V

### **Backup Operation**

 Backup operation can be performed. Backup operation provides protection by using an extra Power Supply even if the output current is sufficient with one Power Supply. If one of the Power Supplies fails, the second Power Supply still provides sufficient power.



Use the same model for Power Supplies A and B.

- Use a load capacity that can be supplied by either Power Supply A or Power Supply B alone.
- If backup operation is used, be sure to connect a diode to both Power Supply A and Power Supply B as shown in the above figure so that the backup Power Supply is not affected by a failed Power Supply.

Use the following information as a guide to the diode type, dialectic strength, and current.

- Type: Schottky barrier diode
- Dielectric strength (VRRM): Rated Power Supply output voltage or higher
- Forward current (IF): Twice the rated Power Supply output current or higher
- Increase the output voltage setting of Power Supply A and Power Supply B by the drop in the forward voltage (VF) of diodes D1 and D2.

Also, the diodes will cause a power loss equivalent to the Power Supply output current (Iout) times the diode forward voltage (VF). Therefore, cooling measures must be implemented so that the temperature of the diodes decreases to the catalog value or lower.

 Because of the load power and power loss due to the diodes, do not exceed the rated power of one Power Supply (rated output voltage x rated output current).

### 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.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

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