

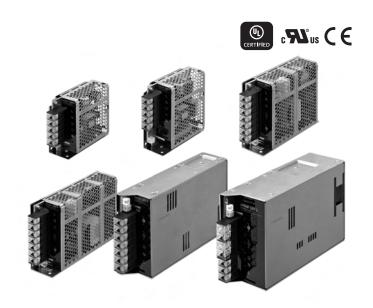
# Switch Mode Power Supply S8FS-G (15/30/50/100/150/300/600-W Models)

# Superior Basic Performance That Ensures Reliability. Wide Range of Standards Certification and Greater Usability.

- Superior basic performance that ensures reliability Ambient temperatures up to 70°C, greater resistance to rusting with aluminum/stainless steel case, and applications at altitudes up to 3,000 m.
- Certification for Global Standards
   North America: UL 508 (Listing)\*, CSA C22.2
   Europe: Overvoltage Category III (EN 50178)
   EMI: Class B (EN 61204-3)

No need for control circuit transformers for which the Machinery Directive is specified. (EN/IEC 61558-2-16) \*Refer to pages 4 to 10 for certified models.

Greater Usability
 The Terminal Block Cover prevents screws from dropping out and the Front Cover prevents ingress of foreign matter.



Refer to Safety Precautions for All Power Supplies and Safety Precautions on page 29.

勝特力電材超市-龍山店 886-3-5773766 勝特力電材超市-光復店 886-3-5729570 胜特力电子(上海) 86-21-34970699 胜特力电子(深圳) 86-755-83298787 http://www.100y.com.tw

# Lineup

Output voltage (VDC)				Power rating			
Output voltage (VDC)	15 W	30 W	50 W	100 W	150 W	300 W	600 W
5 V	Yes	Yes	Yes	Yes	Yes		
12 V	Yes	Yes	Yes	Yes	Yes	Yes	Yes
15 V	Yes	Yes	Yes	Yes	Yes	Yes	Yes
24 V	Yes	Yes	Yes	Yes	Yes	Yes	Yes
48 V					Yes	Yes	Yes

### **Model Number Structure**

#### **Model Number Legend**

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

S8FS-	$G \square \square \square$				-		
	1	2	3	4	5	6	7

i. Power Ratings	2. Output vo
015: 15 W	(VDC)
030: 30 W	05: 5 V
050: 50 W <b>*1</b>	12: 12 V
100: 100 W <b>*2</b>	15: 15 V
150: 150 W <b>*3</b>	24: 24 V
300: 300 W	48: 48 V

600: 600 W

2. Output voltage 3. Configuration

C: With cover/Direct mounting
CD: With cover/DIN Rail mounting

4. Option (1)

None: Screw terminal block E: Connectors **\*4**  5. Option (2) \*5 7. Option (4) \*7

None: None None None

None None: None
Parallel operation H: Extended hold time

6. Option (3) \*6

None: None
R: Remote control

\*1. The output electric power is 40 W for products with an output voltage of 5 V. \*2. The output electric power is 80 W for products with an output voltage of 5 V.

\*3. The output electric power is 105 W for products with an output voltage of 5 V.

 $\pmb{*4.}$  Applicable only for 150 W or less and 24 V.

**★5.** Applicable only for 600 W and 24 V.

\*6. Applicable only for 100 W or more and 24 V.

\*7. Applicable only for 300 W or more and 24 V.

# **Ordering Information**

#### **List of Models**

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

#### With Cover/DIN Rail Mounting

ower ratings	Input voltage	Output voltage (VDC)	Output current	Built-in fan	Model
		5 V	3 A		S8FS-G01505CD
45 144		12 V	1.3 A		S8FS-G01512CD
15 W		15 V	1 A		S8FS-G01515CD
		24 V	0.65 A		S8FS-G01524CD
		5 V	6 A		S8FS-G03005CD
30 W		12 V	3 A		S8FS-G03012CE
30 W	100 to 240 VAC (Permissible range	15 V	2.4 A		S8FS-G03015CE
		24 V	1.5 A		S8FS-G03024CI
		5 V	8 A <b>*</b> 1		S8FS-G05005CE
50 W		12 V	4.3 A		S8FS-G05012CI
50 W	85 to 264 VAC,	15 V	3.5 A	None	S8FS-G05015CI
	80 to 370 VDC) *4	24 V	2.2 A		S8FS-G05024CI
	<b>₹</b>	5 V 16 A *2		S8FS-G10005CI	
100 W		12 V	8.5 A		S8FS-G10012CI
		15 V	7 A		S8FS-G10015CI
		24 V	4.5 A		S8FS-G10024CE
		5 V	21 A <b>*</b> 3		S8FS-G15005CI
		12 V	13 A		S8FS-G15012CI
150 W		15 V	10 A		S8FS-G15015CE
		24 V	6.5 A		S8FS-G15024CI
		48 V	3.3 A		S8FS-G15048CE
	100 to 240 VAC	12 V	25 A		S8FS-G30012CE
300 W	(Permissible range	15 V	20 A		S8FS-G30015CE
300 W	85 to 264 VAC,	24 V	14 A		S8FS-G30024CE
	120 to 370 VDC)	48 V	7 A	Yes	S8FS-G30048CE
	100 to 240 VAC	12 V	50 A	res	S8FS-G60012CE
600 W	(Permissible range	15 V	40 A		S8FS-G60015CE
000 W	85 to 264 VAC,	24 V	27 A		S8FS-G60024CE
120 to 350 VDC)		48 V	13 A	7	S8FS-G60048CD

**Note:** Ask your OMRON representative for pricing information on optional models.

#### With Cover/DIN Rail Mounting (Extended hold time type)

Power ratings	Input voltage	Output voltage (VDC)	Output current	Built-in fan	Model
300 W	100 to 240 VAC (Permissible range 85 to 264 VAC, 120 to 370 VDC)	24 V	14 A	Yes	S8FS-G30024CD-H
600 W	100 to 240 VAC (Permissible range 85 to 264 VAC, 120 to 350 VDC)	24 V	27 A	res	S8FS-G60024CD-H

**<sup>\*1.</sup>** The output electric power is 40 W.

**<sup>\*2.</sup>** The output electric power is 80 W.

**<sup>\*3.</sup>** The output electric power is 105 W.

**<sup>\*4.</sup>** Applicable to products produced from May 2018.

#### With Cover/Direct Mounting

Power ratings	Input voltage	Output voltage (VDC)	Output current	Built-in fan	Model
		5 V	3 A		S8FS-G01505C
15 W		12 V	1.3 A		S8FS-G01512C
15 W		15 V	1 A		S8FS-G01515C
		24 V	0.65 A		S8FS-G01524C
		5 V	6 A		S8FS-G03005C
30 W		12 V	3 A		S8FS-G03012C
30 W		15 V	2.4 A		S8FS-G03015C
	100 to 240 VAC (Permissible range 85 to 264 VAC,	24 V	1.5 A		S8FS-G03024C
		5 V	8 A <b>*</b> 1		S8FS-G05005C
50 W		12 V	4.3 A		S8FS-G05012C
50 W		15 V	3.5 A	None	S8FS-G05015C
	80 to 370 VDC) *4	24 V	2.2 A		S8FS-G05024C
100 W	<b>ሶ</b> 4	5 V	16 A <b>*</b> 2		S8FS-G10005C
		12 V	8.5 A		S8FS-G10012C
100 W		15 V	7 A		S8FS-G10015C
		24 V	4.5 A		S8FS-G10024C
		5 V	21 A <b>*</b> 3		S8FS-G15005C
		12 V	13 A		S8FS-G15012C
150 W		15 V	10 A		S8FS-G15015C
		24 V	6.5 A		S8FS-G15024C
		48 V	3.3 A		S8FS-G15048C
	100 to 240 VAC	12 V	25 A		S8FS-G30012C
000 144	(Permissible range	15 V	20 A		S8FS-G30015C
300 W	85 to 264 VAC,	24 V	14 A		S8FS-G30024C
	120 to 370 VDC)	48 V	7 A	Van	S8FS-G30048C
	100 to 240 VAC	12 V	50 A	Yes	S8FS-G60012C
000 144	(Permissible range	15 V	40 A		S8FS-G60015C
600 W	85 to 264 VAC,	24 V	27 A		S8FS-G60024C
120 to 350 VDC)	120 to 350 VDC)	48 V	13 A		S8FS-G60048C

Note: 1. Ask your OMRON representative for pricing information on optional models.

To mount a Power Supply from the front, purchase a DIN Rail-mounting Power Supply and a Front-mounting Bracket (sold separately). Refer to page 27.

#### With Cover/Direct Mounting (Extended hold time type)

Power ratings	Input voltage	Output voltage (VDC)	Output current	Built-in fan	Model
300 W	100 to 240 VAC (Permissible range 85 to 264 VAC, 120 to 370 VDC)	- 24 V	14 A	Yes	S8FS-G30024C-H
600 W	100 to 240 VAC (Permissible range 85 to 264 VAC, 120 to 350 VDC)	Z4 V	27 A	res	S8FS-G60024C-H

#### With Cover/Direct Mounting (Connector type)

Power ratings	Input voltage	Output voltage (VDC)	Output current	Built-in fan	Model
15 W	100 +- 040 1/40		0.65 A		S8FS-G01524CE
30 W	100 to 240 VAC (Permissible range		1.5 A		S8FS-G03024CE
50 W	85 to 264 VAC,	24 V	2.2 A	None	S8FS-G05024CE
100 W	80 to 370 VDC) *4		4.5 A		S8FS-G10024CE
150 W	<b>~</b> 4		6.5 A		S8FS-G15024CE

<sup>\*1.</sup> The output electric power is 40 W.

<sup>2.</sup> Front-mounting is not possible.

<sup>\*2.</sup> The output electric power is 80 W.

**<sup>\*3.</sup>** The output electric power is 105 W.

**<sup>\*4.</sup>** Applicable to products produced from May 2018.

# **Specifications**

		Power rating			15 W			
Item	Ou	utput voltage (VDC)	5 V	12 V	15 V	24 V		
		100 VAC input	80% typ.	84% typ.	84% typ.	85% typ.		
Efficiency *		200 VAC input	80% typ.	84% typ.	84% typ.	86% typ.		
		230 VAC input	80% typ.	84% typ.	84% typ.	86% typ.		
	Voltage range *		Single phase, 85 to 264	* * * * * * * * * * * * * * * * * * * *	2	37.		
	Frequency *		50/60 Hz (47 to 450 Hz					
	r requeriey 4	100 VAC input	0.32 A typ.	)				
	Current *	200 VAC input	0.2 A typ.					
	Dawey factor th	200 VAC IIIput	0.2 A typ.					
Input	Power factor *	400 VAO :t						
	Leakage current *	100 VAC input	0.5 mA max.					
		200 VAC input	1 mA max.					
	Inrush current * (for a cold start at	100 VAC input	14 A typ.					
	25°C)	200 VAC input	28 A typ.					
	Rated Output Currer	nt	3 A	1.3 A	1 A	0.65 A		
	Voltage adjustment		-10% to 15% (with V.A	1	1			
	Ripple & Noise		,	,				
	voltage *	100 to 240 VAC input	40 mVp-p max.	40 mVp-p max.	40 mVp-p max.	60 mVp-p max.		
	Input variation influe	ence *	0.5% max.	1	1	1		
	Load variation influe		1.0% max.					
Output	Temperature							
	variation influence	100 to 240 VAC input	0.05%/°C max.					
		100 VAC input	1,000 ms max.					
	Startup time *	200 VAC input	1,000 ms max.					
		100 VAC input	15 ms typ.	14 ms typ.	15 ms typ.	15 ms typ.		
	Hold time <b>*</b>	200 VAC input	75 ms typ.	70 ms typ.	75 ms typ.	70 ms typ.		
	Overload protection	•	Yes, automatic reset	70 ms typ.	75 ms typ.	70 ms typ.		
	Overload protection		,	waterd accitocut coltage of	anner objet off /objet off th	a innert valtage and turn		
	Overvoltage protect	ion *	the input again)	rated output voltage, p	ower snut off (snut off th	e input voltage and turn		
	Overheat protection		No					
Additional	·			or Cumpling outernal of	liadae ara raquirad \			
functions	Series operation		Yes (For up to two Power Supplies, external diodes are required.)					
	Parallel operation		No (However, backup operation is possible, external diodes are required.)					
	Remote sensing		No					
	Remote control		No					
	Output indicator		Yes (LED: Green)					
			3 kVAC for 1 min. (betw	veen all input terminals	and output terminals) cu	urrent cutoff 20 mA		
Insulation	Withstand voltage		2 kVAC for 1 min. (betw	veen all input terminals	and PE terminals) curre	nt cutoff 20 mA		
ilisulation			1 kVAC for 1 min. (betw	veen all output termina	ls and PE terminals) curr	ent cutoff 20 mA		
	Insulation resistance	е	100 MΩ min. (between	all output terminals an	d all input terminals/PE t	erminals) at 500 VDC		
	Ambient operating to	emperature	-20 to 70°C (Derating is	s required according to	the temperature.) (with	no condensation or icing)		
	Storage temperature		–25 to 75°C (with no co	ondensation or icing)	, , , , , , , , , , , , , , , , , , , ,			
Environment	Ambient operating h		-25 to 75°C (with no condensation or icing) 90% max. (Storage humidity: 90% max.)					
	Vibration resistance	•	, -		tude for 2 h each in X V	and 7 directions		
	Shock resistance		10 to 55 Hz, 4.5 G max., 0.375-mm half amplitude for 2 h each in X, Y, and Z directions 150 m/s². 3 times each in ±X. ±Y. ±Z directions					
			,	III ±∧, ± I , ±∠ UIIECUOI	10			
Reliability	MTBF		135,000 hrs min.					
	Life expectancy *		10 years min.					
	Dimensions (W×H×E	J)	Refer to <i>Dimensions</i> or	page 19.				
Construction	Weight		250 g					
	Cooling fan		No					
	Degree of protection	1						
	Harmonic current en	missions	Conforms to EN 61000	-3-2				
	EMI *	Conducted Emissions	Conforms to EN 61204	-3 Class B, EN 55011	Class B			
	LIVII T	Radiated Emissions	Conforms to EN 61204	-3 Class B, EN 55011	Class B			
	EMS		Conforms to EN 61204	-3 high severity levels				
Standards	Safety Standards		UL 508 (Listing, exclud UL 62368-1 (Recognitic CSA C22.2 No.107.1 (€ CSA C22.2 No.62368-1 EN 50178 (OVCIII [≤ 2, EN/IEC 62368-1 (OVCI Conforms to EN/IEC 61 Conforms to PELV (EN EAC (TR CU 004/2011, RCM (EN61000-6-4)	on, OVCII [ $\leq$ 3,000 m], excluding models with of (excluding models with one) one) one) one) one) one) one) one)	Pol2) connector option)	·)		
	Marine Standards		No					
	SEMI		Conforms to F47-0706	(200 VAC input)				
D. f I. D. (		and Eunations on pa		,_30o input/				

<sup>\*</sup> Refer to Ratings, Characteristics, and Functions on page 11.

		Power rating	30 W						
Item	Oı	itput voltage (VDC)	5 V	12 V	15 V	24 V			
ite		100 VAC input	81% typ.	84% typ.	86% typ.	86% typ.			
Efficiency *		200 VAC input	81% typ.	86% typ.	88% typ.	88% typ.			
Efficiency 4		230 VAC input	81% typ.	86% typ.	88% typ.	89% typ.			
	Voltage range *	230 VAC IIIput	Single phase, 85 to 26	**		09 % typ.			
	·		50/60 Hz (47 to 450 Hz		,				
	Frequency *	100 VAC input	,	2)					
	Current *	100 VAC input	0.72 A typ.						
	D	200 VAC input	0.43 A typ.						
Input	Power factor *								
	Leakage current *	100 VAC input	0.5 mA max.						
		200 VAC input	1 mA max.						
	Inrush current * (for a cold start at	100 VAC input	14 A typ.						
	25°C)	200 VAC input	28 A typ.						
	Rated Output Currer	nt	6 A	3 A	2.4 A	1.5 A			
	Voltage adjustment		-10% to 15% (with V.A	ADJ)		-			
	Ripple & Noise	1	,	1		1			
	voltage *	100 to 240 VAC input	50 mVp-p max.	60 mVp-p max.	50 mVp-p max.	60 mVp-p max.			
	Input variation influe	ence *	0.5% max.	,	1				
	Load variation influe		1.0% max.						
Output	Temperature variation influence	100 to 240 VAC input	0.05%/°C max.						
	0	100 VAC input	1,000 ms max.						
	Startup time *	200 VAC input	1,000 ms max.						
		100 VAC input	11 ms typ.	10 ms typ.	11 ms typ.	10 ms typ.			
	Hold time <b>*</b>	200 VAC input	60 ms typ.	50 ms typ.	50 ms typ.	55 ms typ.			
	Overload protection		Yes, automatic reset	71	, , ,				
	·			f rated output voltage.	power shut off (shut off th	ne input voltage and turn			
	Overvoltage protect	ion *	the input again)						
	Overheat protection		No						
Additional	Series operation		Yes (For up to two Pov	ver Supplies, external	diodes are required.)				
functions	Parallel operation		No (However, backup	operation is possible.	external diodes are requir	ed.)			
	Remote sensing		No						
	Remote control		No						
	Output indicator		Yes (LED: Green)						
	Carpar maioator		` '	ween all innut terminal	s and output terminals) c	urrent cutoff 20 mA			
	Withstand voltage		3 kVAC for 1 min. (between all input terminals and output terminals) current cutoff 20 mA 2 kVAC for 1 min. (between all input terminals and PE terminals) current cutoff 20 mA						
Insulation	Tonage		1 kVAC for 1 min. (between all input terminals and PE terminals) current cutoff 20 mA						
	Insulation resistance	Δ							
			100 MΩ min. (between all output terminals and all input terminals/PE terminals) at 500 VDC						
	Ambient operating t		<ul> <li>-20 to 70°C (Derating is required according to the temperature.) (with no condensation or icing)</li> <li>-25 to 75°C (with no condensation or icing)</li> </ul>						
Environment	Ambient operating b		`	0,					
Environment	Ambient operating h		90% max. (Storage hu		litude for 0 h 1 1 1/1/1	and 7 di			
	Vibration resistance		The state of the s	· ·	litude for 2 h each in X, Y	, and ∠ directions			
	Shock resistance		150 m/s², 3 times each	ı ın ±x, ±Y, ±∠ directio	ns				
Reliability	MTBF		135,000 hrs min.						
	Life expectancy *		10 years min.						
	Dimensions (W×H×I	0)	Refer to <i>Dimensions</i> o	n page 19.					
Construction	Weight		250 g						
	Cooling fan		No						
	Degree of protection	1							
	Harmonic current er	nissions	Conforms to EN 61000	)-3-2					
	EMI *	Conducted Emissions	Conforms to EN 61204	I-3 Class B, EN 55011	Class B				
	Lifti <b>7</b>	Radiated Emissions	Conforms to EN 61204	I-3 Class B, EN 55011	Class B				
	EMS		Conforms to EN 61204	I-3 high severity levels		<del></del>			
Standards	Safety Standards			ding models with conne on, OVCII [ $\leq$ 3,000 m] excluding models with 1 (excluding models w ,000 m], OVCII [ $\geq$ 2,00 II [ $\leq$ 3,000 m], Pol2) 1558-2-16 I/IEC 60204-1) , TR CU 020/2011)	, Pol2) connector option)	2)			
	Marine Standards		RCM (EN61000-6-4)						
			No						
	SEMI		Conforms to F47-0706	(200 \/ \0 :~~ :~ : )					

<sup>\*</sup> Refer to Ratings, Characteristics, and Functions on page 11.

		Power rating			50 W			
Item	Oı	itput voltage (VDC)	5 V	12 V	15 V	24 V		
iteiii	<u> </u>	100 VAC input	81% typ.	84% typ.	86% typ.	86% typ.		
Efficiency *		200 VAC input	82% typ.		88% typ.			
Efficiency &		•	· · · · · · · · · · · · · · · · · · ·	86% typ.		89% typ.		
	Valtara vanna de	230 VAC input	82% typ.	86% typ.	88% typ.	89% typ.		
	Voltage range *			264 VAC, 80 to 370 VDC	•			
	Frequency *	400.1/4.0 :	50/60 Hz (47 to 450 l	1Z)				
	Current *	100 VAC input	1.1 A typ.					
		200 VAC input	0.62 A typ.					
Input	Power factor *							
	Leakage current *	100 VAC input	0.5 mA max.					
		200 VAC input	1 mA max.					
	Inrush current * (for a cold start at	100 VAC input	14 A typ.					
	25°C)	200 VAC input	28 A typ.					
	Rated Output Currer	nt	8 A	4.3 A	3.5 A	2.2A		
	Voltage adjustment		-10% to 15% (with V					
	Ripple & Noise		,					
	voltage *	100 to 240 VAC input	40 mVp-p max.	40 mVp-p max.	40 mVp-p max.	60 mVp-p max.		
	Input variation influe	ence *	0.5% max.	<u> </u>				
	Load variation influe	ence *	1.0% max.					
Output	Temperature variation influence	100 to 240 VAC input						
		100 VAC input	1,000 ms max.					
	Startup time *	200 VAC input	1,000 ms max.					
		100 VAC input	14 ms typ.	11 ms typ.	10 ms typ.	10 ms typ.		
	Hold time <b>*</b>	200 VAC input	75 ms typ.	60 ms typ.	60 ms typ.	55 ms typ.		
	Overload protection		Yes, automatic reset	oo me typ:	oo me typ:	ooo typ:		
			,	of rated output voltage.	power shut off (shut off th	ne input voltage and turn o		
	Overvoltage protect	ion *	the input again)					
	Overheat protection		No					
Additional	Series operation		Yes (For up to two Po	ower Supplies, external	diodes are required.)			
functions	Parallel operation		No (However, backup operation is possible, external diodes are required.)					
	Remote sensing		No					
	Remote control		No					
	Output indicator		Yes (LED: Green)					
			3 kVAC for 1 min. (be	etween all input terminal	s and output terminals) co	urrent cutoff 20 mA		
			2 kVAC for 1 min. (between all input terminals and PE terminals) current cutoff 20 mA					
Insulation	Withstand voltage		1 kVAC for 1 min. (be	etween all output termina	als and PE terminals) curi	rent cutoff 20 mA		
			500 VAC for 1 min. (I	petween all output termin	nals and RC terminals) cu	rrent cutoff 20 mA		
	Insulation resistance	e	· ·	•	nd all input terminals/PE t			
	Ambient operating to	emperature	`		•	· · · · · · · · · · · · · · · · · · ·		
	Storage temperature	•	,	• •	d according to the temperature.) (with no condensation or icing)			
Environment	Ambient operating h		-25 to 75°C (with no condensation or icing) 90% max. (Storage humidity: 90% max.)					
	Vibration resistance		, ,		litude for 2 h each in X, Y	. and Z directions		
	Shock resistance			ch in $\pm X$ , $\pm Y$ , $\pm Z$ direction		, = = = 00000.10		
	MTBF		135,000 hrs min.					
Reliability	Life expectancy *		10 years min.					
	Dimensions (W×H×E	))	Refer to Dimensions	on nage 20				
	<b>—</b>	•1		on page 20.				
Construction	Weight Cooling fan		300 g No					
	<u> </u>							
	Degree of protection Harmonic current en		Conforms to EN 6100	20.2.2				
	namonic current en				Class B			
	EMI *	Conducted Emissions		04-3 Class B, EN 55011				
	EMC	Radiated Emissions		04-3 Class B, EN 55011				
	EMS			04-3 high severity levels				
				uding models with conne ition, OVCII [≤ 3,000 m],				
			CSA C22.2 No.107.1	(excluding models with	connector option)			
Standards				3-1 (excluding models w				
	Safety Standards			2,000 m], OVCII [> 2,00  CII [≤ 3,000 m], Pol2)	00 m and ≤ 3,000 m], Pol2	<del>(</del> )		
			Conforms to EN/IEC	61558-2-16				
			Conforms to PELV (E					
			EAC (TR CU 004/201 RCM (EN61000-6-4)					
	Marine Standards		No					
	SEMI		Conforms to F47-070	06 (200 VAC input)				
		and Functions on no		o (200 vao iliput)				

<sup>\*</sup> Refer to Ratings, Characteristics, and Functions on page 11.

		Power rating			100 W		
Item	Oı	utput voltage (VDC)	5 V	12 V	15 V	24 V	
		100 VAC input	79% typ.	84% typ.	85% typ.	87% typ.	
Efficiency *		200 VAC input	81% typ.	86% typ.	87% typ.	89% typ.	
Linciency 4		230 VAC input	81% typ.	86% typ.	87% typ.	89% typ.	
	Voltage renge *	230 VAC IIIput				09 /o typ.	
	Voltage range *		• •	264 VAC, 80 to 370 VDC			
	Frequency *	400 1/4 0 1	50/60 Hz (47 to 450	) HZ)			
	Current *	100 VAC input	2.1 A typ.				
		200 VAC input	1.2 A typ.				
Input	Power factor *						
	Leakage current *	100 VAC input	0.5 mA max.				
		200 VAC input	1 mA max.				
	Inrush current *	100 VAC input	14 A typ.				
	(for a cold start at 25°C)	200 VAC input	28 A typ.				
	Rated Output Curre	nt	16 A	8.5 A	7 A	4.5 A	
	Voltage adjustment		-10% to 15% (with		/ A	4.0 /	
	Ripple & Noise	lange •	-10 /8 to 13 /8 (With	V.AD3)		<u> </u>	
	voltage *	100 to 240 VAC input	70 mVp-p max.	90 mVp-p max.	100 mVp-p max.	80 mVp-p max.	
	Input variation influ	ence *	0.5% max.				
	Load variation influ		1.0% max.				
Output	Temperature						
	variation influence	100 to 240 VAC input	0.05%/°C max.				
		100 VAC input	1.000 ms max.				
	Startup time *	200 VAC input	1,000 ms max.				
		100 VAC input	12 ms typ.	11 ms typ.	11 ms typ.	10 ms typ.	
	Hold time *	200 VAC input	70 ms typ.	55 ms typ.	55 ms typ.	55 ms typ.	
	Overload protection		Yes, automatic rese	• • • • • • • • • • • • • • • • • • • •	55 ms typ.	55 ms typ.	
	Overload protection		· · · · · · · · · · · · · · · · · · ·		anner about off (about off the	innut valtage and turn	
	Overvoltage protect	ion <b>*</b>	the input again)	er of rated output voltage, p	ower shut on (shut on the	input voitage and turn	
	Overheat protection		No				
Additional	Series operation						
functions	Parallel operation		Yes (For up to two Power Supplies, external diodes are required.)				
			No (However, backup operation is possible, external diodes are required.)				
	Remote sensing		No				
	Remote control		Yes (Only for models with remote control option)				
	Output indicator		Yes (LED: Green)				
			3 kVAC for 1 min. (between all input terminals and output terminals) current cutoff 20 mA				
			,	between all input terminals	,		
Insulation	Withstand voltage		1 kVAC for 1 min. (I	between all output termina	lls and PE terminals) curre	ent cutoff 20 mA	
			Only Remote contro				
				(between all output termin	· · · · · · · · · · · · · · · · · · ·		
	Insulation resistance	e	,	een all output terminals an	<u> </u>	<u>'</u>	
	Ambient operating t	emperature		ng is required according to	the temperature. Refer to	Engineering Data) (with	
	Ctavana tampanatur		condensation or icing)				
Environment	Storage temperature	8	−25 to 75°C (with no condensation or icing)				
Environment	A malaia t a		000/ /0:	<b>0</b> /			
Environment	Ambient operating I	<u> </u>	, ,	humidity: 90% max.)	thoda fan Olivia	and 7 din 11	
Litvironinient	Vibration resistance	<u> </u>	10 to 55 Hz, 4.5 G r	humidity: 90% max.) max., 0.375-mm half ampli		and Z directions	
Environment	Vibration resistance Shock resistance	<u> </u>	10 to 55 Hz, 4.5 G r 150 m/s <sup>2</sup> , 3 times e	humidity: 90% max.)		and Z directions	
	Vibration resistance Shock resistance MTBF	<u> </u>	10 to 55 Hz, 4.5 G r 150 m/s², 3 times e 135,000 hrs min.	humidity: 90% max.) max., 0.375-mm half ampli		and Z directions	
	Vibration resistance Shock resistance MTBF Life expectancy *		10 to 55 Hz, 4.5 G r 150 m/s <sup>2</sup> , 3 times e 135,000 hrs min. 10 years min.	humidity: 90% max.) max., 0.375-mm half ampli ach in ±X, ±Y, ±Z direction		and Z directions	
	Vibration resistance Shock resistance MTBF Life expectancy * Dimensions (WxHxI		10 to 55 Hz, 4.5 G r 150 m/s², 3 times e 135,000 hrs min. 10 years min. Refer to <i>Dimension</i>	humidity: 90% max.) max., 0.375-mm half ampli ach in ±X, ±Y, ±Z direction		and Z directions	
Reliability	Vibration resistance Shock resistance MTBF Life expectancy * Dimensions (W×H×I Weight		10 to 55 Hz, 4.5 G r 150 m/s², 3 times e 135,000 hrs min. 10 years min. Refer to <i>Dimension</i> 400 g	humidity: 90% max.) max., 0.375-mm half ampli ach in ±X, ±Y, ±Z direction		and Z directions	
Reliability	Vibration resistance Shock resistance MTBF Life expectancy * Dimensions (WxHxI		10 to 55 Hz, 4.5 G r 150 m/s², 3 times e 135,000 hrs min. 10 years min. Refer to <i>Dimension</i>	humidity: 90% max.) max., 0.375-mm half ampli ach in ±X, ±Y, ±Z direction		and Z directions	
Reliability	Vibration resistance Shock resistance MTBF Life expectancy * Dimensions (W×H×I Weight	) )	10 to 55 Hz, 4.5 G r 150 m/s², 3 times e 135,000 hrs min. 10 years min. Refer to <i>Dimension</i> 400 g	humidity: 90% max.) max., 0.375-mm half ampli ach in ±X, ±Y, ±Z direction		and Z directions	
Reliability	Vibration resistance Shock resistance MTBF Life expectancy * Dimensions (W×H×I) Weight Cooling fan	D)	10 to 55 Hz, 4.5 G r 150 m/s², 3 times e 135,000 hrs min. 10 years min. Refer to <i>Dimension</i> 400 g	humidity: 90% max.) max., 0.375-mm half ampli ach in ±X, ±Y, ±Z direction s on page 21.		and Z directions	
Reliability	Vibration resistance Shock resistance MTBF Life expectancy * Dimensions (W×H×I Weight Cooling fan Degree of protection Harmonic current et	D)	10 to 55 Hz, 4.5 G r 150 m/s², 3 times e 135,000 hrs min. 10 years min. Refer to <i>Dimension</i> 400 g No  Conforms to EN 610	humidity: 90% max.) max., 0.375-mm half ampli ach in ±X, ±Y, ±Z direction s on page 21.	ns	and Z directions	
Reliability	Vibration resistance Shock resistance MTBF Life expectancy * Dimensions (W×H×I Weight Cooling fan Degree of protection	D) n missions	10 to 55 Hz, 4.5 G r 150 m/s², 3 times e 135,000 hrs min. 10 years min. Refer to <i>Dimension</i> 400 g No  Conforms to EN 610	humidity: 90% max.) max., 0.375-mm half ampli ach in ±X, ±Y, ±Z direction s on page 21.	Class B	and Z directions	
Reliability	Vibration resistance Shock resistance MTBF Life expectancy * Dimensions (W×H×I Weight Cooling fan Degree of protection Harmonic current et	D) n missions Conducted Emissions	10 to 55 Hz, 4.5 G r 150 m/s², 3 times e 135,000 hrs min. 10 years min. Refer to <i>Dimension</i> 400 g No  Conforms to EN 610 Conforms to EN 610 Conforms to EN 610	humidity: 90% max.) max., 0.375-mm half ampli ach in ±X, ±Y, ±Z direction s on page 21.	Class B	and Z directions	
Reliability	Vibration resistance Shock resistance MTBF Life expectancy * Dimensions (W×H×I Weight Cooling fan Degree of protection Harmonic current en	D) n missions Conducted Emissions	10 to 55 Hz, 4.5 G r 150 m/s², 3 times e 135,000 hrs min. 10 years min. Refer to <i>Dimension</i> 400 g No  Conforms to EN 610 Conforms to EN 610 Conforms to EN 610 Conforms to EN 610	humidity: 90% max.) max., 0.375-mm half ampli ach in ±X, ±Y, ±Z direction s on page 21.  000-3-2 204-3 Class B, EN 55011 204-3 Class B, EN 55011 204-3 high severity levels	Class B		
Reliability	Vibration resistance Shock resistance MTBF Life expectancy * Dimensions (W×H×I Weight Cooling fan Degree of protection Harmonic current en	D) n missions Conducted Emissions	10 to 55 Hz, 4.5 G r 150 m/s², 3 times es 135,000 hrs min. 10 years min. Refer to Dimension 400 g No Conforms to EN 61: Conforms to EN 61: Conforms to EN 61: UL 508 (Listing, exc UL 508 (Recognitio	humidity: 90% max.) max., 0.375-mm half ampli ach in ±X, ±Y, ±Z direction s on page 21.  000-3-2 204-3 Class B, EN 55011 204-3 Class B, EN 55011 204-3 high severity levels cluding models with conne n, models with remote con	Class B Class B ctor option or remote cont		
Reliability	Vibration resistance Shock resistance MTBF Life expectancy * Dimensions (W×H×I Weight Cooling fan Degree of protection Harmonic current en	D) n missions Conducted Emissions	10 to 55 Hz, 4.5 G r 150 m/s², 3 times e 135,000 hrs min. 10 years min. Refer to <i>Dimension</i> 400 g No Conforms to EN 61: Conforms to EN 61: Conforms to EN 61: UL 508 (Listing, exc UL 508 (Recognitio UL 62368-1 (Recog	humidity: 90% max.)  max., 0.375-mm half ampli ach in ±X, ±Y, ±Z direction  s on page 21.  000-3-2  204-3 Class B, EN 55011  204-3 Class B, EN 55011  204-3 high severity levels cluding models with conne n, models with remote con inition, OVCII [≤ 3,000 m],	Class B Class B ctor option or remote cont	rol option)	
Reliability  Construction	Vibration resistance Shock resistance MTBF Life expectancy * Dimensions (W×H×I Weight Cooling fan Degree of protection Harmonic current en	D) n missions Conducted Emissions	10 to 55 Hz, 4.5 G r 150 m/s², 3 times e 135,000 hrs min. 10 years min. Refer to Dimension 400 g No Conforms to EN 61: Conforms to EN 61: Conforms to EN 61: UL 508 (Listing, exc UL 508 (Recognitio UL 62368-1 (Recog	humidity: 90% max.)  max., 0.375-mm half ampli ach in ±X, ±Y, ±Z direction  s on page 21.  000-3-2  204-3 Class B, EN 55011  204-3 Class B, EN 55011  204-3 high severity levels cluding models with conne n, models with remote con inition, OVCII [≤ 3,000 m], 1 (excluding models with	Class B Class B ctor option or remote cont throl option) Pol2) connector option or remote	rol option) e control option)	
Reliability	Vibration resistance Shock resistance MTBF Life expectancy * Dimensions (W×H×I Weight Cooling fan Degree of protection Harmonic current et EMI *	D) n missions Conducted Emissions	10 to 55 Hz, 4.5 G r 150 m/s², 3 times e 135,000 hrs min. 10 years min. Refer to <i>Dimension</i> 400 g No  Conforms to EN 61: Conforms to EN 61: Conforms to EN 61: UL 508 (Listing, exc UL 508 (Recognitio UL 62368-1 (Recog CSA C22.2 No.107 CSA C22.2 No.6236	humidity: 90% max.)  max., 0.375-mm half ampli ach in ±X, ±Y, ±Z direction  s on page 21.  000-3-2  204-3 Class B, EN 55011  204-3 Class B, EN 55011  204-3 high severity levels cluding models with conne n, models with remote con nition, OVCII [≤ 3,000 m], 1 (excluding models with 8-1 (excluding models with	Class B Class B ctor option or remote cont trol option) Pol2) connector option or remote connector option or remote	rol option) e control option) control option)	
Reliability	Vibration resistance Shock resistance MTBF Life expectancy * Dimensions (W×H×I Weight Cooling fan Degree of protection Harmonic current en	D) n missions Conducted Emissions	10 to 55 Hz, 4.5 G r 150 m/s², 3 times e 135,000 hrs min. 10 years min. Refer to Dimension 400 g No Conforms to EN 61: Conforms to EN 61: Conforms to EN 61: UL 508 (Listing, exc UL 508 (Recognitio UL 62368-1 (Recog CSA C22.2 No.6236 EN 50178 (OVCIII] EN/IEC 62368-1 (O	humidity: 90% max.) max., 0.375-mm half ampli ach in ±X, ±Y, ±Z direction  s on page 21.  000-3-2  204-3 Class B, EN 55011  204-3 Class B, EN 55011  204-3 high severity levels cluding models with conne n, models with remote con inition, OVCII [≤ 3,000 m], 1 (excluding models with 8-1 (excluding models with 2,000 m], OVCII [> 2,000 VCII [≤ 3,000 m], Pol2)	Class B Class B ctor option or remote cont trol option) Pol2) connector option or remote connector option or remote	rol option) e control option) control option)	
Reliability	Vibration resistance Shock resistance MTBF Life expectancy * Dimensions (W×H×I Weight Cooling fan Degree of protection Harmonic current et EMI *	D) n missions Conducted Emissions	10 to 55 Hz, 4.5 G r 150 m/s², 3 times e 135,000 hrs min. 10 years min. Refer to Dimension 400 g No Conforms to EN 61: Conforms to EN 61: Conforms to EN 61: UL 508 (Listing, exc UL 508 (Recognitio UL 62368-1 (Recog CSA C22.2 No.107 CSA C22.2 No.6236 EN 50178 (OVCIII] EN/IEC 62368-1 (O Conforms to EN/IEC	humidity: 90% max.)  max., 0.375-mm half ampli ach in ±X, ±Y, ±Z direction  s on page 21.  204-3 Class B, EN 55011 204-3 Class B, EN 55011 204-3 high severity levels cluding models with conne n, models with remote con inition, OVCII [≤ 3,000 m], 1 (excluding models with 8-1 (excluding models with 8-1 (excluding models with 5-2,000 m], OVCII [> 2,000 VCII [≤ 3,000 m], Pol2) C 61558-2-16	Class B Class B ctor option or remote cont trol option) Pol2) connector option or remote connector option or remote	rol option) e control option) control option)	
Reliability	Vibration resistance Shock resistance MTBF Life expectancy * Dimensions (W×H×I Weight Cooling fan Degree of protection Harmonic current et EMI *	D) n missions Conducted Emissions	10 to 55 Hz, 4.5 G r 150 m/s², 3 times e 135,000 hrs min. 10 years min. Refer to Dimension 400 g No Conforms to EN 61: Conforms to EN 61: Conforms to EN 61: UL 508 (Listing, exc UL 508 (Recognitio UL 62368-1 (Recognitio UL 62368-1 (OVCIII [ EN/IEC 62368-1 (O Conforms to EN/IEC	humidity: 90% max.)  max., 0.375-mm half ampli ach in ±X, ±Y, ±Z direction  s on page 21.  000-3-2  204-3 Class B, EN 55011  204-3 Class B, EN 55011  204-3 high severity levels cluding models with conne n, models with remote cor phition, OVCII [≤ 3,000 m], 1 (excluding models with 8-1 (excluding models with 8-1 (excluding models with 5 (2,000 m], OVCII [> 2,001 VCII [≤ 3,000 m], Pol2) C 61558-2-16 (EN/IEC 60204-1)	Class B Class B ctor option or remote cont trol option) Pol2) connector option or remote connector option or remote	rol option) e control option) control option)	
Reliability	Vibration resistance Shock resistance MTBF Life expectancy * Dimensions (W×H×I Weight Cooling fan Degree of protection Harmonic current et EMI *	D) n missions Conducted Emissions	10 to 55 Hz, 4.5 G r 150 m/s², 3 times e 135,000 hrs min. 10 years min. 10 years min. Refer to Dimension 400 g No Conforms to EN 61: Conforms to EN 61: Conforms to EN 61: UL 508 (Listing, exc UL 508 (Recognitio UL 62368-1 (Recog CSA C22.2 No.107 CSA C22.2 N	humidity: 90% max.)  max., 0.375-mm half ampli ach in ±X, ±Y, ±Z direction  s on page 21.  000-3-2  204-3 Class B, EN 55011  204-3 Class B, EN 55011  204-3 high severity levels cluding models with conne n, models with remote con nition, OVCII [≤ 3,000 m], 1 (excluding models with 8-1 (excluding models with 6-1 (excluding models with 5-2,000 m], OVCII [> 2,000  VCII [≤ 3,000 m], Pol2) C 61558-2-16 (EN/IEC 60204-1) 011, TR CU 020/2011)	Class B Class B ctor option or remote cont trol option) Pol2) connector option or remote connector option or remote	rol option) e control option) control option)	
Reliability	Vibration resistance Shock resistance MTBF Life expectancy * Dimensions (W×H×I Weight Cooling fan Degree of protection Harmonic current et EMI *	D) n missions Conducted Emissions	10 to 55 Hz, 4.5 G r 150 m/s², 3 times e 135,000 hrs min. 10 years min. Refer to Dimension 400 g No Conforms to EN 61: Conforms to EN 61: Conforms to EN 61: UL 508 (Listing, exc UL 508 (Recognitio UL 62368-1 (Recognitio UL 62368-1 (OVCIII [ EN/IEC 62368-1 (O Conforms to EN/IEC	humidity: 90% max.)  max., 0.375-mm half ampli ach in ±X, ±Y, ±Z direction  s on page 21.  000-3-2  204-3 Class B, EN 55011  204-3 Class B, EN 55011  204-3 high severity levels cluding models with conne n, models with remote con nition, OVCII [≤ 3,000 m], 1 (excluding models with 8-1 (excluding models with 6-1 (excluding models with 5-2,000 m], OVCII [> 2,000  VCII [≤ 3,000 m], Pol2) C 61558-2-16 (EN/IEC 60204-1) 011, TR CU 020/2011)	Class B Class B ctor option or remote cont trol option) Pol2) connector option or remote connector option or remote	rol option) e control option) control option)	

<sup>\*</sup> Refer to Ratings, Characteristics, and Functions on page 11.

		Power rating			150 W		
Item	n	utput voltage (VDC)	5 V	12 V	15 V	24 V	48 V
item.		100 VAC input	78% typ.	84% typ.	85% typ.	87% typ.	85% typ.
Efficiency *1		200 VAC input	81% typ.	87% typ.	88% typ.	89% typ.	88% typ.
Elliciency of		230 VAC input					
	V-14	230 VAC Input	81% typ.	87% typ.	88% typ.	90% typ.	88% typ.
	Voltage range *		Single phase, 85 to 264 VAC, 80 to 370 VDC				
	Frequency *	140014401	50 /60 Hz (47 to	450 HZ)			
	Current *	100 VAC input	3 A typ.				
		200 VAC input	1.8 A typ.				
Input	Power factor *						
	Leakage current *	100 VAC input	0.5 mA max.				
		200 VAC input	1 mA max.				
	Inrush current *	100 VAC input	14 A typ.				
	(for a cold start at 25°C)	200 VAC input	28 A typ.				
	Rated Output Curre	ent	21 A	13 A	10 A	6.5 A	3.3 A
	Voltage adjustment		-10% to 15% (w		10 A	0.5 A	3.5 A
		. range क	-10% to 15% (W	illi V.ADJ)	1		1
	Ripple & Noise voltage *	100 to 240 VAC input	100 mVp-p max.	110 mVp-p max.	80 mVp-p max.	110 mVp-p max.	120 mVp-p max
	Input variation influ	lence #	0.5% max.				
	Load variation influ		1.0% max.				
Output	Temperature	CIICE T	1.0 /6 IIIax.				
	variation influence	100 to 240 VAC input	0.05%/°C max.				
		100 VAC input	1,000 ms max.				
	Startup time *	200 VAC input	1,000 ms max.				
		100 VAC input	14 ms typ.	10 ms typ.	10 ms typ.	10 ms typ.	11 ms typ.
	Hold time <b>≭</b>	•			* * * * * * * * * * * * * * * * * * * *		
	0	200 VAC input	80 ms typ.	55 ms typ.	55 ms typ.	55 ms typ.	55 ms typ.
	Overload protection	1	Yes, automatic reset				
	Overvoltage protec	tion *	Yes, 120% or higher of rated output voltage, power shut off (shut off the input voltage and turn on the input again)				
			No				
Additional	Overheat protection		Yes (For up to two Power Supplies, external diodes are required.)				
functions	Series operation		The state of the s				
	Parallel operation		No (However, backup operation is possible, external diodes are required.)				
	Remote sensing		No				
	Remote control		Yes (Only for models with remote control option)				
	Output indicator		Yes (LED: Green)				
			3 kVAC for 1 min.(between all input terminals and output terminals) current cutoff 20 mA				
			2 kVAC for 1 min.(between all input terminals and PE terminals) current cutoff 20 mA				
Insulation	Withstand voltage		1 kVAC for 1 min.(between all output terminals and PE terminals) current cutoff 20 mA				
			Only Remote control				
			500 VAC for 1 min.(between all output terminals and RC terminals) current cutoff 20 mA 100 MΩ min.(between all output terminals and all input terminals/PE terminals) at 500 VDC				
	Insulation resistance	e	`	•	•		
	Ambient operating	temperature		ating is required acco	rding to the tempera	ature. Refer to Engine	ering Data) (with r
			condensation or icing)				
Environment	Storage temperatur		` `	n no condensation or i	•		
Liiviioiiiieiit	Ambient operating	humidity	`	ge humidity: 90% ma	<i>'</i>		
	Vibration resistance	e		G max., 0.375-mm ha		each in X, Y, and Z of	directions
	Shock resistance		150 m/s <sup>2</sup> , 3 times	s each in $\pm X$ , $\pm Y$ , $\pm Z$ o	directions		
Reliability	MTBF		135,000 hrs min.	·			
	Life expectancy *		10 years min.				
	Dimensions (W×H×	D)	Refer to Dimensions on page 23.				
Construction	Weight		500 g				
Construction	Cooling fan		No				
	Degree of protectio	n					
	Harmonic current e		Conforms to EN 61000-3-2 (Applicable at 80% or less of the rated load.)				
		Conducted Emissions	· · · · · · · · · · · · · · · · · · ·				
	EMI *	Radiated Emissions	Conforms to EN 61204-3 Class B, EN 55011 Class B				
	EMS			61204-3 high severity			
	LIVIO			excluding models with		or remote control opti-	on)
Standards	Safety Standards		UL 508 (Recogni UL 62368-1 (Rec CSA C22.2 No.1 CSA C22.2 No.62 EN 50178 (OVCI EN/IEC 62368-1 Conforms to EN/ Conforms to PEL EAC (TR CU 004	ition, models with rem cognition, OVCII [≤ 3,0 07.1 (excluding mode 2368-1 (excluding mode III [≤ 2,000 m], OVCII (OVCII [≤ 3,000 m], F IEC 61558-2-16 LV (EN/IEC 60204-1) 4/2011, TR CU 020/20	tote control option) 000 m], Pol2) ls with connector opels 2,000 m and $\leq$ 3 ool2)	ption or remote control	ol option)
	Maximo Otari III		RCM (EN61000-	···+)			
	Marine Standards		No				
	SEMI			'-0706 (200 VAC inpu	t)		
Jote: Refer to	Ratings Character	istics, and Functions o	n nage 11				

Note: Refer to Ratings, Characteristics, and Functions on page 11.

	Power rating	300 W				
Oı	utput voltage (VDC)					
OI.						
	100 VAC input	81% typ.	81% typ.	82% typ.	82% typ.	
	200 VAC input	85% typ.	85% typ.	87% typ.	87% typ.	
T	230 VAC input	85% typ.	86% typ.	87% typ.	87% typ.	
+		<u> </u>				
Frequency *		50/60 Hz (47 to 63 Hz)				
Current *		4.2 A typ.				
	200 VAC input	2.1 A typ.				
Power factor *		0.9 min.				
Lookana auguant th	100 VAC input	0.5 mA max.				
Leakage current *	200 VAC input	1 mA max.				
Inrush current *	100 VAC input	14 A typ.				
(for a cold start at 25°C)	200 VAC input	28 A typ.				
Rated Output Currer	nt	25 A	20 A	14 A	7 A	
Voltage adjustment	range *	-10% to 15% (with V./	ADJ)			
Ripple & Noise voltage *	100 to 240 VAC input	140 mVp-p max.	270 mVp-p max.	150 mVp-p max.	330 mVp-p max.	
	•				от пр	
variation influence	100 to 240 VAC input	0.05%/°C max.				
	100 VAC input	1,000 ms max.				
Startup time *	· ·					
		.,500		30 ms tvn		
	100 VAC input	30 ms typ.	30 ms typ.	40 ms typ. (Extended	30 ms typ.	
Hold time 4	1 2	71	71	hold time type)	- 71	
HOIG LIME 本				30 ms typ.		
	200 VAC input	30 ms typ.	25 ms typ.	40 ms typ. (Extended	30 ms typ.	
				hold time type)		
Overload protection		Yes, automatic reset				
Overvoltage protection *		Yes, 120% or higher of rated output voltage, power shut off (shut off the input voltage and turn on the input ag				
Overheat protection						
Series operation						
Parallel operation		No (However, backup	operation is possible, ext	ernal diodes are required.)	)	
Remote sensing		No				
Remote control		Yes (Only for models v	with remote control option	1)		
Output indicator		Yes (LED: Green)				
		3 kVAC for 1 min. (between all input terminals and output terminals) current cutoff 20 mA				
		2 kVAC for 1 min. (between all input terminals and PE terminals) current cutoff 20 mA				
Withstand voltage		1 kVAC for 1 min. (between all output terminals and PE terminals) current cutoff 20 mA				
		Only Remote control				
		500 VAC for 1 min. (between all output terminals and RC terminals) current cutoff 20 mA				
Insulation resistance	е	100 M $\Omega$ min. (between all output terminals and all input terminals/PE terminals) at 500 VDC				
Ambient operating t	emperature	-20 to 70°C (Derating is required according to the temperature.) (with no condensation or icing)				
Storage temperature	e	–25 to 75°C (with no c	ondensation or icing)	· · · · · · · · · · · · · · · · · · ·		
		90% max. (Storage humidity: 90% max.)				
• •		10 to 55 Hz, 4.5 G max., 0.375-mm half amplitude for 2 h each in X, Y, and Z directions				
Shock resistance		150 m/s², 3 times each in ±X, ±Y, ±Z directions				
• •	2)	·				
· · · · ·	ار					
		-				
Degree of protection						
Harmonic current en		Conforms to EN 61000-3-2				
EMI *	Conducted Emissions	· · · · · · · · · · · · · · · · · · ·				
	Radiated Emissions	Conforms to EN 61204-3 Class B, EN 55011 Class B				
	EMS		Conforms to EN 61204-3 high severity levels			
EMS		UL 508 (Listing, excluding models with remote control option)				
EMS		UL 508 (Listing, exclud				
EMS		UL 508 (Listing, exclud UL 508 (Recognition,	models with remote contr	ol option)		
EMS		UL 508 (Listing, exclud UL 508 (Recognition, UL 62368-1 (Recognit	models with remote contr ion, OVCII [≤ 3,000 m], P	ol option) ol2)		
EMS		UL 508 (Listing, excluduL 508 (Recognition, UL 62368-1 (Recognit CSA C22.2 No.107.1 (	models with remote contr ion, OVCII [≤ 3,000 m], P excluding models with re	ol option) ol2) mote control option)		
EMS Safety Standards		UL 508 (Listing, excludul 508 (Recognition, UL 62368-1 (Recognition) CSA C22.2 No.107.1 (CSA C22.2 No.62368-EN 50178 (OVCIII [≤ 2	models with remote contrion, OVCII [≤ 3,000 m], Pexcluding models with red (excluding models with 2,000 m], OVCII [> 2,000	ol option) ol2) mote control option) remote control option)		
		UL 508 (Listing, exclur UL 508 (Recognition, UL 62368-1 (Recognit CSA C22.2 No.107.1 ( CSA C22.2 No.62368- EN 50178 (OVCIII   S 2 EN/IEC 62368-1 (OVC	models with remote contrion, OVCII [≤ 3,000 m], P (excluding models with 1.1 (excluding models with 1.000 m], OVCII [> 2,000 CII [≤ 3,000 m], Pol2)	ol option) ol2) mote control option) remote control option)		
		UL 508 (Listing, exclur UL 508 (Recognition, UL 62368-1 (Recognit CSA C22.2 No.107.1 ( CSA C22.2 No.62368- EN 50178 (OVCIII [≤ 2 EN/IEC 62368-1 (OVC Conforms to EN/IEC 6	models with remote contrion, OVCII [ $\leq$ 3,000 m], P excluding models with refunctional control ( $\leq$ 1.0 (excluding models with refunctional), OVCII [ $\geq$ 2,000 m], OVCII [ $\geq$ 2,000 m], Pol2) 1558-2-16	ol option) ol2) mote control option) remote control option)		
		UL 508 (Listing, exclur UL 508 (Recognition, UL 62368-1 (Recognit CSA C22.2 No.107.1 ( CSA C22.2 No.62368- EN 50178 (OVCIII   S 2 EN/IEC 62368-1 (OVC	models with remote contrion, OVCII [≤ 3,000 m], P excluding models with re 1 (excluding models with 2,000 m], OVCII [> 2,000 cl [≤ 3,000 m], Pol2) 1558-2-16 V/IEC 60204-1)	ol option) ol2) mote control option) remote control option)		
		UL 508 (Listing, excluu UL 508 (Recognition, UL 62368-1 (Recognit CSA C22.2 No.107.1 (CSA C22.2 No.62368-EN 50178 (OVCIII [≤ 2 EN/IEC 62368-1 (OVC Conforms to EN/IEC 6 Conforms to PELV (EI	models with remote contrion, OVCII [≤ 3,000 m], P excluding models with re 1 (excluding models with 2,000 m], OVCII [> 2,000 cl [≤ 3,000 m], Pol2) 1558-2-16 V/IEC 60204-1)	ol option) ol2) mote control option) remote control option)		
		UL 508 (Listing, exclur UL 508 (Recognition, UL 62368-1 (Recognit CSA C22.2 No.107.1 ( CSA C22.2 No.62368- EN 50178 (OVCIII [<2 EN/IEC 62368-1 (OVC Conforms to EN/IEC 6 Conforms to PELV (EI EAC (TR CU 004/201	models with remote contrion, OVCII [≤ 3,000 m], P excluding models with re 1 (excluding models with 2,000 m], OVCII [> 2,000 cl [≤ 3,000 m], Pol2) 1558-2-16 V/IEC 60204-1)	ol option) ol2) mote control option) remote control option)		
	Power factor *  Leakage current *  Inrush current * (for a cold start at 25°C) Rated Output Curre Voltage adjustment Ripple & Noise voltage * Input variation influt Load variation influt Temperature variation influence Startup time *  Hold time *  Overload protection Overvoltage protect Overheat protection Series operation Parallel operation Remote sensing Remote control Output indicator  Withstand voltage  Insulation resistance Ambient operating to Storage temperature Ambient operating to Vibration resistance MTBF Life expectancy * Dimensions (W×H×I) Weight Cooling fan	Frequency *  Current *  Current *  100 VAC input 200 VAC input  Power factor *  Leakage current *  Inrush current * (for a cold start at 25°C)  Rated Output Current  Voltage adjustment range * Ripple & Noise voltage * Input variation influence *  Load variation influence *  Temperature variation influence  Startup time *  100 VAC input  100 VAC input  100 VAC input  100 VAC input  200 VAC input  100 VAC input  200 VAC input  100 VAC input  100 VAC input  Voltage adjustment range *  Input variation influence *  Temperature variation influence  Startup time *  100 VAC input  200 VAC input  100 VAC input  Overload protection  Overvoltage protection *  Overheat protection  Series operation  Parallel operation  Remote sensing  Remote control  Output indicator  Withstand voltage  Insulation resistance  Ambient operating temperature  Storage temperature  Ambient operating humidity  Vibration resistance  Shock resistance  MTBF  Life expectancy *  Dimensions (W×H×D)  Weight  Cooling fan	Current *   100 VAC input   4.2 A typ.	Terquency	Frequency	

<sup>\*</sup> Refer to Ratings, Characteristics, and Functions on page 11.

Computation   Continue   Contin			Power rating		60	00 W		
Votage range #   200 VAC input   88% typ.   88% typ.   88% typ.   89% typ.	ltem	Oı	•	12 V			48 V	
	item				-	=		
Voltage range			•		* '	•	* * * * * * * * * * * * * * * * * * * *	
Voltage range   Frequency   Single phase, 85 to 264 VAC, 120 to 350 VDC   Frequency   Frequency   Single phase, 85 to 264 VAC, 120 to 350 VDC   Frequency   Frequency   Single phase, 85 to 264 VAC, 120 to 350 VDC   Frequency   Frequency   Single phase, 85 to 264 VAC, 120 to 350 VDC   Frequency   Frequenc	⊏πiciency *		•		- ''		92% typ.	
Input			230 VAC input					
Input   Power factor *   100 VAC input   3.8 A Np.   1.00 VAC input   2.00 VAC input   3.0 ms typ.   2.00 was typ.   4.0 ms typ. (Extended hold time type)   4.0 ms typ. (Extended Input input value)   2.00 VAC input   2.00 VAC	,	Voltage range *		Single phase, 85 to 26	4 VAC, 120 to 350 VDC			
Input	Ī	Frequency *						
Input			100 VAC input	, , ,				
	(	Current *	•	* * * * * * * * * * * * * * * * * * * *				
Leakage current   100 VAC input   1 n/A max.   1 n/A hyp.   1 n/A hy	Innut	Dower feeter *	200 VAO IIIput					
Leakage current   200 NAC input	iliput	Power lactor &						
Inrush current   100 VAC input	1	Leakage current *	•					
Vertical protection			200 VAC input	1 mA max.				
Rated Output Current	1	Inrush current *	100 VAC input	14 A typ.				
Voltage adjustment range		(for a cold start at 25°C)	200 VAC input	28 A typ.				
Voltage adjustment range *   -10% to 15% civit VADJ)   Ripple Alkiev evides *   100 to 240 VAC input   170 mVp-p max.   170 mVp-p max.   280 mVp-p max.   340 mVp-p max.   170 mVp-p max.   170 mVp-p max.   280 mVp-p max.   340 mVp-p max.   170 mVp-p max.   170 mVp-p max.   340 mVp-p max.   170 mVp-p max.   170 mVp-p max.   170 mVp-p max.   340 mVp-p max.   340 mVp-p max.   170	1	Rated Output Currer	nt	50 A	40 A	27 A	13 A	
Ripple & Noise vallage   1010 to 240 VAC input   170 m/p-p max.   170 m/p-p max.   280 m/p-p max.   340 m/p-p max.   170 m/p-p max.   280 m/p-p max.   340 m/p-p max.   170 m/p-p max.   280 m/p-p max.   340 m/p-p max.   170 m/	<u> </u>	· · · · · · · · · · · · · · · · · · ·			ADJ)			
Input variation influence * 1.0% max.	4			,		200 m\/n n mov	340 mVp-p max.	
Country   Coun		•••	•		170 mvp-p max.	200 mvp-p max.	340 mvp-p max.	
Temperature variation influence   100 to 240 VAC input   1,000 ms max.		•						
Variation influence   100 to 240 VAC input   1,000 ms max.	_		ence *	1.0% max.				
Startup time   Toward Time	•		100 to 240 VAC input	0.05%/°C max.				
Startup time *   200 VAC input   1,000 ms max.   25 ms typ.   30 ms typ.   40 ms typ. (Extended hold time type)   200 VAC input   30 ms typ.   25 ms typ.   30 ms typ.   40 ms typ. (Extended hold time type)   40 ms typ. (Extended hold time type)   40 ms typ.   40 ms typ. (Extended hold time type)   40 ms typ.   40	•	0	100 VAC input	1,000 ms max.				
Hold time   #	:	Startup time *	•					
Hold time   #   100 VAC input   30 ms typ.   25 ms typ.   40 ms typ. (Extended   30 ms hold time type)   200 VAC input   30 ms typ.   25 ms typ.   30 ms typ.   30 ms typ.   25 ms typ.   30 ms typ.   25 ms typ.   30 ms typ.   25 ms typ.   30 ms typ.   (Extended   40 ms typ. (Extended   40 ms typ.   25 ms typ.   40 ms typ.   (Extended   40 ms typ.   25 ms typ.   40 ms typ.   (Extended   40 ms typ.   25 ms typ.   40 ms typ.   (Extended   40 ms typ.   25 ms typ.   40 ms	-		_cco mpat	.,000		30 ms tvn		
Provided protection   Yes, automatic reset   Yes, 120% or higher of rated output voltage, power shut off (shut off the input voltage and turn on the input again)			100 VAC input	30 ms typ.	25 ms typ.	40 ms typ. (Extended	30 ms typ.	
Overload protection   Yes, automatic reset		Hold time <b>≭</b>	200 VAC input	30 ms typ.	25 ms typ.		30 ms typ.	
Overvoltage protection						hold time type)		
Additional Additional Series operation	(	Overload protection	•	Yes, automatic reset				
Additional Additional Series operation	(	Overvoltage protect	ion *	Yes, 120% or higher of rated output voltage, power shut off (shut off the input voltage and turn on the input aga				
Series operation   Yes (For up to two Power Supplies, external diodes are required.)	<u> </u>	<u> </u>						
Parallel operation   Yes (up to five Power Supplies, S8FS-G60024 (models with parallel operation option   No	<del> </del>	•						
Remote sensing   No   Remote control   Yes (Chly Remote control)		•						
Remote control   Yes (Cnly Remote control)		•			Supplies, S8FS-G60024 (i	models with parallel opera	ation option) only).	
Dutput indicator								
New   Withstand voltage   Withstand voltage   SkVAC for 1 min. (between all input terminals and PE terminals) current cutoff 20 to kVAC for 1 min. (between all input terminals and PE terminals) current cutoff 20 to kVAC for 1 min. (between all output terminals and PE terminals) current cutoff 20 to kVAC for 1 min. (between all output terminals and PE terminals) current cutoff 20 forly Remote control 500 VAC for 1 min. (between all output terminals and PE terminals) current cutoff 20 forly Remote control 500 VAC for 1 min. (between all output terminals and PE terminals) current cutoff 20 forly Remote control only Personal Manual Personal Per		Remote control		Yes (Only Remote con	itrol)			
New   Withstand voltage   2 kVAC for 1 min. (between all input terminals and PE terminals) current cutoff 20 only Remote control 500 VAC for 1 min. (between all output terminals and PE terminals) current cutoff 20 only Remote control 500 VAC for 1 min. (between all output terminals and RC terminals) current cutoff 20 only Remote control 500 VAC for 1 min. (between all output terminals and all input terminals) at 100 VAC for 1 min. (between all output terminals and all input terminals) at 100 VAC for 1 min. (between all output terminals and all input terminals) at 100 VAC for 1 min. (between all output terminals and all input terminals) at 100 VAC for 1 min. (between all output terminals and all input terminals) at 100 VAC for 1 min. (between all output terminals and BC terminals) at 100 VAC for 1 min. (between all output terminals and BC terminals) at 100 VAC for 1 min. (between all output terminals and BC terminals) at 100 VAC for 1 min. (between all output terminals and BC terminals) at 100 VAC for 1 min. (between all output terminals and BC terminals) at 100 VAC for 1 min. (between all output terminals and BC terminals) at 100 VAC for 1 min. (between all output terminals and BC for 100 VAC for 1 min. (between all output terminals and BC for 100 VAC for 1 min. (between all output terminals and BC for 100 VAC for 1 min. (between all output terminals and BC for 100 VAC for 1 min. (between all output terminals and BC for 100 VAC for 1 min. (between all output terminals and BC for 100 VAC for 1 min. (between all output terminals and BC for 100 VAC for 1 min. (between all output terminals and BC for 100 VAC for 1 min. (between all output terminals and BC for 100 VAC for 1 min. (between all output terminals and BC for 100 VAC for 1 min. (between all output terminals and BC for 100 VAC for 1 min. (between all output terminals and BC for 100 VAC for 100 VAC for 1 min. (between all output terminals and BC for 100 VAC for 1 min. (between all output terminals and BC for 100 VAC for 1 min. (between all output termina	(	Output indicator		Yes (LED: Green)				
Insulation   Withstand voltage   TkVAC for 1 min. (between all output terminals and PE terminals) current cutoff 2C   Conly Remote control   500 VAC for 1 min. (between all output terminals and RC terminals) current cutoff 2C   Conly Remote   100 MΩ min. (between all output terminals and RC terminals) at   100 MΩ min. (between all output terminals and all input terminals) at   100 MΩ min. (between all output terminals and all input terminals) at   100 MΩ min. (between all output terminals and all input terminals) at   100 MΩ min. (between all output terminals and all input terminals) at   100 MΩ min. (between all output terminals and all input terminals) at   100 MΩ min. (between all output terminals and RC terminals) at   100 MΩ min. (between all output terminals and RC terminals) at   100 MΩ min. (between all output terminals and RC terminals) at   100 MΩ min. (between all output terminals and RC terminals) at   100 MΩ min. (between all output terminals and RC terminals) at   100 MΩ min. (between all output terminals and RC terminals) at   100 MΩ min. (between all output terminals and RC terminals) at   100 MΩ min. (between all output terminals and RC terminals) at   100 MΩ min. (between all output terminals and RC terminals) at   100 MΩ min. (between all output terminals and RC terminals) at   100 MΩ min. (between all output terminals and RC terminals) at   100 MΩ min. (between all output terminals and all input and in input and input and input and input and inpu				3 kVAC for 1 min. (bet	ween all input terminals ar	nd output terminals) curre	nt cutoff 20 mA	
Continuation   Continuation resistance				2 kVAC for 1 min. (between all input terminals and PE terminals) current cutoff 20 mA				
Continuation   Continuation resistance	les explacits	Withstand voltage		1 kVAC for 1 min. (between all output terminals and PE terminals) current cutoff 20 mA				
Insulation resistance	insulation			· · · · · · · · · · · · · · · · · · ·				
Insulation resistance   100 MΩ min. (between all output terminals and all input terminals/PE terminals) at making temperature   -20 to 70°C (Derating is required according to the temperature.) (with no condense Storage temperature   -25 to 75°C (with no condensation or icing)				500 VAC for 1 min. (between all output terminals and RC terminals) current cutoff 20 mA				
Ambient operating temperature		Insulation resistance	e	`	· · · · · · · · · · · · · · · · · · ·			
Storage temperature				`	· · · · · · · · · · · · · · · · · · ·			
Ambient operating humidity   90% max. (Storage humidity: 90% max.)	<u> </u>		•	` ` ` `		e temperature.) (With no i	condensation or icing	
Vibration resistance	-	<u> </u>		3,				
Shock resistance	-	•	•	, ,	, ,			
MTBF	,	Vibration resistance		10 to 55 Hz, 4.5 G max	x., 0.375-mm half amplitud	de for 2 h each in X, Y, an	d Z directions	
Life expectancy   To years min.	:	Shock resistance		150 m/s <sup>2</sup> , 3 times each in $\pm X$ , $\pm Y$ , $\pm Z$ directions				
Dimensions (WxHxD)   Refer to Dimensions on page 26.	D-li-k"	MTBF						
Dimensions (W×H×D)   Refer to Dimensions on page 26.   Weight	neliability	Life expectancy *		10 years min.				
Veight		<u> </u>	2)	•				
Cooling fan  Degree of protection  Harmonic current emissions  Conforms to EN 61000-3-2  EMI ★  Conducted Emissions  Conforms to EN 61204-3 Class B, EN 55011 Class B  EMS  Conforms to EN 61204-3 Class B, EN 55011 Class B  EMS  Conforms to EN 61204-3 High severity levels  UL 508 (Listing, excluding models with remote control option) UL 62368-1 (Recognition, OVCII [≤ 3,000 m], Pol2) CSA C22.2 No.62368-1 (excluding models with remote control option) EN 50178 (OVCIII [≤ 2,000 m], OVCII [> 2,000 m and ≤ 3,000 m], Pol2) EN/IEC 62368-1 (OVCII [≤ 3,000 m], Pol2) Conforms to EN/IEC 61558-2-16 Conforms to EN/IEC 61558-2-16 Conforms to EN/IEC 60204-1) EAC (TR CU 004/2011, TR CU 020/2011) RCM (EN61000-6-4)	<u> </u>	•	-1	1 0				
Degree of protection	Construction $\vdash$			· · · · ·				
Harmonic current emissions  Conforms to EN 61000-3-2  EMI ★  Conducted Emissions  Conforms to EN 61204-3 Class B, EN 55011 Class B  EMS  Conforms to EN 61204-3 Class B, EN 55011 Class B  Conforms to EN 61204-3 high severity levels  UL 508 (Listing, excluding models with remote control option) UL 508 (Recognition, models with remote control option) UL 62368-1 (Recognition, OVCII [≤ 3,000 m], Pol2) CSA C22.2 No.62368-1 (excluding models with remote control option) EN 50178 (OVCIII [≤ 2,000 m], OVCII [> 2,000 m and ≤ 3,000 m], Pol2) EN/IEC 62368-1 (OVCII [≤ 3,000 m], Pol2) Conforms to EN/IEC 61558-2-16 Conforms to EN/IEC 61558-2-16 Conforms to PELV (EN/IEC 60204-1) EAC (TR CU 004/2011, TR CU 020/2011) RCM (EN61000-6-4)	_							
Conducted Emissions   Conforms to EN 61204-3 Class B, EN 55011 Class B		Degree of protection	1					
EMI ★  Radiated Emissions Conforms to EN 61204-3 Class B, EN 55011 Class B  EMS  Conforms to EN 61204-3 high severity levels  UL 508 (Listing, excluding models with remote control option) UL 508 (Recognition, models with remote control option) UL 62368-1 (Recognition, OVCII [≤ 3,000 m], Pol2) CSA C22.2 No.107.1 (excluding models with remote control option) CSA C22.2 No.62368-1 (excluding models with remote control option) EN 50178 (OVCIII [≤ 2,000 m], OVCII [> 2,000 m and ≤ 3,000 m], Pol2) EN/IEC 62368-1 (OVCII [≤ 3,000 m], Pol2) Conforms to PELV (EN/IEC 60204-1) EAC (TR CU 004/2011, TR CU 020/2011) RCM (EN61000-6-4)		Harmonic current en	missions	Conforms to EN 61000-3-2				
Radiated Emissions			Conducted Emissions	Conforms to EN 61204	1-3 Class B, EN 55011 Cla	ass B		
EMS  Conforms to EN 61204-3 high severity levels  UL 508 (Listing, excluding models with remote control option) UL 508 (Recognition, models with remote control option) UL 62368-1 (Recognition, OVCII [≤ 3,000 m], Pol2) CSA C22.2 No.107.1 (excluding models with remote control option) CSA C22.2 No.62368-1 (excluding models with remote control option) EN 50178 (OVCIII [≤ 2,000 m], OVCII [> 2,000 m and ≤ 3,000 m], Pol2) EN/IEC 62368-1 (OVCII [≤ 3,000 m], Pol2) Conforms to PELV (EN/IEC 60204-1) EAC (TR CU 004/2011, TR CU 020/2011) RCM (EN61000-6-4)		⊏IVII <b>*</b>	Radiated Emissions	Conforms to EN 61204	1-3 Class B, EN 55011 Cla	ass B		
UL 508 (Listing, excluding models with remote control option) UL 508 (Recognition, models with remote control option) UL 62368-1 (Recognition, OVCII [≤ 3,000 m], Pol2) CSA C22.2 No.107.1 (excluding models with remote control option) CSA C22.2 No.2368-1 (excluding models with remote control option) EN 50178 (OVCIII [≤ 2,000 m], OVCII [> 2,000 m and ≤ 3,000 m], Pol2) EN/IEC 62368-1 (OVCII [≤ 3,000 m], Pol2) Conforms to EN/IEC 61558-2-16 Conforms to PELV (EN/IEC 60204-1) EAC (TR CU 004/2011, TR CU 020/2011) RCM (EN61000-6-4)		EMS						
	Standards	Safety Standards		UL 508 (Listing, excluding models with remote control option) UL 508 (Recognition, models with remote control option) UL 62368-1 (Recognition, OVCII [≤ 3,000 m], Pol2) CSA C22.2 No.107.1 (excluding models with remote control option) CSA C22.2 No.62368-1 (excluding models with remote control option) EN 50178 (OVCIII [≤ 2,000 m], OVCII [> 2,000 m and ≤ 3,000 m], Pol2) EN/IEC 62368-1 (OVCIII [≤ 3,000 m], Pol2) Conforms to EN/IEC 61558-2-16 Conforms to PELV (EN/IEC 60204-1) EAC (TR CU 004/2011, TR CU 020/2011)				
	-			No	. (000 )/AC:			
SEMI Conforms to F47-0706 (200 VAC input)		SEMI		Conforms to F47-0706	(200 VAC input)			

<sup>\*</sup> Refer to Ratings, Characteristics, and Functions on page 11.

# Ratings, Characteristics, and Functions

Efficiency			The value is when both rated output voltage and rated output current are satisfied.		
	Voltag	e range	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.		
	Currer		The value is when both rated output voltage and rated output current are satisfied.		
Input	Power	factor	The value is when both rated output voltage and rated output current are satisfied.		
	Leaka	ge current	The values are determined according to the Act on Power Supply Safety of Electrical Appliances and Materials.		
		current cold start at 25°C)	For a cold start at 25°C. Refer to the following figure.		
	Voltage	e adjustment range	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.		
	Ripple	& Noise voltage	The value is when both rated output voltage and rated output current are satisfied. A characteristic when the ambient operating temperature is 25°C.		
Output	Input	variation influence	This is the maximum variation in the output voltage when the input voltage is gradually changed within the allowable input voltage range at the rated output voltage and rated output current.		
	Load v	variation influence	This is the value when the output current is changed from 0 A to the rated output current while the input voltage is within the allowable input voltage.		
	Startu	p time	The value is when both rated output voltage and rated output current are satisfied. For a cold start at 25°C. Refer to the following figure.		
	Hold time		The value is when both rated output voltage and rated output current are satisfied. At 25°C. Refer to the following figure.		
Additional functions	Overvoltage protection		Refer to <i>Overvoltage Protection</i> on page 18 for the time when input voltage shuts off and input turns on again.		
Reliability	Life ex	rpectancy	Refer to Recommended Replacement Periods and Periodic Replacement for Preventive Maintenance on page 33 for details.		
Otomalousi -	E 1 41	Conducted Emissions	The 150-W and higher models conform to Class B when an aluminum plate is set under the		
Standards	EMI	Radiated Emissions	Power Supply.		

#### **Standard Compliance**

- The input voltage range for compliance with EC Directives and other safety standards (UL, EN, etc.) is 90 to 264 VAC.
- EN/IEC 61558-2-16

To comply with EN/IEC 60204-1 (Machine Safety), a transformer is required in the control circuit. If, however, a Power Supply that has a built-in transformer that complies with EN/IEC 6155-8-2-16 is used, an external transformer is not required.

• Safety standard targets during a DC input \*

During a DC input, UL 62368-1, cUR (CSA C22.2 No. 62368-1), EN/IEC 62368-1, EN 50178, EN/IEC 61558-2-16, and EN/IEC 60204-1 are safety standard targets. (However, the input voltage range is 120 to 320 VDC. The safety standards during DC input are not acquired for the S8FS-G60048□.)

It is possible to comply with the safety standards by connecting a UL-authenticated fuse. Select a UL-authenticated fuse that satisfies the following conditions:

```
S8FS-G015\square/030\square (320 VDC or above, 3 A)
```

S8FS-G050□□ (320 VDC or above, 4 A)

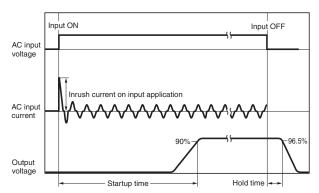
S8FS-G100□□ (320 VDC or above, 8 A)

S8FS-G150 $\square\square$  (320 VDC or above, 10 A)

S8FS-G300 (320 VDC or above, 12 A) S8FS-G600 (320 VDC or above, 20 A)

- To comply with the PELV output of the EN/IEC 60204-1, ground the output negative side (-V) to PE. \*
- \* Applicable to products produced from May 2018

#### Inrush Current, Startup Time, Output Hold Time

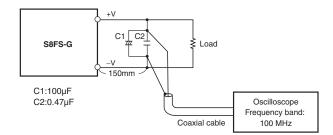


Note: The total inrush current of all of the Power Supplies will flow for parallel operation or backup operation.

Sufficiently check the fusing characteristics of fuses and the operating characteristics of breakers and select fuses and breakers so that external fuses will not burn out or breakers will not operate due to inrush current.

#### **Ripple Noise Voltage**

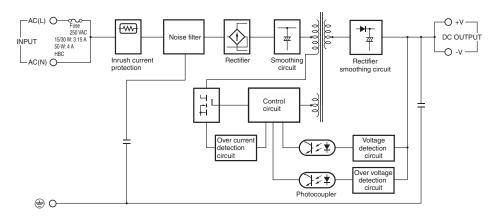
The specified standard for the ripple voltage noise was measured with a measurement circuit that is based on JEITA standard RC-9131A.



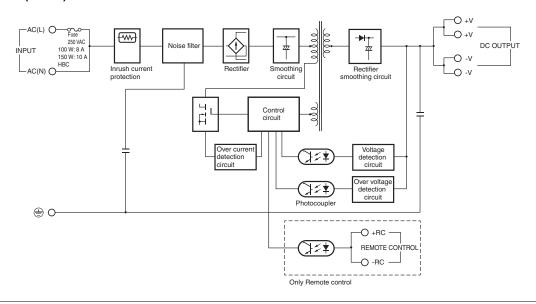
#### **Connections**

## **Block Diagrams**

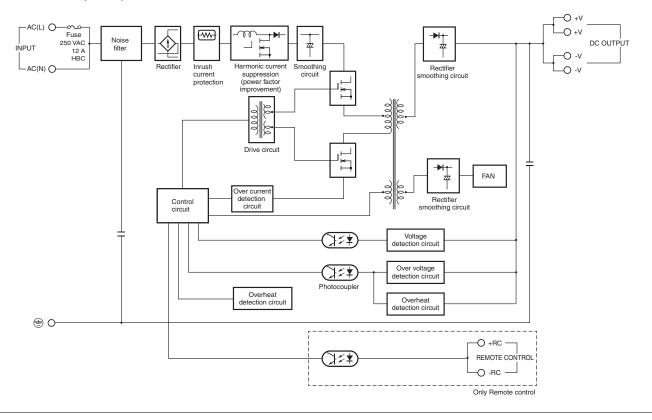
S8FS-G015□□□ (15 W) S8FS-G030□□□ (30 W) S8FS-G050□□□ (50 W)



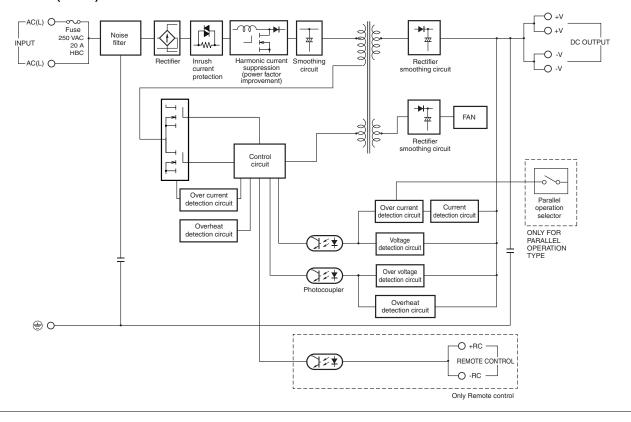
#### S8FS-G100□□□ (100 W) S8FS-G150□□□ (150 W)



#### S8FS-G300□□□ (300 W)



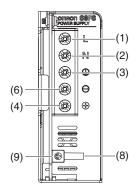
#### S8FS-G600□□□ (600 W)



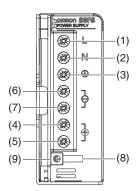
# **Construction and Nomenclature**

#### **Nomenclature**

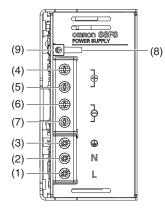




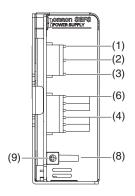
\$8FS-G100□□□ \$8FS-G150□□□



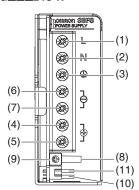
S8FS-G300□□□ S8FS-G600□□□



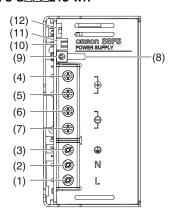
#### S8FS-G□□□24CE



#### S8FS-G□□□24C-R



#### S8FS-G□□□24C-WR



No.	Terminal name	Name	Function		
(1)	L	Input terminals	Connect the input lines to these terminals. *1		
(2)	N	Input terminals	Connect the input lines to these terminals. *1		
(3)	PE	Protective Earth terminal (  )	Connect the ground line to this terminal. *2		
(4)	+V1				
(5)	+V2	DC autout tarminala	Connect the load lines to these terminals.		
(6)	-V1	DC output terminals	Connect the load lines to these terminals.		
(7)	-V2				
(8)		Output indicator (DC ON: green)	Lights while a direct current (DC) output is ON.		
(9)		Output voltage adjuster (V.ADJ)	Use to adjust the voltage.		
(10)	+RC	Remote control terminals	Wire for remote control.		
(11)	-RC	nemote control terminals	wife for remote control.		
(12)		Parallel operation switch	To operate in parallel, set the switch to the "PARALLEL" side.		

<sup>\*1.</sup> The fuse is located on the (L) side. It is not user-replaceable. For a DC input, connect the positive voltage to the L terminal.

#### Input and Output Connectors (Connector type)

-	•	•				
			Applicable connector	Housing	Terminals	Applicable crimp tool
Input side	All models	CN110	B3P5-VH (LF) (SN)	VHR-5N		
Output side	S8FS-G01524□E S8FS-G03024□E S8FS-G05024□E	CN510	B4P-VH (LF) (SN) VHR-4N Reel: SVH-21T-P1.1 Bulk: BVH-21T-P1.1		YC-160R	
	S8FS-G10024□E S8FS-G15024□E	-	B6P-VH (LF) (SN)	VHR-6N		
Manufacturer		J.S.T. Mfg. Co., Ltd.				

Note: The female connectors that are required for wiring are not provided with the Power Supply.

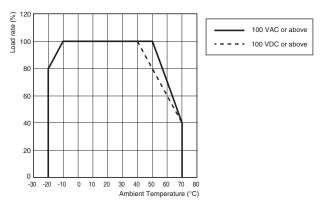
**<sup>\*2.</sup>** This is the protective earth terminal specified in the safety standards. Always ground this terminal.

# **Engineering Data**

#### **Derating Curves**

#### **Output Derating**

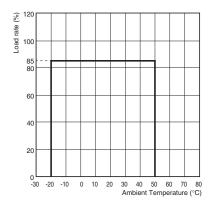
15 W, 30 W, 50 W, 100 W, and 150 W



- Note: 1. (For customers using the unit with an AC input)
  At a voltage below 100 VAC, reduce the load below the range of the derating curve shown above by the solid line, at the rate of 1.3%/V.s (40°C < Ambient temperature ≤ 70°C)
  - 2. (For customers using the unit with a DC input)
    At a voltage below 100 VDC, reduce the load below the range of the derating curve shown above by the dashed line, by multiplying with the coefficient 0.9.

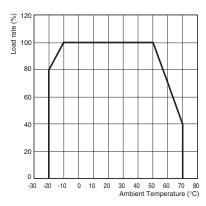
#### **Parallel Operation**

For Models with Parallel Operation Option



Note: At a voltage below 100 VAC, reduce the load at the rate of 1.3%/V.

#### 300 W and 600 W

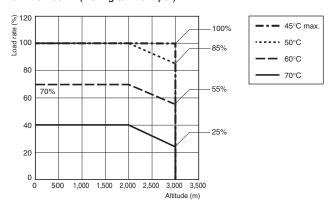


Note: At a voltage below 100 VAC, reduce the load at the rate of

This Power Supply can be used at an altitude of 3,000 m.

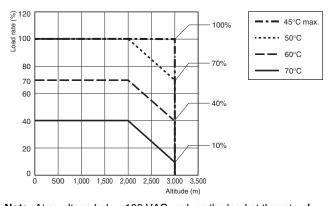
Between 2,000 and 3,000 m, derate the load according to the following derating curve.

#### 15 W to 150 W (During an AC input)



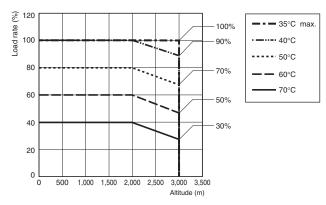
**Note:** At a voltage below 100 VAC, reduce the load at the rate of 1.3%/V. ( $40^{\circ}C < Ambient temperature \le 70^{\circ}C$ )

#### 300 W and 600 W



Note: At a voltage below 100 VAC, reduce the load at the rate of 1.3%/V.

#### 15 W to 150 W (During a DC input)



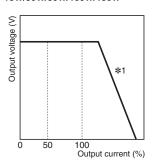
**Note:** At a voltage below 100 VDC, reduce the load by multiplying with the coefficient 0.9.

# **Engineering Data**

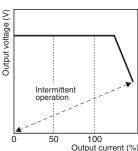
#### **Overload Protection**

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 to 160% of the rated current. When the output current returns within the rated range overload protection is automatically cleared.

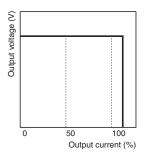
#### 15W/30W/50W/100W/150W







#### 600W



\*1. Operation is intermittent in a fixed cycle in short-circuited or overcurrent states.

**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.

#### 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 120% of the rated voltage or more is output, the output voltage is shut OFF.

Reset the input power by turning it OFF for at least three minutes and then turning it back ON again.

#### Overheating Protection (300 W and 600 W)

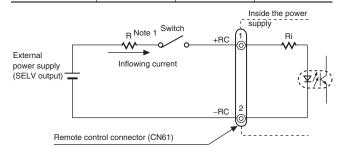
If the internal temperature of the Power Supply rises excessively as a result of fan failure or any other reason, the overheat protection circuit will be triggered to shut OFF the output voltage.

To restore operation, turn OFF the input power supply long enough for the Power Supply to cool sufficiently and then turn it ON again.

#### **Remote Control Function (Only Remote control)**

This function is to turn ON/OFF the output by applying a voltage to the remote control connector from a DC power Supply (external power supply) other than this Power Supply.

Built-in	Voltage between	Inrush current	
resistance Ri (Ω)	Output ON	Output OFF	(mA)
780	4.5 to 12.5	0 to 0.5	20 max.



Usage example of the remote control

#### Connectors used:

	CN61	Applicable connector	Applicable contact	
Model	B2B-XH-AM	XHP-2	SXH-001T-P0.6 or SXH-002T-P0.6	
Manufacturer	J.S.T. Mfg. Co., Ltd.			

Applicable crimp tool: YC-110R (J.S.T. Mfg. Co., Ltd.) or YRS-110 (J.S.T. Mfg. Co., Ltd.)

Note: 1. When the external power supply is 4.5 to 12.5 V, the current limiting resistor R is not required. When it is 12.5 to 24.5 V, insert 1.5 k $\Omega$  as the current limiting resistor R.

2. Reverse connection of the connector may cause damage on the internal parts.

3. The +RC and -RC terminals are the secondary circuit of the Power Supply. Use an SELV output power supply for an external power supply. The remote control circuit is insulated from the secondary output of the Power Supply (functional insulation).

#### **Reference Value**

	Value			
Reliability (MTBF)	Single phase model 15W: 970,000 30W: 970,000 50W: 880,000 100W: 730,000 150W: 620,000 300W: 200,000 600W: 190,000			
Definition	MTBF stands for Mean Time Between Failures, which is calculated according to the probability of accidental device failures, and indicates reliability of devices.  Therefore, it does not necessarily represent a life of the product.			
Life expectancy	10 yrs. Min.			
Definition	The life expectancy indicates average operating hours under the ambient temperature of 40°C and a load rate of 50%. Normally this is determined by the life expectancy of the built-in aluminum electrolytic capacitor.			

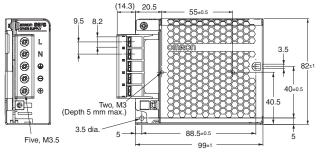
Dimensions (Unit: mm)

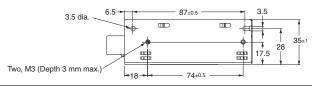
# **Power Supplies**

#### 15 W and 30 W

#### S8FS-G015□□C S8FS-G030□□C





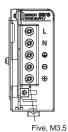


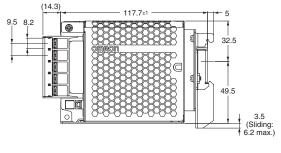
#### Panel mounting holes dimensions

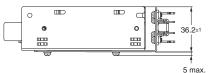
	Using the mounting holes in the Power Supply	Using the screw holes in the Power Supply
Side Mounting	Two, M3 40±0.5	Two, 3.5 dia. 
Bottom Mounting	Two, M3	Two, 3.5 dia.





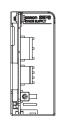


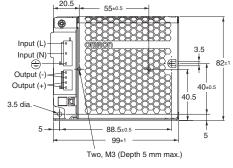


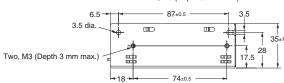


#### \$8FS-G015□□E \$8FS-G030□□E







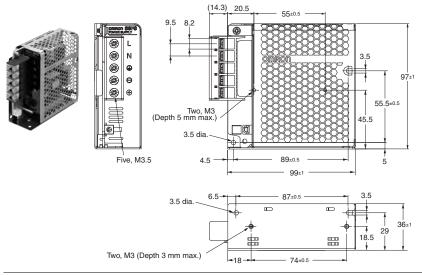


# Panel mounting holes dimensions

r unor mounting notice dimensions				
	Using the mounting holes in the Power Supply	Using the screw holes in the Power Supply		
Side Mounting	Two, M3 40±0.5	Two, 3.5 dia.		
Bottom Mounting	Two, M3	Two, 3.5 dia.		

#### **50W**

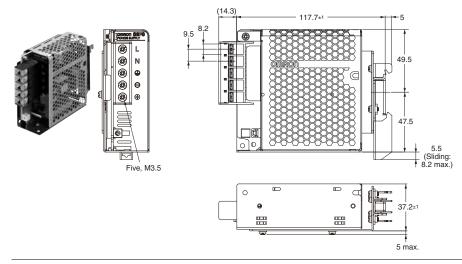
#### S8FS-G050□□C



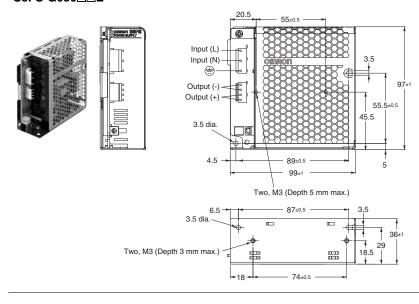
#### Panel mounting holes dimensions

	Using the mounting holes in the Power Supply	Using the screw holes in the Power Supply
Side Mounting	Two, M3	Two, 3.5 dia.
Bottom Mounting	Two, M3	Two, 3.5 dia.

#### S8FS-G050□□CD



#### S8FS-G050□□E



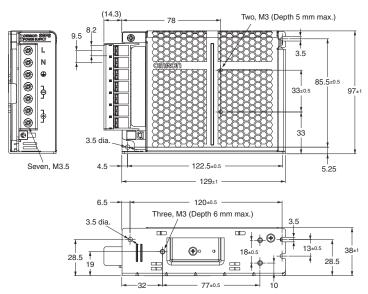
#### Panel mounting holes dimensions

	Using the mounting holes in the Power Supply	Using the screw holes in the Power Supply
Side Mounting	Two, M3	Two, 3.5 dia.
Bottom Mounting	Two, M3	Two, 3.5 dia.

#### 100W

#### S8FS-G100□□C





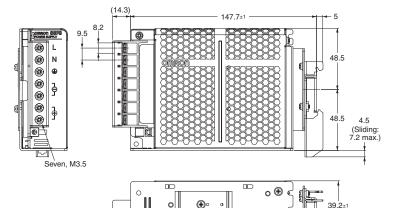
#### Panel mounting holes dimensions

5 max.

	Using the mounting holes in the Power Supply	Using the screw holes in the Power Supply	
Side Mounting	Two, M3	Two, 3.5 dia.	
Bottom Mounting	Three, M3 13±0.5	Three, 3.5 dia.	

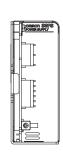
#### S8FS-G100□□CD

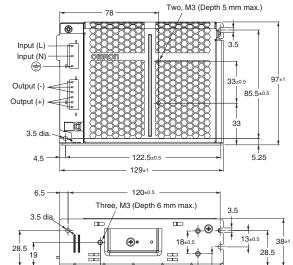




#### S8FS-G100□□E







77±0.5

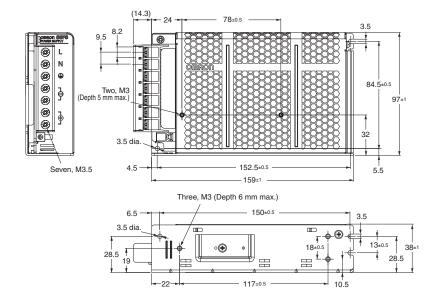
#### Panel mounting holes dimensions

	Using the mounting holes in the Power Supply	Using the screw holes in the Power Supply
Side Mounting	Two, M3	Two, 3.5 dia.
Bottom Mounting	Three, M3	Three, 3.5 dia.

#### 150W

#### S8FS-G150□□C



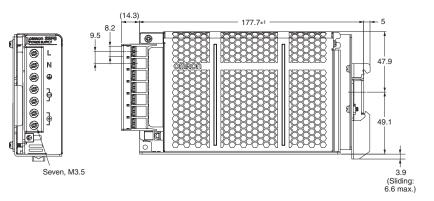


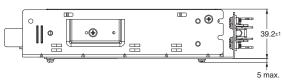
#### Panel mounting holes dimensions

	Using the mounting holes in the Power Supply	Using the screw holes in the Power Supply
Side Mounting	Two, M3	Two, 3.5 dia.
Bottom Mounting	Three, M3 13±0.5	Three, 3.5 dia.

#### S8FS-G150□□CD

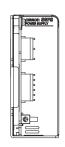


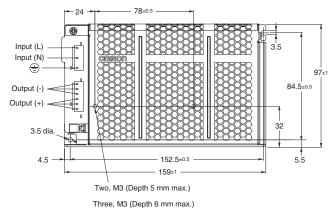


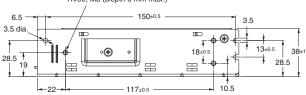


#### S8FS-G150□□E

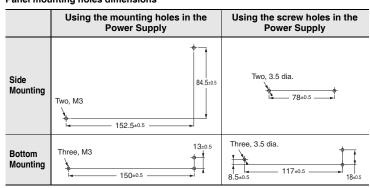






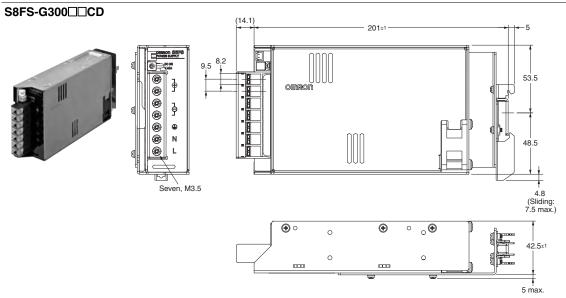


#### Panel mounting holes dimensions



#### 300W

#### S8FS-G300□□C Two, M4 (Depth 5 mm max.) Panel mounting holes dimensions Using the screw holes in the Power Supply **⊗** Two, 4.5 dia. 102±1 Side Mounting 64±0.5 Four, 4.5 dia. 50.5 **Bottom** Mounting 74±0.5 Seven, M3.5 (3.5)170±1 60 74±0.5 • • **(** • 20±0.5 12 Four, M4 (Depth 5 mm max.)

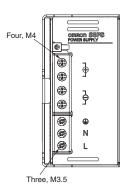


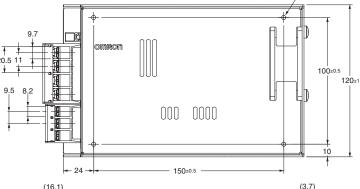
Note: Use a Front-mounting Bracket (S82Y-FSG-30F) when the DIN Rail is not strong enough for your usage environment.

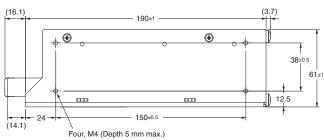
#### 600W

#### S8FS-G600□□C

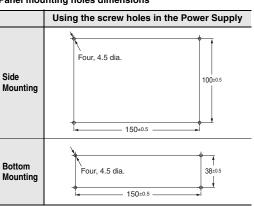








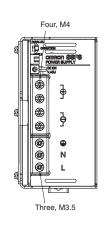
#### Panel mounting holes dimensions

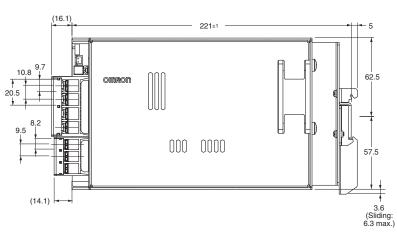


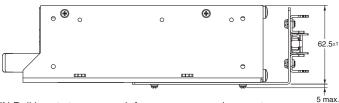
Four, M4 (Depth 5 mm max.)

#### S8FS-G600□□CD









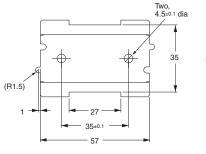
Note: Use a Front-mounting Bracket (S82Y-FSG-60F) when the DIN Rail is not strong enough for your usage environment.

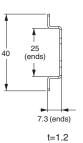
# **Mounting Brackets (Order Separately)**

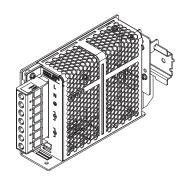
Use the Front-mounting Brackets together with DIN Rail-mounting Power Supplies (S8FS-G CD). Purchase a DIN Rail mounting bracket separately to mount direct mounting models (S8FS-G CD CD) on a DIN Rail.

Power rating	Mounting direction	Model
15 W, 30 W, 50 W 100 W, 150 W and 300 W	Front-mounting	S82Y-FSG-30F
600 W	Front-mounting	S82Y-FSG-60F

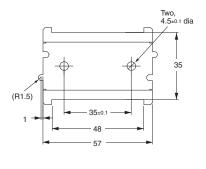
#### S82Y-FSG-30F

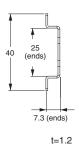


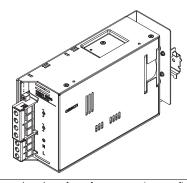




#### **S82Y-FSG-60F**







Note: Replacement brackets from the S8JX-N, S8JX-P, and S8VM series are available. Use these brackets for a front mounting configuration using direct mounting models.

Refer to the data sheet (Cat. No.: T216-E1, T217-E1, and T218-E1) for more information.

## **Terminal cover (Order Separately)**

Power rating	Applicable models	Terminal Cover model number
15 W	S8FS-G015	
30 W	S8FS-G030	S82Y-FSG-C5P
50 W	S8FS-G050	
100 W	S8FS-G100	
150 W	S8FS-G150	S82Y-FSG-C7P
300 W	S8FS-G300□□□	
600 W	S8FS-G600□□□	S82Y-FSG-C7P-L (Input Output)

Note: A Terminal Block Cover is provided with the Power Supply as a standard accessory. You can purchase another one if your Cover is damaged or lost.

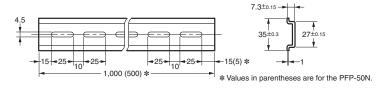
# **DIN Rail (Order Separately)**

(Unit: mm)

**Mounting Rail (Material: Aluminum)** 

PFP-100N PFP-50N

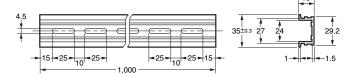




# **Mounting Rail (Material: Aluminum)**

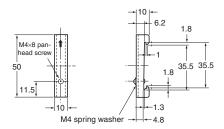
PFP-100N2





End Plate PFP-M

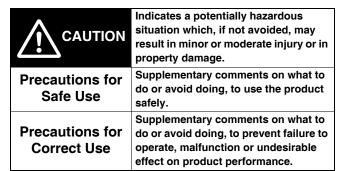




Note: If there is a possibility that the Unit will be subject to vibration or shock, use a steel DIN Rail. Otherwise, metallic filings may result from aluminum abrasion.

# **Safety Precautions**

Refer to Safety Precautions for All Power Supplies. Warning Indications



#### **Meaning of Product Safety Symbols**



Used to warn of the risk of electric shock under specific conditions.



Used to warn of the risk of minor injury caused by high temperatures.



Use to indicate prohibition when there is a risk of minor injury from electrical shock or other source if the product is disassembled.



Used for general mandatory action precautions for which there is no specified symbol.

#### / 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.

M3.5: 0.74 to 1.13N·m M4: 1.08 to 1.32N·m



Minor injury due to electric shock may occasionally occur. Do not touch the terminals while power is being supplied.



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**

#### **Ambient Operating and Storage Environments**

- Store the Power Supply at a temperature of –25 to 75°C and a humidity of 90% max.
- The internal parts may occasionally deteriorate or be damaged.
   Use the Power Supply within the derating curve.
- Use the Power Supply at a humidity of 90% max.
- Do not use locations where liquids, foreign matter, or corrosive gases may enter the interior of the Power supplies.

#### **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 contractors or other devices that are a vibration source.
- Install the Power Supply well away from any sources of strong, high-frequency noise and surge.

#### Mounting

 Take adequate measures to ensure proper heat dissipation to increase the long-term reliability of the Power Supply.
 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.

The S8FS-G015 o to S8FS-G150 or are cooled by natural convection. Mount them so that air convection will occur around them.

The S8FS-G300 and S8FS-G600 are cooled by forced airflow. Do not allow the ventilation holes to be blocked. The effectiveness of cooling would be reduced.

- When cutting out holes for mounting, make sure that cuttings do not enter the interior of the Power supplies.
- The internal parts may occasionally deteriorate and be broken due to adverse heat radiation. Do not loosen the screws on the Power Supply.
- If you mount the Power Supply with the holes provided on the chassis, do not exceed the depth given in the dimensional diagrams.

Use the following tightening torques.

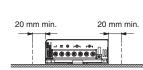
M3 screws: 0.48 to 0.59 N·m M4 screws: 1.08 to 1.32 N·m

#### Mounting

#### <Standard mounting> S8FS-G015□□□ to 150□□□ Bottom mounting

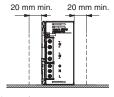
# 20 mm min. 20 mm min.

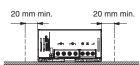
# Side (horizontal orientation) mounting

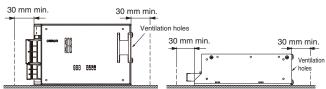


# S8FS-G300□□□ and S8FS-G600□□□

Bottom mounting Side (horizontal orientation) mounting

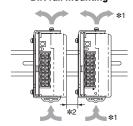






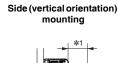
Note: Use a metal plate as the mounting surface.

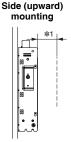
#### **DIN** rail mounting

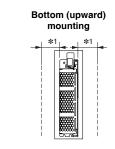


- \*1. Convection of air.
- **\*2.** 20 mm min.

# <Other mounting types> \*2 S8FS-G015 $\square$ to 150 $\square$



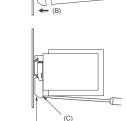




- **\*1.** 20 mm min.
- \*2. Applicable to products produced from May 2018

#### <DIN Rail Mounting>

To mount the Power Supply to a DIN Rail, hook portion (A) of the Power Supply onto the DIN Rail and press the Power Supply in direction (B) until you hear it lock into place.



Rail stopper

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

#### 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 150-N force to the terminal block when tightening it.
- Be sure to remove the sheet covering the Power Supply for machining before power-ON so that it does not interfere with heat dissipation.
- Use the following material for the wires to be connected to the S8FS-G to prevent smoking or ignition caused by abnormal loads.

#### Terminals and Wiring (Screw terminal block type)

Terminals	Model	Recommendes Wire Gauges	
	S8FS-G015□□□	AWG12-22	
Input	S8FS-G030□□□ to 100□□□	AWG12-20	
	S8FS-G150□□□ to 600□□□	AWG12-16	
	S8FS-G01512□ to 01524□	AWG12-22	
	S8FS-G03024□	AVVG12-22	
	S8FS-G01505□		
	S8FS-G03012□, 03015□	AWG12-20	
	S8FS-G05015□, 05024□	AVVG12-20	
	S8FS-G15048□		
	S8FS-G05012□	AWG12-18	
	S8FS-G10024□	AWG12-18	
	S8FS-G03005□		
Output	S8FS-G10015□	AWG12-16	
Output	S8FS-G15024□	AWG12-16	
	S8FS-G30048□		
	S8FS-G05005□		
	S8FS-G10012□	AWG12-14	
	S8FS-G15015□		
	S8FS-G10005□		
	S8FS-G15005□, 15012□	AWG12	
	S8FS-G30012□ to 30024□		
	S8FS-G60015□ to 60048□	AWG10-12	
	S8FS-G60012□	AWG10	
Protective earth terminal	S8FS-G015□□□ to 600□□□	AWG12-14	

Note: The current capacity per output terminal is given in the following table.

S8FS-G015 to S8FS-G300 : 20 A

S8FS-G600□□□: 30 A

Use two terminals together if the current flow is higher than the rated terminal current.

#### Terminals and Wiring (Connector type)

Terminals	Model	Recommendes Wire Gauges
Input	S8FS-G01524□E to 15024□E	AWG18
Output	S8FS-G01524□E to 15024□E	AWG18

- Note: 1. The current capacity per output terminal is 5 A.

  Use two or more terminals together if the current flow is higher than the rated terminal current.
  - Do not insert and remove any connector more than 20 times.
  - 3. Refer to Input and Output Connectors on page 15 for the model numbers of the input and output connectors.

#### **Overcurrent Protection**

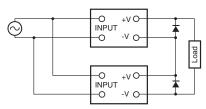
- Internal parts may possibly deteriorate or be damaged if a shortcircuited, overload, or boost load state continues during operation.
- Internal parts may possibly deteriorate or be damaged if the Power Supply is used for applications with frequent inrush current or overloading at the load end. Do not use the Power Supply for such applications.

#### **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.

#### **Series Operation**

Two Power Supplies can be connected in series operation.



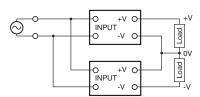
Note: 1. The diode is connected as shown in the figure. If the load is short-circuited, a reverse voltage will be generated inside the Power Supply. If this occurs the Power Supply may possibly deteriorate or be damaged. Always connect a diode as shown in the figure. Select a diode having the following ratings.

Туре	Schottky Barrier diode
Dielectric strength (VRRM)	Twice the output voltage or above
Forward current (I <sub>F</sub> )	Twice the rated output current or above

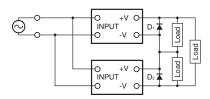
Although Power Supply having different specifications can be connected in series, the current flowing through connected in series, the current flowing through the load must not exceed the smaller rated output current.

#### <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. If positive and negative outputs are used, connect Power Supplies of the same series as in the following figure. Combinations with different output capacities or output voltages can be made. However, use the lower of the two rated 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. If the list of models that support series connection of outputs says that an external diode is not required, an external diode is also not required for positive/negative outputs.

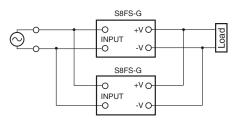


 Use the following information as a guide to the diode type, dialectic strength, and current.

Туре	Schottky Barrier diode
Dielectric strength (VRRM)	Twice the output voltage or above
Forward current (I <sub>F</sub> )	Twice the rated output current or above

#### **Parallel Operation**

Parallel operation is used when the output current from one Power Supply is insufficient for the load. Power Supplies are connected in parallel to increase the output current.



#### Power Supplies without the Parallel Operation Option

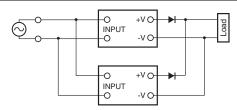
Parallel operation is not possible.

#### S8FS-G60024□-W□ (Models with the Parallel Operation Option)

Up to five Power Supplies can be connected in parallel operation. You must meet the following conditions to use parallel operation.

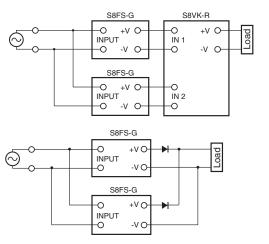
- The internal parts may occasionally deteriorate or be damaged. To operate in parallel, set the switch to the "PARALLEL" side.
- For parallel operation, always use Power Supplies with the same model number.
- Use the output voltage adjusters (V. ADJ) to adjust the difference in the output voltages to 50 mV or less between Power Supplies that are used in parallel operation.
- The length and thickness of each wire connected to the load must be the same so that there is no difference in the voltage drop value between the load and the output terminals of each Power Supply.
- Drastic fluctuations in the load (including fluctuations that occur
  when starting and starting the load) may reduce the output voltage.
   If fluctuations in the output voltage that result from drastic
  fluctuations in the load would be a problem, connect external
  diodes as shown in the following diagram.
- Use the following information as a guide to the diode type, dialectic strength, and current.

Туре	Schottky Barrier diode
Dielectric strength (VRRM)	Twice the output voltage or above
Forward current (I <sub>F</sub> )	Twice the rated output current or above



#### **Backup Operation**

Backup operation is possible if you use two Power Supplies of the same model. Even if one Power Supplies fails, operation can be continued with the other Power Supply. Make sure that the maximum load does not exceed the capacity of one Power Supply. Connect the S8VK-R or external diodes as shown in the following figure for backup operation. Refer to the S8VK-R datasheet (Cat. No.: T059) for information on using the S8VK-R.



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

Туре	Schottky Barrier diode
Dielectric strength (V <sub>RRM</sub> )	Twice the output voltage or above
Forward current (I <sub>F</sub> )	Twice the rated output current or above

#### In Case There Is No Output Voltage

There is a possibility that overload protection, overvoltage protection, or overheating protection are functioning. The internal protection may operate if a large amount of surge voltage, such as a lightning inrush, is applied to the input. In addition, other possible causes for some models include stoppage of the built-in fan and the remote control function (OFF). Check the following five points. If there is still no output voltage, contact your OMRON representative.

- Checking Overload Protection: Remove the load wires and check whether the load is in an overload state or is short-circuited.
- Checking Overvoltage or Internal Protection:
   Turn the power supply OFF, leave it OFF for at least three minutes, and then turn it ON again to see if this clears the condition.
- Checking Overheating Protection (300 W/600 W): Turn OFF the input power supply long enough for the Power Supply to cool sufficiently and then turn it ON again.
- Checking for Built-in Fan Stoppage (300 W/600 W): Check whether or not the built-in fan has stopped.
- Confirming Remote Control Operation (Power Supplies with Remote Control):

Check whether or not the +RC and -RC terminals are open. Connect the terminals as specified.

#### **Charging a Battery**

If you connect a battery as the load, install overcurrent control and overvoltage protection circuits.

#### **Built-in Fan Replacement**

<Only S8FS-G300 | | | | /600 | | | >
The built-in fan cannot be replaced.

#### **Audible Noise at Power ON**

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 Power Supply.

## **Period and Terms of Warranty**

#### **Warranty Period**

The Power Supply warranty is valid for a period of three years from the date of shipment from the factory.

#### **Terms of Warranty**

The warranty is valid only for the following operating conditions.

- 1. Average ambient operating temperature of the Power Supply: 40°C max. (See note.)
- 2. Average load rate of 80% max. (See note.)
- 3. Mounting method: Standard mounting
- 4. Rated input voltage

Note: The maximum ratings must be within the derating curve.

If the Power Supply fails for reasons attributable to OMRON within the above warranty period, OMRON will repair or replace the faulty part of the Power Supply at the place of purchase or the place where the Power Supply delivered without charge. This warranty does not cover the following types of failures.

- (1) Failures that result from handling or operation of the Power Supply under conditions or in environments that are not given in this document and not given in any other specifications exchanged between OMRON and the customer
- (2) Failures that originate in causes other than the delivered product itself
- (3) Failures caused by disassembly, modification, or repair of the Power Supply by anyone other than OMRON
- (4) Failures caused by applications or uses for which the Power Supply was not originally intended
- (5) Failures caused by factors that could not be anticipated with the scientific or technical knowledge available when the Power Supply was shipped
- (6) Failures caused by other causes for which OMRON is not responsible, such as natural disasters and other acts of God

This warranty is limited to the individual Power Supply that was delivered and does not cover any secondary, subsequent, or related damages.

# Recommended Replacement Periods and Periodic Replacement for Preventive Maintenance

The recommended replacement period for preventive maintenance is greatly influenced by the application environment of the Power Supply. As a guideline, the recommended replacement period is 7 to 10 years.\*

To prevent failures or accidents that can be caused by using a Power Supply beyond its service live, we recommend that you replace the Power Supply as early as possible within the recommended replacement period.

However, bear in mind that the recommended replacement period is for reference only and does not guarantee the life of the Power Supply.

Many electronic components are used in the Power Supply and the Power Supply depends on the correct operation of these components to achieve the original Power Supply functions and performance.

However, the influence of the ambient temperature on aluminum electrolytic capacitors is large, and the service life is reduced by half for each 10°C rise in temperature (Arrhenius law).

When the capacity reduction life of the electrolytic capacitor is reached, the Power Supply failures or accidents may occur.

We therefore recommend that you replace the Power Supply periodically to minimize product failures or accidents in advance.

\*The recommended replacement period applies under the following conditions: rated input voltage, load rate of 50% max., ambient temperature of 40°C max., and the standard mounting method.

This Power Supply model is designed with a service life of 10 years minimum under the above conditions.

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