

HFE1600 SERIES SPECIFICATIONS:

			HFE1600-12	HFE1600-24	HFE1600-48	Rev	
1	Rated output voltage	V	12	24	48		
2	Output voltage set point	V	12+/-1%	24+/-1%	48+/-1%		
3	Output voltage range	V	9.6~13.2	19.2~29.0	38.4~58		
4	Rated Output Current at Vin ≥ 170Vac	(*1) A	133	67	33		
5	Rated Output Current at 100 ≤ Vin ≤ 132Vac	(*1) A	100	50	25		
6	Rated Output Current at 85V ≤ Vin < 100Vac	(*1) A	Linear derating 1% per 1Vac from output current at 100Vac:				
7	Rated output power Vin ≥ 170Vac	W	1596	1608	1584		
8	Rated output power 100 ≤ Vin ≤ 132Vac	W	1200	1200	1200		
9	Rated output power 85Vac ≤ Vin < 100Vac	W	Linear derating 1% per V				
10	Input voltage / frequency range	(*2) ---	85~265Vac continuous, 47~63Hz, Single phase				
11	Maximum input current (at 115/230Vac)	A	12.4/8.1			A	
12	Power Factor (Typ) (at 115/230Vac)	---	>0.99/0.98 at 115/230V and maximum output power			A	
13	Efficiency at 75% rated load (Typ)	(*3) %	87/90%	88/90%	89/92%		
14	Efficiency at 100% rated load (Typ)	(*3) %	87/90%	87/90%	88/91%		
15	Inrush current	(*4) A	Less than 35A				
16	Hold-up time	mS	≥ 10mS typical at 115/230Vac input, rated output voltage and less than 80% of rated load.			A	
17	Maximum line regulation	(*5) %	0.25%				
18	Max load regulation	(*6) %	0.50%				
19	Output Ripple and noise P-P	(*7) 0~+70°C	mV	240	240	480	
		-10~0°C	mV	360	360	780	
20	Temperature stability	%	0.05% of rated Vout for 8hrs after 30min warm-up. Constant line, load and temperature.				
21	Temperature coefficient	ppm/°C	+/-200				
22	Remote sensing	(*8) ---	Possible. Refer to instruction manual.				
23	Parallel operation	(*9) ---	Possible. Single wire current share, 5% accuracy of rated Iout, up to 10 units.			A	
24	Series operation	---	Possible (with external diodes), 2 units. Refer to instruction manual.				
25	Over current protection	%	105~115% of rated output current.				
26	Over voltage protection	(*10) V	Tracking OVP, range: 1.1xVout, accuracy: +/-3%			A	
27	Over temperature protection	---	Inverter shut down method, automatic reset.				
28	Remote On/Off control	---	Two complementary inputs. By electrical signal or dry contact. Refer to instruction manual.				
29	"DC OK" signal	---	Tracking, On when Vout>90+/-5% of set output voltage. Open collector signal. Max.sink current: 10mA				
30	Over-Temperature warning	---	Refer to instruction manual. Open collector signal, Max. sink current: 10mA.				
31	"AC FAIL" signal	---	On when 270Vac>Vin>85Vac. Open collector signal, Max. sink current: 10mA.				
32	Auxiliary power supply output	---	11.2~12.5V, 0.5A. 240mVp-p ripple and noise (*11)				
33	Vout programming by external voltage	---	By 0~5V, equal to Vout min ~ Vout max . Refer to Instruction Manual.				
34	Vout programming by external resistor	---	By 1Kohm potentiometer . Refer to Instruction Manual.				
35	Front panel indicators	---	AC OK, DC OK/FAIL				
36	I ² C Interface	---	Optional, PMBus compatible. Refer to Instruction Manual.				
37	Operating temperature	---	-10~70°C. -10~50°C: 100% load. Derate 2%/°C, 50°C to 60°C, Derate 2.5%/°C, 60°C to 70°C.				
38	Storage temperature	---	-30~85°C				
39	Operating humidity	---	10~90% RH, no condensation.				
40	Storage humidity	---	10~95% RH, no condensation.				
41	Cooling	---	By internal Fans. Variable speed control by ambient temperature and power level.				
42	Vibration	---	Built to meet IEC60068-2-64 (Basic Transportation)				
43	Shock	---	Built to meet IEC60068-2-27 (Basic Transportation)				
44	Conducted emission	---	Built to meet EN55022 Class B, FCC part 15 Class-B, VCCI Class-B				
45	Radiated emission	---	Built to meet EN55022 Class A, FCC part 15 Class-A, VCCI Class-A				
46	Immunity	---	Built to meet IEC61000-4-2 (Level 2,3), -3 (Level 2), -4 (Level 2), -5 (Level 3,4), -6 (Level 2), -8 (Level 4), -11				
47	Applicable safety standards	---	UL60950-1, EN60950-1				
48	Withstand voltage	---	Input-Output: 3000Vac, 1min. Input-Ground: 2000Vac, 1min. Output - Ground: 500Vac 1min. Output - Ground: 2250Vdc 1min			A	
49	Insulation resistance	---	More than 100Mohm at 25°C and 70% RH. Output-Ground: 500Vdc				
50	Leakage current	(*12) mA	Less Than 0.75/1.5mA at 115/230Vac range			A	
51	Weight (Typ)	Kg	Max. 1.55				
52	Size (W*H*D)	---	85x41x300mm. Refer to Outline Drawing.				

Notes:

- *1 Refer to Fig. 1
- *2 For cases where conformance to various safety standards (UL, EN etc.) is required, to be described as 100-240Vac (50/60Hz).
- *3 At 115/230Vac, 25°C ambient temperature.
- *4 Not applicable for the noise filter inrush current less than 0.2mS.
- *5 From 85~132Vac or 170~265Vac, constant load.
- *6 From No-load to Rated load, constant input voltage. Measured at the sensing point in Remote sense.
- *7 Measured with JEITA-RC9131A 1:1 probe with 2x270uF electrolytic capacitors and 1uF film capacitor on the output, 20MHz B.W. When Power Supplies are installed in HFE1600-S1U shelf, measured with 1uF film capacitor on the output terminals of the HFE1600-S1U.
- *8 Voltage drop on load wires: HFE1600-12: 0.25V/wire, HFE1600-24: 0.5V/wire, HFE1600-48: 1V/wire.
- *9 Accuracy applicable for load current > 50% of rated output current. Derate maximum output power by 5%.
- *10 Inverter shut down method. Reset by AC voltage recycle or by On/Off control.
- *11 Measured with JEITA-RC9131A 1:1 probe with 470uF electrolytic capacitor and 0.1uF film capacitor on the output, 20MHz B.W. Capacitors are not required when the Power Supply is installed in HFE1600-S1U shelf.
- *12 Measured according to UL,EN method at 60Hz Ta=25°C

Vin(AC)	Model V/I	HFE1600	HFE1600	HFE1600
		-12	-24	-48
	V1 (V)	12	24	48
	V2 (V)	13.2	29	58
85V	I1 (A)	76	34	17
	I2 (A)	85	42.5	21
100~132V	I1 (A)	91	42	21
	I2 (A)	100	50	25
170~265V	I1 (A)	121	56	28
	I2 (A)	133	67	33

DRAWING NO:	IA688-01-01B
DRAW	<i>Pi</i> 3-3-11
ENGR	<i>Pi</i> 3-3-11
CHECK	<i>Pi</i> 3-3-11
APPR	<i>Pi</i> 3-3-11

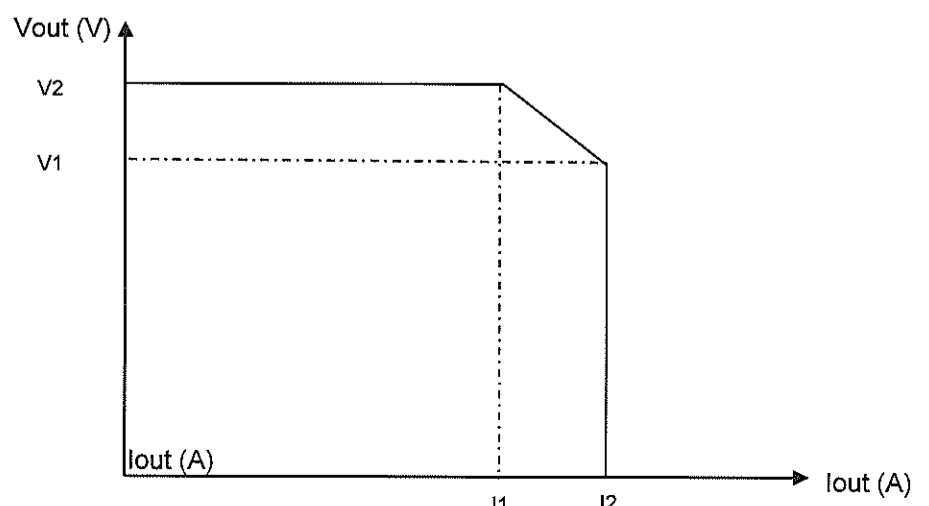


Fig. 1: Rated output current

A
A
B
A