

HFE2500 SERIES SPECIFICATIONS

| | | | HFE2500-12 | HFE2500-24 | HFE2500-48 | 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 180 < Vin ≤ 265Vac | (*1) A | 200 | 104 | 52 | |
| 5 | Rated Output Current at 170 ≤ Vin ≤ 180Vac | (*1) A | 200 | 100 | 50 | |
| 6 | Rated Output Current at 100 ≤ Vin ≤ 132Vac | (*1) A | 125 | 62.5 | 31.25 | |
| 7 | Rated Output Current at 85V ≤ Vin < 100Vac | (*1) A | Linear derating 1.3% per 1VAC from output current at 100VAC: | | | |
| 8 | Rated output power 180 < Vin ≤ 265Vac | W | 2400 | 2496 | 2496 | |
| 9 | Rated output power 170 ≤ Vin ≤ 180Vac | W | 2400 | | | |
| 10 | Rated output power 100 ≤ Vin ≤ 132Vac | W | 1500 | 1500 | 1500 | |
| 11 | Rated output power 85Vac ≤ Vin < 100Vac | W | Linear derating 1.3% per V | | | |
| 12 | Input voltage / frequency range | (*2) --- | 85~265Vac continuous, 47~63Hz, Single phase | | | |
| 13 | Maximum Input current | (*3) A | 15/12A | | | |
| 14 | Power Factor (Typ) | (*3) --- | >0.99/0.98 @ 115/230V and maximum output power | | | |
| 15 | Efficiency at 75% rated load (Typ) | (*3) % | 90/92% | 90/92% | 91/93% | |
| 16 | Efficiency at 100% rated load (Typ) | (*3) % | 89/91% | 89/91% | 90/92% | |
| 17 | Inrush current | (*4) A | Less than 50A | | | |
| 18 | Hold-up time | (*13) mS | ≥ 10mS typical at 115/230Vac input, rated output voltage and less than 80% of rated load. | | | |
| 19 | Maximum line regulation | (*5) % | 0.25% | | | |
| 20 | Max load regulation | (*6) % | 0.50% | | | |
| 21 | Output Ripple and noise P-P | (*7) mV | 240 | 240 | 480 | |
| | | -10~0°C | 360 | 360 | 780 | |
| 22 | Temperature stability | % | 0.05% of rated Vout for 8hrs after 30min warm-up. Constant line, load and temperature. | | | |
| 23 | Temperature coefficient | PPM/°C | ±1-200 | | | |
| 24 | Remote sensing | (*8) --- | Possible. Refer to Instruction manual. | | | |
| 25 | Parallel operation | (*9) --- | Possible. Single wire current share, 5% accuracy of rated Iout, up to 8 units. | | | |
| 26 | Series operation | --- | Possible (with external diodes), 2 units. Refer to Instruction manual. | | | |
| 27 | Over current protection | % | 105~115% of rated output current. | | | |
| 28 | Over voltage protection | (*10) V | Tracking OVP, range: 1.1xVout, accuracy: ±1-3% | | | |
| 29 | Over temperature protection | --- | Inverter shut down method, automatic reset. | | | |
| 30 | Remote On/Off control | --- | Two complementary inputs. By electrical signal or dry contact. Refer to instruction manual. | | | |
| 31 | "OC OK" signal | --- | Tracking, On when Vout>90±5% of set output voltage. Open collector signal. Max.sink current: 10mA Refer to Instruction Manual. | | | |
| 32 | Over-Temperature warning | --- | Refer to instruction manual. Open collector signal, Max. sink current: 10mA. | | | |
| 33 | "AC FAIL" signal | --- | On when 270Vac>Vin>85Vac. Open collector signal, Max. sink current: 10mA. | | | |
| 34 | Auxiliary power supply output | (*3) (*11) --- | 11.2~12.5V, 0.5A. 240mVp-p ripple and noise. | | | |
| 35 | Vout programming by external voltage | --- | By 0~5V, equal to Vout min ~ Vout max. Refer to Instruction Manual. | | | |
| 36 | Vout programming by external resistor | --- | By 1Kohm potentiometer. Refer to Instruction Manual. | | | |
| 37 | OCV programming by external voltage | --- | By 0~5V. Refer to Instruction Manual. | | | |
| 38 | Front panel Indicators | --- | AC OK, DC OK/FAIL. Refer to Instruction Manual. | | | |
| 39 | PC Interface | --- | Optional, PMBus compatible. Refer to Instruction Manual. | | | |
| 40 | Operating temperature | --- | -10~70°C. | | | |
| 41 | Storage temperature | --- | -10~50°C: 100% load. Derate 2%/°C, 50°C to 60°C, Derate 2.5%/°C, 60°C to 70°C. | | | |
| 42 | Operating humidity | --- | 10~90% RH, no condensation. | | | |
| 43 | Storage humidity | --- | 10~95% RH, no condensation. | | | |
| 44 | Cooling | --- | By Internal Fans. Variable speed control by ambient temperature and power level. | | | |
| 45 | Vibration | --- | Built to meet IEC60068-2-64 (Basic Transportation) | | | |
| 46 | Shock | --- | Built to meet IEC60068-2-27 (Basic Transportation) | | | |
| 47 | Conducted emission | --- | Built to meet EN55022 Class B, FCC part 15 Class-B, VCCI Class-B | | | |
| 48 | Radiated emission | --- | Built to meet EN55022 Class A, FCC part 15 Class-A, VCCI Class-A | | | |
| 49 | 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 | | | |
| 50 | Applicable safety standards | --- | UL60950-1, EN60950-1 | | | |
| 51 | Withstand voltage | --- | Input-Output: 3000Vrms, 1min. Input-Ground: 2000Vrms, 1min. Output - Ground: 500VAC 1min. Output - Ground: 2250VDC 1min | | | |
| 52 | Insulation resistance | --- | More than 100Mohm at 25°C and 70% RH. Output-Ground: 500Vdc | | | |
| 53 | Leakage current | (*12) mA | Less Than 0.75/1.5mA at 100/230Vac range | | | |
| 54 | Weight (Typ) | Kg | Max 2.1 | | | |
| 55 | Size (W*H*D) | --- | 107x41x325mm 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 4x270uF electrolytic capacitors and 1uF film capacitor on the output, 20MHz B.W. When Power Supplies are installed in HFE2500-S1U shelf, measured with 1uF film capacitor on the output terminals of the HFE2500-S1U.
- *8 Voltage drop on load wires: HFE2500-12: 0.25V/wire, HFE2500-24: 0.5V/wire, HFE2500-48: 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 HFE2500-S1U shelf.
- *12 Measured according to UL, EN method at 60Hz Ta=25°C
- *13 Measured from Input-off until the output voltage drops under 5% from the nominal voltage.

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| Vin(Ac) | Model | HFE2500 | | |
|----------|--------|---------|------|-------|
| | | -12 | -24 | -48 |
| 85V | V1 (V) | 12 | 24 | 48 |
| | V2 (V) | 13.2 | 29 | 58 |
| 100~132V | I1 (A) | 90 | 42 | 21 |
| | I2 (A) | 100 | 50 | 25 |
| 170~180V | I1 (A) | 114 | 52 | 26 |
| | I2 (A) | 125 | 62.5 | 31.25 |
| 180~265V | I1 (A) | 181.8 | 82.5 | 41 |
| | I2 (A) | 200 | 100 | 50 |
| | I1 (A) | 181.8 | 86 | 43 |
| | I2 (A) | 200 | 104 | 52 |

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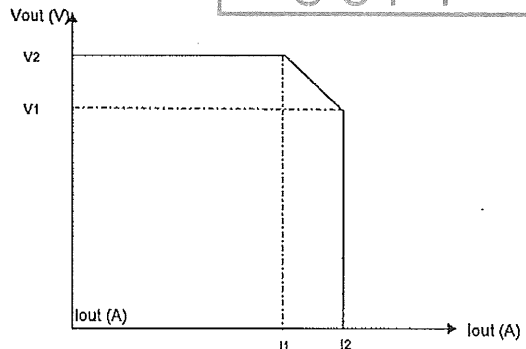


Fig. 1: Rated output current

HFE2500 SERIES I2C SPECIFICATIONS:

1. FEATURES

| | REV |
|---|-----|
| 1.1 Output voltage measurement. | |
| 1.2 Output voltage programming. | |
| 1.3 Output current measurement. | |
| 1.4 Internal ambient temperature measurement. | |
| 1.5 Product information | |
| 1.6 Status information | |
| 1.7 SMBus alert | |
| 1.8 Clock frequency: 100KHz | |
| 1.9 Address lines: 4 | |

1. OUTPUT VOLTAGE MEASUREMENT

| | | HFE2500-12 | HFE2500-24 | HFE2500-48 | REV |
|----------------------------|---|--|------------|------------|-----|
| 1.1 Measurement accuracy | - | +/-2% of full scale. Refer to instruction manual | | | |
| 1.2 Measurement resolution | - | 10 bits | | | |
| 1.3 Measurement range | V | 0~15 | 0~30 | 0~60 | |

2. OUTPUT VOLTAGE PROGRAMMING

| | | HFE2500-12 | HFE2500-24 | HFE2500-48 | REV |
|----------------------------|---|---------------------|------------|------------|-----|
| 2.1 Programming accuracy | - | +/-2% of full scale | | | |
| 2.2 Programming resolution | - | 10 bits | | | |
| 2.3 Programming range | V | 9.6~13.2 | 19.2~29.0 | 38.4~58 | |

3. OUTPUT CURRENT MEASUREMENT

| | | HFE2500-12 | HFE2500-24 | HFE2500-48 | REV |
|----------------------------|---|----------------------|------------|------------|-----|
| 3.1 Measurement accuracy | - | +/-10% of full scale | | | |
| 3.2 Measurement resolution | - | 10bit | | | |
| 3.3 Measurement range | A | 0~240 | 0~120 | 0~60 | |

4. INTERNAL AMBIENT TEMPERATURE MEASUREMENT (refer to Instruction Manual)

| | REV | | |
|----------------------------|-----|-------|--|
| 4.1 Measurement accuracy | - | ±3°C. | |
| 4.2 Measurement resolution | - | 10bit | |
| 4.3 Measurement range | °C | 0~100 | |

5. PRODUCT INFORMATION

| | REV | | |
|------------------------|-----|------------------------|--|
| 5.1 Factory programmed | - | Product ID | |
| 5.2 Factory programmed | - | Model Name | |
| 5.3 Factory programmed | - | Revision | |
| 5.4 Factory programmed | - | Serial Number | |
| 5.5 Factory programmed | - | Manufacturing location | |
| 5.6 Factory programmed | - | Coefficients | |

6. STATUS INFORMATION

| | REV | | |
|--------------------------------|-----|--------------------|--|
| 6.1 "FAN FAIL" Signal | | "1" -FAIL, "0"-OK | |
| 6.2 "DC FAIL" Signal | | "1" -FAIL, "0"-OK | |
| 6.3 Output "OVP" Signal | | "1"- OVP, "0"-OK | |
| 6.4 "TEMPERATURE ALARM" signal | | "1"- ALARM, "0"-OK | |
| 6.5 "OTP" Signal | | "1" -OTP, "0"-OK | |
| 6.6 "AC FAIL" Signal | | "1" -FAIL, "0"-OK | |
| 6.7 I2C ON/OFF control | | "1" -ON, "0"-OFF | |
| 6.8 "SMB ALERT" signal | | "1" -OK, "0"-ALERT | |

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