

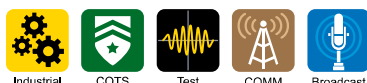
## 1600W 1U Front End Power Supplies

### Features

- ◆ 1U rackmount containing up to 5 units
- ◆ Internal ORing MOSFET & Current Share
- ◆ High Efficiency
- ◆ Up to 7600W in 1U rack
- ◆ Full array of signals available
- ◆ PMBus™(I<sup>2</sup>C) and LAN options



### Key Market Segments & Applications



### Specifications

| Model                            |      |                                                                                                         |
|----------------------------------|------|---------------------------------------------------------------------------------------------------------|
| Input Voltage Range (2)          | VAC  | 85 - 265VAC, 47 - 63Hz. See model selector for power derating                                           |
| Input Current (Max) 115/230VAC   | A    | 14.2 / 8.1A                                                                                             |
| Inrush Current                   | A    | <35A                                                                                                    |
| Power Factor Correction          | -    | Meets EN61000-3-2, PF > 0.98 at full load                                                               |
| Temperature Coefficient          | %/°C | <0.02%/°C                                                                                               |
| Overcurrent Protection           | %    | 105 - 120%                                                                                              |
| Overvoltage Protection (1)       | %    | 110% (Tracking). Cycle AC to reset or utilize Remote On/Off                                             |
| Overtemperature Protection (1)   | -    | Shutdown with automatic reset. Warning signal provided                                                  |
| Hold up time                     | ms   | >10ms, 115/230VAC Input, 80% loading                                                                    |
| Leakage Current                  | mA   | < 0.75 / 1.5mA 100/230VAC, 60Hz                                                                         |
| Remote Sense Compensation        | -    | HFE1600-12: 0.25V/wire, HFE1600-24: 0.5V/wire, HFE1600-32: 0.75V/wire, HFE1600-48: 1.0V/wire            |
| Indicators                       | -    | AC OK: Green LED, DC OK / Fail: Green / Red LED                                                         |
| Remote On/Off                    | -    | Unit ON: 0 - 0.6V or short, OFF: 2 - 15V or open circuit                                                |
| Parallel Operation (1)           | -    | Yes, single wire current share, 90% accuracy, up to 10 units                                            |
| AC Fail Signal                   | -    | Open Collector, ON when AC is within 85 - 270VAC                                                        |
| DC Good Signal                   | -    | Open Collector, ON when output is above 85 to 95% of setpoint (tracking)                                |
| Remote Adjust (1)                | -    | By either external 0 - 5V signal or 1k potentiometer                                                    |
| I <sup>2</sup> C Interface (1)   | -    | Isolated from output, Add suffix /S, PMBus compatible                                                   |
| Auxiliary Output                 | -    | 11.2 - 12.5V, 0.5A, 240mV ripple and noise                                                              |
| Operating Temp. (-TB Rack)       | °C   | -10 to +70°C, derate 2%/°C from 50 to 60°C, 2.5%/°C from 60 to 70°C                                     |
| Operating Temp. (-IEC320 Rack)   | °C   | -10 to +60°C, derate 2%/°C from 50 to 60°C                                                              |
| Storage Temperature              | °C   | -30 to +85°C                                                                                            |
| Humidity (Non condensing)        | %RH  | Operating: 10 - 90%RH, Storage: 10 - 95%RH                                                              |
| Cooling                          | -    | Two variable speed internal fans, airflow exits across input/output connector (3)                       |
| Withstand Voltage                | -    | I/P to O/P 3kVAC, I/P to GND 2kVAC, O/P to GND: HFE1600-12,-24V 500VAC, HFE1600-48 2250VDC 1 min, (POE) |
| Isolation Resistance             | MΩ   | >100MΩ at 25°C & 70%RH, Output to Ground 500VDC                                                         |
| Vibration (Basic transportation) | -    | Meets IEC60068-2-64                                                                                     |
| Shock (Basic transportation)     | -    | Meets IEC60068-2-27                                                                                     |
| Safety Agency Certifications     | -    | UL60950-1, EN60950-1, CE Mark                                                                           |
| Line Dip                         | -    | Complies with SEMI F47 (200VAC line only)                                                               |
| Conducted and Radiated EMI       | -    | EN55032 & FCC part 15; Conducted class B, Radiated class A                                              |
| Immunity                         | -    | IEC61000-4-2 (lv 2,3), -3 (lv 2), -4 (lv2), -5 (lv3,4), -6 (lv2), -8 (lv 4), -11                        |
| Size (W x H x D)                 | in   | Power Supply: 3.35 x 1.61 x 11.8", Rack: 17.5 x 1.72 x 14.4"                                            |
| Weight                           | g    | Power Supply: 1550g, Rack: 4800g                                                                        |
| Warranty                         | yrs  | Three Years                                                                                             |

(1) See installation manual for detailed specifications & test methods

(2) Derate output power linearly 1%/V from 100VAC to 85VAC input

(3) Reverse air - contact factory

## Model Selector

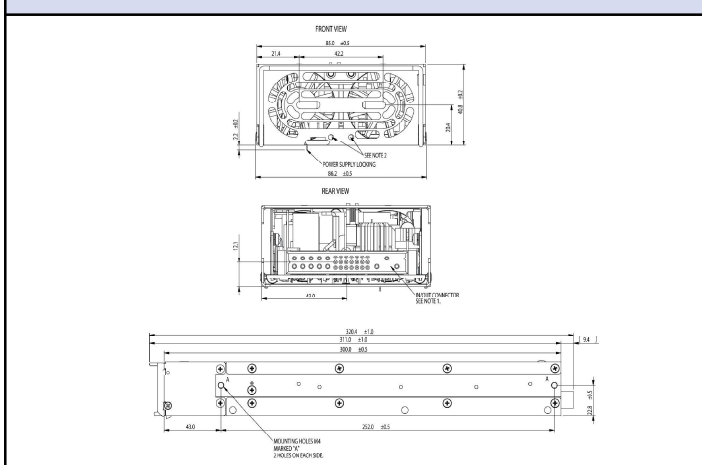
| Model        | Output Voltage | Adjust Range <sup>(1)</sup> | Max Current (Vin>170VAC)      | Max Power (Vin>170VAC)        | Max Current (100<Vin<170VAC) <sup>(2)</sup> | Max Power (100<Vin<170VAC) <sup>(2)</sup> |
|--------------|----------------|-----------------------------|-------------------------------|-------------------------------|---------------------------------------------|-------------------------------------------|
| HFE1600-12   | 12V            | 9.6 - 13.2V                 | 133A                          | 1596W                         | 100A                                        | 1200W                                     |
| HFE1600-12/S | 12V            | 9.6 - 13.2V                 | 133A                          | 1596W                         | 100A                                        | 1200W                                     |
| HFE1600-24   | 24V            | 19.2 - 29V                  | 67A                           | 1608W                         | 50A                                         | 1200W                                     |
| HFE1600-24/S | 24V            | 19.2 - 29V                  | 67A                           | 1608W                         | 50A                                         | 1200W                                     |
| HFE1600-32   | 32V            | 25.6 - 38.4V                | 47A                           | 1500W                         | 37.5A                                       | 1200W                                     |
| HFE1600-32/S | 32V            | 25.6 - 38.4V                | 47A                           | 1500W                         | 37.5A                                       | 1200W                                     |
| HFE1600-48   | 48V            | 38.4 - 58V                  | 33A                           | 1584W                         | 25A                                         | 1200W                                     |
| HFE1600-48/S | 48V            | 38.4 - 58V                  | 33A                           | 1584W                         | 25A                                         | 1200W                                     |
| Model        | Load Reg       | Line Reg                    | Ripple & Noise <sup>(1)</sup> | Efficiency (%) <sup>(4)</sup> | PMBus/<br>I <sup>2</sup> C                  |                                           |
| HFE1600-12   | 60mV           | 30mV                        | 240mV                         | 87 / 90%                      | -                                           |                                           |
| HFE1600-12/S | 60mV           | 30mV                        | 240mV                         | 87 / 90%                      | Yes                                         |                                           |
| HFE1600-24   | 120mV          | 60mV                        | 240mV                         | 88 / 90%                      | -                                           |                                           |
| HFE1600-24/S | 120mV          | 60mV                        | 240mV                         | 88 / 90%                      | Yes                                         |                                           |
| HFE1600-32   | 160mV          | 80mV                        | 320mV                         | 88 / 90%                      | -                                           |                                           |
| HFE1600-32/S | 160mV          | 80mV                        | 320mV                         | 88 / 90%                      | Yes                                         |                                           |
| HFE1600-48   | 240mV          | 120mV                       | 480mV                         | 89 / 92%                      | -                                           |                                           |
| HFE1600-48/S | 240mV          | 120mV                       | 480mV                         | 89 / 92%                      | Yes                                         |                                           |

(4) At 75% load, 115 / 230VAC input

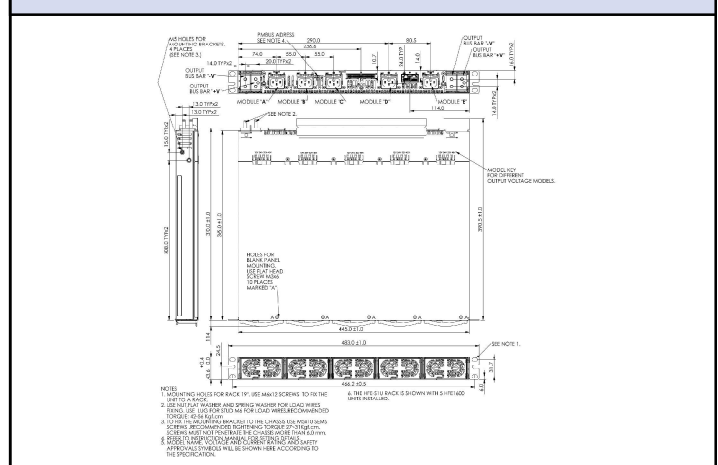
## Accessories

| Model          | Description                                                                | Maximum Rack Current        |
|----------------|----------------------------------------------------------------------------|-----------------------------|
| HFE1600-S1U    | Five slot 19" rack, IEC320-C16 input connectors (5)                        | 266A each side (532A total) |
| HFE1600-S1U-TB | Five slot 19" rack, Terminal Block input connectors (5)                    | 266A each side (532A total) |
| HFE1600/BP     | One slot blanking panel, four provided with each rack                      | -                           |
| HFE/C15U       | AC Power cord, 2.0m long, one per power supply required                    | -                           |
| HFE1600-D1U    | Four slot (two isolated pairs), dual output 19" rack, IEC320 input         | 266A each side (532A total) |
| HFE1600-D1U-TB | Four slot (two isolated pairs), dual output 19" rack, terminal block input | 266A each side (532A total) |
| HFE1600-LAN    | Plug in LAN module. Takes up one rack slot. For use with /S models only.   | -                           |

## Outline HFE1600



## Outline HFE1600S1U



For Additional Information, please visit  
[us.tdk-lambda.com/lp/products/hfe-series.htm](http://us.tdk-lambda.com/lp/products/hfe-series.htm)

