



HP6 Multi-Output AC-DC Front End



RACK-HP600

**HP6 and RACK-HP600 Features**

- Compact 1U design
- N+1 redundancy with hot plug capability
- Up to four individually regulated outputs
- I<sup>2</sup>C interface with interrupt capability
- Hot swap with low insertion/extraction force connector
- Power factor corrected
- No minimum load required
- 5 V @ 1 A standby output
- Single-wire current sharing
- Self-contained ORing Diodes
- Current limit and over-voltage protection
- Full power up to 50° C
- TUV, cTUVus & CB report
- 600 watts per module
- Ac input with PFC

**Description**

The HP6 provides up to 600 Watts total output power with one to four outputs ranging from 0.8 to 12 Volts. HP600 RACKS offer hot-plug capability for up to 1200 Watts total at low line (2 +1) or 1800 Watts total at high line. Three separate multi output power supplies are internally paralleled and will automatically current share for load distribution. Hot-swap modules can be replaced with no system downtime.

HP6 Front End Models	V1		V2		V3		V4	
	Volts	Amps	Volts	Amps	Volts	Amps	Volts	Amps
HP6-X8X8D2D-O	X	80	X	80	12	20	-12	3
HP6-X4X8D4D-O	X	40	X	80	12	40	-12	3
HP6-X8X4D4D-O	X	80	X	40	12	40	-12	3
HP6-X8X4D2D-O	X	80	X	40	12	20	-12	3
HP6-X4X8D2D-O	X	40	X	80	12	20	-12	3
HP6-X4X4D4D-O	X	40	X	40	12	40	-12	3
<b>RACK-HP600 Designations</b>								
RACK-HP600	X	240	X	120	12	120	-12	9

Output Voltage X = A (2.0V); B (3.3V); C (5V); T (2.5V); V (1.8V); W (1.5V); X (1.2V); Y (1V); Z (0.8V)  
Options O = B (I<sup>2</sup>C); M (Output power good – TTL high); N (Power fail – TTL high); R (Reverse airflow)  
Please contact Power-One for additional model combinations.

## Input Specifications

**Input voltage range:** 85 to 264 Vac, 47 to 63 Hz  
**Power Factor:** 0.99 at full load and nominal line  
**Inrush Current:** 40 A peak hot and cold start  
**Input Protection:** Internal 15 A line fuse

## Output Specifications

**Output Power:** 600 W maximum  
**Overshoot/Undershoot:** Less than 1% at turn-on or turn-off. Less than 3% for 50% to 100% load step.  
**Start-Up Time:** Less than 2 seconds  
**Efficiency:** 78% typical measured at full load, nominal input  
**Hold-up Time:** 20 ms minimum at full load and low line  
**Single Wire Current Share (V1, V2 and +12V):** 10% full load rating.  
**Load Regulation:** 0.5% with remote sense, 2% without  
**Line Regulation:** 0.1% over entire operating range  
**Cross Regulation:** Less than 0.5%  
**Minimum Load:** No minimum load required  
**Overcurrent Protection:** All outputs set to 115-135% of full rated load with automatic recovery  
**Overtemperature Protection:** Automatic shutdown with auto recovery.  
**Remote Sense:** Compensates for voltage drop of up to 0.5 V to the load (V1, V2, and +12V). Shorted sense lead protection.  
**Overvoltage Protection:** All outputs set at 115%-135% of nominal. Reset by cycling input power.  
**Output Noise and Ripple:** PARD: 1% or 50 mV p-p, whichever is greater, measured at 20 Mhz bandwidth.

## Mechanical Specifications

**Size:** 1.6" H x 5" W x 11.5" D  
**Input Connector:** Front panel IEC  
**Output Connector:** FCI power blade  
**MTBF:** 250,000 hours calculated at 25 °C, Bellcore Standard  
**Warranty:** Two years from date of shipment, standard product only.

Specifications are subject to change without prior notice.

## Signals and Controls

**LED Output Good Indicator:** Front panel green LED indicates power supply is good; amber indicates fault.  
**LED AC Good Indicator:** Front panel green LED indicates Ac input voltage is present and above minimum level.  
**Output Good Signal\*:** TTL compatible signal, normally high. Goes low when power supply is out of specified range.  
**Power Fail Signal\*:** TTL compatible signal, normally high (indicating Vin is present and above minimum level).  
**Enable\*:** Normally TTL High, drive low to enable.  
\*All interface signals are TTL compatible

## I<sup>2</sup>C Interface

### **Event Driven Messages:**

- Notification of fan speed abnormality
- Output voltage under specified 'good' range
- Output voltage over specified 'good' range (software OVP)
- Temperature abnormalities

### **Sensor Device Commands:**

- Get voltage readings
- Get temperature readings
- Get fan speed readings

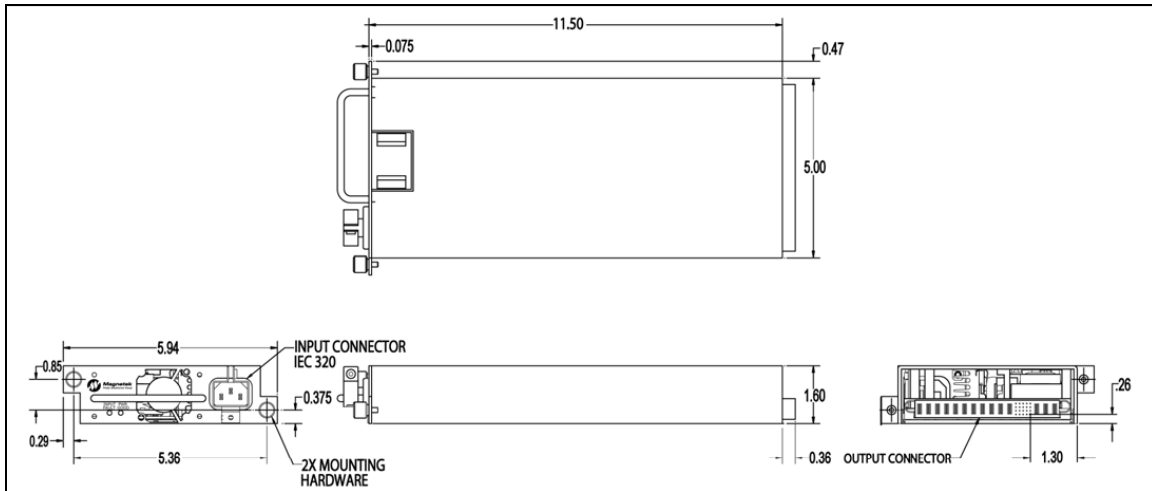
### **FRU (Field Replaceable Unit) Information Storage:**

- Manufacturer's name
- Product name
- Product part/model number
- Product version/revision
- Product serial number

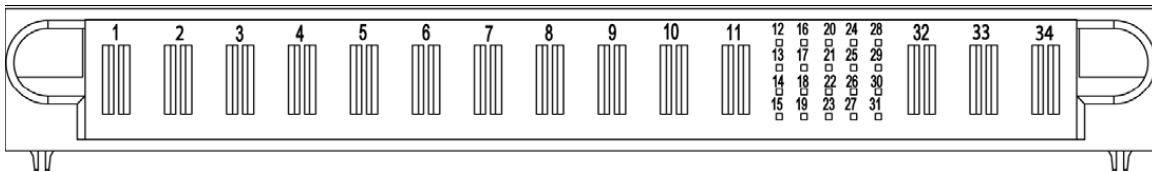
## Safety & Environmental

**Operating Temperature:** 0 to 50°C  
**Storage Temperature:** -40°C to +85°C  
**Operating Humidity:** Maximum 95% RH non-condensing  
**Operating Altitude:** 10,000 feet  
**Non-operating Altitude:** 40,000 feet  
**Temperature Coefficient:** 0.02% per °C within rated load  
**Safety Agency Compliance:** TUV, cTUVus & CB report  
**EMI:** Meets EN55022, Class B  
**Harmonic Suppression:** Meets EN6100-3-2  
**Input Transient Protection:**  
Electrostatic Discharge: EN61000-4-2, Criteria B  
Radiated, Radio-Frequency, Electromagnetic Field: EN61000-4-3, Criteria A  
Electrical Fast Transients/Burst: EN61000-4-4, Criteria B  
Voltage Fluctuations and Flickers: EN61000-3-3, Criteria B  
Surge Test: EN61000-4-5, Criteria B  
Conducted Immunity: EN61000-4-6, Criteria A  
**Dielectric Withstand:**  
Input-to-ground: 2200 Vdc  
Input-to-output: 4300 Vdc  
Output-to-case: 25 Vdc  
**Ac Leakage Current:** 1.2mA maximum at 240 Vac, 50 Hz

**HP6 Outline Drawings and Dimensions**



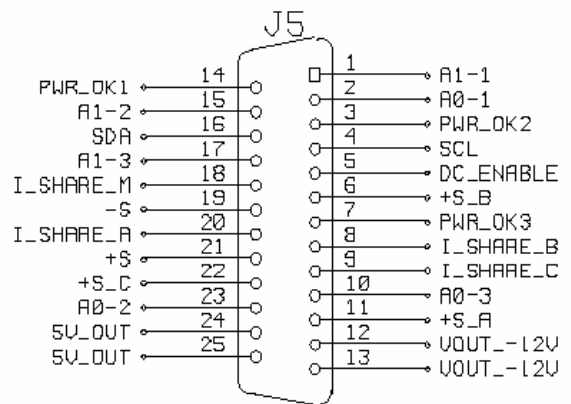
**HP6 Connector Pin Descriptions**



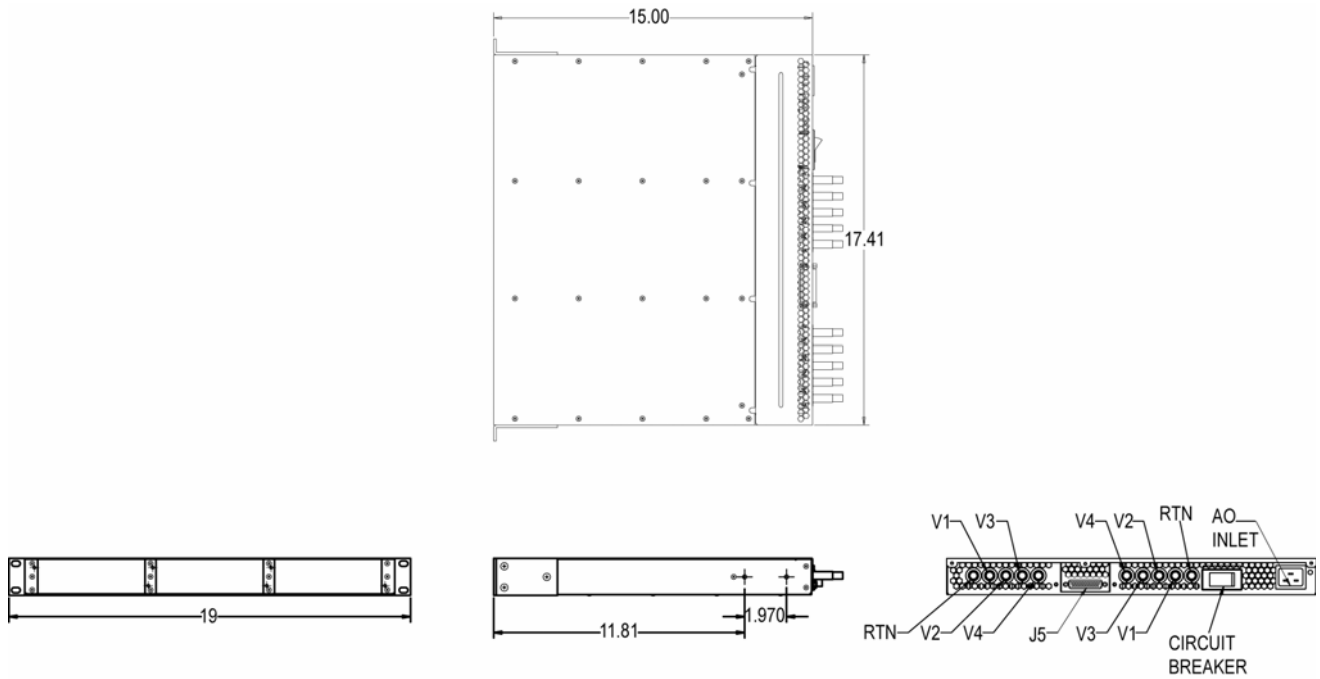
**HP6 PIN Numbers and Signal Names**

1 Ground	18 Share V2
2 Ground	19 +Sense V2
3 V2 Output	20 SDA
4 V2 Output	21 SCL
5 V2 Output	22 Share V3
6 Ground	23 Power Fail OK
7 Ground	24 5V Standby
8 Ground	25 5V Standby
9 V1 Output	26 +Sense V3
10 V1 Output	27 Power OK
11 V1 Output	28 Present
12 Dc Enable	29 A0
13 A1	30 Interrupt
14 -Sense	31 Share V1
15 +Sense V1	32 Ground
16 V4 Output (-12V)	33 V3 Output (+12V)
17 V4 Output (-12V)	34 V3 Output (+12V)

**HP6 J5 Connector Detail**



**RACK-HP600 Outline Drawings and Dimensions**



**NUCLEAR AND MEDICAL APPLICATIONS** - Power-One products are not designed, intended for use in, or authorized for use as critical components in life support systems, equipment used in hazardous environments, or nuclear control systems without the express written consent of the respective divisional president of Power-One, Inc.

**TECHNICAL REVISIONS** - The appearance of products, including safety agency certifications pictured on labels, may change depending on the date manufactured. Specifications are subject to change without notice.