



#### Features

- Compact 1U design
- N+1 redundancy with hot plug capability
- Up to five individually-regulated outputs
- 6.52 Watts/in<sup>3</sup> power density
- 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
- Overcurrent and overvoltage protection
- Full power up to 50 °C
- TUV, cTUVus & CB report
- 600 watts per module
- Two-year warranty

#### Description

The HP600 provides up to 600 watts of output power with one to five main outputs ranging from 0.8 to 48 Volts, plus a 5V standby output. These hot-swap products incorporate internal ORing diodes and support paralleling and current sharing for up to three main outputs, excluding the -12V output. This multiple-output, hot-swap capability accelerates time-to-market in networking applications requiring several high-current rail voltages and/or instances where sufficient board space is not available to implement distributed power and intermediate bus architectures.

#### Model Selection

HP6 Front End Models	V1		V2		V3*		V4		V5	
	Volts	Amps	Volts	Amps	Volts	Amps	Volts	Amps	Volts	Amps
HP600-X8X4X4D2D-O	X	80	X	40	X	40	12	20	-12	3
HP600-X8X4X4D4D-O	X	80	X	40	X	40	12	40	-12	3
HP600-X4X4X4D4D-O	X	40	X	40	X	40	12	40	-12	3
HP600-X4X4X4D2D-O	X	40	X	40	X	40	12	20	-12	3

Output Voltage X = A (2.0V); B (3.3V); C (5V); \*F (24V @ 120W); \*J (48V @ 120W); 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

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
AC Input Voltage	Single-phase continuous input range.	85		264	VAC
Input Frequency	AC input.	47		63	Hz
Hold-up Time	After last AC line peak at full power. At 115 VAC.	20			ms
Inrush Surge Current	Hot and cold start.			40	A pk
Power Factor	At full load and nominal line.			0.99	W/VA

## Output Specifications

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Output Voltage and Current Ratings	See Model Selection table.				
Efficiency	Typical at full load, nominal input.	78			%
Minimum Load	No minimum load required.	0			A
Output Power				600	W
Overshoot/Undershoot	Output voltage overshoot/undershoot at turn-on or turn-off. 50% to 100% load step.			< 1 < 3	%
Start-Up Time	Time required for initial output voltage stabilization after application of AC input or ON/OFF signal.			< 2	S
Current Share	Single-Wire Share (V1, V2, V3, and +12V) 10% full-load rating				
Remote Sense	Compensates for voltage drop of up to 0.5V to the load (V1, V2, V3, and +12V). Shorted sense lead protection.				
Regulation	Load with remote sense: Load without remote sense: Line over entire operating range: Cross:			0.5 2 0.1 <5	%
Output Noise and Ripple	PARD: 1% or 50 mV pk-pk, whichever is greater; measured at 20 MHz bandwidth.				

### Interface Signals and Internal Protection<sup>1</sup>

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
LED Power Good Indicator	Front panel green LED indicates power supply is good; amber indicates a fault.				
LED AC Good Indicator	Front panel green LED indicates AC input voltage is present and above minimum level.				
Enable	Normally TTL High; drive Low to enable.				
Output Good Signal	TTL compatible signal; normally Low (goes high when power supply is out of specified range).				
Power Fail Signal	TTL compatible signal; normally Low (indicating AC input voltage is present and above minimum level).				
Input Protection	Internal 15A line fuse.				
Overvoltage Protection	All outputs set at 115 to 135% of nominal. Reset by cycling input power.				
Overcurrent Protection	All outputs set at 115 to 135% of full rated load with automatic recovery.				
Overtemperature Protection	Automatic shutdown with automatic recovery.				

### Safety, Regulatory, and EMI Specifications

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Agency Approvals	TUV, cTUVus, & CB Report				
Electromagnetic Interference	Meets EN55022, Class B.				
Harmonics	Meets IEC61000-3-2.				
Voltage Fluctuation and Flicker	Per IEC61000-3-3, Criteria B.				
ESD Susceptibility	Per EN61000-4-2, Criteria B.			.	
Radiated Susceptibility	Per EN 61000-4-3, Criteria A.			.	
EFT/Burst	Per EN 61000-4-4, Criteria B.			.	
Input Transient Protection	Per EN 61000-4-5, Criteria B.			.	
RF Conducted Immunity	Per EN 61000-4-6, Criteria A.			.	
Leakage Current	At 240 VAC, 50 Hz			1.2	mA
Dielectric Withstand	Input-to-Ground: Input-to-Output: Output-to-Case:			2200 4300 25	VDC

## Environmental Specifications

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Altitude	Operating. Non-Operating.			10K 40K	ASL ft ASL ft
Operating Temperature	Internal DC fan for cooling.	0		50	°C
Storage Temperature		-40		85	°C
Temperature Coefficient	0 °C to 50 °C			0.02	%/°C
Relative Humidity	Non-condensing.			95	%RH

## Reliability

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
MTBF	(Calculated) @ 25 °C, Bellcore Standard.	250 000			hrs

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

The HP600 I<sup>2</sup>C interface provides highly-integrated error monitoring and analyses, and includes the following features:

### 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:

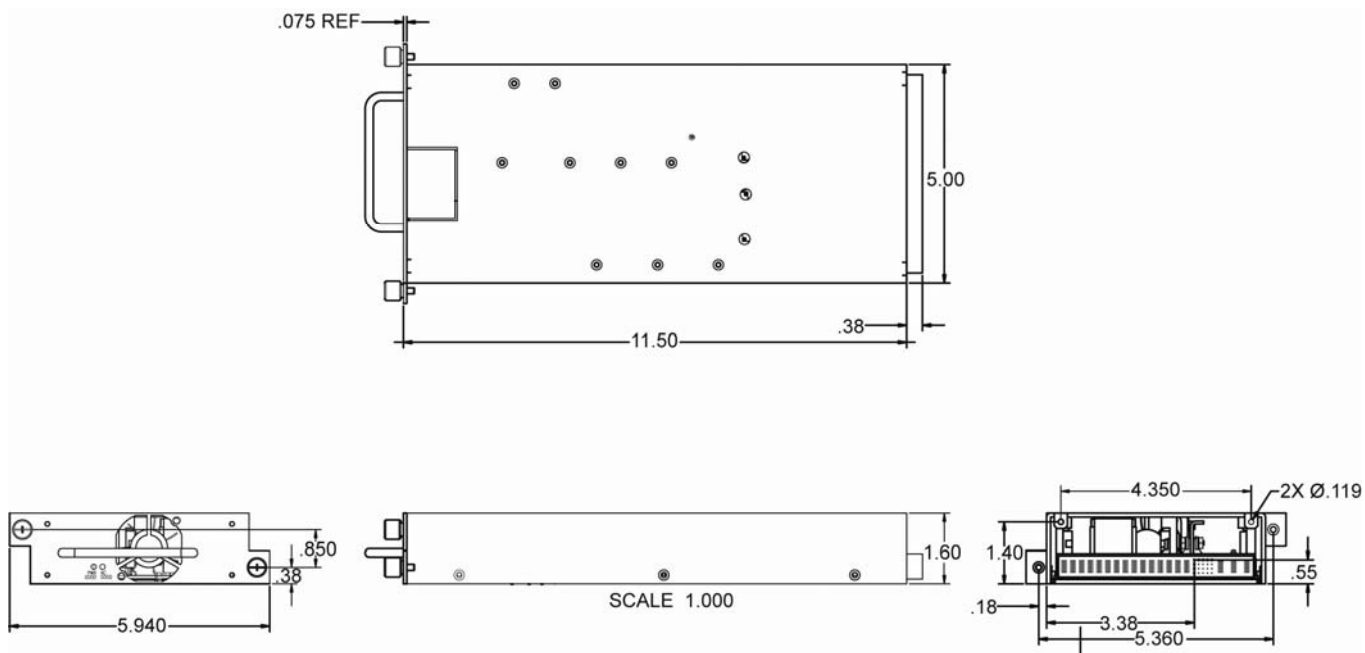
- Manufacturer's name
- Product name
- Product part/model number
- Product version/revision
- Product serial number

**Mechanical Specifications**

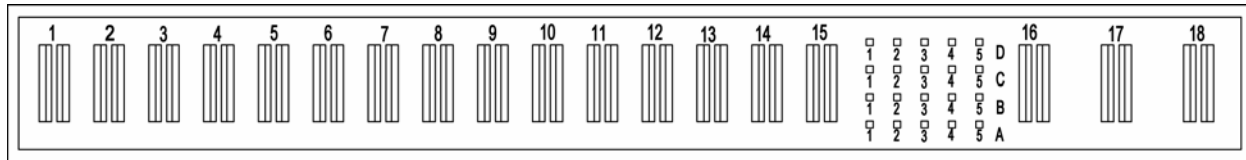
Size: 1.6" H x 5" W x 11.5" D (40.6 x 127 x 292.1 mm)

Connector: FCI 51939-046

I/O Mating Connector: FCI 51921-001



## Output Connector Details



## J1 DC Output and Signal Interface Pinout

Pin No.	Signal Name	Pin No.	Signal Name
1	V4 Output (+12V)	A1	+Sense V1
2	V4 Output (+12V)	A2	Share V3
3	Ground	A3	Share V1
4	Ground	A4	Share V4
5	V1 Output	A5	DC Enable
6	V1 Output	B1	Present
7	V1 Output	B2	+Sense V3
8	Ground	B3	Share V2
9	Ground	B4	+Sense V2
10	V2 Output	B5	SCL
11	V2 Output	C1	V5 Output (-12V)
12	Ground	C2	5V Standby
13	Ground	C3	+Sense V4
14	V3 Output	C4	- Sense
15	V3 Output	C5	A1
16	Chassis	D1	V5 Output (-12V)
17	AC Low	D2	5V Standby
18	AC High	D3	Power Fail *
		D4	Power Good **
		D5	SDA

### NOTES:

\* AO with I<sup>2</sup>C option

\*\* Interrupt with I<sup>2</sup>C option

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