

# 1000-6000 Watts HPS10/12/15 Series



## Electrical Specs

### Input

Input voltage	85-264 VAC*
Frequency	47-440 Hz
Inrush current	40 A peak max.
Efficiency	85% typ @ full case load 230 VAC
Power factor	0.99 typical meets EN61000-3-2
Turn-on time	AC on 1.5 sec. typical, Inhibit / Enable 100 ms typical
EMI filter standard	CISPR 22 EN55022 Level "B"
Leakage current standard	2 mA max @ 264 VAC @ 60Hz (per module)
Radiated EMI	CISPR 22 EN55022 Level "B"
Holdup time	20 ms minimum (independent of input VAC)
AC OK	>5 ms early warning min. before outputs lose regulation; Full cycle ride thru (50 Hz)
Harmonic distortion	Meets EN61000-3-2
Isolation	Meets EN60950

\* see modules table on the next page

### Output

Margining	±5% of nominal
Overall reg	1%
Ripple	1% of Vout Pk-Pk limited to 20 MHz
Dynamic response	2% with 25% load step
Recovery time	To within 1% in <300 μsec
Overcurrent protection	105-120% of rated output current
Short circuit protection	Protected for continuous short circuit. Recovery is automatic upon removal of short
Overvoltage protection	105-120% . Recycle AC input voltage to reset OVP circuit
Reverse voltage protection	100% of rated output current
Thermal protection	Main and Aux disabled when internal temp exceeds safe operating range.
Remote sense	Up to 0.5 V total drop
Single wire parallel	Current share to within 10% of total rated current
DC OK	±5% of nominal
Minimum load	Not required
Standby voltage	5 VDC @5A max. present whenever AC input is applied (3.3 V @ 5A optional)
Global Inhibit/Enable	Logic "0" standard logic "1" optional

## Special Features

- Integrated OR-ing diode
- Remote Sense on Bulk output
- Overload protection on all outputs
- Active Inrush limiting
- PFC to 0.99 typical EN61000-3-2
- CISPR22, EN55022 Curve B conducted/radiated EMI
- EN61000 immunity standards
- Optional 48 W fan voltage (12 V or 24 V)
- Standard 5 V at 5 A standby voltage (3.3V option)
- No minimum load
- Overvoltage protection
- Input OK signal and indicator LED
- Inhibit/Enable
- Remote Margin/Voltage Programming
- Optional current monitor
- Optional AC Line discrimination
- Output Good signal and indicator LED
- Temp good signal and indicator LED
- Optional single wire digital temp monitor
- Optional module I<sup>2</sup>C interface
- Optional Rack μController
- Hot Plug
- N+1 Redundant Standard
- Optional fan fail signal
- Module present signal
- Optional short circuit latch

## Environmental & Safety

Operating temperature: -10°C to +50°C ambient, derate output @ 2.5% per degree from 50°C to 70°C  
 Shock/Vibration: Mil-Hdbk 810E  
 Humidity: 95% non-condensing  
 Storage temperature: -40°C to +85°C  
 Temperature coefficient: 0.02% per °C  
 Cooling: Internal DC fan  
 MTBF (Calculated): 200 KHrs; 25°C, 200 VAC input, nominal O/P voltage, full load

### Safety:

**UL / CSA** UL60950 3<sup>rd</sup> Ed and CSA C22.2 60950  
**TUV** EN60950  
**CB** Certificate and report  
**CE** Mark

**AMERICAS**

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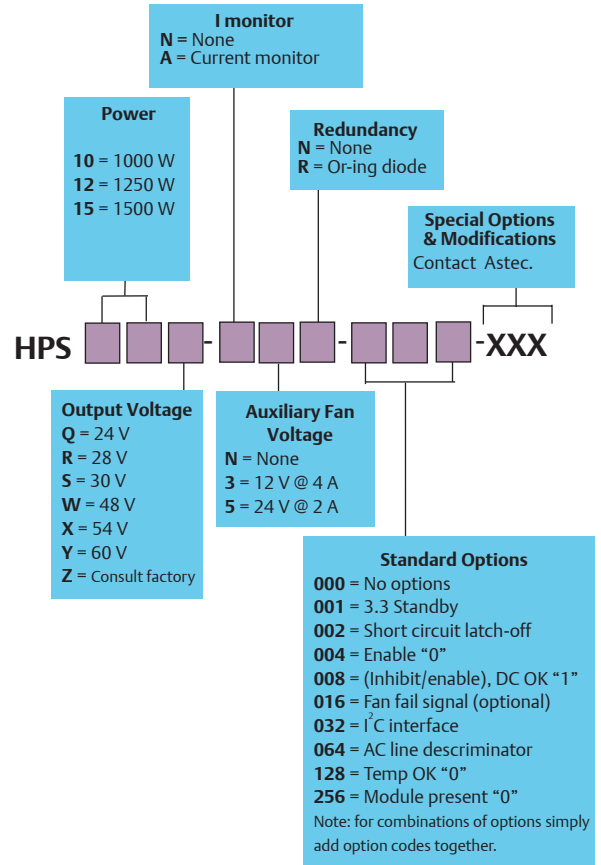
**ASIA**

Units 2111-2116, Level 21  
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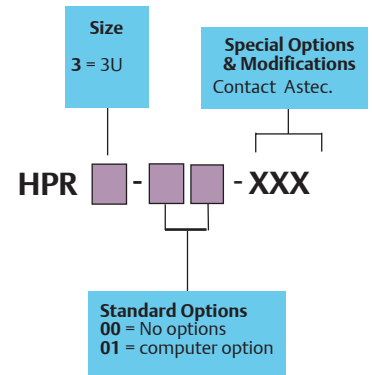
Watts		1000	1250	1500
Input voltage		85-264	90-264	180-264
Module ID		HPS10	HPS12	HPS15
Code	Volts	Output Amps	Output Amps	Output Amps
Q	24.0	41.7	52.1	62.5
R	28.0	35.7	44.6	53.6
S	30.0	33.3	41.7	50.0
W	48.0	20.8	26.0	31.3
X	54.0	18.5	23.1	27.8
Y	60.0	16.7	20.8	25.0

Module Code	Max. Size (H x W x L)	Max. Module Power	Max. Number per Rack	Unit Weight (lbs)
HPS10	5.04" x 3.83" x 12.5"	1000 W	4	10.5
HPS12	5.04" x 3.83" x 12.5"	1250 W	4	10.5
HPS15	5.04" x 3.83" x 12.5"	1500 W	4	10.5



Watts		4000	5000	6000
Input voltage		85-264	100-264	180-264
Module Used		HPS10	HPS12	HPS15
Rack ID		HPR3	HPR3	HPR3
Code	Volts	Output Amps	Output Amps	Output Amps
Q	24.0	166.7	208.3	250.0
R	28.0	142.9	178.6	214.3
S	30.0	133.3	166.7	200.0
W	48.0	83.3	104.2	125.0
X	54.0	74.1	92.6	111.1
Y	60.0	66.7	83.3	100.0

System Code	Max. Size (H x W x L)	Max. System Power	Module Distribution	Standard Size	Unit Weight
HPR3	5.22" x 19.0" x 14.0"	6000 W	(4 ea) HPS10/12/15	3U	16.4 lbs



**HPR3 Module Blank Panel:**  
Astec P/N 73-536-026  
**HPR3 Logic Blank Panel:**  
Astec P/N 73-536-027

- Notes:
1. Specifications subject to change without notice
  2. All dimensions are in inches (mm), tolerance is ± .02"
  3. Specifications are at factory settings
  4. Warranty: 1 Yr
  5. For combinations of options simply add option codes together.

# HPS Series DRAWINGS

## HPS 10/12/15 Module

**A:** AC Input Connector  
Positronics PLB3W3M1060  
AC Pin: MC612N-228.2  
Ground Pin: MC612N

### AC Input Pinouts

J1-L LINE  
J1-N NEUTRAL  
J1-G GROUND

Mating Connector:

Positronics PLB3W3FXXXX

### B: DC Output Connector

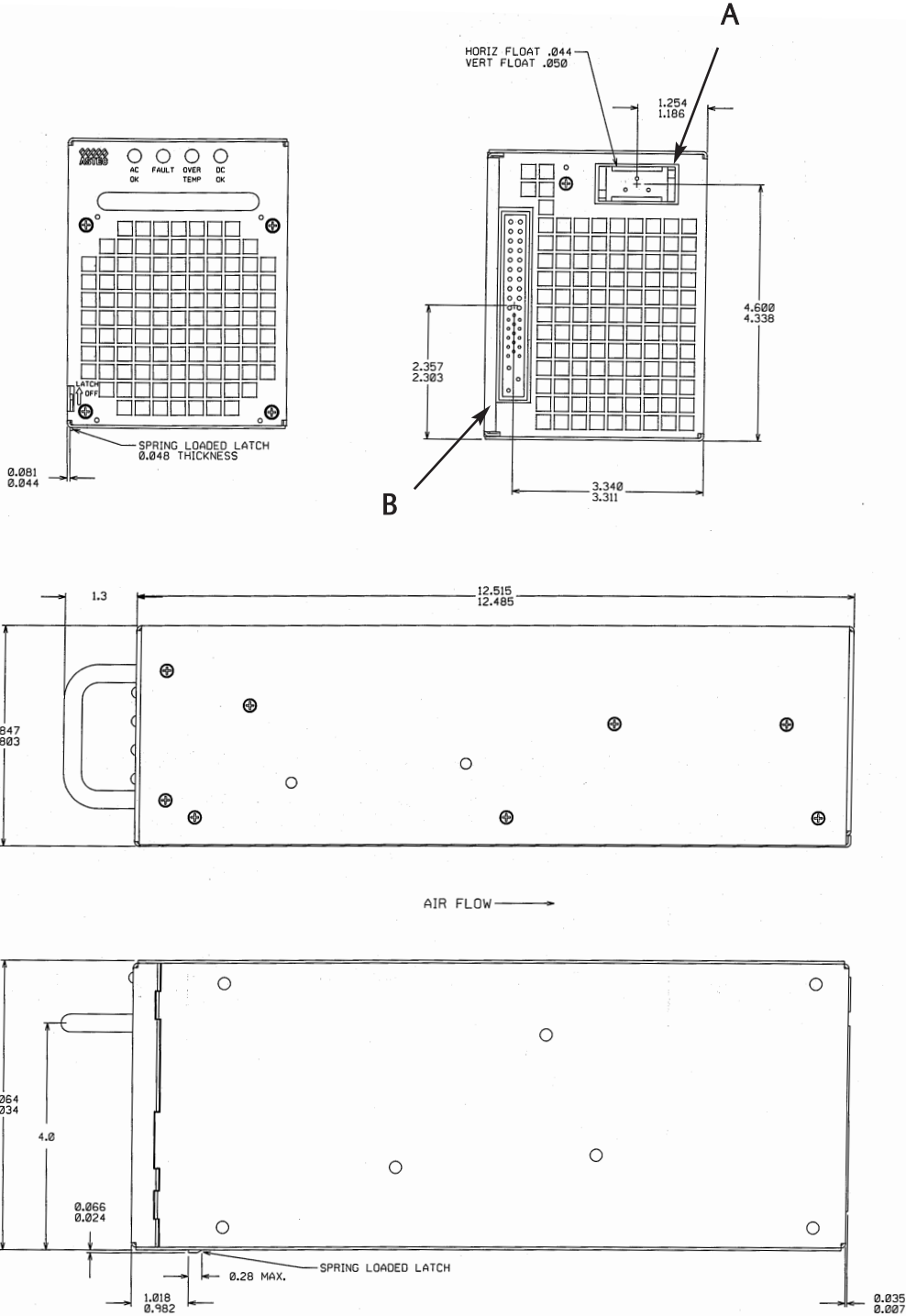
Positronics PCIH38M400A1

Mating Connector

Positronics PCIH38FXXXX or  
Elcon 226-0005-00100

### DC Output Pinouts

P1-1 V OUT  
P1-2 V OUT  
P1-3 V OUT  
P1-4 V OUT  
P1-5 V OUT  
P1-6 V OUT  
P1-7 V OUT RTN  
P1-8 V OUT RTN  
P1-9 V OUT RTN  
P1-10 V OUT RTN  
P1-11 V OUT RTN  
P1-12 V OUT RTN  
P1-13 CHASSIS GND  
P1-14 CHASSIS GND  
P1-15 5VDC  
P1-16 5VDC  
P1-17 5VDC RTN  
P1-18 5VDC RTN  
P1-19 DATA  
P1-20 DATA GND  
P1-21 V OUT SENSE  
P1-22 V OUT SENSE RTN  
P1-23 MARGIN PROGRAM  
P1-24 MARGIN HI  
P1-25 SWP  
P1-26 ISO ENA/DCOK/  
TEMP OK/FAN FAIL RTN  
P1-27 ISO DCOK  
P1-28 ISO EN/INH  
P1-29 ISO TEMP OK  
P1-30 OPAMP/SYNC/FAN FAIL SIGNAL  
P1-31 I MONITOR  
P1-32 I MONITOR RTN  
P1-33 N/C  
P1-34 ACOK COLLECTOR  
P1-35 ACOK EMITTER  
P1-36 V AUX RTN  
P1-37 V AUX  
P1-38 V ANODE (MAIN O/P)



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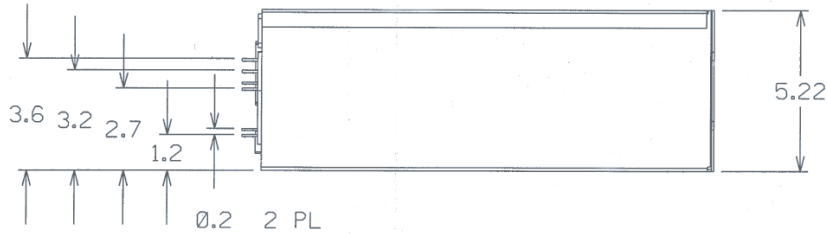
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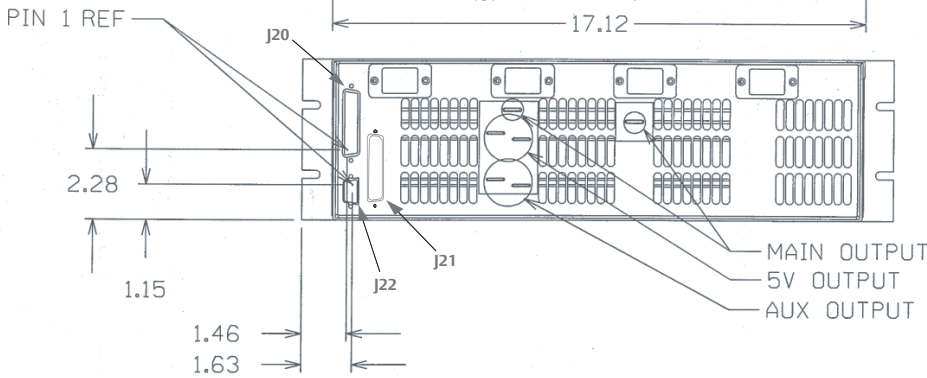
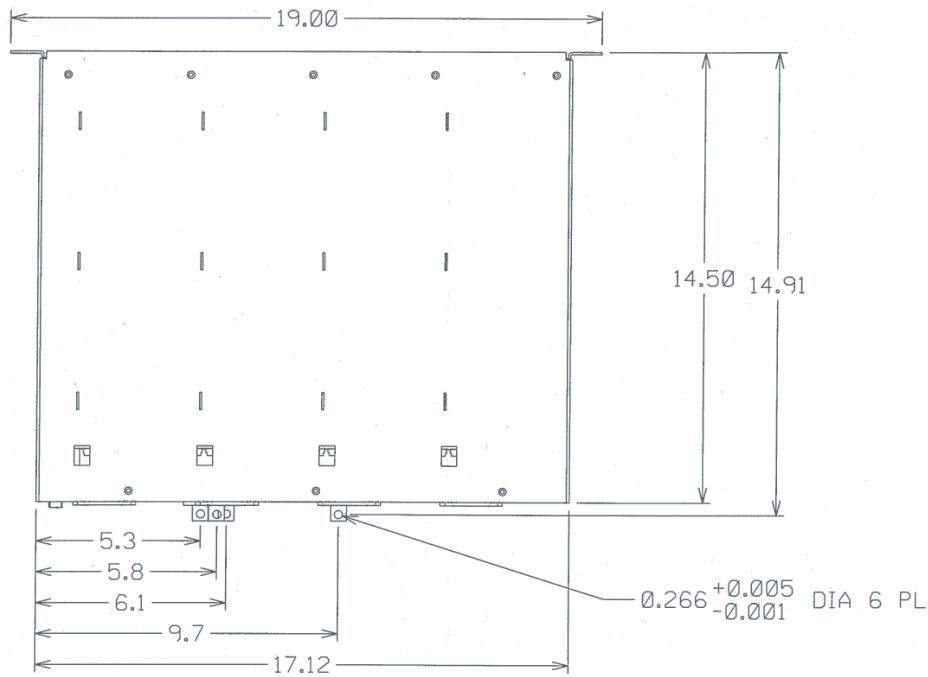


HPR3 Rack

AC Cord: Qualtek Electronics or Equivalent



Part Number: 227003-01  
 AWG: 12  
 Rating(A): 20A  
 Cord Type: SJT  
 NEMA Plug Type: 5-20P  
 IEC Connector Type: C-19



## HPR3 -00 Pin Assignments

### J21 Control Connector for PS1 & PS2 (Slot 1 & 2)

#### PS1

<u>Pin No.</u>	<u>Function</u>
J21-1	+V Anode ( module present )
J21-2	AC OK collector
J21-3	I monitor return
J21-4	Op amp / Sync / Fan Fail Signal
J21-5	Enable / Inhibit (isolated)
J21-6	Enable / DC OK / Temp OK / Fan Fail RTN
J21-7	Margin Program
J21-8	+ Sense Vout
J21-9	N/C
J21-20	AC ok emitter
J21-21	Ext bias
J21-22	I monitor
J21-23	Temp OK
J21-24	DC OK (isolated)
J21-25	Margin high
J21-26	- Sense Vout
J21-27	N/C
J21-28	N/C

#### PS2

<u>Pin No.</u>	<u>Function</u>
J21-10	+V Anode ( module present )
J21-11	AC OK collector
J21-12	I monitor return
J21-13	Op amp / Sync / Fan Fail Signal
J21-14	Enable / Inhibit (isolated)
J21-15	Enable / DC OK / Temp OK / Fan Fail RTN
J21-16	Margin Program
J21-17	+ Sense Vout
J21-18	N/C
J21-19	N/C
J21-29	AC OK emitter
J21-30	Ext bias
J21-31	I monitor
J21-32	Temp OK
J21-33	DC OK (isolated)
J21-34	Margin high
J21-35	- Sense Vout
J21-36	N/C
J21-37	N/C

### J22 Sense Connector

<u>Pin No.</u>	<u>Function</u>
J22-1	-Sense Vout
J22-2	N/C
J22-3	Enable / Inhibit gnd
J22-4	N/C
J22-5	N/C
J22-6	SWP
J22-7	+Sense Vout
J22-8	Enable / Inhibit
J22-9	N/C

### J20 Control Connector for PS3 & PS4 (Slot 3 & 4)

#### PS3

<u>Pin No.</u>	<u>Function</u>
J20-1	+V Anode ( module present )
J20-2	AC OK collector
J20-3	I monitor return
J20-4	Op amp / Sync / Fan Fail Signal
J20-5	Enable / Inhibit (isolated)
J20-6	Enable / DC OK / Temp OK / Fan Fail RTN
J20-7	Margin Program
J20-8	+ Sense Vout
J20-9	N/C
J20-20	AC ok emitter
J20-21	Ext bias
J20-22	I monitor
J20-23	Temp OK
J20-24	DC OK (isolated)
J20-25	Margin high
J20-26	- Sense Vout
J20-27	N/C
J20-28	N/C

#### PS4

<u>Pin No.</u>	<u>Function</u>
J20-10	+V anode ( module present )
J20-11	AC OK collector
J20-12	I monitor return
J20-13	Op amp / Sync / Fan Fail Signal
J20-14	Enable / Inhibit (isolated)
J20-15	Enable / DC OK / Temp OK / Fan Fail RTN
J20-16	Margin Program
J20-17	+ Sense Vout
J20-18	N/C
J20-19	N/C
J20-29	AC OK emitter
J20-30	Ext bias
J20-31	I monitor
J20-32	Temp OK
J20-33	DC OK (isolated)
J20-34	Margin high
J20-35	- Sense Vout
J20-36	N/C
J20-37	N/C