

1000-6000 Watts HPS10/12/15 Series



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 V 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 I²C interface
- Optional Rack μ Controller
- 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 3rd Ed and CSA C22.2 60950

TUV EN60950

CB Certificate and report

CE Mark

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 μ sec
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

Figure 1. The effect of the number of trials on the number of correct responses. The number of correct responses was significantly higher for the 10 trials condition than for the 5 trials condition. Error bars represent the standard error of the mean.

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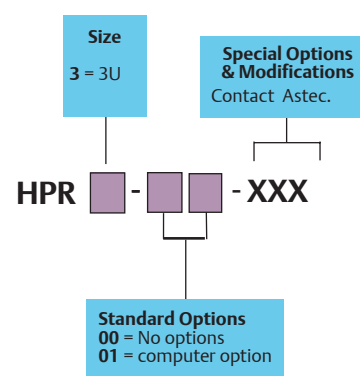
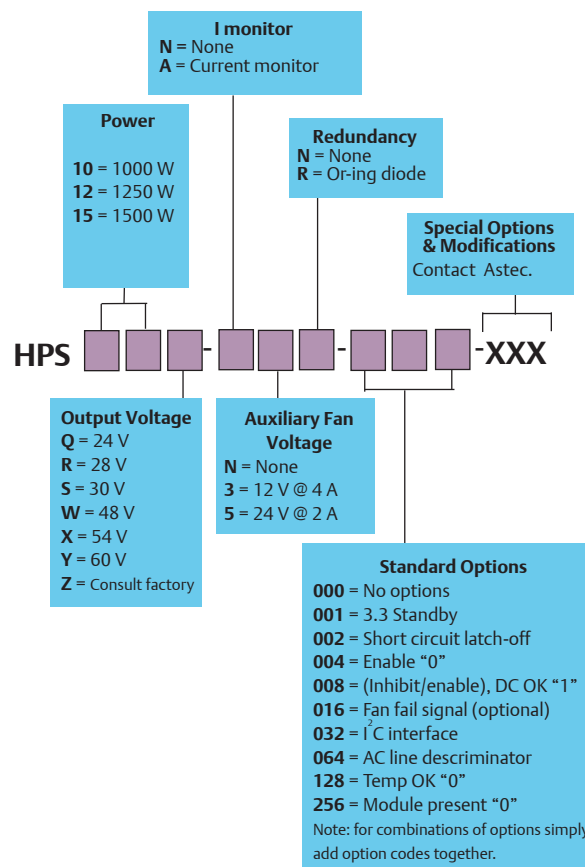
Watts		1000	1250	1500
Input voltage		85-264	90-264	180-264
Module ID		HPS10	HPS12	HPS15
Code	Volts	Output Amps	Output Amps	Output Amps
Q	24.0	41.7	52.1	62.5
R	28.0	35.7	44.6	53.6
S	30.0	33.3	41.7	50.0
W	48.0	20.8	26.0	31.3
X	54.0	18.5	23.1	27.8
Y	60.0	16.7	20.8	25.0

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 $\pm .02"$
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

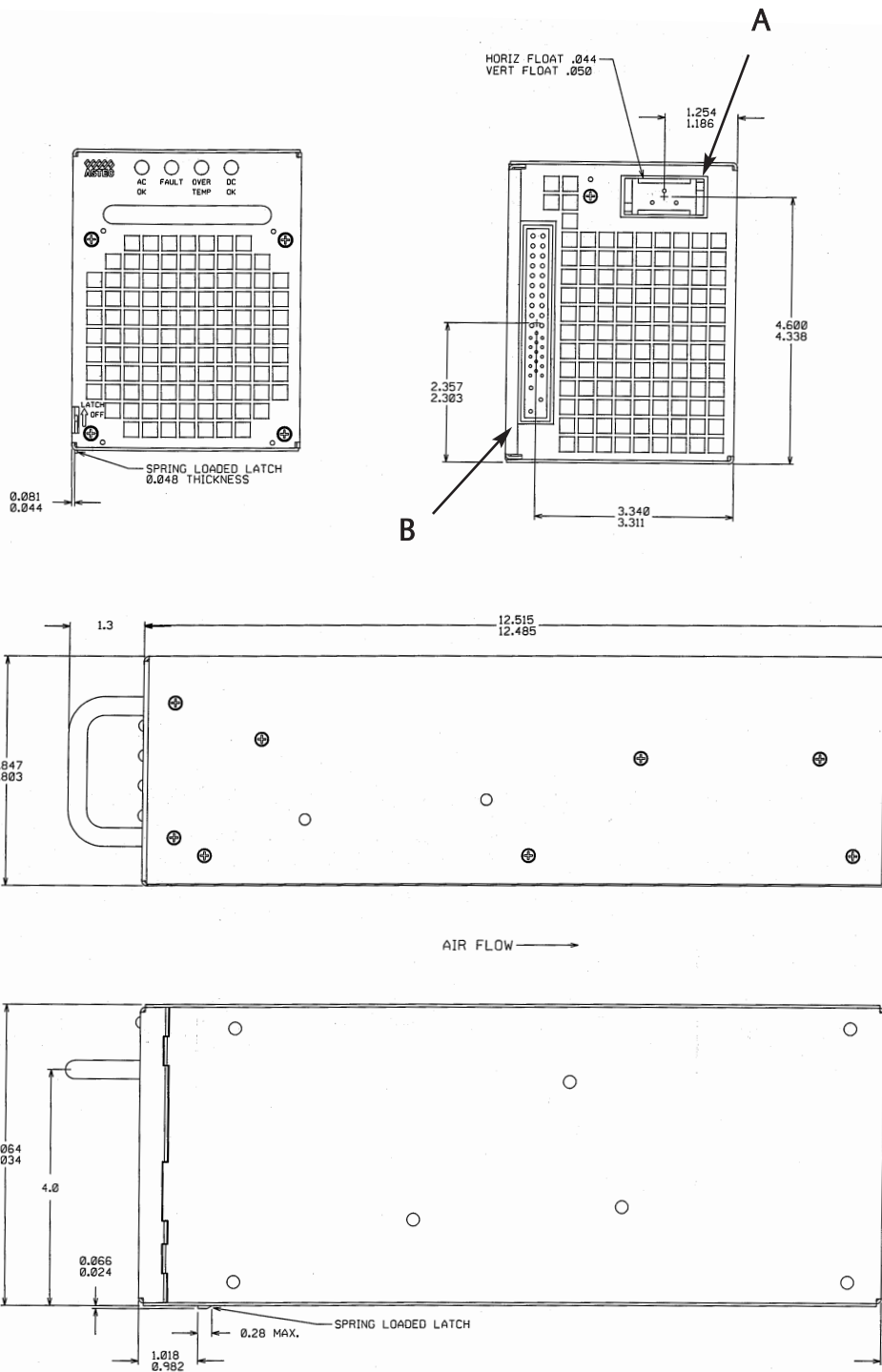
Positronics PCIH38M400A1

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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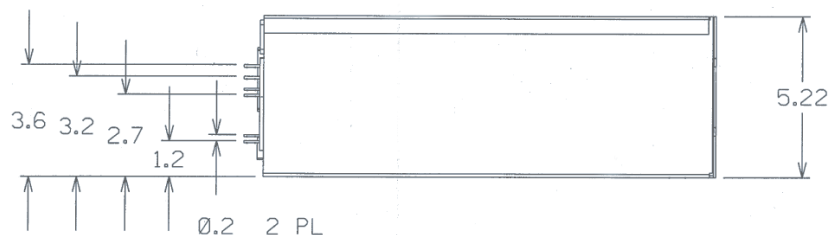
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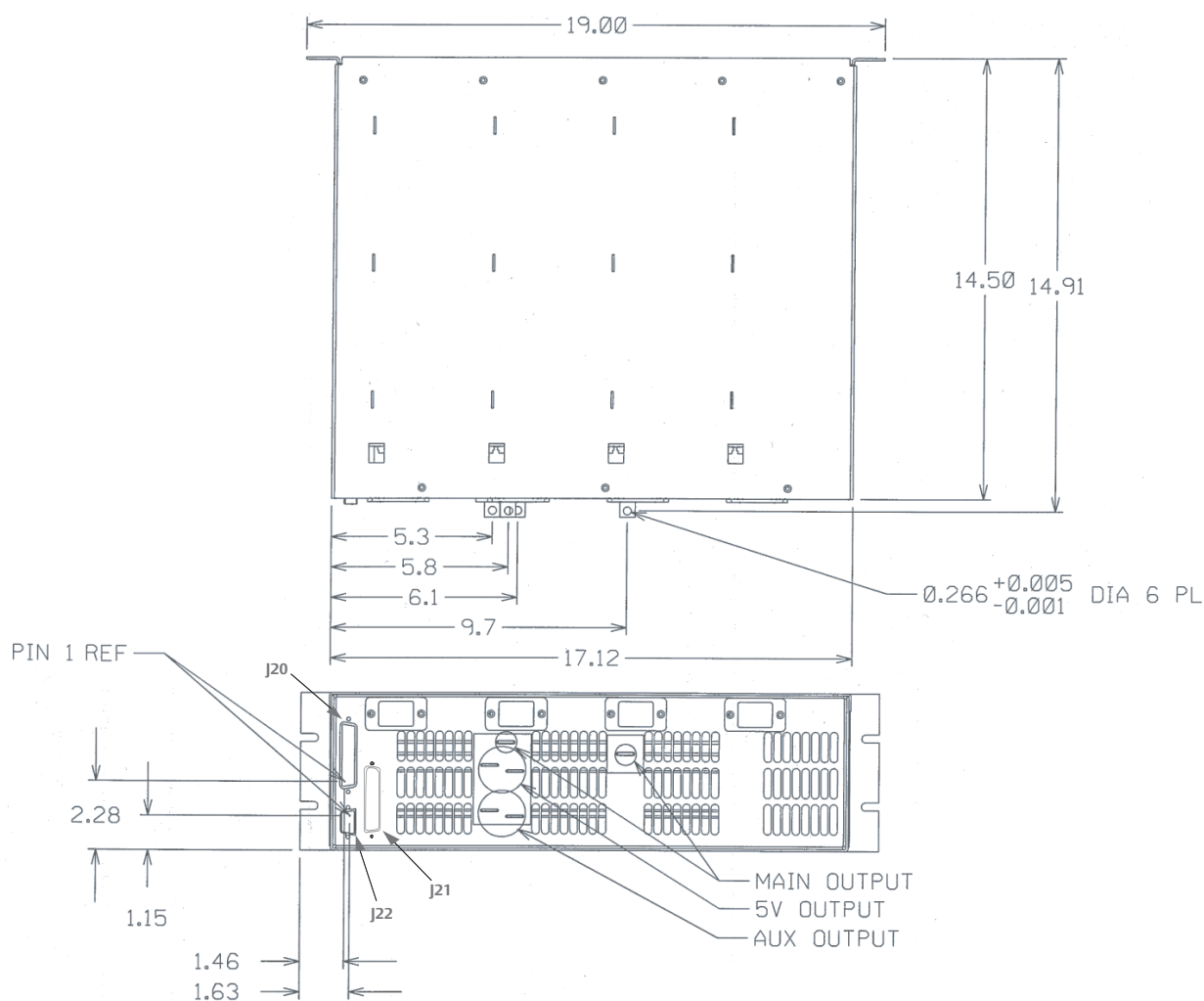


HPR3 Rack

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

Pin No.	Function
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

Pin No.	Function
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

Pin No.	Function
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

Pin No.	Function
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

Pin No.	Function
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

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