Embedded Power for
Business-Critical Continuity

HPS35 Series

350 - 1400 Watts

Total Power: 350 Watts per module
Input Voltage: 90-264 VAC
# of Outputs: Single and standby

RoHS 2002/95/EC

Special Features

- Active Power Factor Correction
- EN61000-3-2 compliant
- CISPR22, EN55022 Level-B conducted/radiated EMI
- EN61000 immunity standards
- $5V_{sb}$@2A
- Overvoltage protection (OVP)
- Overcurrent protection (OCP)
- Overtemperature protection (OTP)
- AC OK signal and indicator LED
- DC OK signal and indicator LED
- Remote Inhibit
- Remote Sense on main output
- Hot Plug
- N+1 Redundant
- 2 year warranty

Safety

- **UL** UL60950-1, 1st Ed. (April 1, 2003)
- **CSA** CSA C22.2 60950-1-03
- **TUV** EN60950-1:2001
- **CB** IEC60950-1, 1st Ed. (2001)
- **CE** Mark (LVD)

Electrical Specifications

Input	
Input voltage:	90-264 VAC typical
Frequency:	47-440 Hz
Inrush current:	40 A peak typical @ 25 °C
Efficiency:	80% typ @ full load, 230 VAC
Power factor:	0.98 typical @ 115 VAC, full load
Turn-on time:	AC ON -2 sec., Inhibit / Enable 160 ms
EMI filter standard:	CISPR 22, EN55022 Level "B"
Leakage current standard:	<0.5 mA max @ 230 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 minimum before outputs lose regulation
Harmonic distortion:	Meets EN61000-3-2
Isolation:	Meets EN60950

Output	
Adjustability:	±5% of nominal output voltage
Overall regulation:	±3%
Ripple:	1% of Vout pk - pk (20 MHz bandwidth)
Dynamic response:	4% from 25% to 75% load step
Recovery time:	To within 1% in <300 µsec
Overcurrent protection:	115 - 130% of rated output current
Short circuit protection:	Protected for continuous short circuit. Auto recovery.
Overvoltage protection:	120 - 140% AC Reset.
Reverse voltage protection:	100% of rated output voltage
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 on main output
DC OK:	±5% of nominal

ASTEC

EMERSON

Module Information

Environmental Specifications

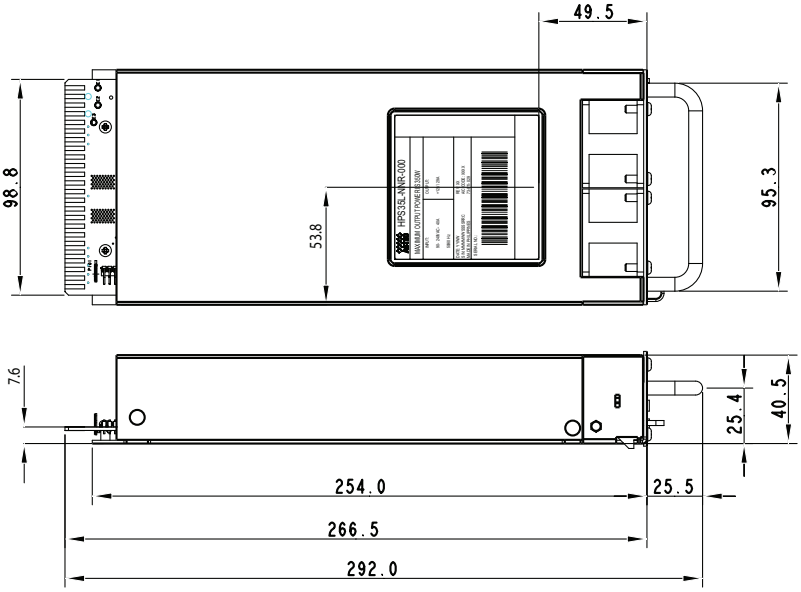
Operating temperature:	0 ° to 50 °C ambient. Derate each output 2.5% per degree from 50 ° to 70 °C
Shock:	Operating: 4g, half sine, 22 ms minimum duration, all 6 faces Non-operating: 30g, half since, 6 ms minimum duration, all 6 faces
Random Vibration:	Operating: 1g rms, 20 min/axis Non-operating: 2.5g rms, 20 min/axis
Humidity:	95% non-condensing
Storage Temperature:	-40 ° to +85 °C
Temperature coefficient:	0.04% per °C
Cooling	Internal DC fans

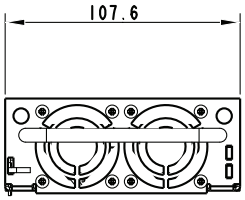
Ordering Information

HPS35L-NNR-000	12V
HPS35Q-NNR-000	24V
HPS35W-NNR-000	48V

Modules

Watts	350	
Input Voltage	90-264	
Module ID	HPS35	
Code	Volt	Output Amps
L	12.0	29.2
Q	24.0	14.6
W	48.0	7.3
Max. Size (H x W x L)	1.6" x 4.3" x 10.5"	
Number per Rack	4	
Unit Weight (lbs)	3.2	





(All units in mm)

Pin Assignments

HPS35 Module

Top

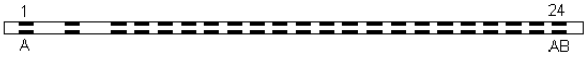
Pin	Description	Pin	Description
1	AC (L)	13	COMMON
2	BLANK	14	V OUT
3	AC (N)	15	V OUT
4	BLANK	16	V OUT
5	GND	17	V OUT
6	SWP	18	V OUT
7	5V RTN	19	V OUT
8	COMMON	20	BLANK
9	COMMON	21	+5 STANDBY
10	COMMON	22	TBA
11	COMMON	23	FAN MON
12	COMMON	24	I^2C CLK

Bottom

Pin	Description	Pin	Description
A	AC (L)	P	COMMON
B	BLANK	R	V OUT
C	AC (N)	S	V OUT
D	BLANK	T	V OUT
E	GND	U	V OUT
F	-SENSE	V	V OUT
H	+SENSE	W	V OUT
J	COMMON	X	INHIBIT
K	COMMON	Y	TBA
L	COMMON	Z	AC OK
M	COMMON	AA	DC OK
N	COMMON	AB	I^2C DATA

Unit Connector

Card Edge Connector with gold fingers double-sided 1.6mm FR-4 PCB

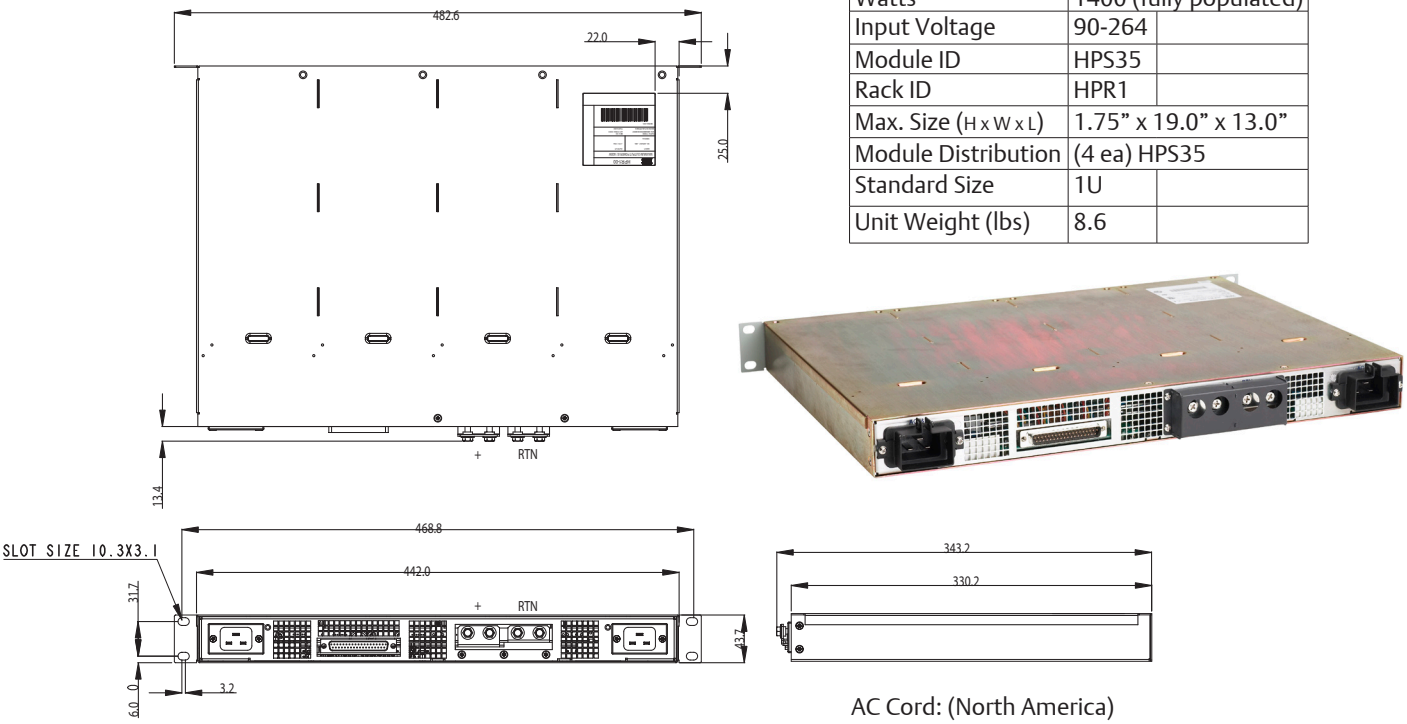


Mating connector:

EDAC 307-048-520-201 or equivalent

Rating: 5A per contact

Rack Information
HPR1-00



Racks

Watts	1400 (fully populated)	
Input Voltage	90-264	
Module ID	HPS35	
Rack ID	HPR1	
Max. Size (H x W x L)	1.75” x 19.0” x 13.0”	
Module Distribution	(4 ea) HPS35	
Standard Size	1U	
Unit Weight (lbs)	8.6	

AC Cord: (North America)
For all other countries, please contact factory.

1) Quail Electronics Series 5050 or equivalent (15A/125V)
   Supply End - NEMA 5-15P
   Equipment End - IEC 60320-C19
2) Quail Electronics Series 5052 or equivalent (20A/125V)
   Supply End - NEMA 5-20P
   Equipment End - IEC60320-C19

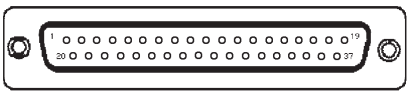
Blank Panel:
Astec P/N 73-686-000

D-sub Connector Pin Outs

	Pin	Description
	1	5V Return (std-by)
	2	+ Remote Sense
	3	- Remote Sense
	4	5V Stand by
	5	Unused
SLOT 1	6	Module Inhibit
SLOT 1	7	DC OK
SLOT 1	8	AC OK
SLOT 1	9	I2C_ADD#1
SLOT 1	10	I2C_ADD#2
SLOT 1	11	Fan Monitor
	12	Global AC OK
SLOT 2	13	Module Inhibit
SLOT 2	14	DC OK
SLOT 2	15	AC OK
SLOT 2	16	I2C_ADD#1
SLOT 2	17	I2C_ADD#2
SLOT 2	18	Fan Monitor
	19	Global Inhibit

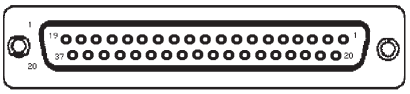
	Pin	Description
	20	I2C CLOCK
	21	I2C DATA
	22	SWP
	23	Unused (I2C_INT)
SLOT 3	24	Module Inhibit
SLOT 3	25	DC OK
SLOT 3	26	AC OK
SLOT 3	27	I2C_ADD#1
SLOT 3	28	I2C_ADD#2
SLOT 3	29	Fan Monitor
	30	Unused
SLOT 4	31	Module Inhibit
SLOT 4	32	DC OK
SLOT 4	33	AC OK
SLOT 4	34	I2C_ADD#1
SLOT 4	35	I2C_ADD#2
SLOT 4	36	Fan Monitor
SLOT 4	37	Unused

PSU Connector
617-A-037-P-AJ-1-21 (Male socket) Amphenol



Pin Out Diagram D-sub Connector (male)

Mating Connector
617-A-037-S-AJ-1-20 (Female socket) Amphenol

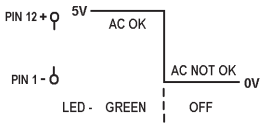


Pin Out Diagram D-sub Connector (female)

D. Sub Connector Additional Notes

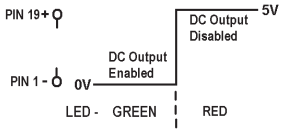
Pin 2 + Remote Sense
Pin 3 - Remote Sense
Compensates for up to 0.5V drop. Recommended shielded twisted wire pair.

Pin 12 - Global AC OK (OUT signal)



Note: AC OK signals are OR'ed together internally. If any module fails, the LED on the affected module will be off and the logic signal will indicate AC NOT OK.

Pin 19 - Global Inhibit (IN signal)



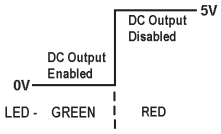
Note: All outputs disabled when Pin 19 is open or High.

Pin 22 - SWP (IN/OUT signal)

SWP Pin is used when connecting racks in parallel to achieve current sharing. Current share accuracy is typically 10% of full load.

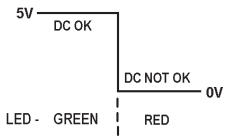
Note: SWP Voltage is 5V at 100% load current.

Module Inhibit (IN Signal)



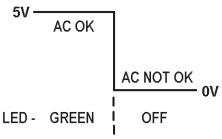
Note: Module Inhibit signals for each slot in the rack is accessible in the D-sub connector (J18). Refer to Connector Pin-out table for pin assignments. Pin 1 is the Return Pin.

DC OK (OUT Signal)



Note: DC OK signals for each slot in the rack is accessible in the D-sub connector (J18). Refer to Connector Pin-out table for pin assignments. Pin 1 is the Return Pin.

AC OK (OUT Signal)



Note: AC OK signals for each slot in the rack is accessible in the D-sub connector (J18). Refer to Connector Pin-out table for pin assignments. Pin 1 is the Return Pin.

Hi state: Source 100uA @ 4V
Low State: Sink 10mA @ 0.5V

Fan Monitor (OUT Signal)

Note: Fan Monitor signals for each slot in the rack is accessible in the D-sub connector (J18). Refer to Connector Pin-out table for pin assignments. Pin 1 is the Return Pin.

I2C_ADD#1
I2C_ADD#2
TBD

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