

1PH404A

Overview

AC-DC Power Supply Card
 Single Phase 400Hz 115/220Vac Input
 3 or 4 Outputs, 375W Max Combined Output

Market(s)

Military, Industrial

Typical Application(s)

Electronic Equipment Rack



Product Highlights

This dual slot 8HP (1.6") wide 6U high filtered ac-dc power supply converter card can be configured with three or four outputs available (+5Vdc, 3.3Vdc, and +12Vdc) or (+5Vdc, 3.3Vdc, +12Vdc and -12Vdc). This Military MIL-COTS ac-dc power supply solution is designed to meet applicable portions of Mil-Std-704F input requirements, MIL-STD-810F vibration and shock requirements, and MIL-STD-461E EMI requirements. When compared to VME power supplies using conventional technology, this dual slot forced fan cooled ac-dc power supply converter provides users with higher efficiency (86% with 220Vac input), lower weight (4.1 lbs. typical), and higher power (up to 375W all outputs combined).

Features

- 115/220Vac per MIL-STD-704F*
- 3 or 4 Outputs, 375W combined
- MIL-STD-810F Environmental *
- MIL-STD-461E EMI *
- Single Slot VME Power Card

* Designed to meet applicable portions of this standard. Contact Aegis Power Systems, Inc. for specific details.

Table 1: Maximum Continuous Operating Ratings

Parameter	Rating	Unit	Notes
Vin max range	95 to 250	Vac	360Hz - 440Hz
Temperature	+85	°C	Refer to Figure 1
Output Power	375	W	All outputs combined
Input power	455/450	W	115Vac/220Vac Input
+5.0Vdc output	200	W	
+3.3Vdc output	150/50	W	Depends on output configuration
+12.0Vdc output	60/125	W	Depends on output configuration
-12.0Vdc output	12	W	

About Us

Aegis Power Systems, Inc. specializes in the design, development, and manufacture of AC-DC and DC-DC power supplies for high-performance, rugged, critical, and specialty applications. Markets served include defense, industrial, communications, aircraft, shipboard, rack mount, embedded computing, and electric vehicle applications.

[Contact us](#) to find out if this item can be configured or redesigned to meet your specific technology need.

SPECIFICATIONS

(Typical at 25°C, nominal line and 100% load, unless otherwise specified.)

Parameter	Notes
Input Voltage	115/220Vac Nominal (95Vac - 250Vac), 400Hz (360Hz - 440Hz). Transient 70Vac to 270Vac, 100ms. Designed to meet MIL-STD-704F Normal and Abnormal Range.
Input Current	4.1A @ 115Vac, 2.1A @ 220Vac.
Input Power	455W @ 115Vac, 450W @ 220Vac, Typical.
Power Factor	0.99 Typical @ 360Hz - 440Hz.
Output Power	375W Max. all outputs combined. See Table 2 & Fig 1 for output power derating.
Holdup Time	2ms Typical.
Output Voltages	See table 2. See Figure 1 for output power derating.
Output Ripple	See table 2.
Current Limit	Short circuit protected with automatic recovery.
Efficiency	83% / 115Vac, 86% / 220Vac, Typical at full load.
Start-Up Time	500ms Max.
Voltage Set Point	± 2.5%.
Line/Load Regulation	± 2.5%.
Temperature Regulation	± 0.01% / °C.
Temperature Rating	-40°C to +85°C Operating baseplate temperature max. See Figure 1.
Cooling	Customer provided forced fan air across attached cooling fins on power card.
Package	Dual slot pluggable slide-in card with attached baseplate and cooling fins.
Dimensions	6U x 8HP x 160mm (see mechanical drawing).
Weight	4.1 lbs. Typical.
Connector	1ea Positronic PCIM30W15M400A1 or equivalent (see Table 3).
Vibration	Designed to meet MIL-STD-810F, Method 514.5, Procedure I.
Shock	Designed to meet MIL-STD-810F, Method 516.5, Procedure I.
Humidity	0 – 95% non-condensing.
EMI	Designed to meet MIL-STD-461E (CE102 and CS101).

Specifications subject to change without notice.

Table 2: Voltage Output (Nominal)

1PH404A-001**	V1	V2	V3	V4
Voltage	+5Vdc	+3.3dc	+12dc	-12dc
Current	40A	45A	5A	1A
Power	200W	150W	60W	12W
Ripple	50mVpk-pk*	50mVpk-pk*	150mVpk-pk*	1150mVpk-pk*

* 20MHz Bandwidth Limited.

**Total combined output is 375W maximum.

1PH404A-002**	V1	V2	V3
Voltage	+5Vdc	+3.3dc	+12dc
Current	40A	15.1A	10.4A
Power	200W	50W	125W
Ripple	50mVpk-pk*	50mVpk-pk*	150mVpk-pk*

* 20MHz Bandwidth Limited.

**Total combined output is 375W maximum.

Figure 1: 1PH404A Power De-rating for Temperature and Input Voltage per below graph

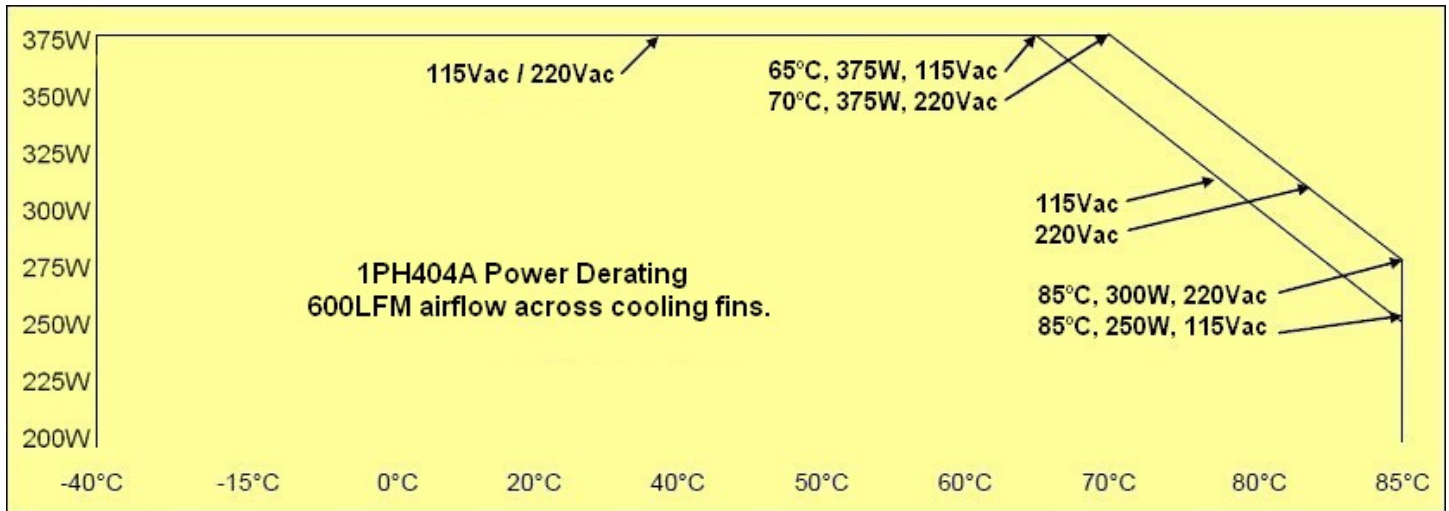


Table 3: 1PH404A-XXX Connector Specifications

30 Pin Positronic Connector - P/N PCIM30W15M400A1 or Equivalent

Contact Designation	Conductor Circuit
Pin 1	V1 Return
Pin 2	V2 Return
Pin 3	V1 Return
Pin 4	V2 Return
Pin 5	V1 Return
Pin 6	V3 Return
Pin 7	V1 Pos Out
Pin 8	V2 Pos Out
Pin 9	V1 Pos Out
Pin 10	V2 Pos Out
Pin 11	V1 Pos Out
Pin 12	V3 Pos Out
Pin 13	V4 Return
Pin 14	V4 Neg Out
Pin 15	V1 Pos Sense
Pin 16	V1 Share Pos
Pin 17	V1 Share Neg
Pin 18	V1 Neg Sense
Pin 19	V3 Share Pos
Pin 20	V3 Share Neg
Pin 21	No Connection
Pin 22	No Connection
Pin 23	No Connection
Pin 24	V2 Share Pos
Pin 25	V2 Share Neg
Pin 26	V2 Neg Sense
Pin 27	V2 Pos Sense
Pin 28	Chassis Ground
Pin 29	AC Neutral
Pin 30	AC Line Input

CAUTION:
 Contact AEGIS Power Systems before connecting power supply units in parallel or connecting the Share Pins.

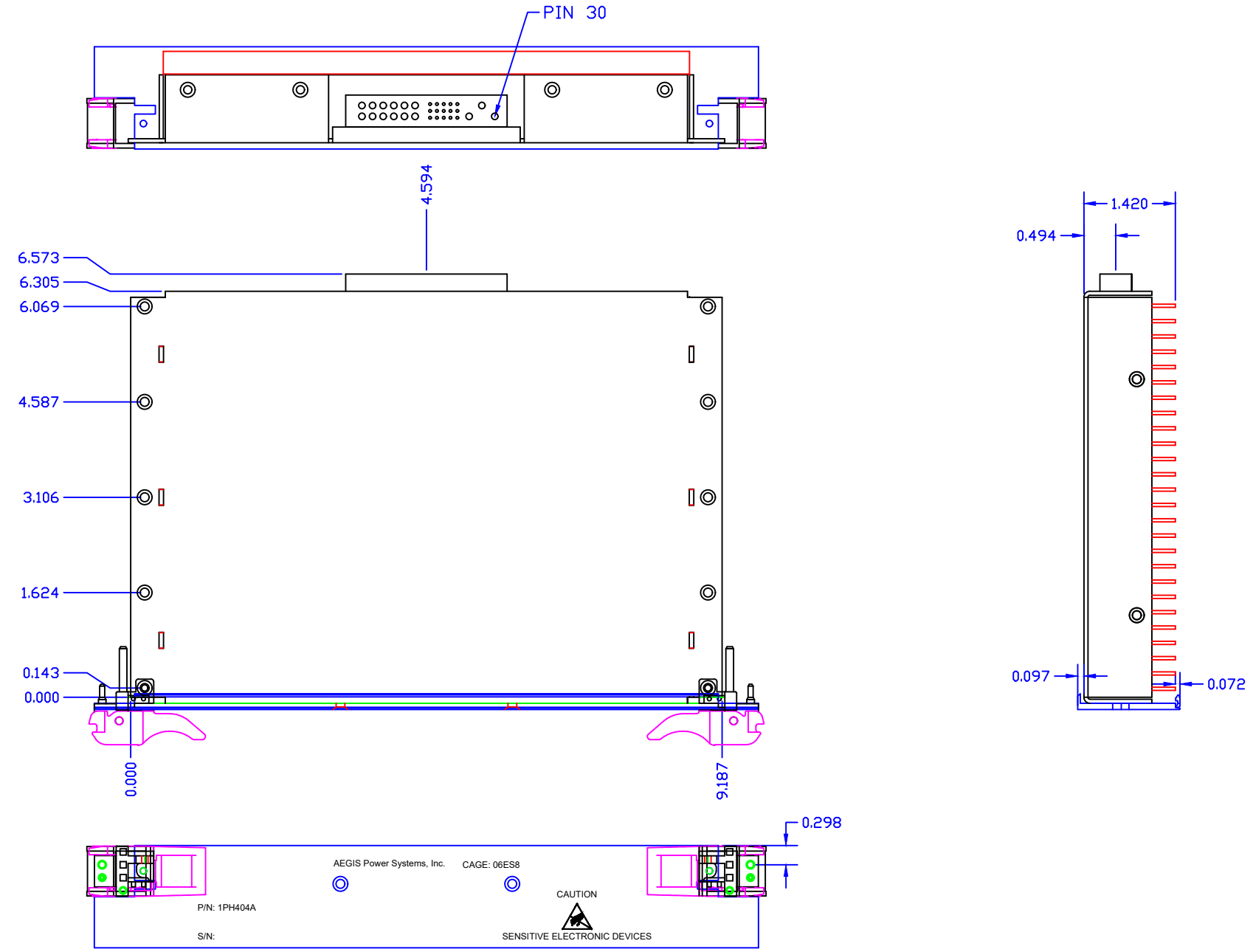
REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A01	INITIAL RELEASE	09/24/09	MVM
	A02	REV A02 BASEPLATE	09/30/09	MVM
	A03	MOVED WEDGE LOCATION	10/06/09	MVM
	A04	EDIT J1:14, J1:22, J1:23	12/08/09	MVM

NOTES: UNLESS OTHERWISE SPECIFIED

- TYPE 1, 6U PLUG-IN UNIT - PRIMARY SIDE RETAINER. 1.00 INCH PITCH. (FIGURE 10 OF VITA 48.2, 12/26/07)
- CONNECTOR POSITRONIC PCIM30W15M400A1
- PIN1-12 = 28AMP RATING, PIN13-27 = 3AMP RATING, PIN28,29 AND 30 = 40AMP RATING

CAD MAINTAINED. CHANGES SHALL BE INCORPORATED BY THE DESIGN ACTIVITY.

- J1:1 - V1 RETURN
- J1:2 - V2 RETURN
- J1:3 - V1 RETURN
- J1:4 - V2 RETURN
- J1:5 - V1 RETURN
- J1:6 - V3 RETURN
- J1:7 - V1 +DUT
- J1:8 - V2 +DUT
- J1:9 - V1 +DUT
- J1:10 - V2 +DUT
- J1:11 - V1 +DUT
- J1:12 - V3 +DUT
- J1:13 - V4 RETURN
- J1:14 - V4 -DUT
- J1:15 - V1 +SENSE
- J1:16 - V1 SHARE+
- J1:17 - V1 SHARE-
- J1:18 - V1 -SENSE
- J1:19 - V3 SHARE+
- J1:20 - V3 SHARE-
- J1:21 - NC
- J1:22 - NC
- J1:23 - NC
- J1:24 - V2 SHARE+
- J1:25 - V2 SHARE-
- J1:26 - V2 -SENSE
- J1:27 - V2 +SENSE
- J1:28 - CHASSIS
- J1:29 - NEUTRAL
- J1:30 - LINE



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UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. TOLERANCES ARE: FRACTIONS DECIMALS DEGREES ± N/A .XX ± .02 ± .5 .XXX ± .005		CONTRACT NO.		AEGIS POWER SYSTEMS MURPHY, NORTH CAROLINA	
MATERIAL SEE NOTE 2		APPROVALS DRAWN MVM 06/16/09		TITLE VME SINGLE PHASE PFC 375W MECHANICAL LAYOUT AEGIS P/N: 1PH404A	
FINISH SEE NOTE 3		CHECKED		SIZE FSCM NO. DWG NO. REV D 06ES8 1PH404A-M00 A04	
NEXT ASSY USED ON		MFG.		SCALE 1/1 SHEET 1 OF 1	
APPLICATION DO NOT SCALE DRAWING		QUALITY			