

# 1PH604A

## Overview

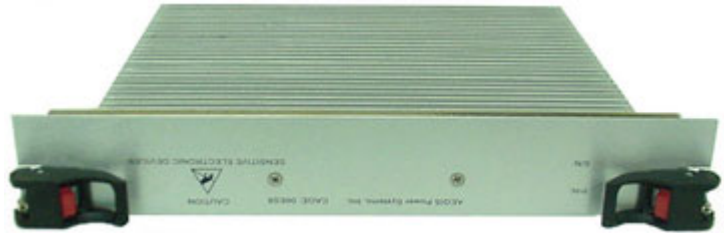
AC-DC Power Supply Card  
 Single Phase 60Hz 115/220Vac Input  
 3 or 4 Outputs, 375W Max Combined Output

## Market(s)

Military, Industrial

## Typical Application(s)

Electronic Equipment Rack



## Product Highlights

This Dual slot 8HP wide 6U high filtered ac-dc power supply converter card can be configured for three (3) or four (4) outputs with +5Vdc, +3.3Vdc, +12Vdc, or -12Vdc available at a combined output of 375W. This Military MIL-COTS 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 air fan cooled ac-dc power supply converter provides users with higher efficiency (86% with 220Vac input), lower weight (4.1 lbs.), and higher power (up to 375W).

## Features

- 115/220Vac per MIL-STD-704F\* and MIL-STD-1399A/B \*
- 3 or 4 Output, 375W combined
- MIL-STD-810F Environmental \*
- MIL-STD-461E EMI \*
- Dual Slot VME Power Card

**Table 1: Maximum Continuous Operating Ratings**

Parameter	Rating	Unit	Notes
Vin max range	95 to 250	Vac	47Hz-63Hz
Temperature	+85	°C	Refer to Figure 1
Output Power	375	W	All outputs combined
Input power	455/450	W	115Vac/220Vac Input

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

## 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	115Vac/220Vac 60Hz Nominal. Range 95Vac - 250Vac, 47Hz - 63Hz. Transient 70Vac to 270Vac, 100ms. Designed to meet Mil-Std-704F Normal and Abnormal Range. Designed to meet Mil-Std-1399 Section A/B Type 1 60Hz.
Input Current	4.1A @ 115Vac, 2.1A @ 220Vac.
Input Power	455W @ 115Vac, 450W @ 220Vac, Typical.
Power Factor	0.99 Typical @ 47Hz - 63Hz.
Output Power	375W Max. See Table 2. See Figure 1 for output power derating.
Holdup Time	10ms Typical.
Output Voltages	See table 2. See Figure 1 for output power derating.
Output Ripple	1% Vout, except 3.3Vout is 1.52% (pk-pk 20 MHz BW limit)
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 baseplate attached cooling fins.
Package	Dual slot pluggable slide-in card with attached cooling fins.
Dimensions	6U high x 8HP wide (1.6") 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)**

1PH604A-001**	V1	V2	V3	V4
<b>Voltage</b>	+5Vdc	+3.3dc	+12dc	-12dc
<b>Current</b>	40A	45A	5A	1A
<b>Power</b>	200W	150W	60W	12W
<b>Ripple</b>	50mVpk-pk*	50mVpk-pk*	100mVpk-pk*	100mVpk-pk*

\* 20MHz Bandwidth Limited.

\*\*Total combined output is 375W maximum.

1PH604A-002**	V1	V2	V3
<b>Voltage</b>	+5Vdc	+3.3dc	+12dc
<b>Current</b>	40A	15.1A	10.4A
<b>Power</b>	200W	50W	125W
<b>Ripple</b>	50mVpk-pk*	50mVpk-pk*	100mVpk-pk*

\* 20MHz Bandwidth Limited.

\*\*Total combined output is 375W maximum.

1PH604A-003**	V1	V2	V3
<b>Voltage</b>	+5Vdc	+12dc	-12dc
<b>Current</b>	40A	25A	6.25A
<b>Power</b>	200W	300W	75W
<b>Ripple</b>	50mVpk-pk*	100mVpk-pk*	100mVpk-pk*

\* 20MHz Bandwidth Limited.

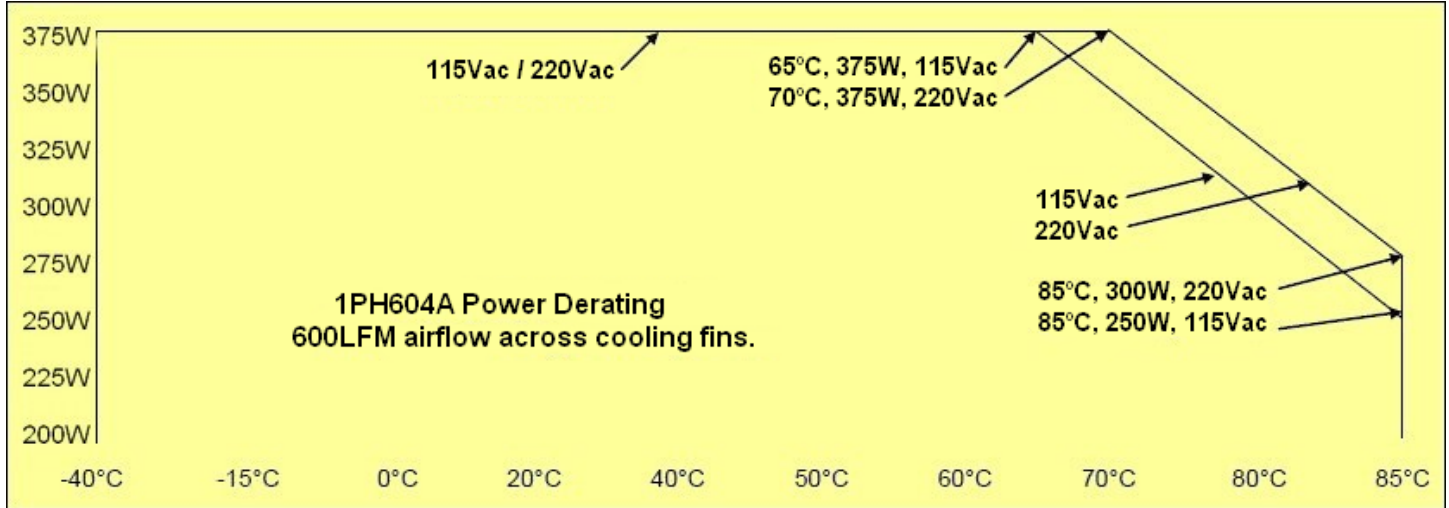
\*\*Total combined output is 375W maximum.

1PH604A-004**	V1	V2	V3
<b>Voltage</b>	+3.3Vdc	+5.25dc	-5.25dc
<b>Current</b>	45.46A	40A	10A
<b>Power</b>	150W	200W	50W
<b>Ripple</b>	50mVpk-pk*	50mVpk-pk*	50mVpk-pk*

\* 20MHz Bandwidth Limited.

\*\*Total combined output is 375W maximum.

**Figure 1: 1PH604A Power De-rating for Temperature and Input Voltage per below graph**



**Table 3: 1PH604A-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.

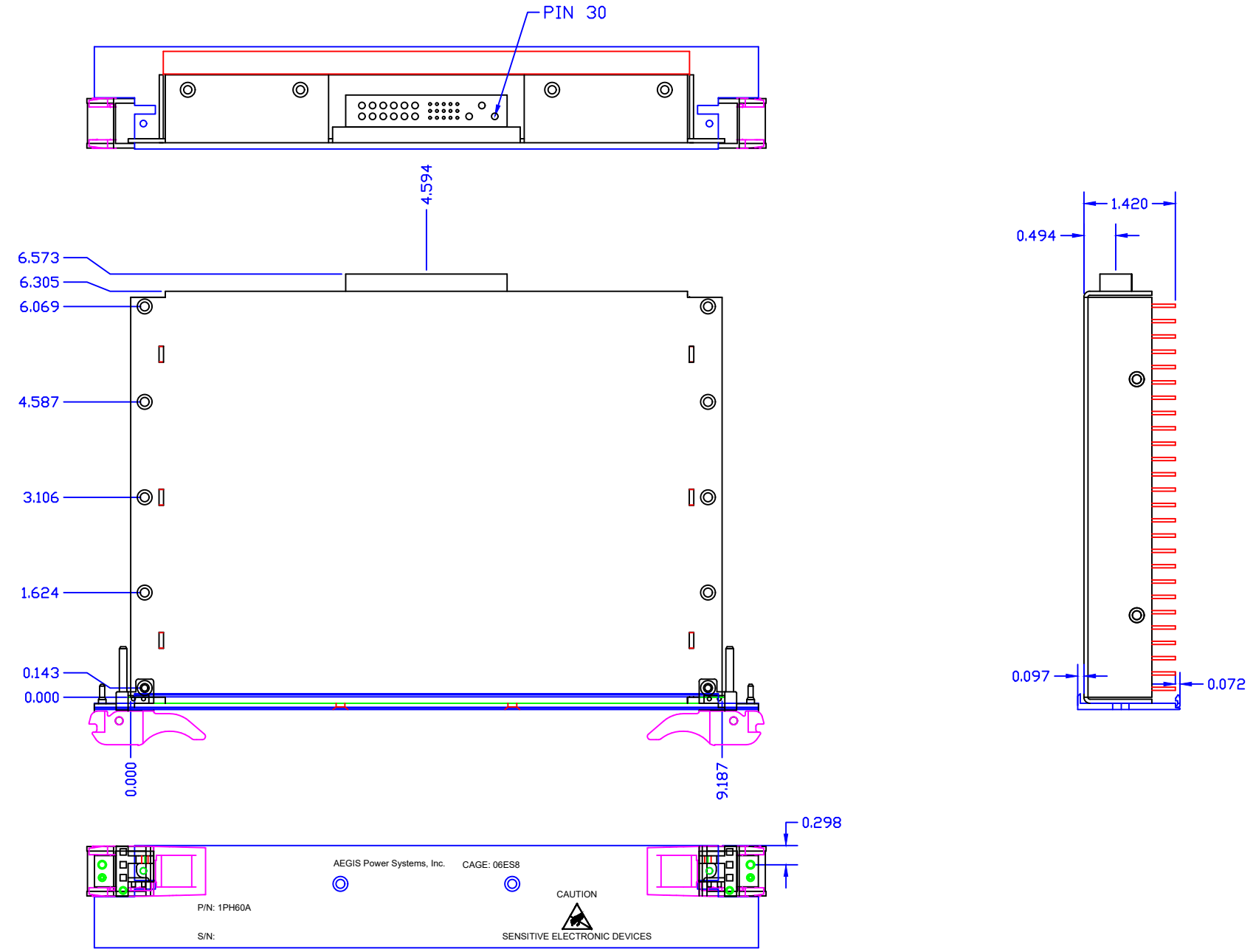
REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A01	INITIAL RELEASE	09/24/09	MVM
	A02	REV A02 BASEPLATE	09/30/09	MVM
	A03	MOVED WEDGE LOCATION	10/06/09	MVM
	A04	EDIT J1:14, J1:22, J1:23	12/08/09	MVM

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: 1PH604A	
FINISH SEE NOTE 3		CHECKED		SIZE FSCM NO. DWG NO. REV D 06ES8 1PH604A-M00 A04	
NEXT ASSY USED ON		MFG.		SCALE 1/1 SHEET 1 OF 1	
APPLICATION DO NOT SCALE DRAWING		QUALITY			