

# 1PH604

## AC-DC VME Power Supply Card

(Document Rev A06, (6/22/17))



**Single Phase 60Hz 115/220Vac Input  
3 or 4 Output, 375W Max Combined Total**

**Market: Military, Industrial**

**Application: Electronic Equipment Rack**

### 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 \*
- Single Slot VME Power Card

\* Designed to meet portions of the standard. Contact Aegis Power for details.

**Table 1: Maximum Ratings**

Parameter	Rating	Unit	Notes
Vin max range	95 - 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
+5Vdc Output	200	W	
+3.3Vdc Output	150/50	W	Depends on output configuration
+12Vdc Output	60/125	W	Depends on output configuration
-12Vdc Output	12	W	

### Product Highlights

This single slot 5HP wide 6U high filtered ac-dc power supply converter card can be configured for three (3) or four (4) outputs (+5Vdc, +3.3Vdc, +12Vdc) or (+5Vdc, +3.3Vdc, +12Vdc, -12Vdc) available at a combined output of 375W at +70°C. This Mil-COTS power supply is a military solution designed to meet portions of the 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 single slot wedgelock conduction cooled ac-dc power supply converter provides users with higher efficiency (85% with 220Vac input), lower weight (3.5 lbs), and higher power (up to 375W).

**AEGIS Power Systems, Inc.** specializes in the front end design, development, and manufacture of Rapid Response Custom Switching Power Supplies for Mil-COTS, defense, industrial, telecomm, aircraft, shipboard, rack mount, and electric powered vehicle applications. Contact Aegis Power Systems for details on Mil-Specs that this product is designed to meet.

## **SPECIFICATIONS**

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

<b>Input voltage:</b>	115Vac/220Vac 60Hz Nominal. Range 95Vac - 250Vac, 47Hz - 63Hz. Transient 70Vac to 270Vac, 100mSec. Designed to meet Mil-Std-704F Normal and Abnormal Range. Designed to meet Mil-Std-1399 Section A/B Type 1 60Hz.
<b>Input line current:</b>	4.1A @ 115Vac, 2.1A @ 220Vac.
<b>Input power:</b>	455W @ 115Vac, 450W @ 220Vac, Typical.
<b>Power Factor:</b>	0.99 Typical @ 47Hz - 63Hz.
<b>Output power:</b>	375W Max. See Table 2. See Figure 1 for output power derating.
<b>Holdup Time:</b>	10mSec Typical.
<b>Output voltages:</b>	+5Vdc, +3.3Vdc, +12Vdc, -12Vdc. See table 2. See Figure 1 (power derating).
<b>Output ripple:</b>	1% Vout except 3.3Vout is 1.52%. (Vpk-pk 20 MHz BW limit). See table 2.
<b>Current Limit:</b>	Short circuit protected with automatic recovery.
<b>Efficiency:</b>	83% /115VAC, 86% /220VAC, Typical at full load.
<b>Start up time:</b>	500 mSec. Max.
<b>Voltage set point:</b>	± 2.5%.
<b>Line regulation:</b>	± 2.5%.
<b>Load regulation:</b>	± 2.5%.
<b>Temperature regulation:</b>	± 0.01% / °C.
<b>Temperature rating:</b>	-40°C to +85°C Operating baseplate temperature max. See Figure 1.
<b>Cooling:</b>	Conduction through baseplate wedgelocks attached to customer card rack.
<b>Package:</b>	Single slot pluggable slide-in card with attached baseplate.
<b>Dimensions:</b>	6U high x 5HP wide (1.0") x 160mm (see mechanical drawing).
<b>Weight:</b>	3.5 lbs. Typical.
<b>Connector:</b>	1ea Positronics PCIM30W15M400A1 or equivalent (see pin assignment page).
<b>Vibration:</b>	Designed to meet MIL-STD-810F, Method 514.5, Procedure I.
<b>Shock:</b>	Designed to meet MIL-STD-810F, Method 516.5, Procedure I.
<b>Humidity:</b>	0 – 95% non-condensing.
<b>EMI:</b>	Designed to meet MIL-STD-461E (CE102 and CS101).

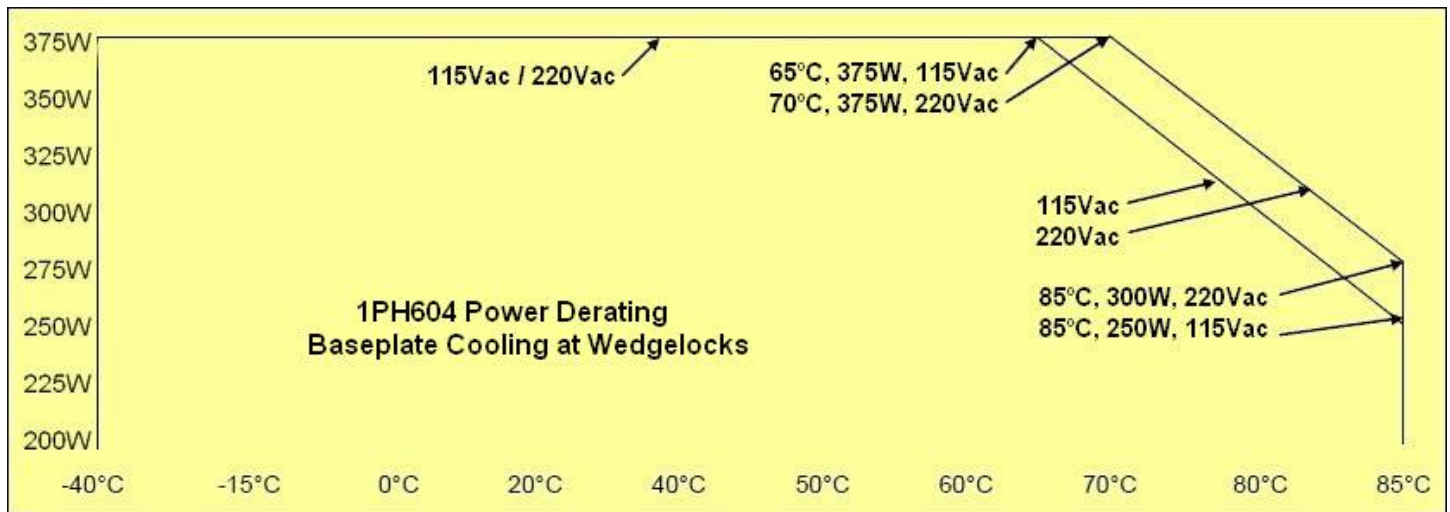
Specifications subject to change without notice.

**Table 2: 1PH604 Voltage Outputs**

Part Number	Vdc out	Watts out	Amps out	Ripple (20MHz BW)
1PH604-001*	+5.0 Vdc	200 W	40 A	50mVp-p
	+3.3 Vdc	150 W	45 A	50mVp-p
	+12 Vdc	60 W	5 A	100mVp-p
	-12 Vdc	12 W	1 A	100mVp-p
* Total combined output is 375W maximum.				

Part Number	Vdc out	Watts out	Amps out	Ripple (20MHz BW)
1PH604-002	+5.0 Vdc	200 W	40.0 A	50mVp-p
	+3.3 Vdc	50 W	15.1 A	50mVp-p
	+12 Vdc	125 W	10.4 A	100mVp-p

**Figure 1: Power De-rating for Temperature and Input Voltage**



## Connector Pin Out Assignment

30 Pin Positronic Connector  
P/N PCIM30W15M400A1 or Equivalent

### Connector J1:

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:

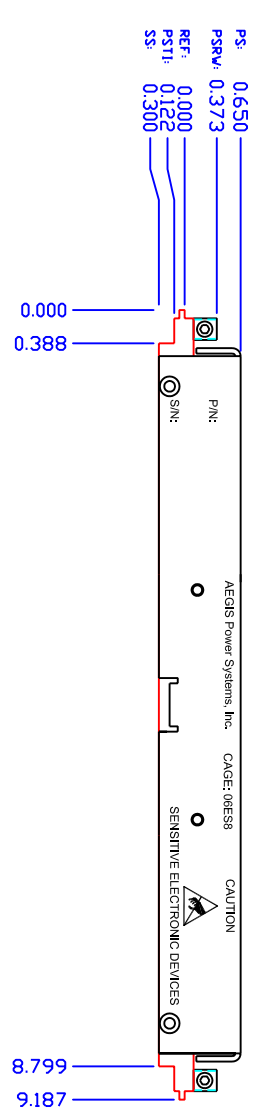
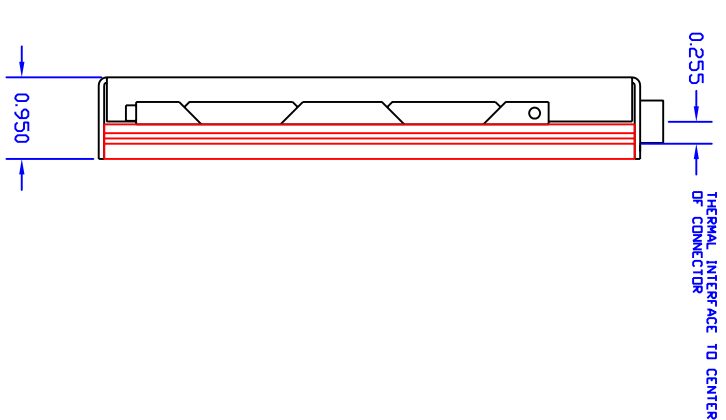
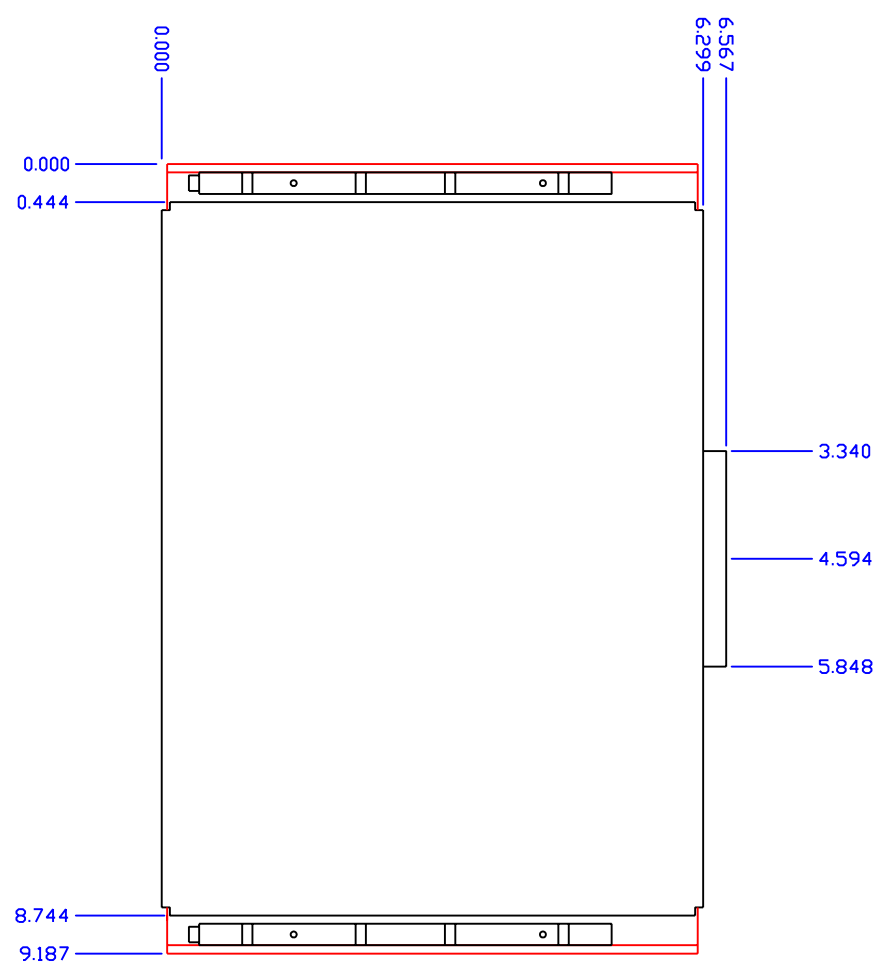
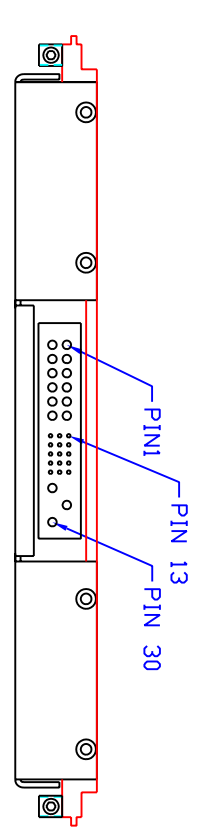
Contact AEGIS Power  
Systems before connecting  
power supply units in parallel  
or connecting the Share Pins.

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

CAD MAINTAINED. CHANGES SHALL BE INCORPORATED BY THE DESIGN ACTIVITY

NOTES:  
UNLESS OTHERWISE SPECIFIED

- TYPE 1, 6U PLUG-IN UNIT - PRIMARY SIDE RETAINER. 100 INCH PITCH.
- CONNECTOR POSITRONIC PCIM30V15M400A1
- PIN1-12 = 28AMP RATING, PIN13-27 = 3AMP RATING, PIN28,29 AND 30 = 40AMP RATING



UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES FRACTIONS DECIMALS ANG. DEGREES		CONTRACT NO.	
* N/A	xxx x .005	AEGIS POWER SYSTEMS MURPHY, NORTH CAROLINA	
MATERIAL: SEE NOTE 2		APPROVALS	DATE
FINISH: SEE NOTE 3		NVM	06/16/09
DO NOT SCALE DRAWING		PROJ. ENG.	
APPLICATION		WFG	
NEXT ASSY USED DN		SIZE	FSCM NO.
		D	06ES8
		DWG NO.	1PH604-M00
		SCALE	1/1
		REV	A04

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