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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Rating</th>
<th>Unit</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vin max range</td>
<td>95 - 250</td>
<td>Vac</td>
<td>47Hz-63Hz</td>
</tr>
<tr>
<td>Temperature</td>
<td>+85</td>
<td>°C</td>
<td>Refer to Figure 1</td>
</tr>
<tr>
<td>Output Power</td>
<td>375</td>
<td>W</td>
<td>All outputs combined</td>
</tr>
<tr>
<td>Input power</td>
<td>455/450</td>
<td>W</td>
<td>115Vac/220Vac Input</td>
</tr>
<tr>
<td>+5Vdc Output</td>
<td>200</td>
<td>W</td>
<td></td>
</tr>
<tr>
<td>+3.3Vdc Output</td>
<td>150/50</td>
<td>W</td>
<td>Depends on output configuration</td>
</tr>
<tr>
<td>+12Vdc Output</td>
<td>60/125</td>
<td>W</td>
<td>Depends on output configuration</td>
</tr>
<tr>
<td>-12Vdc Output</td>
<td>12</td>
<td>W</td>
<td></td>
</tr>
</tbody>
</table>

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.

1PH604 Spec Sheet
1 of 5
SPECIFICATIONS

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

Input voltage: 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.

Input line 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: 10mSec Typical.

Output voltages: +5Vdc, +3.3Vdc, +12Vdc, -12Vdc. See table 2. See Figure 1 (power derating).

Output ripple: 1% Vout except 3.3Vout is 1.52%. (Vpk-pk 20 MHz BW limit). See table 2.

Current Limit: Short circuit protected with automatic recovery.

Efficiency: 83% /115VAC, 86% /220VAC, Typical at full load.

Start up time: 500 mSec. Max.

Voltage set point: ± 2.5%.

Line regulation: ± 2.5%.

Load regulation: ± 2.5%.

Temperature regulation: ± 0.01% / °C.

Temperature rating: –40°C to +85°C Operating baseplate temperature max. See Figure 1.

Cooling: Conduction through baseplate wedgelocks attached to customer card rack.

Package: Single slot pluggable slide-in card with attached baseplate.

Dimensions: 6U high x 5HP wide (1.0") x 160mm (see mechanical drawing).

Weight: 3.5 lbs. Typical.

Connector: 1ea Positronics PCIM30W15M400A1 or equivalent (see pin assignment page).

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: 1PH604 Voltage Outputs

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Vdc out</th>
<th>Watts out</th>
<th>Amps out</th>
<th>Ripple (20MHz BW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1PH604-001*</td>
<td>+5.0 Vdc</td>
<td>200 W</td>
<td>40 A</td>
<td>50mVp-p</td>
</tr>
<tr>
<td></td>
<td>+3.3 Vdc</td>
<td>150 W</td>
<td>45 A</td>
<td>50mVp-p</td>
</tr>
<tr>
<td></td>
<td>+12 Vdc</td>
<td>60 W</td>
<td>5 A</td>
<td>100mVp-p</td>
</tr>
<tr>
<td></td>
<td>-12 Vdc</td>
<td>12 W</td>
<td>1 A</td>
<td>100mVp-p</td>
</tr>
</tbody>
</table>

* Total combined output is 375W maximum.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Vdc out</th>
<th>Watts out</th>
<th>Amps out</th>
<th>Ripple (20MHz BW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1PH604-002</td>
<td>+5.0 Vdc</td>
<td>200 W</td>
<td>40.0 A</td>
<td>50mVp-p</td>
</tr>
<tr>
<td></td>
<td>+3.3 Vdc</td>
<td>50 W</td>
<td>15.1 A</td>
<td>50mVp-p</td>
</tr>
<tr>
<td></td>
<td>+12 Vdc</td>
<td>125 W</td>
<td>10.4 A</td>
<td>100mVp-p</td>
</tr>
</tbody>
</table>

Figure 1: Power De-rating for Temperature and Input Voltage
Connector Pin Out Assignment

30 Pin Positronic Connector
P/N PCI30W15M400A1 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.