1PH60

AC-DC Power Supply Card

(Document Rev A08, 6/22/17)

Features

- 115/220Vac per MIL-STD-704F and MIL-STD-1399A/B *
- Single Output, 600/650W
- 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></td>
</tr>
<tr>
<td>Temperature</td>
<td>-40 to +85</td>
<td>°C</td>
<td>Refer to Figure 1</td>
</tr>
<tr>
<td>Output Power</td>
<td>650</td>
<td>W</td>
<td>28Vdc Output</td>
</tr>
<tr>
<td>Input power</td>
<td>783</td>
<td>W</td>
<td>115Vac Input</td>
</tr>
<tr>
<td>Max +5Vdc power</td>
<td>400</td>
<td>W</td>
<td>80A</td>
</tr>
<tr>
<td>Max +12Vdc power</td>
<td>600</td>
<td>W</td>
<td>50A</td>
</tr>
<tr>
<td>Max +24Vdc power</td>
<td>600</td>
<td>W</td>
<td>25A</td>
</tr>
<tr>
<td>Max +28Vdc power</td>
<td>650</td>
<td>W</td>
<td>23.2A</td>
</tr>
<tr>
<td>Max +48Vdc power</td>
<td>600</td>
<td>W</td>
<td>12.5A</td>
</tr>
</tbody>
</table>

Product Highlights

This single slot 6U high 5HP wide filtered ac-dc power supply converter card has a single output available from five possible factory configured output selections (+5Vdc, +12Vdc, +24Vdc, +28Vdc, or +48Vdc) with 400W, 600W or 650W available depending on the output voltage. This Military Mil-COTS power supply solution is designed to meet portions of Mil-Std-704F and Mil-Std-1399 input requirements, designed to meet portions of MIL-STD-810F vibration and shock requirements and portions of the MIL-STD-461E EMI requirements. When compared to VME power supplies using conventional technology, this single slot conduction cooled ac-dc power supply converter provides users with higher efficiency (83%), lower weight (3.2 lbs), and higher power (up to 650W).

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.)

Input voltage: 95Vac - 250Vac, 47Hz - 63Hz.
Transient 70Vac to 270Vac, 100mSec.
Designed to meet MIL-STD-704F Normal and Abnormal Range.
Designed to meet MIL-STD-1399A/B Type I 60Hz.

Input line current: 6.35/6.88A @ 115Vac, 3.18/3.44A @ 220Vac.

Input power: 723/783W @ 115Vac, 700/760W @ 220Vac, Typical.

Power Factor: 0.99 Typical @ 47Hz - 63Hz.

Output power: 600/650W Max. See Table 2. See Figure 1 for output power derating.

Holdup Time: 10mSec 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: 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 x 5HP x 160mm (see mechanical drawing on last page).

Weight: 3.2 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: 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>1PH60-001</td>
<td>+28V</td>
<td>650W</td>
<td>23.2A</td>
<td>280mVp-p</td>
</tr>
<tr>
<td>1PH60-002</td>
<td>+48V</td>
<td>600W</td>
<td>12.5A</td>
<td>480mVp-p</td>
</tr>
<tr>
<td>1PH60-003</td>
<td>+12V</td>
<td>600W</td>
<td>50.0A</td>
<td>100mVp-p</td>
</tr>
<tr>
<td>1PH60-004</td>
<td>+5V</td>
<td>400W</td>
<td>80.0A</td>
<td>50mVp-p</td>
</tr>
<tr>
<td>1PH60-005</td>
<td>+24V</td>
<td>600W</td>
<td>25.0A</td>
<td>240mVp-p</td>
</tr>
</tbody>
</table>

Figure 1: 1PH-60 Power De-rating for Temperature and Input Voltage per below graph

![Graph showing de-rating for temperature and input voltage]
## Connector Pin Out Assignment

30 Pin Positronic Connector  
P/N PCIM30W15M400A1 or Equivalent

**Connector J1:**
- **Pin 1**  #1 Return  
- **Pin 2**  #2 Return  
- **Pin 3**  #1 Return  
- **Pin 4**  #2 Return  
- **Pin 5**  #1 Return  
- **Pin 6**  #2 Return  
- **Pin 7**  #1 +Out  
- **Pin 8**  #2 +Out  
- **Pin 9**  #1 +Out  
- **Pin 10**  #2 +Out  
- **Pin 11**  #1 +Out  
- **Pin 12**  #2 +Out  
- **Pin 13**  No Connection  
- **Pin 14**  No Connection  
- **Pin 15**  #1 Pos Sense  
- **Pin 16**  No Connection  
- **Pin 17**  No Connection  
- **Pin 18**  #1 Neg Sense  
- **Pin 19**  No Connection  
- **Pin 20**  No Connection  
- **Pin 21**  Share Pos  
- **Pin 22**  No Connection  
- **Pin 23**  No Connection  
- **Pin 24**  Share Neg  
- **Pin 25**  No Connection  
- **Pin 26**  #2 Neg Sense  
- **Pin 27**  #2 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.