

# EIA301

## Overview

AC-DC Power Supply  
 Single Phase 400Hz 115Vac Input  
 6 DC Outputs, 225W Max Combined Output

## Market(s)

Military, Industrial

## Typical Application(s)

Electronic Equipment Rack



## Product Highlights

This chassis mounted AC-DC power supply has a six DC outputs. It operates on 115Vac/400Hz and provides a minimum 50ms hold-up time per MIL-STD-704F. This COTS solution works well for Mil-cots and is designed to meet portions of MIL-STD-704F input, MIL-STD-1399 input, MIL-STD-810F vibration and shock, and MIL-STD-461E EMI requirements.

## Features

- 115Vac/400Hz input.
- 6 DC Outputs, 225W.
- MIL-STD-704F\* and MIL-Std-1399. \*
- MIL-STD-810F Environmental \*
- MIL-STD-461E EMI \*

\* 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     | 108-118    | Vac  |           |
| Temperature range | -15 to +37 | °C   | Operating |
| Output Power      | 225        | W    |           |
| Input Power       | 300        | W    |           |
| +3.3Vdc output    | 42         | W    |           |
| +5Vdc output      | 110        | W    |           |
| +12Vdc output     | 13         | W    |           |
| -12Vdc output     | 13         | W    |           |
| +15Vdc output     | 23         | W    |           |
| -15Vdc output     | 23         | 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  |
|-------------------------------|--|
| <b>Input Voltage</b>          | Single Phase, 108Vac - 118Vac, 400Hz.  |
| <b>Input Current</b>          | 2.62A @ 115Vac.  |
| <b>Input Power</b>            | 300W @ 115Vac.   |
| <b>Power factor</b>           | 0.90 typical @ 400Hz.  |
| <b>Total Output Power</b>     | 225W Maximum.  |
| <b>Holdup time</b>            | 50mSec. Minimum.   |
| <b>Output Voltages</b>        | See table 2 for details.   |
| <b>Efficiency</b>             | 78% Typical, 75% Minimum.  |
| <b>Output Ripple</b>          | See table 2 for details.   |
| <b>Current Limit</b>          | Short circuit protected with automatic recovery.   |
| <b>Start-Up Time</b>          | 500ms Maximum.   |
| <b>Voltage Set Point</b>      | ± 2.5%.  |
| <b>Line/Load Regulation</b>   | ± 2.5%.  |
| <b>Temperature Regulation</b> | ± 0.02% / °C.  |
| <b>Temperature</b>            | -15°C to +37°C Operating. -55°C to +71°C Non-Operating.  |
| <b>Cooling</b>                | Customer provided forced fan cooling across attached Heatsink (600LFM min).                            |
| <b>Package</b>                | Chassis mounted enclosed metal case.   |
| <b>Dimensions</b>             | 2"H x 6.4"W x 11.5" L (see mechanical drawing).  |
| <b>Weight</b>                 | 6.06 lbs. Typical.   |
| <b>Connector</b>              | 1ea - D38999 / 20WB5PN (Input AC) (see Table 3).<br>1ea - D38999 / 20WF32SN (Output DC) (see Table 4). |
| <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 (CE101, CE102 and CS101).  |

*Specifications subject to change without notice.*

**Table 2: Voltage Output (Nominal)**

| EIA301  | V1         | V2         | V3         | V4         | V5          | V6          |
|---|------------|------------|------------|------------|-------------|-------------|
| <b>Voltage</b>  | +5Vdc      | +3.3Vdc    | +12Vdc     | -12Vdc     | +15Vdc      | -15Vdc      |
| <b>Current</b>  | 22 A       | 12.75A     | 1.1A       | 1.1A       | 1.5A        | 1.5A        |
| <b>Power</b>  | 110W       | 42W        | 13W        | 13W        | 23W         | 23W         |
| <b>Ripple</b>   | 50mVpk-pk* | 50mVpk-pk* | 50mVpk-pk* | 50mVpk-pk* | 150mVpk-pk* | 150mVpk-pk* |
| Maximum total output power is 225W (all DC outputs combined). |            |            |            |            |             |             |

\* 20MHz Bandwidth Limited.

**Table 3: EIA301- Input Connector Specifications**

**AC Input Connector J1 (D38999 / 20WB5PN - SHELL SIZE 11 (B))**

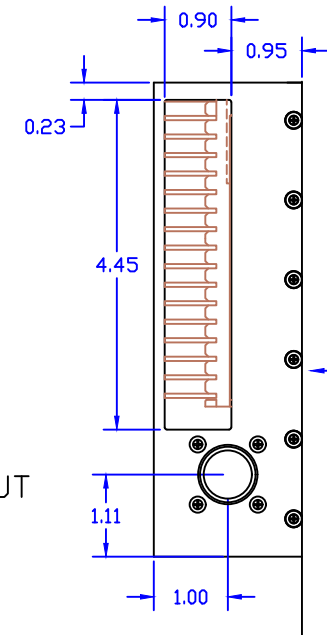
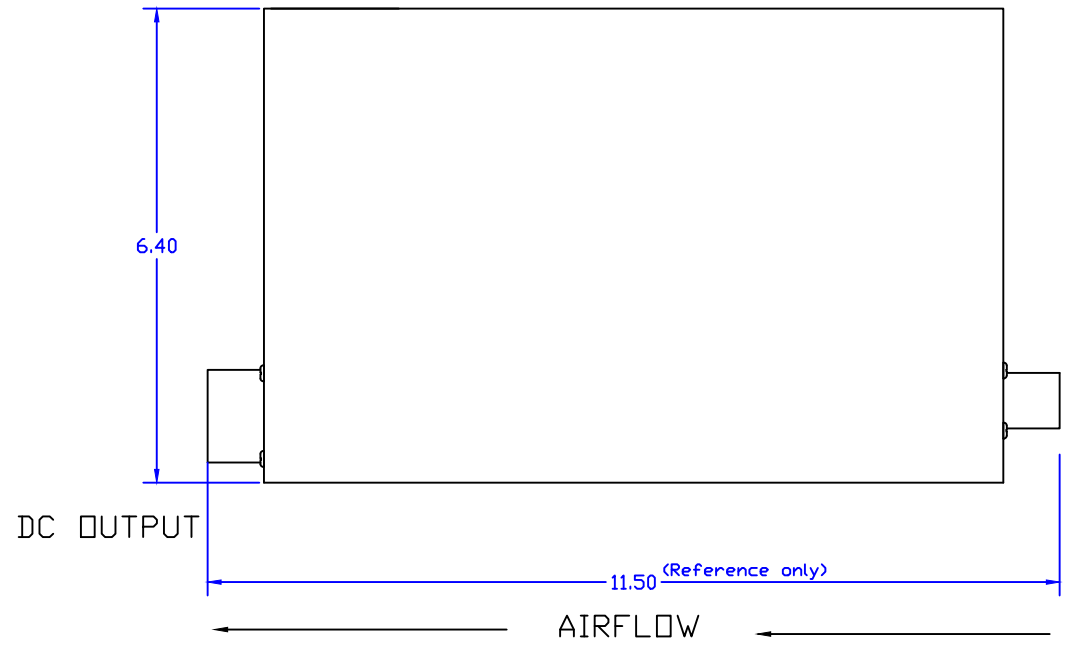
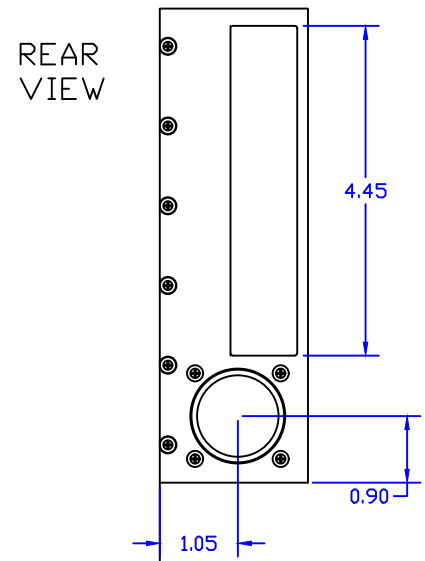
| Contact Designation | Conductor Circuit |
|---------------------|-------------------|
| 1 & 2               | AC Line           |
| 3 & 4               | AC Neutral        |
| 5                   | Chassis Ground    |

**Table 4: EIA301- Output Connector Specifications**

**DC Output Connector J2 (D38999 / 20WF32SN - SHELL SIZE 19 (F))**

| Connection    | Circuit              |
|---------------|----------------------|
| A, B, C, D, E | +5V OUT              |
| F, G, H, J, K | +5V RETURN           |
| L, M, N       | +3.3V OUT            |
| P, R, S       | +3.3V RETURN         |
| T             | +12V OUT             |
| U             | +12V RETURN          |
| V             | -12V OUT             |
| W             | -12V RETURN          |
| X             | +15V OUT             |
| Y             | +15V RETURN          |
| Z             | -15V OUT             |
| a             | -15V RETURN          |
| b             | POWER OK (COLLECTOR) |
| c             | CHASSIS GND          |
| d             | +5V SENSE+           |
| e             | +5V SENSE-           |
| f             | +3.3V SENSE+         |
| g             | +3.3V SENSE-         |
| h             | POWER OK (EMITTER)   |
| j             | UNUSED               |

| REVISONS |                                 | DATE     | APPROVED |
|----------|---------------------------------|----------|----------|
| A01      | INITIAL RELEASE                 | 02/05/14 | MVS      |
| A02      | UPDATE TO INITIAL RELEASE       | 02/06/14 | MVS      |
| A03      | CHANGED TO VICOR BRICKS         | 02/07/14 | MVS      |
| A04      | REDUCED HEIGHT                  | 02/24/14 | MVS      |
| A05      | ADDED CONNECTOR & MOUNTING INFO | 03/10/14 | MVS      |
| A06      | ADDED PIN-OUT & HELI-COIL INFO  | 03/18/14 | MVS      |
| A07      | UPDATED POST PDR                | 03/28/14 | MVS      |
| A08      | UPDATED TO PRTO LEVEL           | 04/15/14 | MVS      |
| A09      | ADDED DIMENSIONAL TOLERANCES    | 06/03/14 | MVS      |
| A10      | ADDED REFERENCE NOTE            | 06/03/14 | MVS      |
| A11      | UPDATED MOUNTING DIMENSIONS     | 06/04/14 | MVS      |
| A12      | UPDATED WIRING                  | 12/03/15 | RP       |



FRONT VIEW

CHASSIS WALL

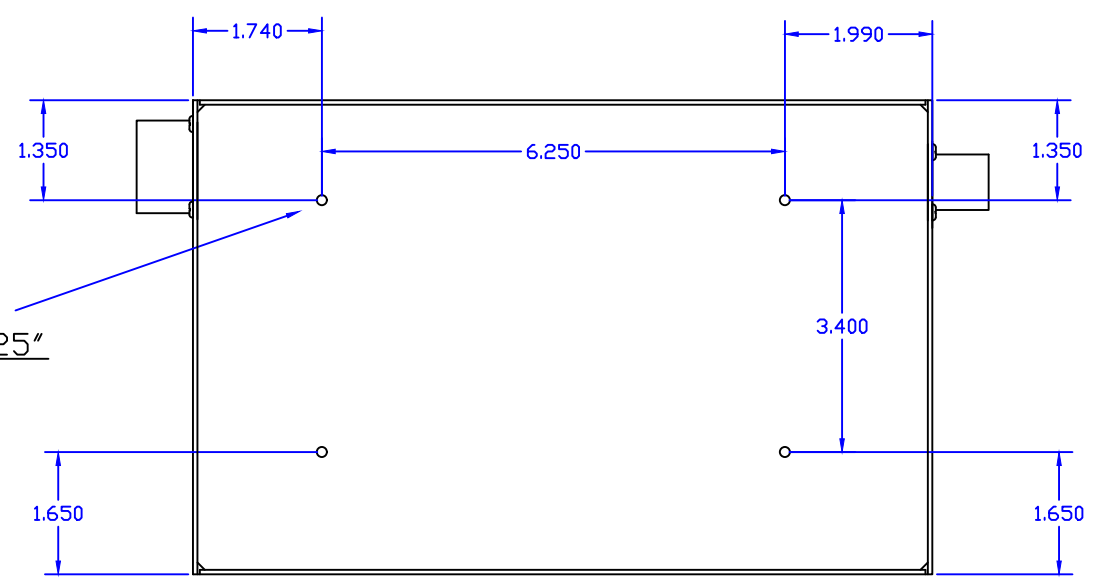
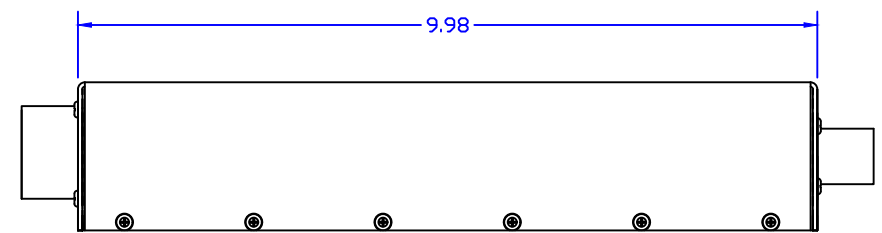
INPUT AC CONNECTOR (J1)

- D38999 / 20WB5PN
- SHELL SIZE 11 (B)
- (5x) #20 CONTACTS (PINS)
- 7.5A MAX PER PIN USING 20AWG WIRE
- E1,E38- PIN A&B - AC LINE
- E2,E39- PIN C&D - AC NEUTRAL
- E37- PIN E - CHASSIS GROUND

OUTPUT DC CONNECTOR (J2)

- D38999 / 20WF32SN
- SHELL SIZE 19 (F)
- (32x) #20 CONTACTS (SOCKETS)
- 7.5A MAX PER PIN USING 20AWG WIRE

- E5,6,7,8,9- PINS A,B,C,D,E +5V OUT
- E10,11,12,13,14- PINS F,G,H,J,K +5V RETURN
- E15,16,17- PINS L,M,N +3.3V OUT
- E18,19,20- PINS P,R,S +3.3V RETURN
- E23- PIN T +12V OUT
- E24- PIN U +12V RETURN
- E28- PIN V -12V OUT
- E27- PIN W -12V RETURN
- E21- PIN X +15V OUT
- E22- PIN Y +15V RETURN
- E26- PIN Z -15V OUT
- E25- PIN a -15V RETURN
- E35- PIN b POWER OK (COLLECTOR)
- E36- PIN c CHASSIS GND
- E29- PIN d +5V SENSE+
- E30- PIN e +5V SENSE-
- E31- PIN f +3.3V SENSE+
- E32- PIN g +3.3V SENSE-
- E44- PIN h POWER OK RTN(EMITTER)
- N/C- PIN j UNUSED



BOTTOM VIEW - MOUNTING SURFACE

(4X) 8-32 MOUNTING HOLES  
 MAXIMUM LENGTH SCREWS = .25"  
 Locking Heli-coil insert  
 (3585-2CN164 insert)

UNLESS OTHERWISE SPECIFIED  
 TOLERANCES ARE:  
 2 PLACE DECIMAL : +/- .01  
 3 PLACE DECIMAL : +/- .005  
 DIMENSIONS ARE IN INCHES  
 AND INCLUDE APPLIED FINISH

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

|   |          |   |                |
|---|----------|---|----------------|
| AEGIS POWER SYSTEMS, INC. PROPRIETARY INFORMATION. NO DISCLOSURE, REPRODUCTION, OR USE OF ANY PART HEREOF MAY BE MADE EXCEPT BY EXPRESS WRITTEN PERMISSION OF AEGIS POWER SYSTEMS, INC. |          |   |                |
| CONTRACT NO.  |          | AEGIS POWER SYSTEMS<br>MURPHY, NORTH CAROLINA |                |
| APPROVALS   | DATE     | TITLE   |                |
| DRAWN MVS   | 02/05/14 | EIA301 MECHANICAL OUTLINE                     |                |
| CHECKED   |          | AEGIS P/N: EIA301                             |                |
| PROJ. ENG.  |          | SIZE D  | FSCM NO. 06ES8 |
| MFG.  |          | DWG NO. EIA301-M00                            | REV A12        |
| QUALITY   |          | SCALE 1/1                                     | SHEET 1 OF 1   |