NRA202

AC-DC Power Supply

(Document Rev A04 11/01/2015)

Market: Military Cots

Application: Shipboard Radar Electronic Equipment Rack

Features

- 3 Phase "Y" 120/208Vac input.
- Triple Outputs @ 4500W total.
- Designed to meet portions of Mil-Std-810F environmental specs.*
- Designed to meet portions of Mil-Std-461F EMI specifications.*

* Contact AEGIS Power Systems for specific 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</td>
<td>120/208</td>
<td>Vac</td>
<td>3 Phase &quot;Y&quot; Input</td>
</tr>
<tr>
<td>Temperature range</td>
<td>–20 to +70</td>
<td>°C</td>
<td>Operating Range</td>
</tr>
<tr>
<td>Output power</td>
<td>4500</td>
<td>W</td>
<td></td>
</tr>
<tr>
<td>Input power</td>
<td>5625</td>
<td>W</td>
<td></td>
</tr>
<tr>
<td>+28Vdc output (V1)</td>
<td>2700</td>
<td>W</td>
<td></td>
</tr>
<tr>
<td>+28Vdc output (V2)</td>
<td>900</td>
<td>W</td>
<td></td>
</tr>
<tr>
<td>+28Vdc output (V3)</td>
<td>900</td>
<td>W</td>
<td></td>
</tr>
</tbody>
</table>

Product Highlights

This ruggedized military commercial off the shelf (Mil-Cots) ac-dc filtered 3 phase "Y" 120/208Vac input power supply has three +28Vdc outputs available with a total output capacity of 4500W. This COTS solution works well for Mil-cots and is designed to meet portions of MIL-STD-810F vibration and shock, and designed to meet portions of MIL-STD-461F EMI requirements. In comparison to other power supplies using conventional technology, this package provides its users with higher efficiency (80% typical), higher power factor (0.99), less weight and higher power output. This power supply incorporates a configured array of AEGIS Power System's cutting edge proprietary high reliability and high density 1PH60 power assemblies, leading the Mil-COTS industry in power density and technical performance.

AEGIS Power Systems, Inc. specializes in the front end design, development, and manufacture of Rapid Response Custom Switching Power Supplies for defense, industry, telecomm, aircraft, shipboard, rack mount, electric powered vehicle, and Mil-Cots military power supply applications. Contact Aegis for specific details on what can be designed for your particular military power supply application and what portions of a particular military standard can be offered for that power supply.
### SPECIFICATIONS

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

**Input voltage:** Three Phase "Y", 120/208Vac, 47Hz - 63Hz.

**Input current:** 5.45A @ per phase @ 120/208Vac, Nominal.

**Input power:** 5625W (5682VA) Nominal, all three phases combined.

**Power factor:** 0.99 typical.

**Output power:** 4500W Maximum all outputs combined.

**Output voltages:** See table 2 for details.

**Over voltage:** 117% typical. Recycle input power to reset.

**Efficiency:** 80% Nominal.

**Output ripple:** See table 2 for details.

**Current Limit:** Short circuit protected with automatic recovery.

**Start up time:** 700 msec. Maximum (After being enabled).

**Voltage set point:** ± 2.5%.

**Line regulation:** ± 2.5%.

**Load regulation:** ± 2.5%.

**Temperature regulation:** ± 0.02% / °C.

**Temperature:** –20°C to +70°C Operating. -55°C to +100°C Non-Operating.

**Cooling:** Conduction through cold plate

**Package:** Chassis mounted enclosed metal case.

**Dimensions:** 8.5" H x 9.75" W x 14.75" L (see mechanical drawing).

**Weight:** 38 lbs. Typical.

**Connector:**
   - AC Input Connector: ITT Cannon; PN CA3102R24-22PF80.
   - DC Output Connector: Nextek; PN HPR1754705Z10.

**Vibration:** Designed to meet MIL-STD-810F, Method 514.5, Procedure I.

4-15 Hz @ 0.030"; 16-25 Hz @ 0.020"; 26-33Hz @ 0.010".

**Shock:** Designed to meet MIL-STD-810F, Method 516.5, Procedure I.

40G, 11mSec half sine pulse.

**Humidity:** 0 – 95% non-condensing.

**EMI:** Designed to meet MIL-STD-461F (CE101, CE102 and CS101).

**Status:** DC OK Signal, Opto Isolated, Opto on = DC OK.

**Enable:** Apply power to enable outputs, Opto Isolated.

Specifications subject to change without notice.
Table 2: Voltage Outputs

<table>
<thead>
<tr>
<th>AG123-001</th>
<th>V1</th>
<th>V2</th>
<th>V3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>+28Vdc</td>
<td>+28Vdc</td>
<td>+28Vdc</td>
</tr>
<tr>
<td>Current</td>
<td>96.4A</td>
<td>32A</td>
<td>32A</td>
</tr>
<tr>
<td>Power</td>
<td>2700W</td>
<td>900W</td>
<td>900W</td>
</tr>
<tr>
<td>Ripple</td>
<td>150mVpk-pk</td>
<td>150mVpk-pk</td>
<td>150mVpk-pk</td>
</tr>
</tbody>
</table>

Maximum total output power is 4500W (all DC outputs combined).

Table 3: Input Connector Pin-Out Assignment

<table>
<thead>
<tr>
<th>Pin A</th>
<th>Pin B</th>
<th>Pin C</th>
<th>Pin D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase A input power</td>
<td>Phase B input power</td>
<td>Phase C input power</td>
<td>Power Ground</td>
</tr>
</tbody>
</table>

Table 4: Status/Enable Connector Pin-Out Assignment

<table>
<thead>
<tr>
<th>Pin</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>+Sense Output 1</td>
</tr>
<tr>
<td>2</td>
<td>- Sense Output 1</td>
</tr>
<tr>
<td>3</td>
<td>+Sense Output 2</td>
</tr>
<tr>
<td>4</td>
<td>- Sense Output 2</td>
</tr>
<tr>
<td>5</td>
<td>+Sense Output 3</td>
</tr>
<tr>
<td>6</td>
<td>- Sense Output 3</td>
</tr>
<tr>
<td>7</td>
<td>Enable Output 1 Anode</td>
</tr>
<tr>
<td>8</td>
<td>Enable Output 1 Cathode</td>
</tr>
<tr>
<td>9</td>
<td>Enable Output 2 Anode</td>
</tr>
<tr>
<td>10</td>
<td>Enable Output 2 Cathode</td>
</tr>
<tr>
<td>11</td>
<td>Enable Output 3 Anode</td>
</tr>
<tr>
<td>12</td>
<td>Enable Output 3 Cathode</td>
</tr>
<tr>
<td>13</td>
<td>Status Output 1 Collector</td>
</tr>
<tr>
<td>14</td>
<td>Status Output 1 Emitter</td>
</tr>
<tr>
<td>15</td>
<td>Status Output 2 Collector</td>
</tr>
<tr>
<td>16</td>
<td>Status Output 2 Emitter</td>
</tr>
<tr>
<td>17</td>
<td>Status Output 3 Collector</td>
</tr>
<tr>
<td>18</td>
<td>Status Output 3 Emitter</td>
</tr>
<tr>
<td>19</td>
<td>No Connection</td>
</tr>
</tbody>
</table>
AEGIS POWER SYSTEMS, INC.

MECHANICAL OUTLINE

AEGIS P/N: NRA202

MURPHY, NORTH CAROLINA

THREE PHASE 4500W

AEGIS POWER SYSTEMS

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NOTES:

1. MATERIALS, DIMENSIONS, AND TOLERANCES PER DRAWING.

2. SHEET MATERIAL: ALUMINUM ALLOY.

3. FINISH: CHEMICAL FILM PER MIL-DTL-5541F, CLASS 3, TYPE II, COLOR CLEAR.

4. ADDED BLOCKS FOR SIDE STABILITY.

5. ADDED BLOCKS AROUND BASE.

6. HANDLE MFR. BUD INDUSTRIES.

7. HANDLE PN:H-9112-B.

8. BASE PLATE WITH PEM HARDWARE.

CAUTION:

SENSITIVE ELECTRONIC DEVICES

SEE NOTE 2

SEE NOTE 3

A9 CLEARANCE HOLES ON FRONTAGE ARE BEING REPLACED WITH CAPS;
Screws.

1. Hole locations do not change.

2. Partial relief to captive hardware.

3. Captive hardware installed.

4. Partial relief to threaded FOB board.

5. Customer replaces screws from bent with auxiliary bushing and source.

CAUTION:

TRAVERSE ELECTRONIC DEVICES


2. MATERIAL: ALUMINUM ALLOY.

3. FINISH: CHEMICAL FILM PER MIL-DTL-5541F, CLASS 3, TYPE II, COLOR CLEAR.

4. OUTPUT STUDS (NEXTEK, INC. PN:HPR17547105Z10)

5. STATUS/ENABLE SIGNAL CONNECTOR LEMO PN:EGS.2M.319.XLM.

6. INPUT POWER CONNECTOR (ITT CANNON PN:CA3102R24-22PF80)

1. +SENSE-OUTPUT 1

2. -SENSE-OUTPUT 1

3. +SENSE-OUTPUT 2

4. -SENSE-OUTPUT 2

5. +SENSE-OUTPUT 3

6. -SENSE-OUTPUT 3

7. ENABLE-OUTPUT

8. ENABLE-OUTPUT 1 - CATHODE

9. ENABLE-OUTPUT 2 - ANODE

10. ENABLE-OUTPUT 2 - CATHODE

11. ENABLE-OUTPUT 3 - ANODE

12. ENABLE-OUTPUT 3 - CATHODE

13. STATUS-OUTPUT 1 - COLLECTOR

14. STATUS-OUTPUT 1 - EMITTER

15. STATUS-OUTPUT 2 - COLLECTOR

16. STATUS-OUTPUT 2 - EMITTER

17. STATUS-OUTPUT 3 - COLLECTOR

18. STATUS-OUTPUT 3 - EMITTER

19. NO CONNECTION

MATERIAL:

ALUMINUM ALLOY.

FINISH:

CHEMICAL FILM PER MIL-DTL-5541F, CLASS 3, TYPE II, COLOR CLEAR.

DIMENSIONS:

UNLESS OTHERWISE SPECIFIED, DEGREES ±.5.

NOTES:

1. PHASE A

2. PHASE B

3. PHASE C

4. CHASSIS GND (TIED TO BASE)

5. INPUT POWER CONNECTOR (ITT CANNON PN:CA3102R24-22PF80)

1. +SENSE-OUTPUT 1

2. -SENSE-OUTPUT 1

3. +SENSE-OUTPUT 2

4. -SENSE-OUTPUT 2

5. +SENSE-OUTPUT 3

6. -SENSE-OUTPUT 3

7. ENABLE-OUTPUT

8. ENABLE-OUTPUT 1 - CATHODE

9. ENABLE-OUTPUT 2 - ANODE

10. ENABLE-OUTPUT 2 - CATHODE

11. ENABLE-OUTPUT 3 - ANODE

12. ENABLE-OUTPUT 3 - CATHODE

13. STATUS-OUTPUT 1 - COLLECTOR

14. STATUS-OUTPUT 1 - EMITTER

15. STATUS-OUTPUT 2 - COLLECTOR

16. STATUS-OUTPUT 2 - EMITTER

17. STATUS-OUTPUT 3 - COLLECTOR

18. STATUS-OUTPUT 3 - EMITTER

19. NO CONNECTION

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

AEGIS POWER SYSTEMS, INC.

MURPHY, NORTH CAROLINA

AEGIS P/N: NRA202

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NOTES:

1. PHASE A

2. PHASE B

3. PHASE C

4. CHASSIS GND (TIED TO BASE)

5. INPUT POWER CONNECTOR (ITT CANNON PN:CA3102R24-22PF80)

1. +SENSE-OUTPUT 1

2. -SENSE-OUTPUT 1

3. +SENSE-OUTPUT 2

4. -SENSE-OUTPUT 2

5. +SENSE-OUTPUT 3

6. -SENSE-OUTPUT 3

7. ENABLE-OUTPUT

8. ENABLE-OUTPUT 1 - CATHODE

9. ENABLE-OUTPUT 2 - ANODE

10. ENABLE-OUTPUT 2 - CATHODE

11. ENABLE-OUTPUT 3 - ANODE

12. ENABLE-OUTPUT 3 - CATHODE

13. STATUS-OUTPUT 1 - COLLECTOR

14. STATUS-OUTPUT 1 - EMITTER

15. STATUS-OUTPUT 2 - COLLECTOR

16. STATUS-OUTPUT 2 - EMITTER

17. STATUS-OUTPUT 3 - COLLECTOR

18. STATUS-OUTPUT 3 - EMITTER

19. NO CONNECTION

MATERIAL:

ALUMINUM ALLOY.

FINISH:

CHEMICAL FILM PER MIL-DTL-5541F, CLASS 3, TYPE II, COLOR CLEAR.

DIMENSIONS:

UNLESS OTHERWISE SPECIFIED, DEGREES ±.5.