

NRA301

AC-DC Power Supply

(Document Rev A08 (6/14/18))



3 Phase Delta 60Hz 208Vac Line to Line Input Triple Output, 4505W Max Total

Market: Military Cots

Application: Shipboard Radar Electronic Equipment Rack

Features

- 3 Phase 208Vac Line to Line input.
- Designed to meet MIL-STD-1399B for Type I, 60Hz Power.
- Triple Outputs @ 4505W total.
- Designed to meet portions of Mil-Std-810F environmental specs.*
- Designed to meet portions of Mil-Std-461F EMI specifications.*

Table 1: Maximum Ratings

Parameter	Rating	Unit	Notes
Vin	208	Vac	3 Phase
Temperature range	-20 to +70	°C	Operating Range
Output power	4505	W	
Input power	5625	W	
+29Vdc output (V1)	2700	W	
+28Vdc output (V2)	900	W	
+28Vdc output (V3)	900	W	
+5Vdc output	5	W	

* Contact AEGIS Power Systems for specific details.

Product Highlights

This ruggedized military commercial off the shelf (Mil-Cots) ac-dc filtered 3 phase 208Vac input power supply has one +29Vdc output, two +28Vdc outputs, and one +5Vdc output with a total output capacity of 4505W. 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 208Vac Line to Line, 47Hz - 63Hz.
Input current:	5.46A per phase @ 208Vac, Nominal.
Input power:	5627W (5684VA) Nominal, all three phases combined.
Power factor:	0.99 typical.
Output power:	4505W Maximum all outputs combined.
Output voltages:	+29vdc (V1) 2700W +28vdc (V2) 900W +28vdc (V3) 900W +5vdc 5W
Over voltage:	117% typical. Recycle input power to reset.
Efficiency:	80% Nominal.
Output ripple:	300mVp-p Typical, 20MHz BW
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. -40°C to +100°C Non-Operating.
Cooling:	Conduction through cold plate
Package:	Chassis mounted enclosed metal case.
Dimensions:	11.3" 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 Connectors: See mechanical drawing.
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.

Table 2: Voltage Outputs

See mechanical drawing.

Table 3: Input Connector Pin-Out Assignment

Pin A	Phase A input power
Pin B	Phase B input power
Pin C	Phase C input power
Pin D	Power Ground

Table 4: Status/Enable Connector Pin-Out Assignment

1	+5Vdc, 2Amp, Output
2	+5Vdc, 2Amp, Return
3	+5Vdc, 2Amp, Output
4	+5Vdc, 2Amp, Return
5	Spare
6	Spare
7	Enable Output 1 Anode
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

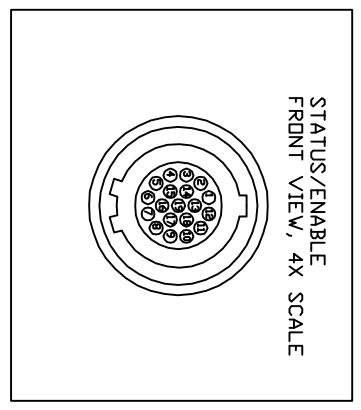
NOTES:
 1. UNLESS OTHERWISE SPECIFIED
 2. MATERIAL ALUMINUM ALLOY
 3. FINISH CHEMICAL FILM PER MIL-DTL-5541F, CLASS 3, TYPE II, COLOR CLEAR
 4. INPUT POWER CONNECTOR (ITT CANNON PNC63102R24-22PFB0)
 1 - PHASE A
 2 - PHASE B
 3 - PHASE C
 4 - CHASSIS GND (TIED TO BASE)
 5. STATUS/ENABLE - SIGNAL CONNECTOR LEMO PNEG2M319XLM)

DISTRIBUTION CONNECTOR LOCATION

CHAMFERED EDGES

- 1 - +5V, 2amp, OUTPUT
- 2 - +5V, 2amp, RETURN
- 3 - +5V, 2amp, OUTPUT
- 4 - +5V, 2amp, RETURN
- 5 - SPARE
- 6 - SPARE
- 7 - ENABLE-OUTPUT 1 - ANODE, +5V TO CATHODE = ENABLE
- 8 - ENABLE-OUTPUT 1 - CATHODE, +5V TO CATHODE = ENABLE
- 9 - ENABLE-OUTPUT 2 - CATHODE, +5V TO CATHODE = ENABLE
- 10 - ENABLE-OUTPUT 2 - ANODE, +5V TO CATHODE = ENABLE
- 11 - ENABLE-OUTPUT 3 - CATHODE, +5V TO CATHODE = ENABLE
- 12 - ENABLE-OUTPUT 3 - ANODE, +5V TO CATHODE = ENABLE
- 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

ADDED BLOCKS FOR SIDE STABILITY, 4X



MPM1-4 POWER DUT D38999/24WD18SN

LETTER CONNECTION	
A	#1 +29VDC
B	#1 +29VDC
C	#1 +29VDC
D	#1 +29VDC
E	#1 +29VDC
F	#1 +29VDC
G	#1 +29VDC
H	#1 +29VDC
J	#1 +29VDC
K	#1 +29VDC
L	#1 +29VDC
M	#1 +29VDC
N	#1 +29VDC
P	#1 +29VDC
R	#1 +29VDC
S	#1 +29VDC
T	#1 +29VDC
V	#1 +29VDC
W	#1 +29VDC
X	#1 +29VDC
Y	#1 +29VDC
Z	#1 +29VDC

VXS POWER DUT D38999/24WE6SN

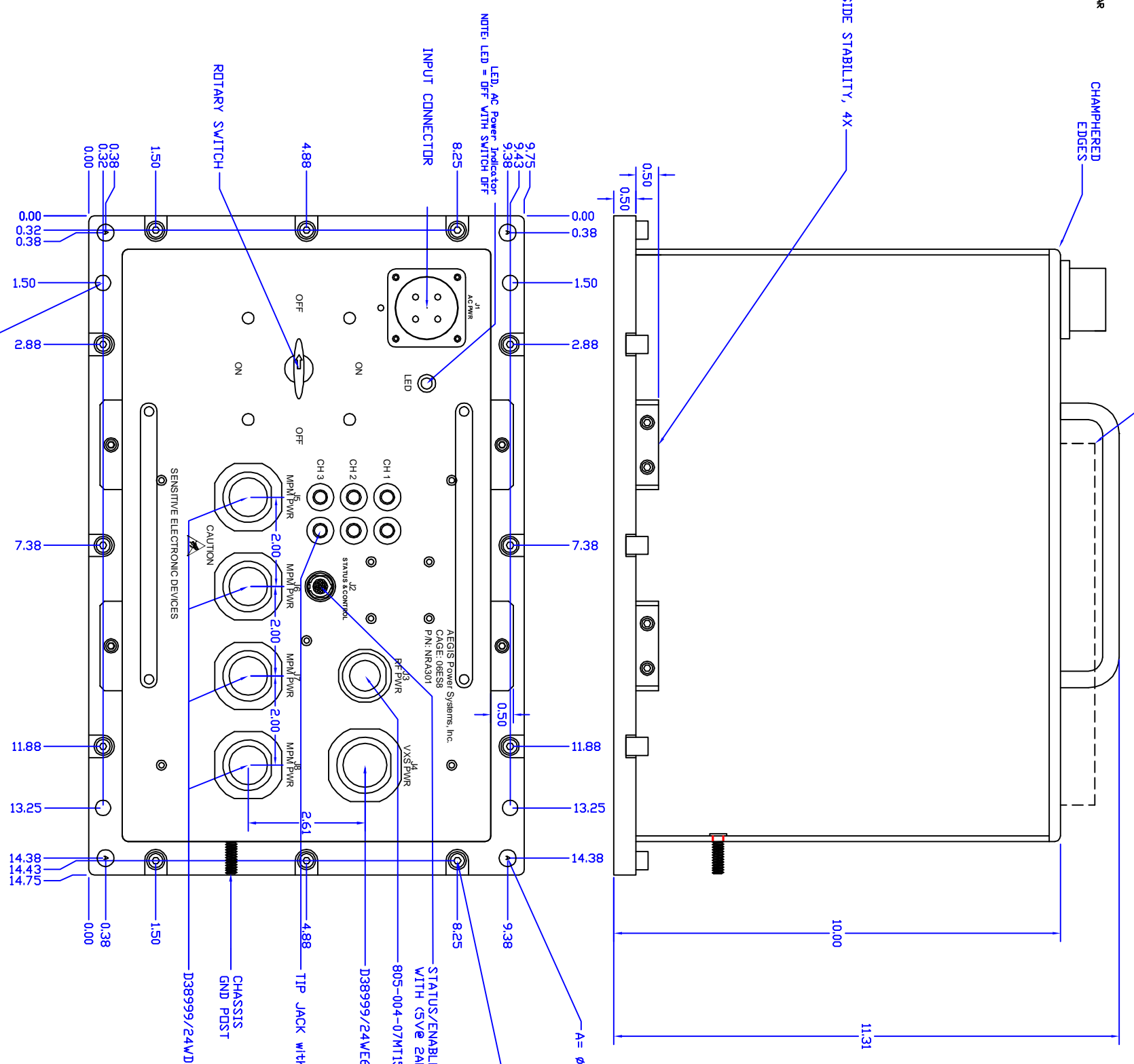
LETTER CONNECTION	
A	#2 +28VDC
B	#2 +28VDC
C	#2 +28VDC
D	#2 +28VDC
E	#2 +28VDC
F	#2 +28VDC

RF POWER DUT 805-004-07MT15-3SA

NUMBER CONNECTION	
1	#3 +28VDC
2	#3 +28VDC
3	#3 +28VDC

TP1-TP6 OUTPUT MONITOR

CONNECTION	TERMINATION
#1 +29VDC	TP1
#1 +29VDC	TP2
#2 +28VDC	TP3
#2 +28VDC	TP4
#3 +28VDC	TP5
#3 +28VDC	TP6



NOTE: LED = OFF WITH SWITCH OFF

INPUT CONNECTOR

ROTARY SWITCH

SENSITIVE ELECTRONIC DEVICES

CHASSIS GND POST

TIP JACK with Series Resistor (TBD Value), 6X.

D38999/24WD18SN

D38999/24WE6SN

INSTALL F-0420-5 PEM, INSERT THIS SIDE
 TAKE CARE NOT TO BULGE EDGE BY
 PLACING FLAT OF INSERT PARALLEL TO EDGE
 HOLE DIA 0.344 -0.000 + 0.003, DD NOT DEBURR
 CTBR 0.312 DIA X 0.020 DEEP, 4X

ZONE	REV	DESCRIPTION	DATE	APPROVED
A01		INITIAL RELEASE		
B01		JACK SCREWS ADD, BREAKERS REMOVE	2/6/14	NVM
B02		ROUND CORNERS, LEDS, TIP JACK	2/20/14	NVM
B03		D4 and 5, connector location	2/26/14	NVM
B04		REMOVED 5V CONNECTOR	2/27/14	NVM
		PUT 5V ON LEMO		
		SWAPPED 24E6SN WITH 805-004-07MT15		
B05		ADDED MPM, RF, VXS AND TP PINDUTS	4/7/14	TLD
		ADDED ROTARY SWITCH		
		ADDED CHASSIS LUG		
B06		CHANGED SILKSCREEN	11/10/14	TLD
B07		ADDED SECOND ON OFF TO SILKSCREEN	2/12/15	TLD
B08		CHANGED OUTPUT 1 TO 29VDC	8/20/15	TLD
B09		Holes marked A change to .382 +.003/9/13/16		TLD

CAD MAINTAINED. CHANGES SHALL BE INCORPORATED BY THE DESIGN ACTIVITY

B = FCC2P-032-94 PER DRAWING DN 6/17/13, 12X REMOVE PHILLIPS HEAD AND REPLACE WITH ALLEN CAP PER DRAWING 574594-592 REV -

STATUS/ENABLE - SIGNAL CONNECTOR LEMO PNEG2M319XLM WITH (5V 2AMP STANDBY)

805-004-07MT15-3SA

D38999/24WE6SN

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AEGIS POWER SYSTEMS
 MURPHY, NORTH CAROLINA

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES FRACTIONS DECIMALS AND DEGREES	* N/A	XX * .02	* 5
APPROVALS	DATE	TITLE	
DESIGNED	12/17/13	THREE PHASE 4500W MECHANICAL OUTLINE	
DRAWN		AEGIS P/N: NRA301	
CHECKED			
REVISIONS			
REV	DATE	DESCRIPTION	
D	06ES8		
B09			

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