

ER8031A

AC-DC Power Supply

(Document Rev A05 09/17/15)



**Single Phase 60Hz 115/220Vac Primary Input
+24Vdc Secondary Input (Backup Battery)
Dual Output, +28Vdc and 115Vac, 335W Max Total**

Market:
Military (Mil-COTS), Industrial

Application:
Military Perimeter Infrared Security Camera

Features

- Chassis mount
- Dual Output
- Battery backup capability
- AC low indicator
- Battery loss indicator
- Mil-Std-461F EMI *

* Designed to meet portions of this particular standard. Contact AEGIS Power Systems for specific details.

Table 1: Maximum Ratings

Parameter	Rating	Unit	Notes
Vin max range (primary)	95 to 250	Vac	
Vin max range (secondary)	24-28	Vdc	Nominal Range
Temperature Range	-40 to +85	°C	
Output Power	480	W	combined outputs for 10 minutes.
+28Vdc output	190	W	Continuous
	305	W	10 Minutes
115Vac output	145	W	Continuous
	175	W	10 Minutes

Product Highlights

The ER8031A is a dual input power supply where the input can be Primary Sourced from 115/220Vac or from a Secondary Backup 24Vdc battery (battery supplied by customer). This chassis mount, convection cooled power supply comes in an enclosed, environmentally sealed aluminum case and is designed to meet portions of MIL-STD-461 CE102 and CS101 for EMI. The on/off switch activates the unit through an internal relay contact closure.

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, telecom, aircraft, shipboard, rack mount, and electric powered vehicle applications. Contact Aegis for specific details on what portions of a particular military standard is offered for this and other military power supplies and power converters.

SPECIFICATIONS

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

Input voltage:	Primary Power: 60Hz 115/220Vac (47Hz - 63Hz) (90Vac – 242Vac). Secondary Power: 24Vdc, 40Amp/Hr, Customer External Batteries. 2 Each customer supplied Power Sonic PS-12400 batteries. 8 hour recharge time. Operation Time: 3 hour with 190 Watt 28Vdc Load. 3 hour with 145 Watt 117Vac load.									
Input power:	723/783W @ 115Vac, 700/760W @ 220Vac, typical.									
Input current:										
	<table border="1"><thead><tr><th>Input Power</th><th>115Vac</th><th>220Vac</th></tr></thead><tbody><tr><td>10 min.</td><td>578W / 5A / 83% efficiency</td><td>558W / 2.54A / 86% efficiency</td></tr><tr><td>continuous</td><td>404W / 3.5A / 83% efficiency</td><td>390W / 1.77A / 86% efficiency</td></tr></tbody></table>	Input Power	115Vac	220Vac	10 min.	578W / 5A / 83% efficiency	558W / 2.54A / 86% efficiency	continuous	404W / 3.5A / 83% efficiency	390W / 1.77A / 86% efficiency
Input Power	115Vac	220Vac								
10 min.	578W / 5A / 83% efficiency	558W / 2.54A / 86% efficiency								
continuous	404W / 3.5A / 83% efficiency	390W / 1.77A / 86% efficiency								
Power factor:	0.99 typical 47Hz - 63Hz.									
Holdup time:	Contact Aegis.									
Efficiency:	83% /115Vac, 86% / 220Vac typical at full load.									
Output #1:	28Vdc, 305 Watt maximum for 10 minutes, 190 Watt continuous.									
Ripple voltage p-p	560 mv, (at Max load).									
Load Regulation	±1V, (low load to high load, Nominal Input).									
Line Regulation	±1V, (low line to high line, at Max load).									
OVP Set Point	115% min., 125% typical, 135% max.									
Current limit	105% min., 125% max.									
Short Ckt Current	130% max.									
Output #2:	115Vac, 60Hz, 175 Watt max for 10 minutes, 145 Watt continuous.									
Distortion	2% Max.									
Load Regulation	± 7V.									
Line Regulation	± 7V.									
Frequency	±1.0 %.									
Battery Recharge:	Charges during AC input operation only. Charge voltage @ -30°C = 28.6Vdc. Charge voltage @ +25°C = 27.2Vdc. Charge voltage @ +50°C = 26.6Vdc. Max charge current = 6.7 Amps.									
Temperature regulation:	± 0.01% / °C.									
Temperature:	-32°C to +49°C Operating; -33°C to +85°C Storage.									
Cooling:	External cooling fans across power supply heatsink fins.									
Package:	Enclosed Aluminum Case, Tinted chemical film per MIL-C-5541, Class 3.									
Dimensions:	15.918" W x 4.28" H x 12.33" L.									

(Continued next page)

Input Connectors:	Military Circular
AC	MS3122E12-3P, (mates with MS3126E12-3S).
Battery	MS3122E16-8P, (mates with MS3126E16-8S).
Output Connectors:	Military Circular
28VDC	MS3122E16-8S, (mates with MS3126E16-8P).
117VAC	MS3122E12-3S, (mates with MS3126E12-3P).
Weight:	26 lbs. max.
On/Off Switch:	Relay contact closure AC line. Relay contact closure BAT Input.
AC Loss:	Open collector, AC OK = Q Off; AC Loss = Q On.
Batt Low:	Open collector, BATT OK = Q Off; BATT LOW = Q On.
Calculated MTBF:	174,000hr / 20yr, calculated per MIL-HDBK-217F, for fixed ground equipment.
EMI:	Designed to meet MIL-STD-461D/E (CE102 and CS101).

Specifications subject to change without notice.

Connector Pin Out Assignment

ER8031A Connectors and Pin Assignments

(P1), AC Input Connector MS3124E12-3P

Contact Assigned	Contact Designation	Contact Size (AWG)
Line 1 (Hot)	A	16
Line 2 (Neut)	B	16
Line 3 (Gnd)	C	16

(J1), AC Output Connector MS3124E12-3S

Contact Assigned	Contact Designation	Contact Size (AWG)
Line 1 (Hot)	A	16
Line 2 (Neut)	B	16
Line 3 (Gnd)	C	16

(P2), Battery Connector MS3124E16-8P

Contact Assigned	Contact Designation	Contact Size (AWG)
24V +	A	16
24V +	B	16
24V +	C	16
24V +	D	16
24V Rtn	E	16
24V Rtn	F	16
24V Rtn	G	16
24V Rtn	H	16

(J2), 28V Output Connector MS3124E16-8S

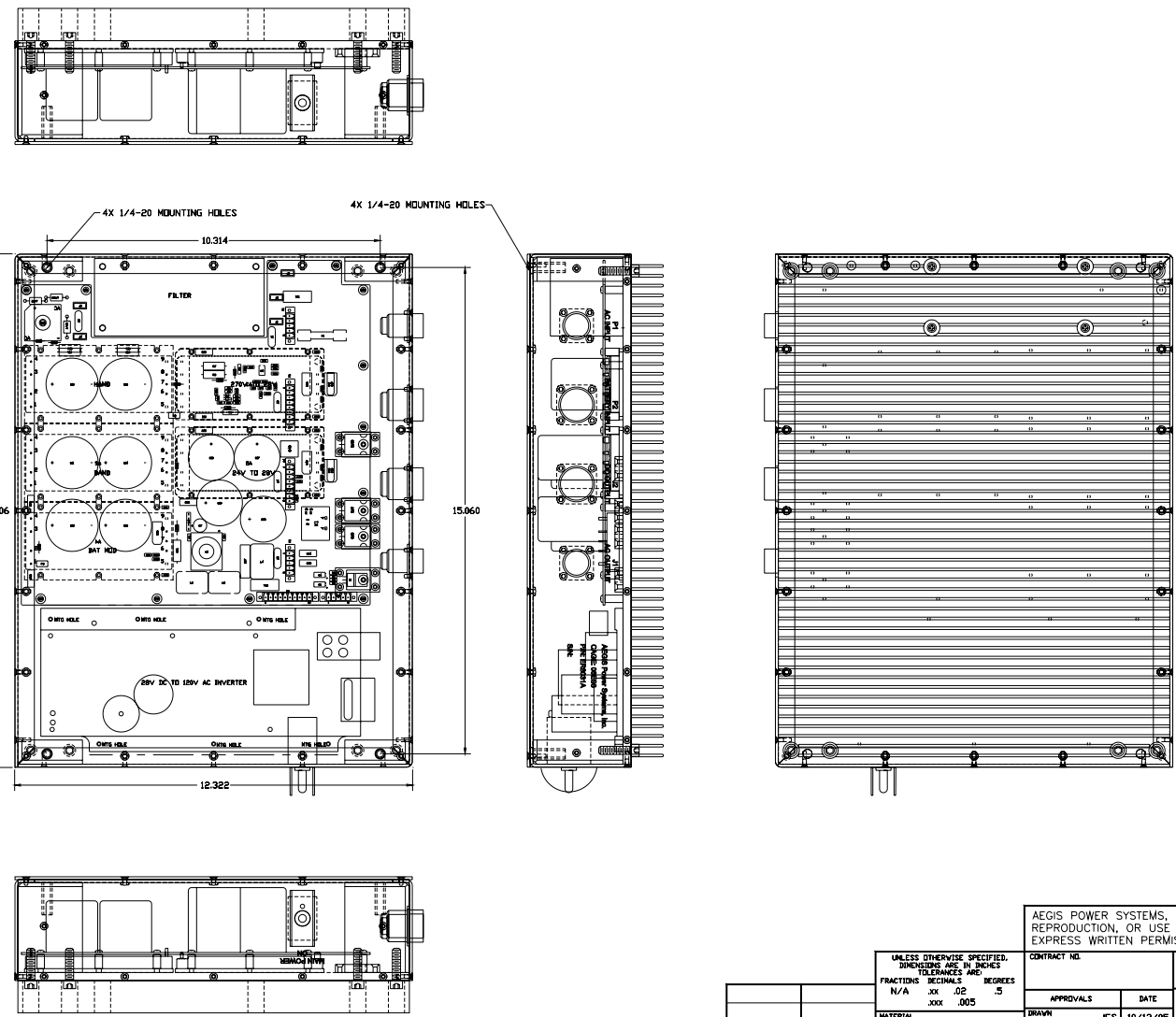
Contact Assigned	Contact Designation	Contact Size (AWG)
28V +	A	16
28V +	B	16
AC Power Loss Warning	C	16
Low Battery Warning	D	16
28V Rtn	E	16
28V Rtn	F	16
Reserved	G	16
Reserved	H	16

8 7 6 5 4 3 1

DVG NO.		SH	REV	REVISIONS	
ZONE	REV	DESCRIPTION	DATE	APPROVED	
A01		INITIAL RELEASE	XX/XX/XX	JFS	
XXX	XXX		XX/XX/XX	JFS	

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

- NOTES: UNLESS OTHERWISE SPECIFIED
1. INTERPRET DIMENSIONS AND TOLERANCES PER ANSI Y14.5M-1994.
 2. MATERIAL: ALUMINUM ALLOY
 3. FINISH: GOLD TINTED CHEMICAL FILM PER MIL-C-5541, CLASS 3.



D
C
B
A

D
C
B
A

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UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES		CONTRACT NO.		AEGIS POWER SYSTEMS MURPHY, NORTH CAROLINA	
FRACTIONS: DECIMALS	TOLERANCES ARE:	APPROVALS	DATE	TITLE	
N/A	.02 .5		10/12/05	ER8031A MECH LAYOUT	
MATERIAL	SEE NOTE 2	DRAWN	JFS	AEGIS P/N: ER8031A	
FINISH	SEE NOTE 3	CHECKED		SIZE	FSCM NO.
NEXT ASSY	USED IN	PROJ. ENGR.		D	06ES8
APPLICATION	DO NOT SCALE DRAWING	WFG		DWG NO.	ER8031A-M00
		QUALITY		SCALE	1/1
				REV	A01
				SHEET 1 OF 1	

8 7 6 5 4 3 2 1