

QTB001

Overview

AC-DC Power Supply
 Three Phase 50/60Hz 208Vac Input (Line-Line)
 +28 Output, 4200W Max
 +270V Output, 18000W Max
 Water Resistant (Sealed Enclosure)

Market(s)

MIL-COTS, Industrial

Typical Application(s)

Electronic Equipment Rack



Product Highlights

This rugged military Commercial Off the Shelf (COTS) power supply operates from a 3-Phase 208Vac input. The dual output capability provides high power for both 28Vdc and 270Vdc system requirements. It is designed to meet the environmental requirements of MIL-STD-810F and the EMI requirements of MIL-STD-461F. This SWaP optimized package provides users with high efficiency (91.4% Maximum), high power density (4970W per cubic foot), high power output (>22kW combined), and high performance thermal mitigation. This power supply is designed for military onboard power to support 28Vdc electronic communications equipment and 270Vdc radar equipment in extreme environments.

Features

- 3 Phase 208Vac
- MIL-STD-810H Environmental *
- MIL-STD-461F EMI *
- MIL-STD-1275E, +28V Output *
- MIL-STD-704E, +270V Output*
- MIL-STD-1472F Safety Markings *
- Enclosed case power supply

* 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	182 to 216	Vac	Line to Line (Neutral not connected)
Temperature	-40 to +55	°C	-40 to +100 Non-operating
Output Power	22200	W	Combined
Input power	24288	W	
Max output	22200	W	Refer to Table 2 (Output)

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
Input Voltage	3 Phase, 208Vac L-L, 50/60 Hz, Nominal. Input range 47 - 63Hz, 182Vac - 216Vac Line-Line.
Input Current	68.5A per phase (22200W Output)
Input Power	24660W (22200W Output)
Power factor	.99 (Active Power Factor Correction)
Holdup time	Contact Aegis.
Output power	22200W Maximum
Output voltages	See table 2 for details.
Efficiency	90% Nominal, 86% Minimum.
Output Ripple	See table 2.
Current Limit	Short circuit protected with automatic recovery.
Voltage Set Point	25V to 30V for +28Vdc output 257V to 283.6V for +270Vdc output (MIL-STD-704E Figure 10)
Over Voltage Protection	+28Vdc output, OVP = +40Vdc Max +270Vdc output, OVP = +360Vdc Max
Under Voltage Protection	+28Vdc output, UVP = +14Vdc Min +270Vdc output, UVP = +190Vdc Min
Line/Load Regulation	+/- 5%
Temperature regulation	± 0.02% / °C.
Temperature	-40°C to +55°C Operating, -40°C to +100°C Non-operating.
Cooling	Forced Fan Cooling. (Fans come on when needed.)
Package	Enclosed case chassis mounted by
Dimensions	31.5" L x 17.5" W x 14.0" H (max)
Weight	200 lbs. (+/- 5 lbs.)
Connectors	AC Input Connector, MIL-DTL-22992 P/N: CL90558FS44413P. +28Vdc Output, 1/2" Lugs, one Pos, one Neg. +270Vdc Output Connector, FS-194936-78S Status Connector, MB14FS14-15S OR MS3474W14-15S
Environmental	Designed to meet applicable portions of MIL-STD-810H, Ground Mobile.
Humidity	0 – 95% non-condensing.
EMI	Designed to meet applicable portions of MIL-STD-461F Requirement: CE102, CS101, CS114, and RE102. (Ground Range)

Specifications subject to change without notice.

Table 2: Voltage Output (Nominal)

	V1	V2
Voltage	+28Vdc	+270Vdc
Current	150A	66.66A
Power	4200W	18000W
Ripple	280mVpk-pk*	3.0 Vpk-pk*

* 100KHz Bandwidth Limited.

Table 3: Connector Specifications

AC Input Connector MIL-DTL-22992 (100Amp) P/N: CL90558FS44413P.

Contact Designation	Conductor Circuit
A	Phase A
B	Phase B
C	Phase C
N	Neutral (not connected)
G1	Safety Grounding
G2	Safety Grounding
G3	Safety Grounding
G4	Safety Grounding

270V DC Output Connector P/N: FS-194936-78S.

Contact Designation	Conductor Circuit
1	Chassis GND
2	270V Return
3	270V Return
4	270V Return
5	270V Return
6	Chassis GND
7	270V
8	270V
9	270V
10	270V
11	Loop Back (In)
12	Chassis GND
13	Loop Back (Out)
14	Chassis GND

28V DC Output Studs ½” x 13

Contact Designation	Conductor Circuit
Red	+28V
Black	+28V Return

Status Connector P/N: MB14FS14-15S OR MS3474W14-15S

Contact Designation	Conductor Circuit	Logic
A	AC OK Collector*	Low=AC Good
B	28V OK Collector*	Low=28V Good
C	270V OK Collector*	Low=270V Good
D	Over Temp* **	Low=Temp Good
E	28V Enable Anode	Tie to 5V Standby to Enable 28V Output
F	28V Enable Cathode	Tie to 5V Standby Return to Enable 28V Output
G	270V Enable Anode	Tie to 5V Standby to Enable 270V Output
H	270V Enable Cathode	Tie to 5V Standby Return to Enable 270V Output
J	5V Standby	For status and enable pwr. (0.25Amp max current)
K	5V Standby Return	For status and enable pwr. (0.25Amp max current)
L	NC	No Connection (Reserved)
M	NC	No Connection (Reserved)
N	NC	No Connection (Reserved)
P	NC	No Connection (Reserved)
R	NC	No Connection (Reserved)

*Common emitter internally tied to +5V Standby Return.
 **Normally closed thermal switch (Open @ 90°C)

(LOAD CONDITIONS)

POWER SEQUENCING REQUIRED FOR ENABLING

Refer to PSQTB001-A01 for details.

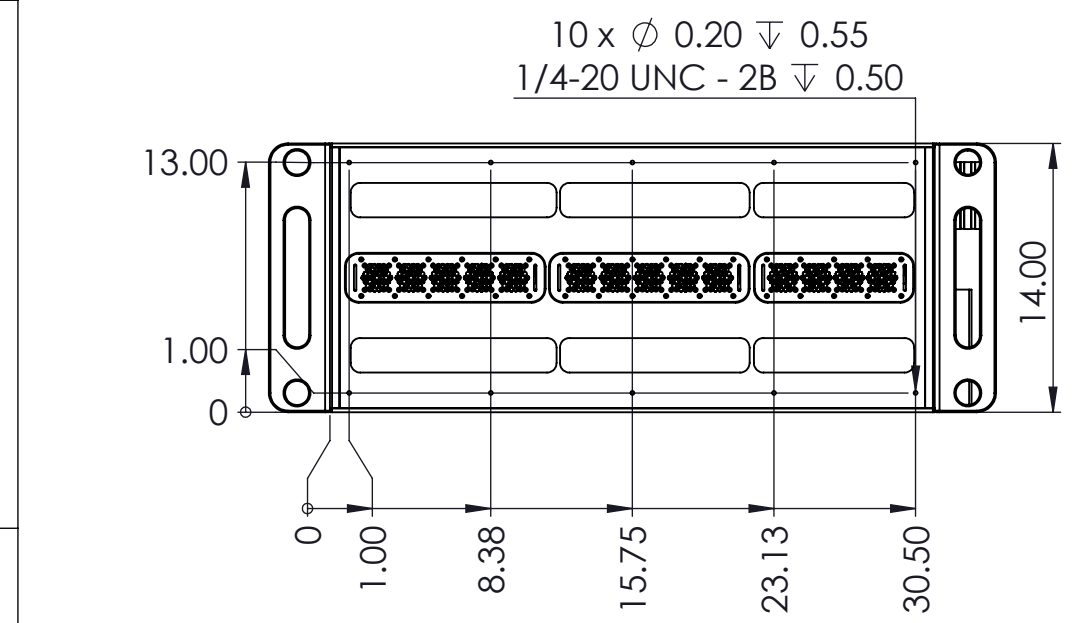
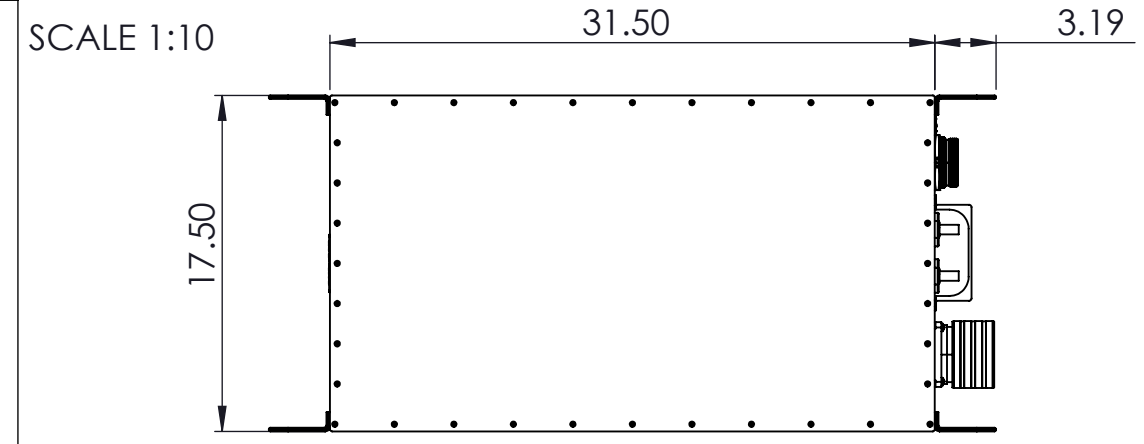
NOTES: UNLESS OTHERWISE SPECIFIED

1. INTERPRET DIMENSIONS AND TOLERANCES PER ANSI Y14.5M-2013.

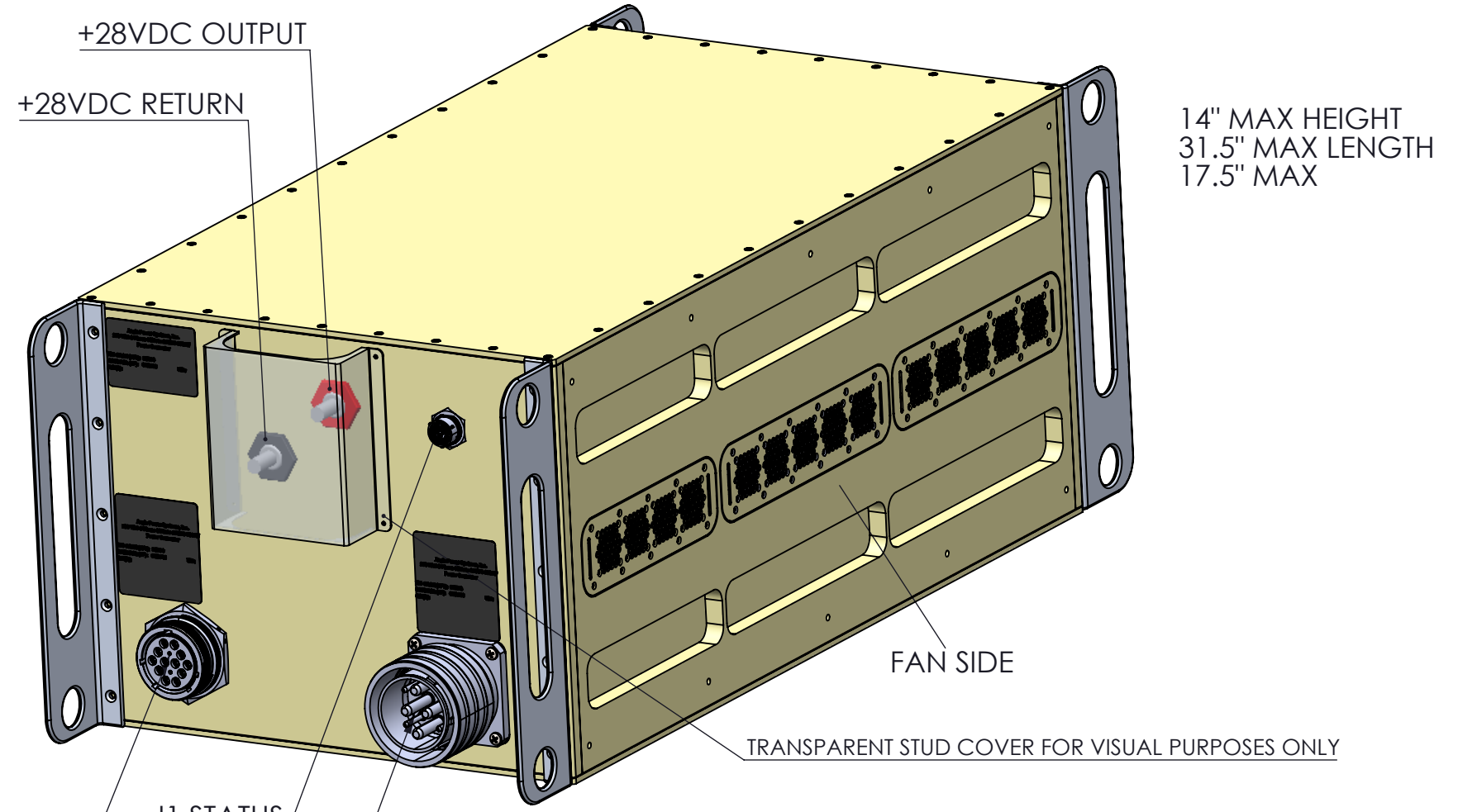
DWG NO.		REV		REVISIONS	
ZONE	REV	DESCRIPTION	DATE	APPROVED	
	A01	FINAL OUTLINE	10/6/20	TBL	
	A01	SILKSCREEN CHANGE SAME REV A01	10/13/20	TBL	
	A01	STUD COVER TRANSPARENT FOR VISUAL SAME REV A01	6/30/21	TBL	

CAD MAINTAIN CHANGES SHALL BE INCORPORATED BY THE DESIGN ACTIVITY.

SCALE 1:5



SCALE 1:10



J3 +270VDC
J1 STATUS
J2 AC INPUT

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ± N/A
DEGREES: ± .5
TWO PLACE DECIMAL ± .02
THREE PLACE DECIMAL ± .005

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CONTRACT NO.			AEGIS POWER SYSTEMS MURPHY, NORTH CAROLINA	
APPROVALS	NAME	DATE	TITLE: QTBO01	
DRAWN	TL	10/28/19	AEGIS P/N:QTBO01 ASSY	
CHECKED	MVM	10/28/19		
ENG APPR.	TL	10/28/19		
MFG APPR.	RP	10/28/19		
Q.A.	MH	10/28/19	SIZE B	FSCM NO. 06ES8
COMMENTS: GENERATED:BY SOLIDWORKS			DWG. NO. QTBO01-ASSY	
DO NOT SCALE DRAWING			REV A01	
			SCALE: 1:10	
			SHEET 1 OF 1	