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DC270

VME DC-DC
Power Converter Card

(Document Rev A06, 09/17/15)

270Vdc Input
Configurable 1 to 4 Outputs, 500W Max Total Output

Features

- 270Vdc per MIL-STD-704F
- 1 to 4 Output Voltages, 500W
- MIL-STD-810F Environmental *****
- MIL-STD-461E EMI *****
- Single Slot VME Power Card

***** Designed to meet with portions of the standard.

Table 1: Maximum Ratings

Parameter	Rating	Unit	Notes
Vin max range	250 to 280	Vdc	
Temperature	–40 to +85	°C	Baseplate temperature
Combined output power	500	W	
Input power	605	W	@500W out(270Vdc input)
Max +5Vdc power	200	W	See Table 2
Max +3.3Vdc power	150	W	See Table 2
Max +12Vdc power	150	W	See Table 22
Max –12Vdc power	75	W	See Table 22

Product Highlights

This single slot (6U x 5HP) filtered 270Vdc power converter card is factory configurable for one to four outputs at 500W. This is a Mil-COTS military power supply solution designed to meet portions of MIL-STD-810F vibration and shock requirements and designed to meet portions of the MIL-STD-461E EMI requirements. When compared to VME power supplies using conventional technology, this single slot power converter card provides users with higher efficiency (83%), lower weight (3.25 lbs), and higher power (up to 500W).

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, telecomm, aircraft, shipboard, rack mount, electric powered vehicle applications, military power supply applications.

SPECIFICATIONS

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

DC input voltage:	Designed to meet MIL-STD-704F Normal, abnormal, and transient range. Nominal 250Vdc to 280Vdc. Transient 200 Vdc to 330Vdc (per Figure 1). Abnormal Overvoltage 350Vdc (per Figure 2). Abnormal Under Voltage Shutdown and Restart.
DC input line current:	2.5A @ 500W output and 250Vdc input.
Input power:	605W maximum with 500W output.
Input Surge Current:	Less than 5X nominal input current.
Output power:	500W max all outputs combined.
Output voltages:	See table 2.
Efficiency:	83% typical.
Start up time:	500 millisecond maximum.
Voltage set point Line & Load regulation:	+/- 2.5% (any combination).
Temperature regulation:	± 0.01% / °C of temperature range.
Output ripple:	1% Vout, except 3.3Vout is 1.52% (pk-pk 20 MHz BW limit).
Current Limit:	Short circuit protected with automatic recovery.
Temperature:	*Baseplate Cooling temperature at Wedgelocks.* -40°C to 75°C Operating 500W. -40°C to 85°C Operating 450W. -50°C to 100°C Non Operating.
Cooling:	Conductive cooling through wedgelocks attached to customer rack.
Package:	Single Slot pluggable slide in rack card.
Dimension:	6U x 5HP x 160mm (See Mechanical Drawing).
Weight:	3.25 lb. Typical.
Connector:	30 Pin Positronic Connector, PCIM30W15M400A1.
Vibration:	Designed to meet MIL-STD-810F, Method 514.5, Procedure I.
Shock:	Designed to meet MIL-STD-810F, Method 516.5, Procedure I.
Humidity:	0 – 95% non-condensing.
EMI:	Designed to meet MIL-STD-461E (CE102 and CS101).
Safety:	During an Input open circuit, Vin decays to ≤ 30Vdc within 1 second.
ESD:	Designed to meet IEC61000-4-2.
Monitor / Control:	Power OK, Vin OK, OverTemp, Overload. / Power Out Reset.

Specifications subject to change without notice.

Table 2: Voltage Outputs

Part Number	# Out	Output V1	Output V2	Output V3	Output V4	Max Power
DC270-001	1	28Vdc 500W				500W 75ºC
DC270-002	1	48Vdc 500W				500W 75ºC
DC270-003	1	12Vdc 500W				500W 75ºC
DC270-004	4	+5Vdc 200W	+3.3Vdc 150W	+12Vdc 75W	-12Vdc 75W	500W 75ºC
DC270-005	4	+5Vdc 200W	+12Vdc 150W	+3.3Vdc 75W	-12Vdc 75W	500W 75ºC

Figure 1: Envelope of normal voltage transient for 270 volts DC system. (Fig-16 of Mil-Std-704)

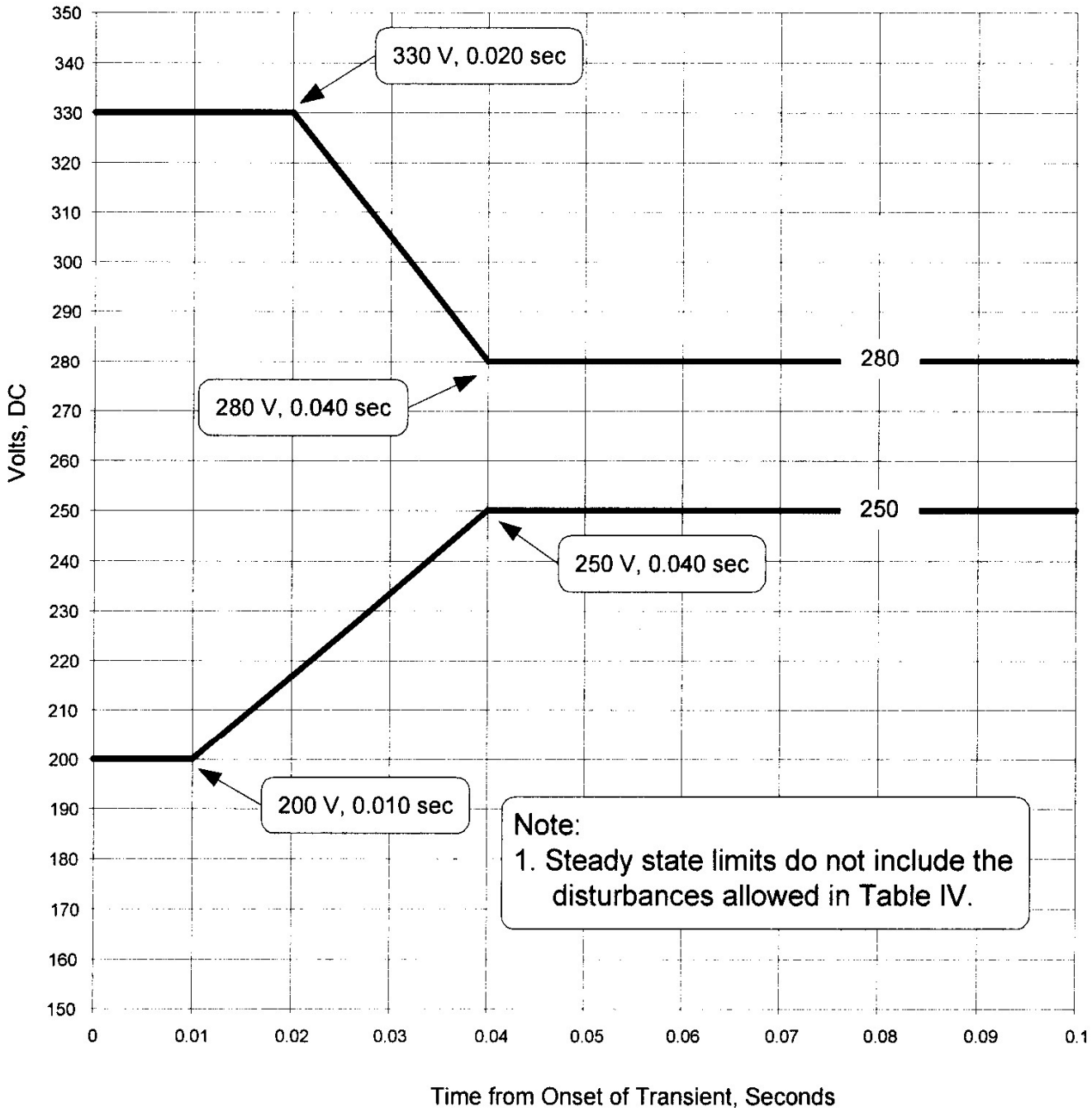
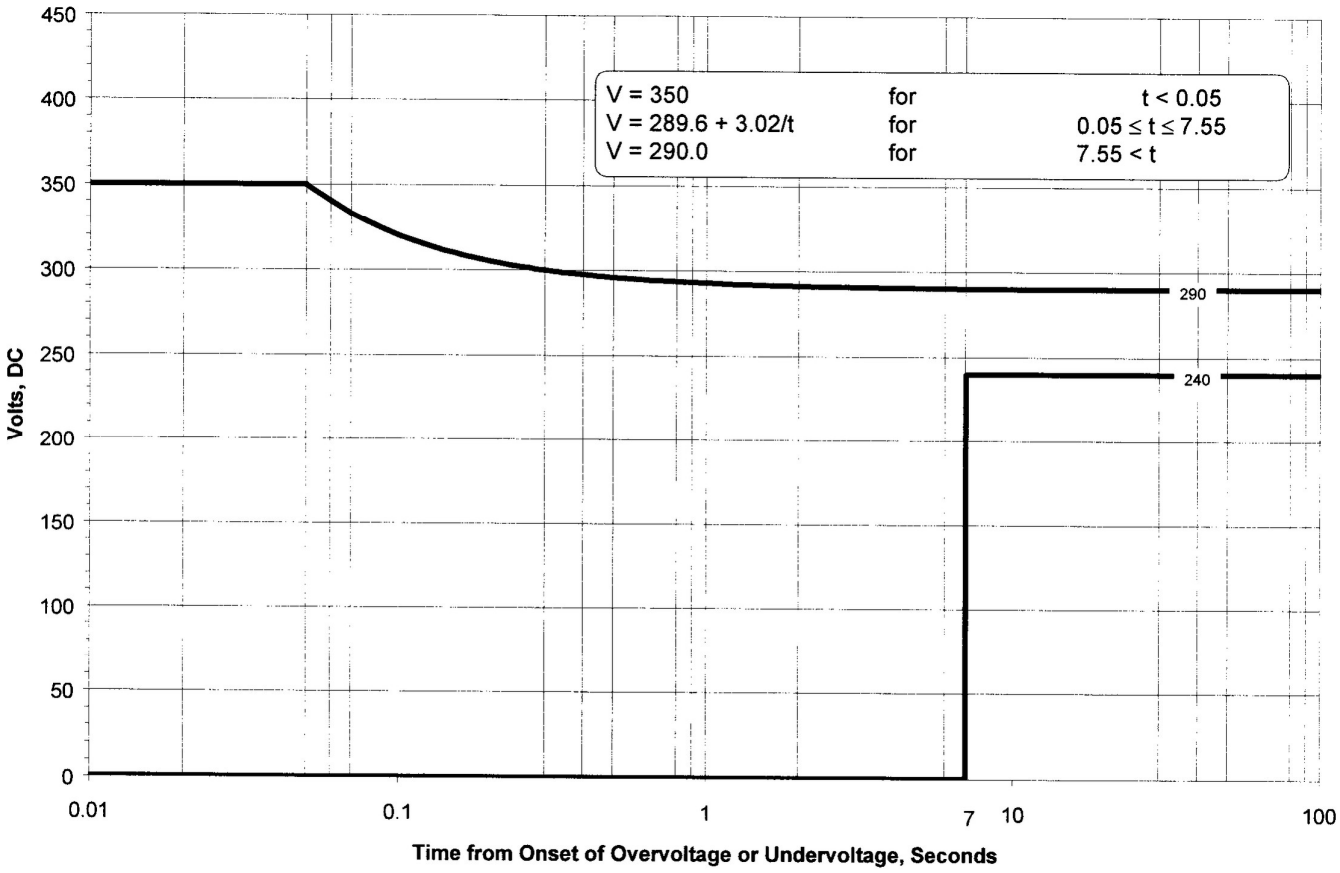


Figure 2: Limits for DC overvoltage and undervoltage for 270 volts DC system (Fig 17 of Mil-Std-704).



Connector Pin Out Assignment

30 Pin Positronic Connector
P/N PCIM30W15M400A1 or Equivalent

Pins 1, 3	**V1 RTN**
Pins 2, 4	**V2 RTN**
Pin 5	**V3 RTN**
Pin 6	**V4 RTN**
Pins 7, 9	**V1 +OUT**
Pins 8, 10	**V2 +OUT**
Pin 11	**V3 +OUT**
Pin 12	**V4 +OUT**
Pin 13	**V1 + SENSE**
Pin 14	**V1 – SENSE**
Pin 15	**V2 – SENSE**
Pin 16	**V2 + SENSE**
Pin 17	**V1 SHARE +**
Pin 18	**V2 SHARE +**
Pin 19	**V3 SHARE +**
Pin 20	**V4 SHARE +**
Pin 21	**V SHARE COMMON**
Pin 22	**POK (Power OK) Isolated Open Collector, Low = Power OK**
Pin 23	**VOK (VIN OK) Isolated Open Collector, Low = VIN OK**
Pin 24	**OT (Overtemp) Isolated Open Collector, Low = Temp OK**
Pin 25	**OL, (Overload) Isolated Open Collector, Low = Load OK**
Pin 26	**POR (Power Out Reset) Isolated, +5V = Reset**
Pin 27	**Status Common**
Pin 28	**Chassis Ground**
Pin 29	**Negative Input**
Pin 30	**Positive Input**

DWG NO.	SH	REV

REVISIONS

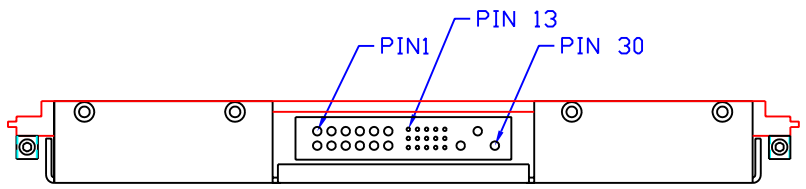
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A01	INITIAL RELEASE	11/04/09	MVM

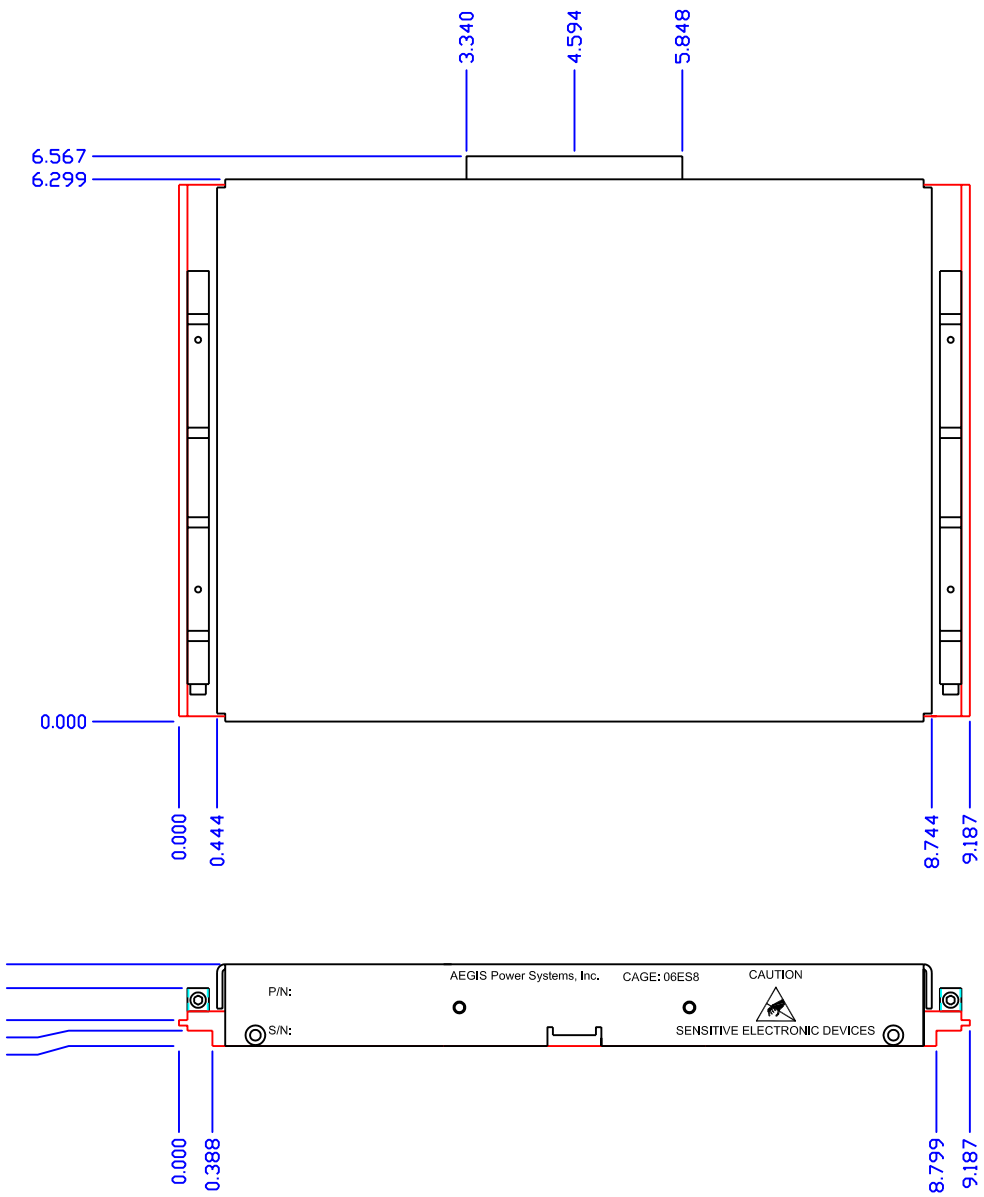
NOTES: UNLESS OTHERWISE SPECIFIED

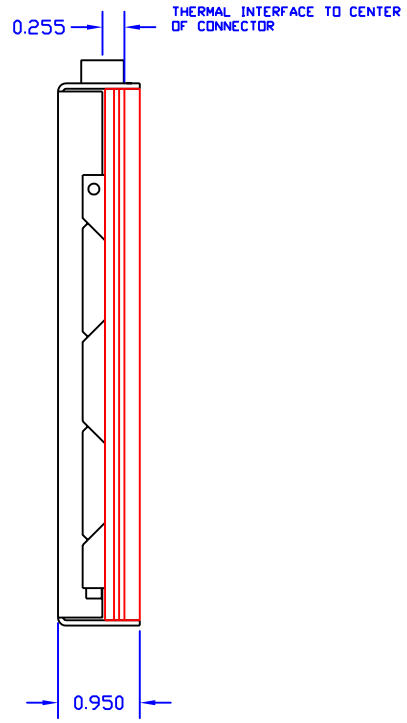
1. TYPE 1, 6U PLUG-IN UNIT - PRIMARY SIDE RETAINER. 1.00 INCH PITCH. (FIGURE 10 OF VITA 48.2, 12/26/07)
2. CONNECTOR POSITRONIC PCIM30W15M400A1
3. PIN1-12 = 28AMP RATING, PIN13-27 = 3AMP RATING, PIN28,29 AND 30 = 40AMP RATING

J1:1 - V1 RETURN
J1:2 - V2 RETURN
J1:3 - V1 RETURN
J1:4 - V2 RETURN
J1:5 - V1 RETURN
J1:6 - V3 RETURN
J1:7 - V1 +OUT
J1:8 - V2 +OUT
J1:9 - V1 +OUT
J1:10 - V2 +OUT
J1:11 - V1 +OUT
J1:12 - V3 +OUT
J1:13 - V4 RETURN
J1:14 - V4 +OUT
J1:15 - V1 +SENSE
J1:16 - V1 SHARE+
J1:17 - V1 SHARE-
J1:18 - V1 -SENSE
J1:19 - POK (POWER OK)
J1:20 - VOK (VIN OK)
J1:21 - OT (OVERTEMP)
J1:22 - OL (OVERLOAD)
J1:23 - POR (POWER OUT RESET)
J1:24 - V2 SHARE+
J1:25 - V2 SHARE-
J1:26 - V2 -SENSE
J1:27 - V2 +SENSE
J1:28 - CHASSIS
J1:29 - NEUTRAL
J1:30 - LINE

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







NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± N/A DECIMALS .XX ± .02 .XXX ± .005 DEGREES ± .5

MATERIAL: SEE NOTE 2

FINISH: SEE NOTE 3

DO NOT SCALE DRAWING

CONTRACT NO.

APPROVALS	DATE
DRAWN MVM	11/04/09
CHECKED	
PROJ. ENG.	
MFG.	
QUALITY	

AEGIS POWER SYSTEMS
MURPHY, NORTH CAROLINA

TITLE: VME 270VDC 375W MECHANICAL LAYOUT
AEGIS P/N: DC270

SIZE	FSCM NO.	DWG NO.	REV
D	06ES8	DC270-M00	A01

SCALE 1/1 SHEET 1 OF 1