

VME400-001

VME DC-DC Power Converter Card

(Document Rev A06 11/03/2015)



Features

- 28Vdc per MIL-STD-704A-F * and MIL-STD-1275A/B/D * continuous operation.
- 4 Output Voltages, 400W max.
- MIL-STD-810F Environmental *
- MIL-STD-461E EMI *
- Single Slot VME Power Card

* Designed to meet portions of the standard. Contact Aegis Power for details.

Table 1: Maximum Ratings

Parameter	Rating	Unit	Notes
Vin max range	18 to 36	Vdc	
Temperature	-40 to +85	°C	Baseplate temperature
Combined output power	400	W	
Input power	471	W	@ 400W out (28Vdc input)
Max +5Vdc power	112	W	
Max +3.3Vdc power	112	W	
Max +12Vdc power	112	W	
Max -12Vdc power	112	W	

Product Highlights

This single slot filtered 28Vdc 4HP wide x 6U high VME400 dc-dc power converter card with four outputs (3.3, 5, ±12Vdc) at 400W, is a military Mil-COTS solution designed to meet portions of MIL-STD-810F vibration and shock requirements and MIL-STD-461E EMI requirements. When compared to VME power supplies using conventional technology, the one-slot VME400-001 provides users with higher efficiency (86%), lower weight (2.48 pounds), and higher output power (up to 400W).

AEGIS Power Systems, Inc. specializes in the front end design, development, and manufacture of Rapid Response Custom Switching Power Supplies for defense, industrial, telecommunication, and electric powered vehicle applications. Contact Aegis Power Systems for details on Mil-Specs that this product is designed to meet.

SPECIFICATIONS

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

DC input voltage:	Designed to meet MIL-STD-704A-F and MIL-STD-1275A/B/D, continuous operation, 22Vdc to 33Vdc, 28 Vdc nominal. 100Vdc 50 msec transient.
DC input line current:	21.41A Max @ 22Vdc, 16.82A Typ @ 28Vdc (400W out.)
Input power:	471W maximum @ 400W out.
Output power:	400W Max, all outputs combined.
Output voltages:	See table 2.
Efficiency:	86% minimum, 87% typical.
Start up time:	500 millisecond maximum.
Voltage set point/ Line/Load regulation:	+/- 2% Vout nominal (for any combination).
Temperature regulation:	+/- 0.01% / °C.
Output ripple:	50mV pk-pk Max. (20 MHz BW) all except; +/-12 Vdc 100mV pk-pk Max.
Current Limit:	Short circuit protected with automatic recovery.
Temperature:	-40°C to +85°C Operating baseplate wedgelocks 400W out. -55°C to +100°C Non-operating.
Cooling:	Conduction through wedgelocks attached to customers rack.
Package:	Pluggable slide in card.
Dimension:	6U x 4hp x 160mm (see mechanical drawing page 5).
Weight:	2.48 lb. Typical.
Connector:	1ea Positronics PCIH47M400A1 or equivalent (see pin assignments page 4).
Vibration:	Designed to meet MIL-STD-810F, Method 514.5, Procedure I.
Shock:	Designed to meet MIL-STD-810F, Method 516.5, Procedure I.
Altitude:	Designed to meet MIL-STD-810D, Method 500.4, Procedure I & II. ** ***
Humidity:	0 – 95% non-condensing.
EMI:	Designed to meet MIL-STD-461E (CE102 and CS101).
Options:	Designed to meet CE Mark (Low Voltage Directive 2006/95/EC).

**Option code 009 designed to meet 70k ft. operational.

*** Some components of this product are qualified to this standard.

Specifications subject to change without notice.

Table 2: Voltage Outputs

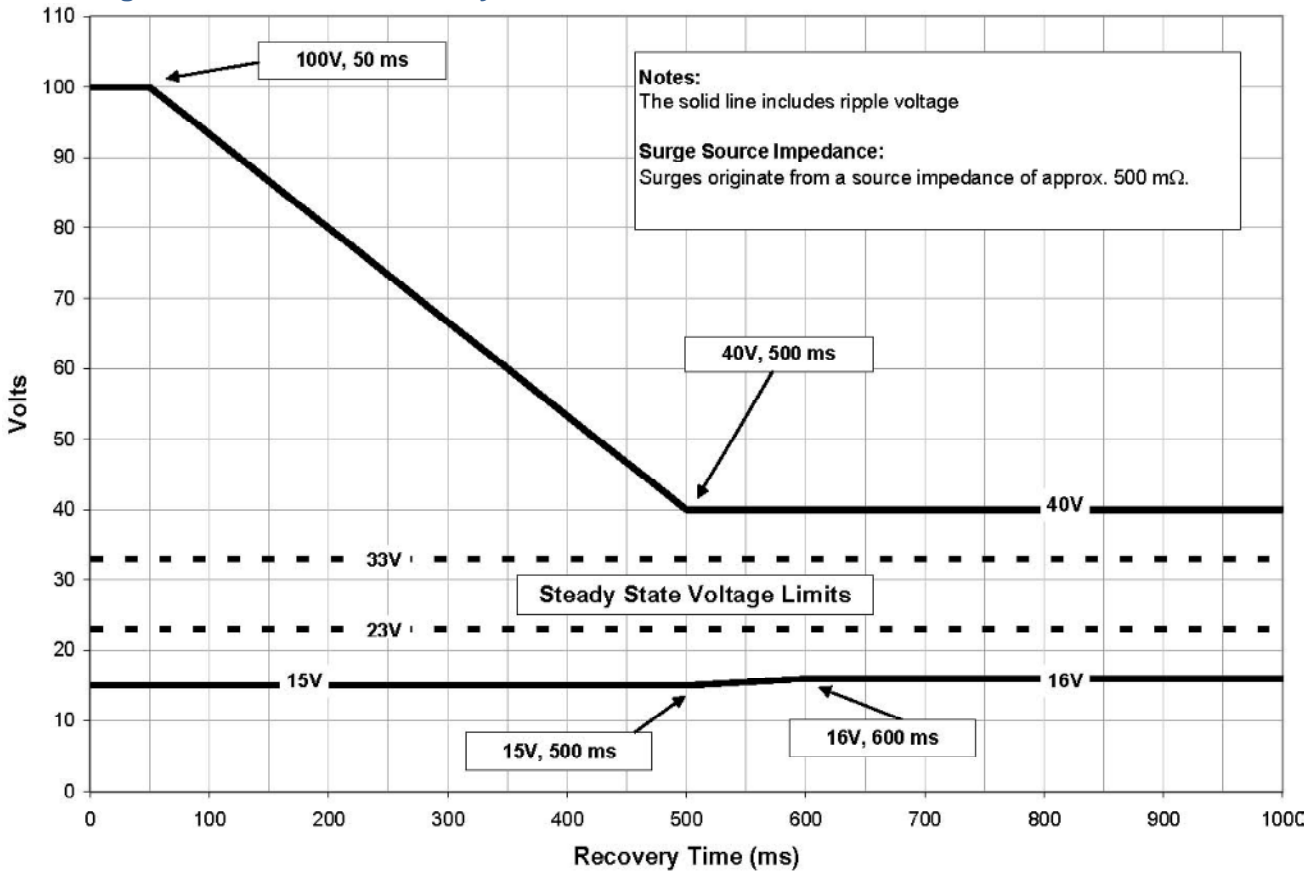
	V1	V2	V3	V4
VME400-001-xxx	+5Vdc	+3.3Vdc	+12Vdc	-12Vdc
Maximum individual DC outputs	22.4A	33.9A	9.3A	9.3A
	112W	112W	112W	112W

* VME400-001 Maximum total output power is 400W (all DC outputs combined).

Table 3: Customer selected options

-xxx	Custom Options
-000	No Options
-001	Conformal coating on PWB
-002	Metric wedgelocks
-003	Split inhibit control for V1/V3 and V2/V4
-004	Connector keyed (position #1)
-005	Connector keyed (position #2)
-006	Connector keyed (position #3)
-007	Conformal coating & Split inhibit for V4
-008	ESD pin removed
-009	70k ft. operational altitude

Figure 1: Transient Immunity



Connector Pin Out Assignment

Positronic Connector P/N PCIH47M400A1 or Equivalent

Pins 1, 2, 3, 4	+5 Vdc
Pins 5, 6, 7, 8	+5 V RTN (Common)
Pins 9, 10, 11, 12	+3.3 V RTN (Common)
Pins 13, 14, 15, 16	+3.3 Vdc
Pin 17	+12 Vdc
Pin 18	+12 V RTN (Common)
Pin 19	-12 Vdc
Pin 20	-12 V RTN (Common)
Pin 21	NC
Pin 22	POWER OK RTN (Common)
Pins 23, 24, 25, 26	NC
Pins 27, 28, 29	NC
Pin 30	NC
Pin 31	NC
Pin 32	NC
Pins 33, 34, 35, 36	NC
Pins 37, 38	NC
Pin 39	Inhibit (Connect pin to negative input to disable)
Pins 40, 41	NC
Pin 42	Power OK, (Open collector = Fail)
Pins 43, 44	NC
Pin 45	Chassis Ground
Pin 46	Positive Input
Pin 47	Negative Input
Pin 48, 49	(Available for unique keying of supply)

** ALL PINS DESIGNATED NC SHOULD HAVE NO CONNECTION ON THE BACKPLANE.

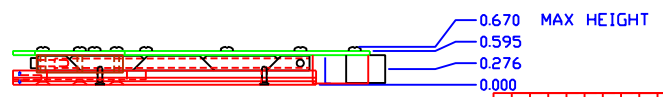
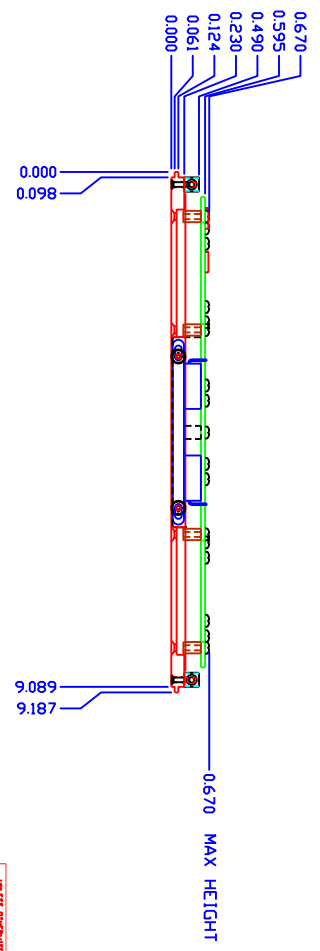
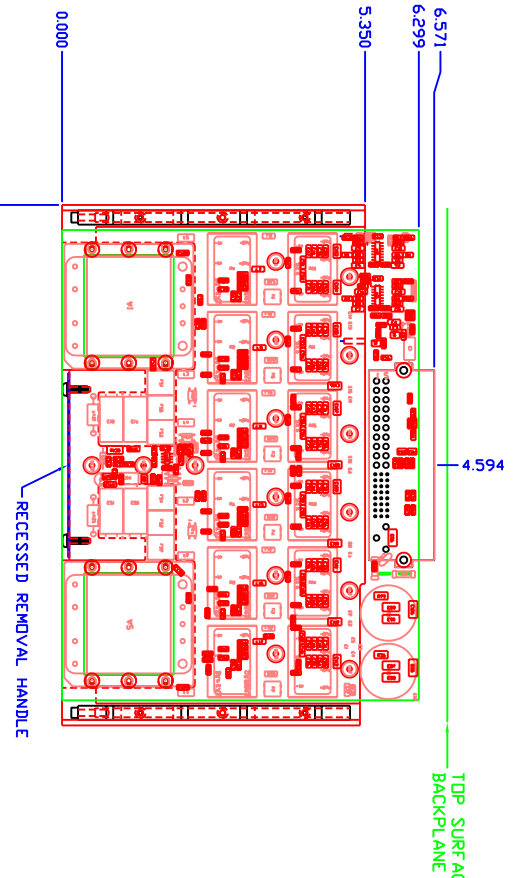
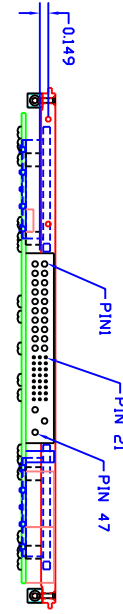
** ALL OUTPUT RTN PINS (COMMON) SHOULD BE TIED TOGETHER ON BACKPLANE.

** ALL PINS OF THE SAME VOLTAGE SHOULD BE TIED TOGETHER ON THE BACKPLANE (i.e. ALL 4 OF THE +5V PINS SHOULD BE TIED TOGETHER).

** TO DISABLE ALL OF THE DC OUTPUTS FROM THIS CARD-CONNECT PIN 39 (INHIBIT) TO PIN 47 (NEGATIVE INPUT). THIS CAN BE ACCOMPLISHED USING A FET, TRANSISTOR, RELAY OR SWITCH THAT CAN SINK AT LEAST 15ma.

** POWER OK SIGNAL IS AN OPEN-COLLECTOR TRANSISTOR OUTPUT. IT WILL BE LOW WHEN ALL OUTPUT VOLTAGES ARE WITHIN THEIR REGULATION WINDOW – IF ANY VOLTAGE IS INCORRECT POWER OK WILL BE HIGH. THIS OUTPUT IS REFERENCED TO THE COMMON DC OUTPUT RETURN AND CAN BE PULLED UP TO ANY OF THE DC OUTPUT VOLTAGES. SELECT A PULL-UP RESISTOR TO LIMIT THE CURRENT THROUGH THE TRANSISTOR TO LESS THAN 50Ma. (Example – use a 1K pull-up for 5mA of current when pulled up to +5V output.)

- NOTES: UNLESS OTHERWISE SPECIFIED
1. INTERPRET DIMENSIONS AND TOLERANCES PER ANSI Y14.5M-1994.
 2. MATERIAL:
 3. FINISH:



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

REV	DESCRIPTION	DATE	APPROVED
001	INITIAL RELEASE	03/09/07	JFS
002	RECESSED HANDLE, P/N NAME CHG.	07/26/07	JFS
003	UPDATED TO SHOW INPUT INDICATORS	07/25/07	JFS
004	MOVED ONE KEYING HOLE LOCATION	07/25/07	JFS
005	ADDED KEYING BLOCK	11/18/08	NWS
006	UPDATED FOR REV C01 PVB	01/14/09	NWS
007	UPDATED FOR REV D02 PVB	10/28/09	NWS
008	UPDATED FOR REV D03 PVB	06/18/10	NWS
009	UPDATED FOR REV E02 PVB	09/18/11	NWS

NO	DATE	BY	DESCRIPTION

REV	DATE	DESCRIPTION
001	06/28/08	
002	06/28/08	

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AGIS POWER SYSTEMS
MORRISTOWN, NORTH CAROLINA

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DECIMALS
1/16" 0.0625
3/16" 0.1875
1/8" 0.125
3/8" 0.375
1/2" 0.500
3/4" 0.750
1" 1.000
SEE NOTE 2
SEE NOTE 3
DO NOT SCALE DRAWING

NO	DATE	BY	DESCRIPTION

