

## VPX2703UC400-XX

**+270V VPX DC-DC**

**3U x 5HP x 168.49mm  
Power Converter Card**

*(Document Rev A03, 11/4/19)*



**270Vdc Input  
6 Output, 400W Max Combined Output**

### Features

- 270Vdc per MIL-STD-704F
- 6 Output Voltages, 400W(max)
- MIL-STD-461E EMI \*
- Single Slot VPX Power Card
- IPMI monitoring available

**Table 1: Maximum Ratings**

Parameter	Rating	Unit	Notes
Vin max range	200 to 320	Vdc	270V Nominal
Temperature	-40 to +85	°C	Baseplate @ wedgelocks
Input power	444	W	@ 400W out (270VDC input)
Combined output power	400	W	See Table 2 for DC output variations
Efficiency	90	%	Typical @ nominal conditions

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

### Product Highlights

This single slot thin (5HP) filtered 270Vdc VPX2703UC400-XX power card with six outputs at 400W maximum power, is a 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 VPX power supplies using conventional technology, the single-slot VPX2703UC400-XX provides users with higher efficiency (up to 90%), and higher power (up to 400W). It also has alignment keys that offer keying options when using multiple power supplies in one chassis.

**AEGIS Power Systems, Inc.** specializes in the front-end design, development, and manufacture of Rapid Response Custom Switching Power Supplies for defense, industrial, telecommunication, electric powered vehicle and Mil-Cots military power supply 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.)**

<b>DC input voltage:</b>	Designed to meet MIL-STD-704F (Figure 16), continuous operation 200Vdc to 320Vdc, 270 Vdc nominal.
<b>DC input line current:</b>	2.8A max @ 160Vdc; 1.65A typical @ 270Vdc input (400W out).
<b>Input power:</b>	444W max @ 400W out
<b>Output power:</b>	400W max. all outputs combined.
<b>Output voltages:</b>	See table 2.
<b>Efficiency:</b>	88.5% minimum, 90% typical, 93% max
<b>Start up time:</b>	2 second maximum.
<b>Voltage set point/ Line/Load regulation:</b>	+/- 5% Vout nominal (for any combination).
<b>Output ripple:</b>	50mV pk-pk Max. (20 MHz BW) all except; +/-12 Vdc 100mV pk-pk Max.
<b>Current Limit:</b>	Short circuit protected with automatic recovery (110% - 130% of rated output).
<b>Temperature:</b>	-40°C to +75°C Operating baseplate @ 400W output. (+85°C Operating baseplate @ 300W output) -55°C to +105°C Non-operating.
<b>Cooling:</b>	Conduction cooling through wedgelocks attached to customer rack.
<b>Package:</b>	Single slot pluggable slide in rack card.
<b>Dimension:</b>	3U x 5hp x 168.49mm (see mechanical drawing page).
<b>Weight:</b>	1.75 lbs. (typical)
<b>Connector:</b>	1ea TE Connectivity 6450849-7 or equivalent (see pin assignments page).
<b>Vibration:</b>	Designed to meet ANSI/VITA 47-2005 (R2007), Section 4.4.3 Vibration Class V3
<b>Shock:</b>	Designed to meet - ANSI/VITA 47-2005 (R2007), Section 4.5.2 Operating Shock Class OS2 ANSI/VITA 47-2005 (R2007), Section 4.5.3 Bench Handling Shock
<b>Humidity:</b>	0 – 95% non-condensing per ANSI/VITA 47-2005 (R2007), Section 4.6 Humidity
<b>EMI:</b>	Designed to meet MIL-STD-461F conducted emissions, when coupled with a front end filter that provides at least 80 dB of attenuation for frequencies greater than 10 KHz.
<b>System Management:</b>	VITA 46.11 IPMI interface available. See table 2.

**Table 2: Voltage Outputs**

	V1	V2	V3	V4	V5	V6
<b>VPX2703UC400-01</b>	+12VDC	+3.3VDC	+5VDC	-12VDC_AUX	3.3VDC_AUX	+12VDC_AUX
<b>Output Power @ 75°C*</b>	400W	99W	150W	12W	3.3W	12W
<b>Max Output Power</b>	400W	99W	150W	12W	3.3W	12W
<b>VPX2703UC400-02</b>	Same outputs as -01 version with VITA 46.11 IPMI interface providing: - Output Voltage/Current monitoring* (contact AEGIS for details) - 3 on-board temperature monitors - Power good status, PSU serial number & revision					
* Temperature measured on the unit's baseplate @ wedge locks • V1-V6 output power levels indicate maximum power available per output. Total combined power of all outputs on VPX2703UC400-XX cannot exceed 400W @ 75°C / 300W @ 85°C						

**Table 3: ENABLE / INHIBIT**

Control Inputs		Power Outputs	
ENABLE	INHIBIT	3.3V_AUX	PO1, PO2, PO3, +12V_AUX, and -12V_AUX
High	High	Off	Off
High	Low	Off	Off
Low	High	On	On
Low	Low	On	Off

## VPX2703UC400-XX Connector Pin Out Assignment

TE Connectivity Connector 6450849-7 or equivalent

<i>Pin Number</i>	<i>Rated Current (A)</i>	<i>Pin Name</i>
P1	50A	-DC_IN/ACN
P2	50A	+DC_IN/ACL
LP1	30A	CHASSIS
A1	<1A	(NC)
B1	<1A	(NC)
C1	<1A	(NC)
D1	<1A	(NC)
A2	<1A	(NC)
B2	<1A	FAIL*
C2	<1A	INHIBIT*
D2	<1A	ENABLE*
A3	<1A	(NC)
B3	<1.5A	+12V_AUX
C3	<1A	(NC)
D3	<1A	(NC)
A4	<1.5A	3.3V_AUX
B4	<1.5A	3.3V_AUX
C4	<1.5A	3.3V_AUX
D4	<1.5A	3.3V_AUX
A5	<1A	(NC)
B5	<1A	(NC)
C5	<1A	SM0 (Temperature I2C, SCL)
D5	<1A	SM1 (Temperature I2C, SDA)
A6	<1A	(NC)
B6	<1A	(NC)
C6	<1.5A	-12V_AUX
D6	<1A	(NC)
A7	<1A	(NC)
B7	<1A	(NC)
C7	<1A	(NC)
D7	<1A	SIGNAL_RETURN (Common)
A8	<1A	PO1_SENSE
B8	<1A	PO2_SENSE
C8	<1A	PO3_SENSE
D8	<1A	SENSE_RETURN (Common)
P3	50A	PO3 (5V)
P4	50A	POWER_RETURN (Common)
P5	50A	POWER_RETURN (Common)
LP2	30A	PO2 (3.3V)
P6	50A	PO1 (12V)

\* Use of a trailing asterisk indicate a logic signal which is active when at the less positive level of its allowable range.

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 +3.3V\_AUX PINS SHOULD BE TIED TOGETHER)