

## DC270A

### VME DC-DC Power Converter Card

(Document Rev A06, 12/7/15)



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

#### Features

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

\* Designed to meet 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 2             |
| Max -12Vdc power      | 75         | W    | SEE TABLE 2             |

#### Product Highlights

This dual slot (6U x 8HP) 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 plug in power converter card provides users with higher efficiency (83%), lower weight (4 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 military power supply, defense, industrial, telecomm, aircraft, shipboard, rack mount, and electric powered vehicle applications.

## **SPECIFICATIONS**

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

|  |   |
|--|---|
| <b>DC input voltage:</b>                       | Designed to meet MIL-STD-704F Normal, abnormal, and transient range.<br>Nominal 250Vdc to 280Vdc.<br>Transient 200Vdc to 330Vdc. (Refer to figure 1 on page 3.)<br>Abnormal Overvoltage 350Vdc. (Refer to figure 2 on page 4.)<br>Abnormal Undervoltage Shutdown and Restart. |
| <b>DC input line current:</b>                  | 2.5A @ 500W output and 250Vdc input.  |
| <b>Input power:</b>                            | 605W maximum with 500W output.  |
| <b>Input Surge Current:</b>                    | Less than 5X nominal input current.   |
| <b>Output power:</b>                           | 500W max all outputs combined.  |
| <b>Output voltages:</b>                        | See table 2.  |
| <b>Efficiency:</b>                             | 83% typical.  |
| <b>Start up time:</b>                          | 500 millisecond maximum.  |
| <b>Voltage set point/Line Load regulation:</b> | +/- 2.5% (any combination)  |
| <b>Temperature regulation:</b>                 | ± 0.01% / °C.   |
| <b>Output ripple:</b>                          | 1% Vout, except 3.3Vdc out is 1.52% (pk-pk 20 MHz BW limit).  |
| <b>Current Limit:</b>                          | Short circuit protected with automatic recovery.  |
| <b>Temperature:</b>                            | <i>Baseplate Cooling temperature at Wedgelocks</i><br>-40°C to 75°C Operating 500W. -40°C to 85°C Operating 450W.<br>-50°C to 100°C Non Operating .   |
| <b>Cooling:</b>                                | Convection with forced fan cooling from customer supplied air flow.   |
| <b>Package:</b>                                | Dual slot pluggable slide in rack card.   |
| <b>Dimension:</b>                              | 6U x 8HP x 160mm (Contact Aegis for Mechanical Drawing).  |
| <b>Weight:</b>                                 | 4 lb. Typical.  |
| <b>Connector:</b>                              | Positronic, PCIM30W15M400A1. (See connector pin out page).  |
| <b>Vibration:</b>                              | Designed to meet MIL-STD-810F, Method 514.5, Procedure I.   |
| <b>Shock:</b>                                  | Designed to meet MIL-STD-810F, Method 516.5, Procedure I.   |
| <b>Humidity:</b>                               | 0 – 95% non-condensing.   |
| <b>EMI:</b>                                    | Designed to meet MIL-STD-461E (CE102 and CS101).  |
| <b>Safety:</b>                                 | During an Input open circuit, Vin decays to ≤ 30Vdc within 1 second.  |
| <b>ESD:</b>                                    | Designed to meet IEC61000-4-2.  |
| <b>Monitor / Control:</b>                      | 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 |
|-------------|-------|------------|--------------|-------------|------------|-----------|
| DC270A-001  | 1     | 28Vdc 500W |              |             |            | 500W 75°C |
| DC270A-002  | 1     | 48Vdc 500W |              |             |            | 500W 75°C |
| DC270A-003  | 1     | 12Vdc 500W |              |             |            | 500W 75°C |
| DC270A-004  | 4     | +5Vdc 200W | +3.3Vdc 150W | +12Vdc 75W  | -12Vdc 75W | 500W 75°C |
| DC270A-005  | 4     | +5Vdc 200W | +12Vdc 150W  | +3.3Vdc 75W | -12Vdc 75W | 500W 75°C |

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

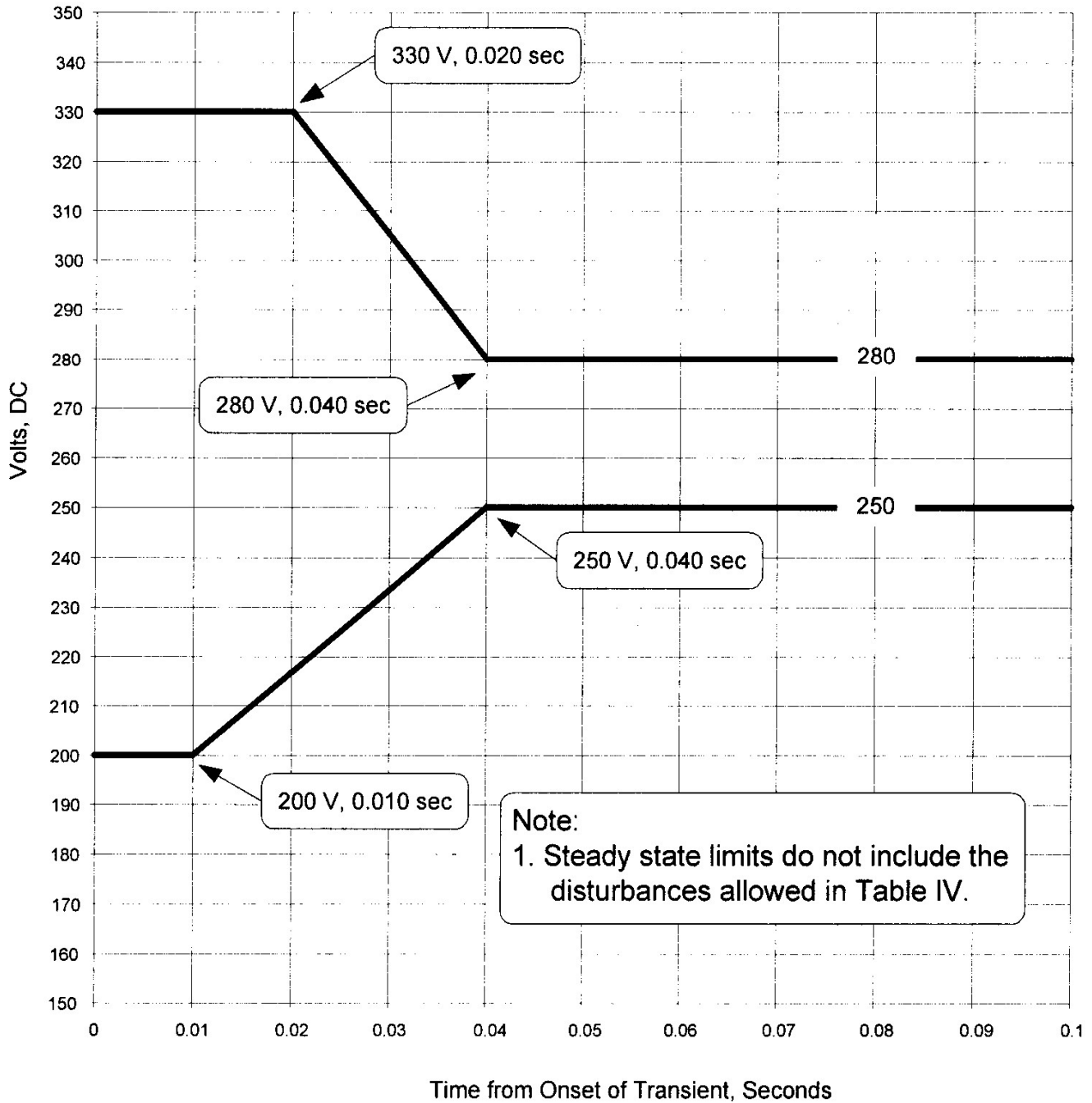
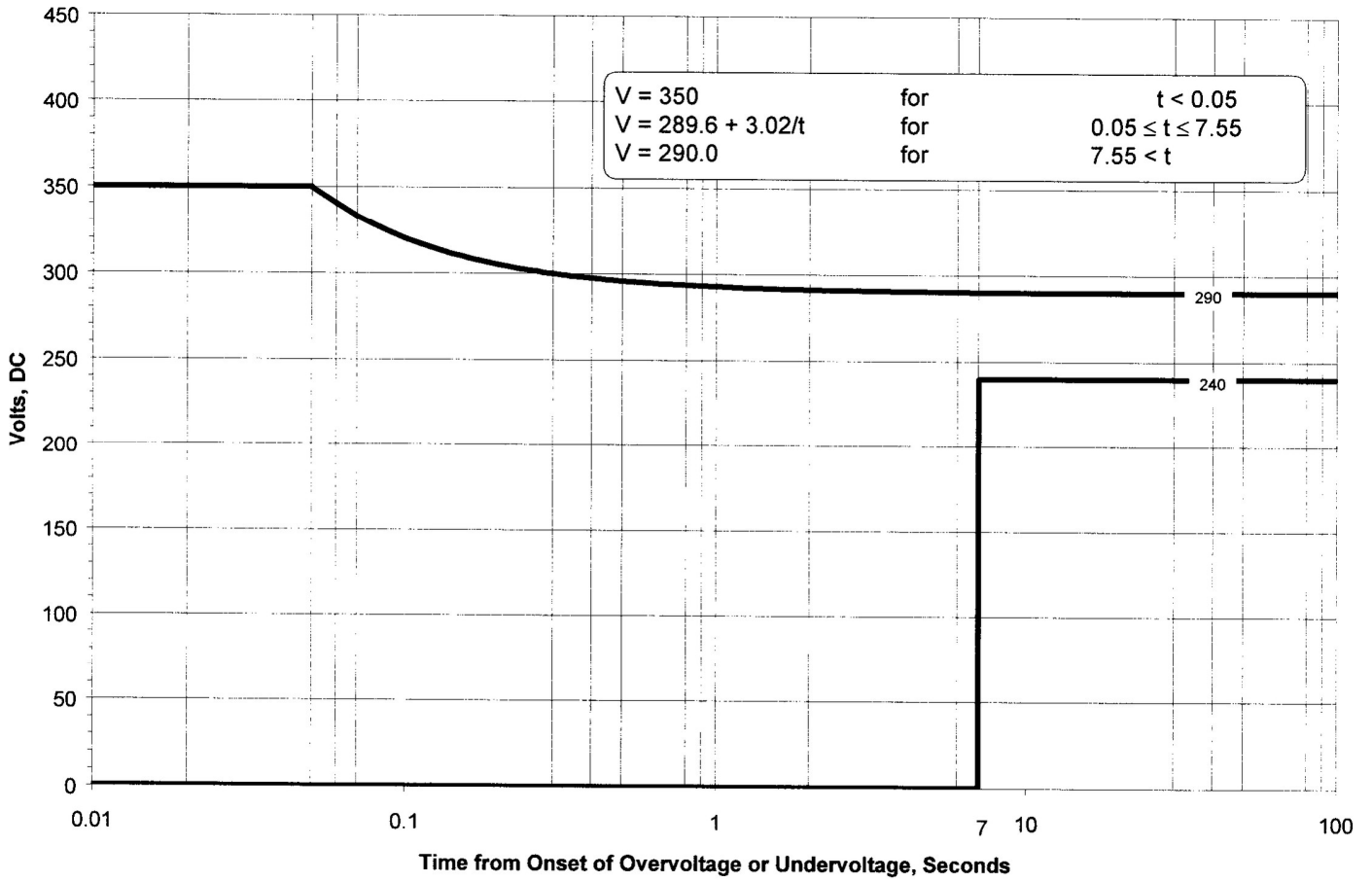


Figure 2: Limits for DC overvoltage and undervoltage for 270 volts DC system (Fig 17 of Mil-std-794)



## Connector Pin Out Assignment

30 Pin Positronic Connector, P/N PCIM30W15M400A1 or Equivalent

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

Call AEGIS Power Systems for mechanical specifications and drawing.