



### Key Features:

- 12V-40V wide Continuous Input Voltage
- 2300V Isolation Between Input /Output
- Active Transzorp TVS based Input EMI Filtering
- Extensive input recovery feature
- **Designed to meet ISO 7637-2 and ISO 10605 protection**
- **Extensive upgraded burn-in testing procedures**
- Transient look ahead/cut-off technology
- 6 Voltage Rails, each rail internally **ISO 7637-2** secured
- Isolated 3.3V aux standby feature
- NO derating at 500W, up to 85 deg. C at the rail
- 93% Typical Efficiency
- -40°C to 85°C Rail Operating Temperature
- VITA 62 3U Form Factor, VITA 46.11 ready
- Patent pending **Four Rail** thermal interface
- **[SMART.PSU]** Technology

## HIGH REALIBILITY VITA 62 3U ISOLATED 500W 28VDC POWER SUPPLY

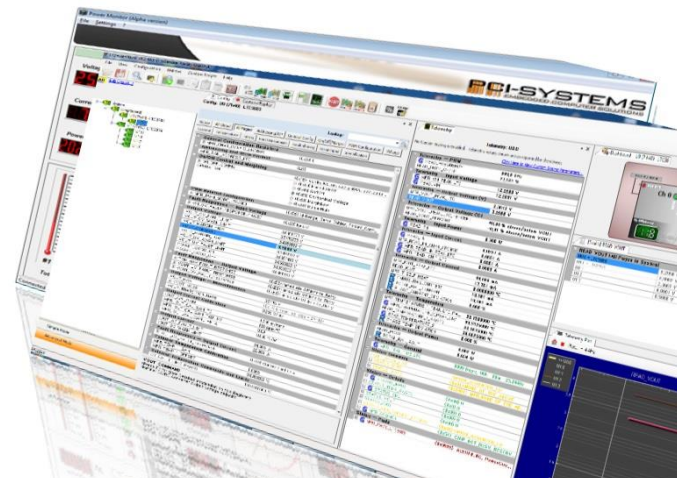
This 3U power supply works with **12VDC to 40 VDC (28VDC nominal) input** voltage and isolates the input voltage ground from the output voltage ground. The power supply is **conduction cooled**, uses **polyphase** technology on all voltage rails and can provide up to **500 watts**. It is suitable for use in **mission critical rugged applications**.

**The 800. 107.HR series are designed to protect sensitive internal circuits against surges defined in ISO 7637-2 and against electrostatic discharges according to ISO 10605.**

**[SMART.PSU]**PCI-Systems Inc. intelligent power supplies integrate a **microcontroller** (MCU) for a fully programmable and flexible solution. Intelligent power conversion allows **configuration and reconfiguration** for different applications. With intelligent power conversion, the power supply becomes a platform solution for Vita 46.11 system management-based systems. The power supply can easily be **reprogrammed** to support **SOSA voltage rails** and different **operating limits and control inputs**.

### Features:

- Parallel operating with multiple power supplies, all rails
- Load sharing and balancing
- Digital On/Off control for low standby power
- Input / Output Voltage rail setting /adjustment
- Spread Spectrum Clocking of power supply stages
- Power supply sequencing and hot-swap control
- Power supply history logging and fault management
- Monitoring all input/output voltages, currents and power
- Current fold back control
- Automatic temperature drift compensation for all outputs
- Total-Elapsed-Time Recorder
- Efficiency calculations at any time
- Communication via SMB/I2C (PMB)for Vita 46.11 system man
- Collects data from temperature sensors for over temperature



Overview	
P/N	<b>PCI_800.107</b>
Hold Up time	<b>1ms</b>
VITA Compliant	<b>VITA62</b>
Size	<b>3U</b>
Temp. Range	<b>-40 +85 C</b>
Input (AC or DC)	<b>DC</b>
Input Range (VDC)	<b>12-40</b>
Active EMI Filtering	<b>YES</b>
Power (W, max.)	<b>500</b>
Efficiency (% , typ.)	<b>93</b>
# of outputs	<b>6</b>

OUTPUTS (Total output not to exceed 500W)	
VS1, V@A	<b>+12@40A</b>
VS2, V@A	<b>+3.3@20A</b>
VS3, V@A	<b>+5@40A</b>
AUX, V@A	<b>+3.3@4A</b>
AUX, V@A	<b>+12@1.5A</b>
AUX, V@A	<b>-12@1.5A</b>

FEATURES	
Over-current Protection	<b>YES</b>
Over-voltage Protection	<b>YES</b>
Over-temperature Protection	<b>YES</b>
Current Sharing	<b>VS1, VS2, VS3</b>
Remote Sense	<b>YES</b>
Standard Control	<b>YES, VITA62</b>
Extended Control	<b>ISO 7637-2 and ISO 10605</b>

COMPLIANCE	
<b>Designed to meet the following standards, additional filter or other circuitry in the chassis may be required</b>	
VITA62	<b>YES</b>
MIL-STD-704 (B-F)	<b>YES</b>
MIL-STD-461 E	<b>YES</b>
MIL-STD-810G	<b>YES</b>
* ESD Protection	<b>YES</b>
* Shock	<b>YES</b>
* Vibration	<b>YES</b>
* Rapid Decompression	<b>YES</b>
* Corrosion Resistance	<b>YES</b>
* Fungus Resistance	<b>YES</b>
* Altitude	<b>YES</b>
* Humidity	<b>YES</b>

INPUT CHARACTERISTICS					
Parameter	Min.	Typ.	Max.	Units	Notes
<b>Absolute Maximum Ratings</b>					
<b>Input Voltage</b>					
- Non-Operating	<b>-60</b>		<b>60</b>	V	Continuous
- Operating	<b>-40</b>		<b>40</b>	V	Continuous- Reverse input Protection
- Operating Transient Protection			<b>100</b>	V	50ms transient, square wave
<b>Isolation Voltage</b>			<b>2300</b>	V	
<b>Operating Temperature</b>	<b>-40</b>		<b>85</b>	C	
<b>Storage Temperature</b>	<b>-55</b>		<b>105</b>	C	
<b>Electrical Characteristics</b>					
<b>Input Voltage</b>					
- Continuous	<b>12</b>		<b>36</b>	V	ISO 7637-2 and ISO 10605 protected
- Transient	<b>12</b>		<b>50</b>	V	100V Transient for 50ms -- MIL 1275E
<b>Under-Voltage Lockout</b>					
- Turn-On Input Voltage Threshold			<b>10.5</b>	V	
- Turn-Off Input Voltage Threshold	<b>10</b>			V	

### INPUT VOLTAGE SPIKES SUPPRESSION (Vin Centered)

Designed to meet the following standards, additional filter or other circuitry in the chassis may be required

+/- 250V, 100 us	MIL-STD-1275E
+/- 200V, 10 us	MIL-STD-461E (CS06); DEF-STAN 61-5
+/- 400V, 5 us	MIL-STD-461E(CS06)
+/- 600V, 10 us	RTCA/DO-160E

### OUTPUT CHARACTERISTICS

Parameter	+12V	+5V	+3.3V	+3.3V aux	+12V aux	-12V aux	Notes
<b>Output Voltage Set Point, V</b>	<b>12</b>	<b>5</b>	<b>3.3</b>	<b>3.3</b>	<b>12</b>	<b>-12</b>	Vin = 28V
- Drift -40 deg.C to 85degC +/- %	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>	Vin = 28V
<b>Output Voltage Trim Range, V</b>	<b>12</b>	<b>5</b>	<b>3.3</b>	<b>3.3</b>	<b>12</b>	<b>-12</b>	Over Line/load/temp.
	+/- 10%	+/- 10%	+/- 10%	+/- 10%	+/- 10%	+/- 10%	Over Line/load/temp.
<b>Output Voltage Ripple (pk-pk), mV</b>	<b>80</b>	<b>50</b>	<b>40</b>	<b>40</b>	<b>80</b>	<b>80</b>	Full load with .1uF ceramic + 10 uF tantalum capacitor on <b>ALL slots</b>
<b>Operating Current Range, A</b>	<b>0-40</b>	<b>0-40</b>	<b>0-20</b>	<b>0-4</b>	<b>0-1.5</b>	<b>0-1.5</b>	<b>500W</b> Total, combined Output
<b>Over-Voltage Protection, V</b>	<b>13</b>	<b>6</b>	<b>3.6</b>	<b>3.6</b>	<b>13</b>	<b>13</b>	Digital adjustable
<b>Current Limit Inception, A</b>	<b>42</b>	<b>42</b>	<b>22</b>	<b>5</b>	<b>1.7</b>	<b>1.7</b>	Digital adjustable
<b>Maximum Output Capacitance, mF</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>1</b>	<b>1</b>	<b>1</b>	

### MODULE QUALIFICATION

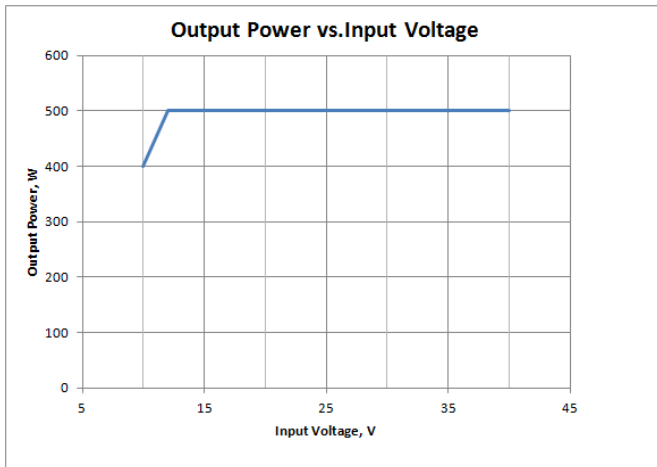
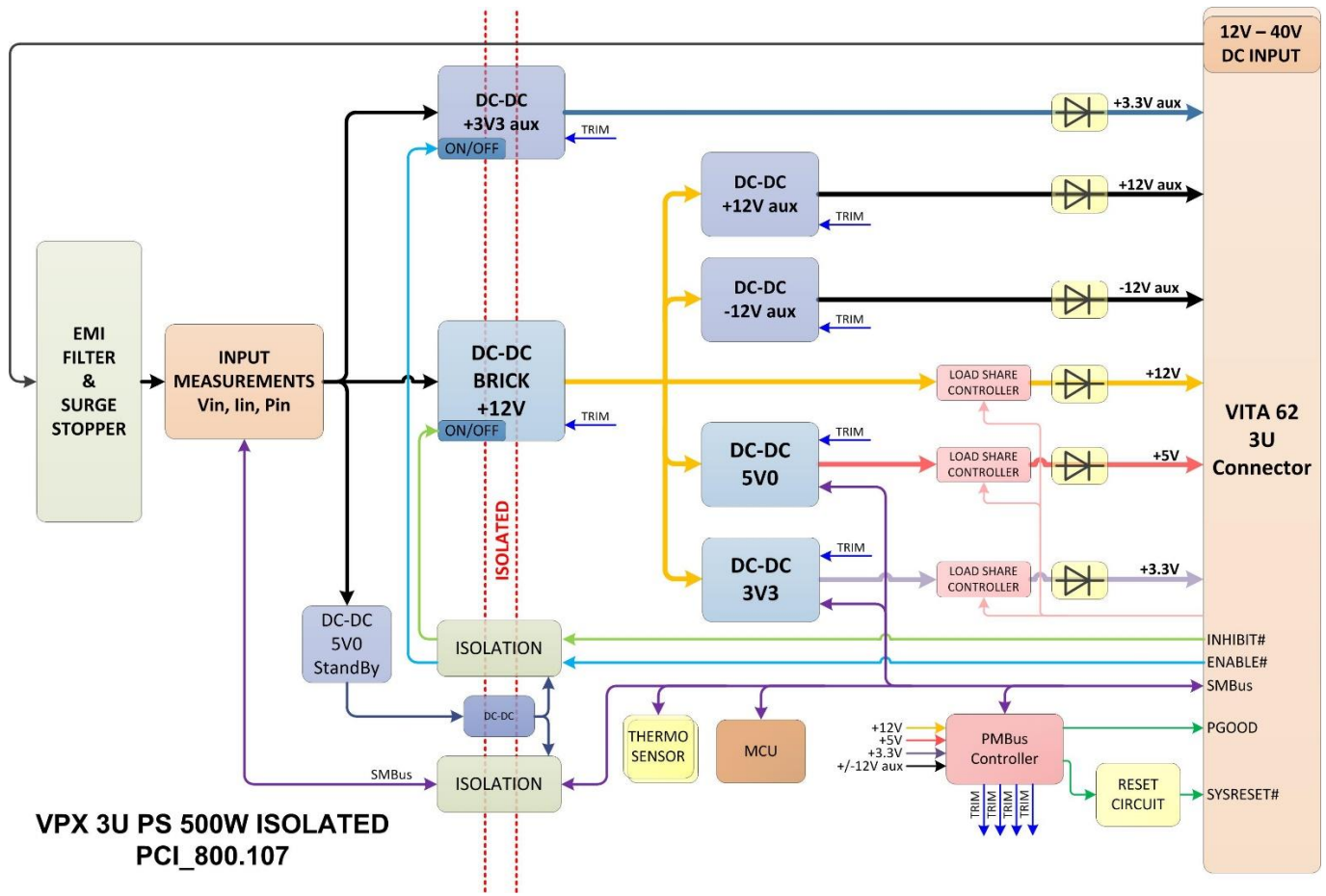
Designed to meet the following standards, additional filter or other circuitry in the chassis may be required

Test Name	Method
<b>Random Vibration</b>	<b>MIL-STD-810, 514.6 - Procedure I, Class V3</b>
<b>Shock</b>	<b>MIL-STD-810, 516.6 - Procedure I, VI, Class OS2</b>
<b>Altitude</b>	<b>MIL-STD-810, 500.5 - Procedure I, II, III</b> Tested at 45.000 feet pressure
<b>Fungus Resistance</b>	<b>MIL-STD-810, 508.6</b>
<b>Corrosion Resistance</b>	<b>ASTM G85, Annex A4</b>
<b>Humidity</b>	<b>MIL-STD-810, 507.5 - Procedure II</b>
<b>High Temperature</b>	<b>MIL-STD-810, 501.5 - Procedure I, II</b>
<b>Low Temperature</b>	<b>MIL-STD-810, 502.5 - Procedure I, II</b>
<b>Temperature Cycling</b>	<b>MIL-STD-202, 107 - Class C4</b>
<b>ESD</b>	<b>EN61000-4-2, Level 4; 15kV Air Discharge</b>

### RELIABILITY CHARACTERISTICS

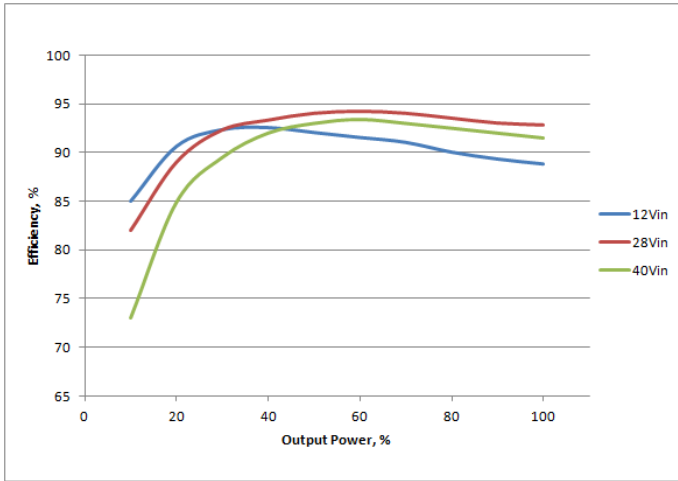
Calculated MTBF per MIL-HDBK-217F (GB) at 70 deg C. 2.500.000 Hrs.  
 Calculated MTBF per MIL-HDBK-217F (GM) at 70 deg C. 480.000 Hrs.

# Block Diagram:

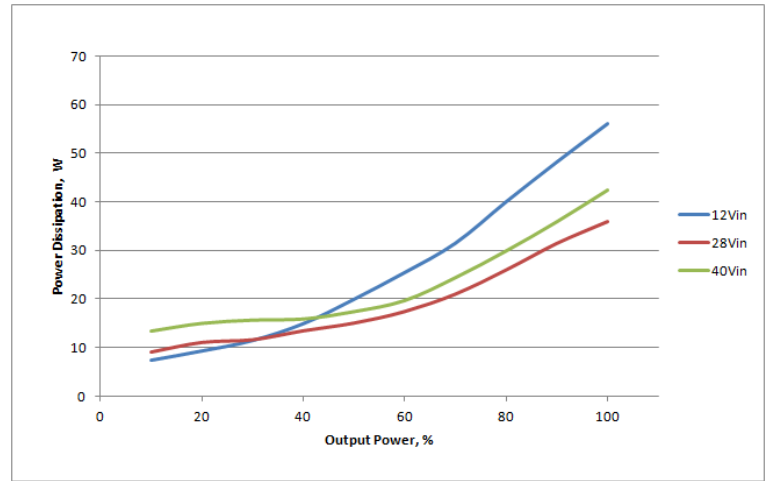


Pinout: As per VITA 62 specification

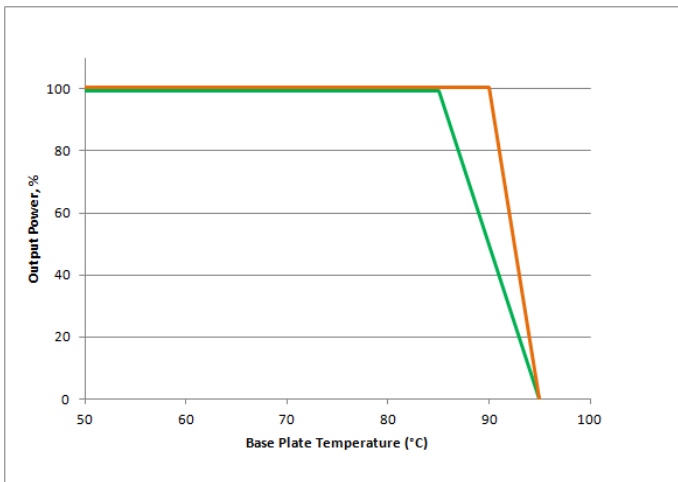
Mechanical Dimensions: As per VITA 62 specification (1" pitch)



Efficiency vs. Output Power for min, nom, max input V at 25°C



Power Dissipation vs. Output Power at module cover 25°C



Thermal derating Output Power vs. temp at module cover. (Delta T to wedgelock 7°C)

#### ORDERING INFORMATION:

**PCI\_800.107.HR.S**

3U VITA 62 28VDC 500W Isolated Rugged Power Supply optimized for single operation

**PCI\_800.107.HR.P**

3U VITA 62 28VDC 500W Isolated Rugged Power Supply optimized for parallel operation

**PCI\_800.107.HRx.H**

3U VITA 62 28VDC 500W Isolated Rugged Power Supply high altitude **45,000 feet**

**No electrolytic capacitors**

**All versions are conformal coated**

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