

### Key Features:

- 12-36VDC Continuous Input Voltage
- 2250V Isolation Between Input /Output
- Active Input EMI Filtering
- Transient forward looking/cut-off technology
- 2 Voltage output Rails, 28V and 3.3Vaux
  - 12V output optional
- 1000W Maximum Continuous Power
- 95% Typical Efficiency
- -40°C to 85°C Rail Operating Temperature
- VITA 62 3U Form Factor
- VITA 46.11 ready
- Patent pending **FourRail** thermal interface
- [SMART.PSU] Technology

## VITA 62 3U ISOLATED 1000W 28V conditioning POWER SUPPLY

This 3U power supply works with **12VDC to 36VDC input** and isolates the input voltage ground from the output voltage ground. The power supply is **conduction cooled** and can provide up to **1000 watts**. It is suitable for use in **mission critical rugged applications**.

[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 different **operating limits and control inputs**.

### Features:

- Parallel operating with multiple power supplies
- Load sharing and balancing
- Digital On/Off control for low standby power
- Input / Output Voltage rail setting /adjustment
- Power supply history logging and fault management
- Monitoring all input/output voltages, currents and power
- 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 management
- Collects data from temperature sensors for over temperature protection
- Precision compensation of all output voltages using integrated 5ppm voltage reference

| Overview              |             |
|-----------------------|-------------|
| P/N                   | PCI_800.108 |
| Hold Up time          | 1ms         |
| VITA Compliant        | VITA62      |
| Size                  | 3U          |
| Temp. Range           | -40 +85 C   |
| Input (AC or DC)      | DC          |
| Input Range (AC)      | 12-36       |
| Active EMI Filtering  | YES         |
| Power (W, max.)       | 1000        |
| Efficiency (% , typ.) | 95          |
| # of outputs          | 2           |

| OUTPUTS (Total output not to exceed 1000W) |          |
|--|----------|
| VS1, VS3, V@A                              | +28V@36A |
| VS2, V@A                                   |          |
| AUX, V@A                                   | +3.3V@2A |
| AUX, V@A                                   |          |
| AUX, V@A                                   |          |

| FEATURES                    |                  |
|-----------------------------|------------------|
| Over-current Protection     | YES              |
| Over-voltage Protection     | YES              |
| Over-temperature Protection | YES              |
| Current Sharing             | VS1, VS2         |
| Remote Sense                | YES              |
| Standard Control            | YES, VITA62      |
| Extended Control            | YES, PCI Systems |

| COMPLIANCE             |     |
|------------------------|-----|
| VITA62                 | YES |
| MIL-STD-704 (B-F)      | YES |
| MIL-STD-461            | YES |
| MIL-STD-810G           | YES |
| * ESD Protection       | YES |
| * Shock                | YES |
| * Vibration            | YES |
| * Rapid Decompression  | YES |
| * Corrosion Resistance | YES |
| * Fungus Resistance    | YES |
| * Altitude             | YES |
| * Humidity             | YES |

| INPUT CHARACTERISTICS             |      |      |      |       |                                      |
|-----------------------------------|------|------|------|-------|--------------------------------------|
| Parameter                         | Min. | Typ. | Max. | Units | Notes                                |
| Absolute Maximum Ratings          |      |      |      |       |                                      |
| <b>Input Voltage</b>              |      |      |      |       |                                      |
| - Non-Operating                   | -60  |      | 60   | V     | Continuous                           |
| - Operating                       | -40  |      | 40   | V     | Continuous- Reverse input Protection |
| - Operating Transient Protection  |      |      | 100  | V     | 50ms transient, square wave          |
| <b>Isolation Voltage</b>          |      |      | 2250 | V     |                                      |
| <b>Operating Temperature</b>      | -40  |      | 85   | C     |                                      |
| <b>Storage Temperature</b>        | -55  |      | 105  | C     |                                      |
| Electrical Characteristics        |      |      |      |       |                                      |
| <b>Input Voltage</b>              |      |      |      |       |                                      |
| - Continuous                      | 12   |      | 40   | V     |                                      |
| - Transient                       | 12   |      | 50   | V     | 100V Transient for 50 ms-- MIL 1275D |
| <b>Under-Voltage Lockout</b>      |      |      |      |       |                                      |
| - Turn-On Input Voltage Threshold | 9.5  | 9.8  | 10   | V     |                                      |

| INPUT VOLTAGE SPIKES SUPPRESSION (Vin Centered) |                                    |
|---|------------------------------------|
| +/- 450V, 100 us                                | MIL-STD-1275D                      |
| +/- 490V, 10 us                                 | MIL-STD-461C (CS06); DEF-STAN 61-5 |
| +/- 450V, 5 us                                  | MIL-STD-461C (CS06)                |
| +/- 600V, 10 us                                 | RTCA/DO-160E                       |

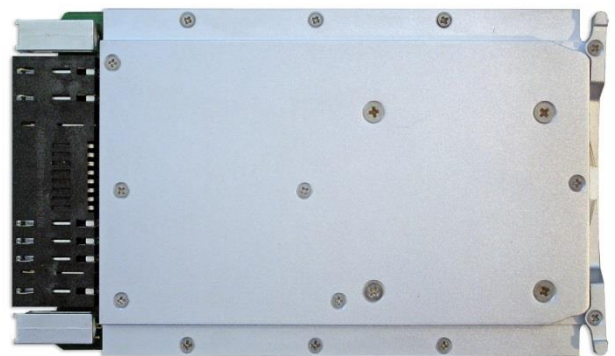
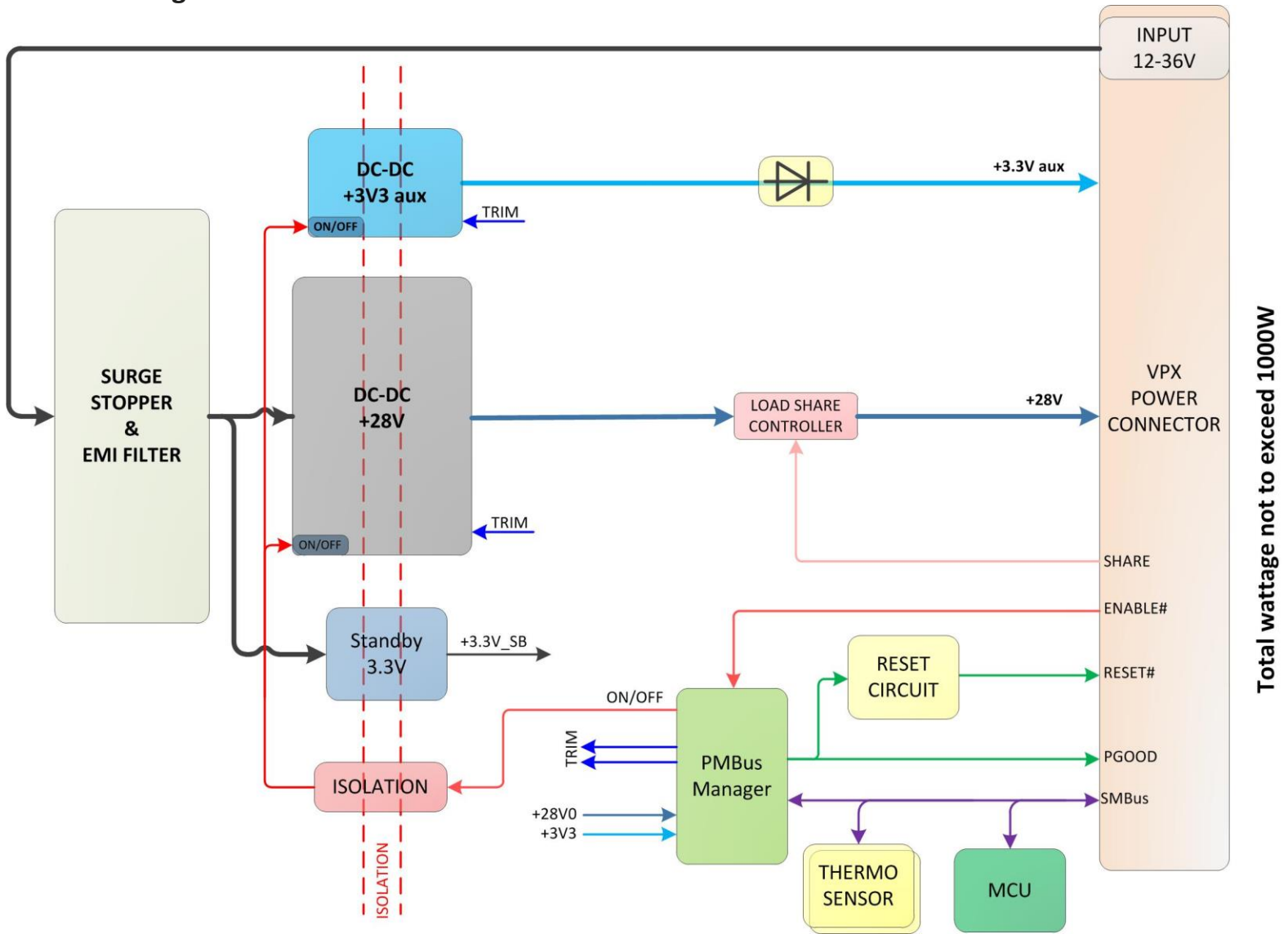
| OUTPUT CHARACTERISTICS            |         |             |  |           |  |  |
|-----------------------------------|---------|-------------|--|-----------|--|--|
| Parameter                         | +28V    | +12V option |  | +3.3V aux |  | Notes  |
| Output Voltage Set Point, V       | 28      | 12          |  | 3.3       |  | Vin = 28VDC                                    |
| - Drift -40 deg.C to 85degC +/- % | 0.01    |             |  | 0.01      |  | Vin = 28VDC                                    |
| Output Voltage Trim Range, V      | 28      | 12          |  | 3.3       |  | Over Line/load/temp.                           |
|                                   | +/- 10% | +/- 10%     |  | +/- 10%   |  | Over Line/load/temp.                           |
| Output Voltage Ripple (pk-pk), mV | 360     | 160         |  | 40        |  | Full load with 1 uF + 10 uF tantalum capacitor |
| Operating Current Range, A        | 0-36    | 0-80        |  | 0-2       |  | <b>1000W</b> Total, combined Output            |
| Over-Voltage Protection, V        | 32      | 13          |  | 3.6       |  |  |
| Current Limit Inception, A        | 40      | 81          |  | 2.5       |  |  |
| Maximum Output Capacitance, mF    | 10      | 10          |  | 0.5       |  |  |

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

## RELIABILITY CHARACTERISTICS

Calculated MTBF per MIL-HDBK-217F (GB) at 70 deg C. 4.1 270.000 Hrs.

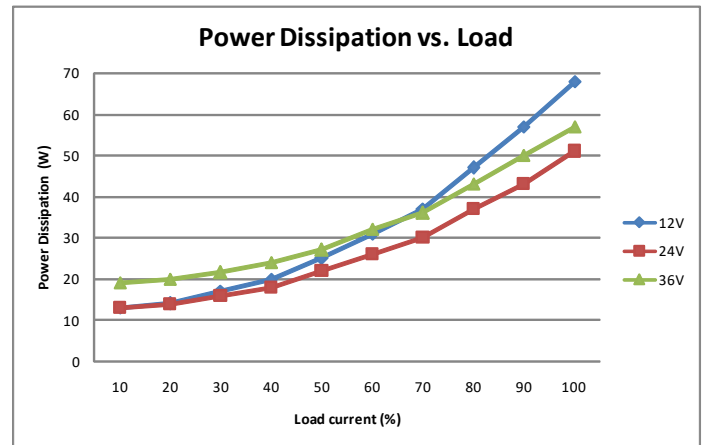
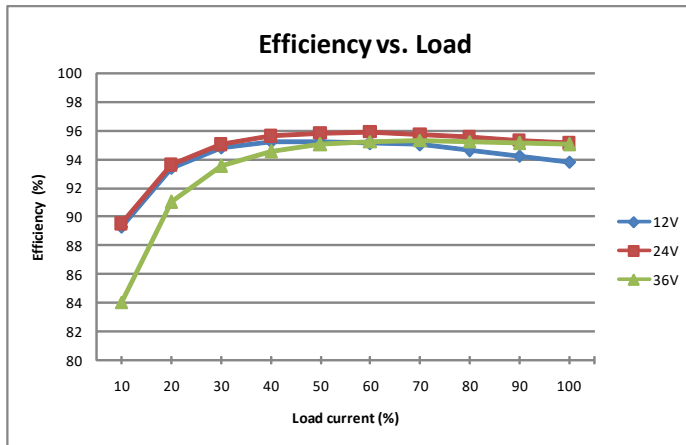
**Block Diagram:**



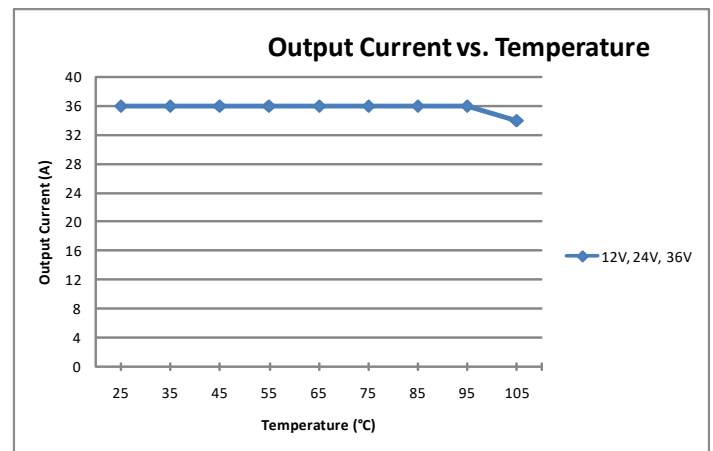
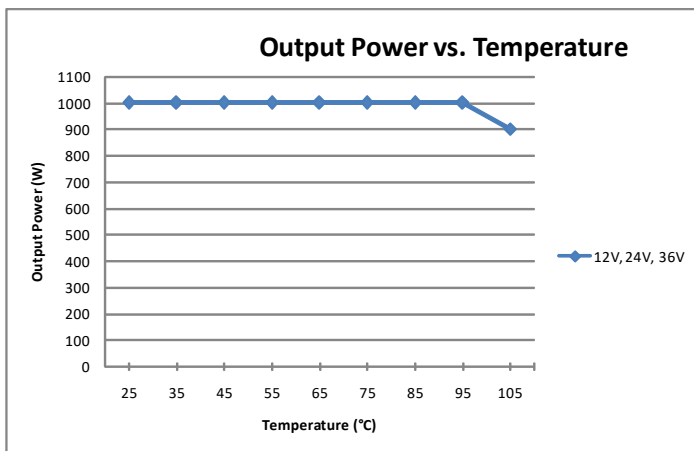
Pin-out: As per VITA 62 specification

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

### Characteristic curves:



Efficiency and Power Dissipation at nominal output voltage vs. load current for min, nom, max input V at 25°C



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

### ORDERING INFORMATION:

PCI\_800.108\_28

1000W 12-36VDC input isolated 28V output PS Version with Conformal Coating

PCI\_800.108\_12

1000W 12-36VDC input isolated 12V output PS Version with Conformal Coating

Release\_October\_22\_2020