Datasheet

VITA 62 POWER SUPPLY LINE PCI_ 800.114 Rev 1.1

Key Features:

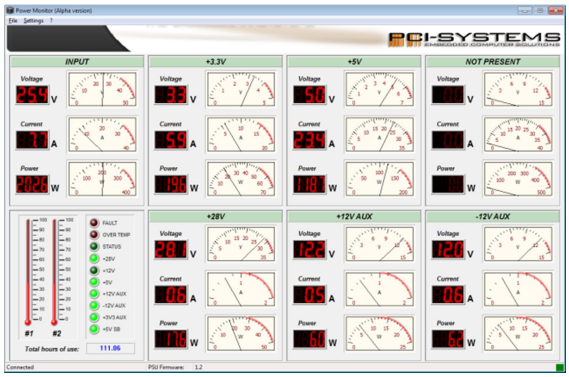
- 12-36VDC Continuous Input Voltage
- 2250V Isolation Between Input /Output
- Active Input EMI Filtering
- Transient forward looking/cut-off technology
- 6 Voltage output Rails
- 1000W Maximum Continuous Power
- 92% Typical Efficiency
- -40°C to 85°C Rail Operating Temperature
- VITA 62 6U Form Factor
- VITA 46.11 ready
- Patent pending **FourRail** thermal interface
- **[SMART.PSU]** Technology

VITA 62 6U ISOLATED 1000W 28V POWER SUPPLY

This 6U 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**, uses **poly-phase** technology on all voltage rails 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, 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 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_800.314**
Hold Up time	**1ms**
VITA Compliant	**VITA62**
Size	**6U**
Temp. Range	**-40 +85 C**
Input (AC or DC)	**DC**
Input Range (AC)	**12-36**
Active EMI Filtering	**YES**
Power (W, max.)	**1100**
Efficiency (%, typ.)	**93**
# of outputs	**6**

OUTPUTS (Total output not to exceed 1000W)	
VS1, VS2, V@A	**+12@80A**
VS3, V@A	**+5@40A**
AUX, V@A	**+3.3@20A**
AUX, V@A	**+12@3A**
AUX, V@A	**-12@3A**

FEATURES	
Over-current Protection	**YES**
Over-voltage Protection	**YES**
Over-temperature Protection	**YES**
Current Sharing	**VS1, VS2, VS3**
Remote Sense	**YES**
Standard Control	**YES, VITA62**
Extended Control	**YES, PCI Systems**

COMPLIANCE Designed to meet the following standards, additional circuitry in the chassis may be required	
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					
Input Voltage					
- *Non-Operating*	**-60**		**60**	V	Continuous
- *Operating*	**-40**		**40**	V	Continuous- Reverse input Protection
- *Operating Transient Protection*			**100**	V	50ms transient, square wave
Isolation Voltage			**2250**	V	
Operating Temperature	**-40**		**85**	C	
Storage Temperature	**-55**		**105**	C	
Electrical Characteristics					
Input Voltage					
- *Continuous*	**12**		**40**	V	
- *Transient*	**12**		**50**	V	100V Transient for 50 ms -- MIL 1275D
Under-Voltage Lockout					
- Turn-On Input Voltage Threshold	**9.5**	**9.8**	**10**	V	

INPUT VOLTAGE SPIKES SUPPRESSION (Vin Centered) Designed to meet the following standards, additional circuitry in the chassis may be required	
+/- 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**

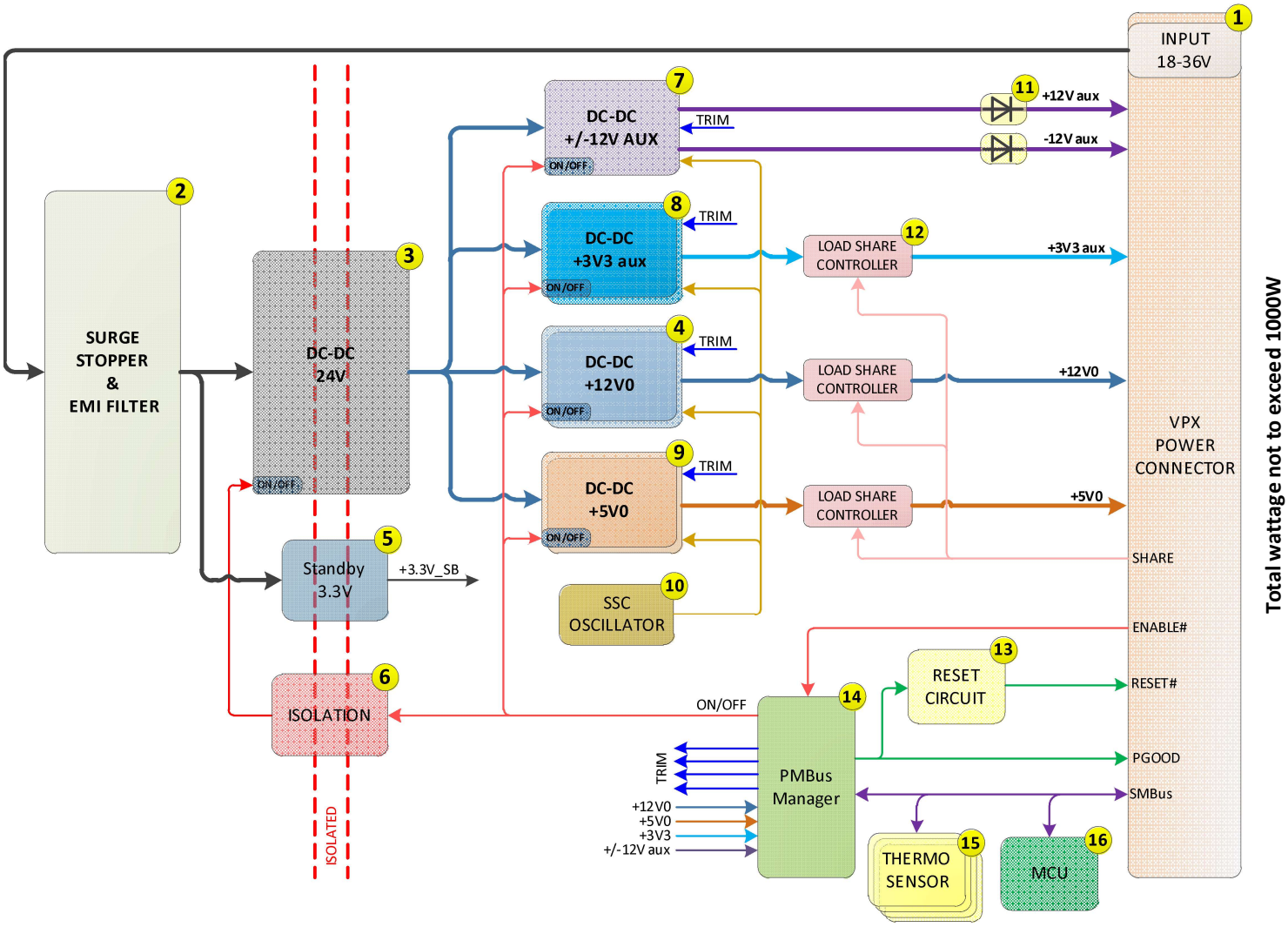
OUTPUT CHARACTERISTICS							
Parameter	*+12V*		*+5V*	*+3.3V aux*	*+12V aux*	*-12V aux*	*Notes*
Output Voltage Set Point, V	**12**		**5**	**3.3**	**12**	**-12**	Vin = 28VDC
- Drift -40 deg.C to 85degC +/- %	**0.01**		**0.01**	**0.01**	**0.01**	**0.01**	Vin = 28VDC
Output Voltage Trim Range, V	**12**		**5**	**3.3**	**12**	**-12**	Over Line/load/temp.
	+/- 10%		+/- 10%	+/- 10%	+/- 10%	+/- 10%	Over Line/load/temp.
Output Voltage Ripple (pk-pk), mV	**120**		**50**	**40**	**80**	**80**	Full load with 1 uF + 10 uF tantalum capacitor
Operating Current Range, A	**0-80**		**0-40**	**0-20**	**0-3**	**0-3**	**1000W** Total, combined Output
Over-Voltage Protection, V	**13.6**		**6**	**3.6**	**13.6**	**-13.6**	
Current Limit Inception, A	**82**		**42**	**22**	**3**	**3**	
Maximum Output Capacitance, mF	**10**		**10**	**10**	**1**	**1**	

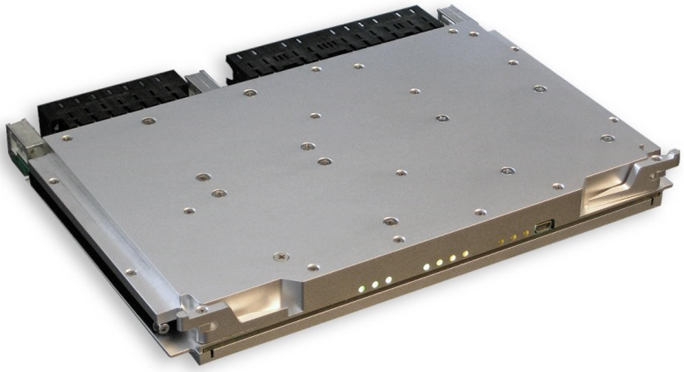
MODULE QUALIFICATION Designed to meet the following standards, additional circuitry in the chassis may be required	
Test Name	*Method*
Random Vibration	**MIL-STD-810, 514.6 - Procedure I, Class V3**
Shock	**MIL-STD-810, 516.6 - Procedure I, VI, Class OS2**
Altitude	**MIL-STD-810, 500.5 - Procedure I, 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. 4.1 280.000 Hrs.
Calculated MTBF per MIL-HDBK-217F (GM) at 70 deg C.0.92 250.000 Hrs.

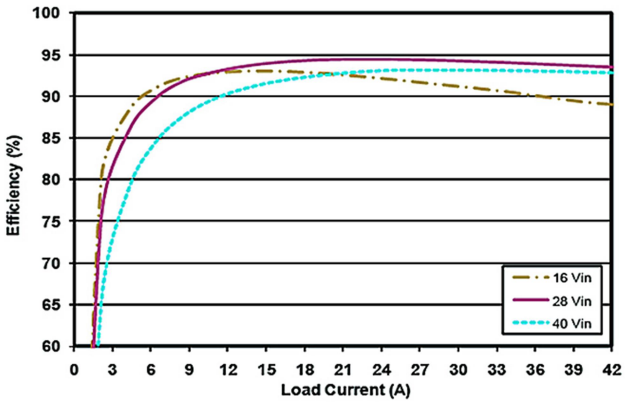
Block Diagram:



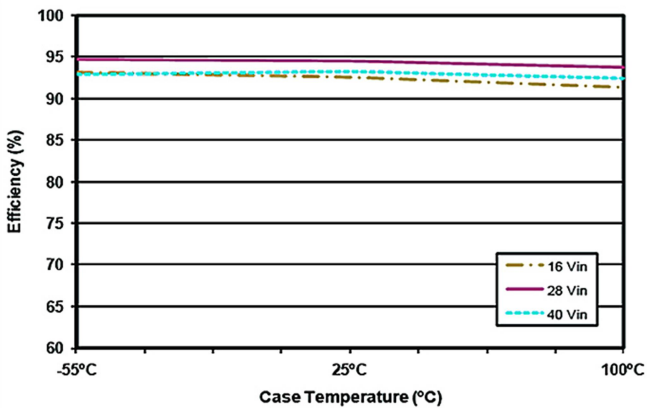


Pin-out: **As per VITA 62 specification**
Mechanical Dimensions: **As per VITA 62 specification (1” pitch)**

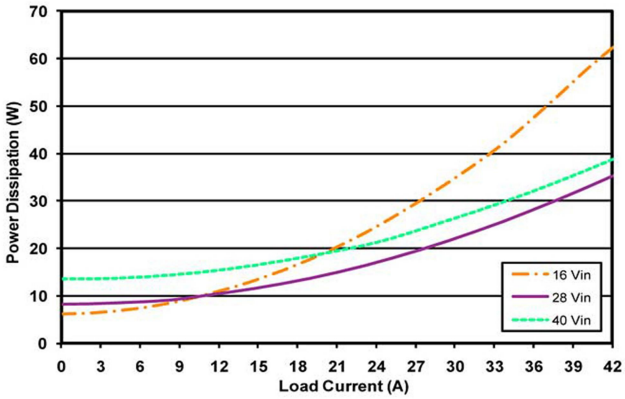
Efficiency for internal DC-DC stages:



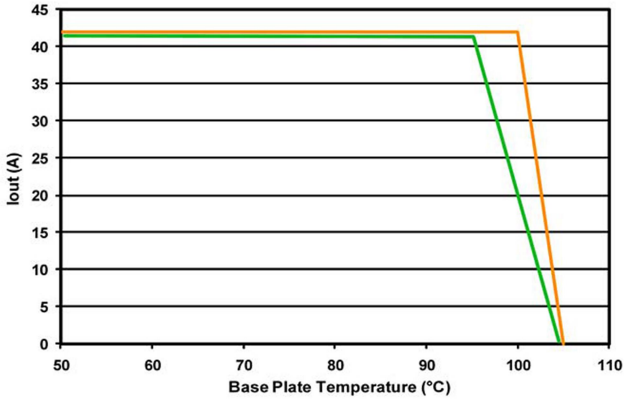
Efficiency at nominal output voltage vs. load curent for min, nom, max input V at 25°C



Efficiency at nominal output voltage and 60% rated power vs. case temp for min, nom, max input voltage



Power Dissipation at nominal output voltage vs. current at module cover 25°C (Delta T to wedgelock 7C°)



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

ORDERING INFORMATION:

PCI_800.314	6U VITA 62 1000W18-36VDCIsolated Rugged Power Supply
PCI_800.314_C	Version with Conformal Coating

Release_January_8_2017