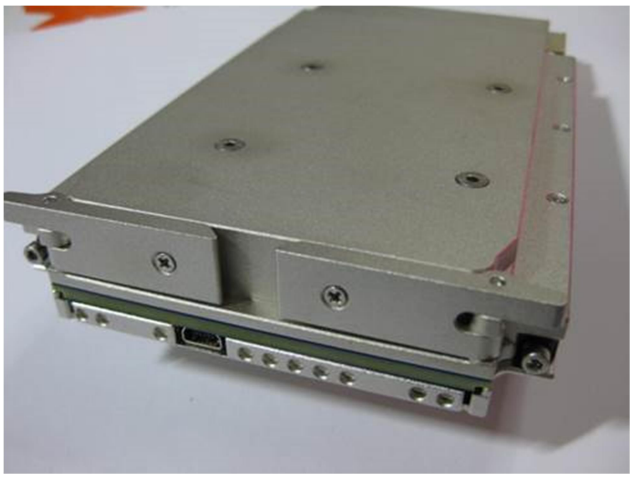
Datasheet

VITA 62 POWER SUPPLY LIN PCI_800.103 Rev. 1.0



Key Features:

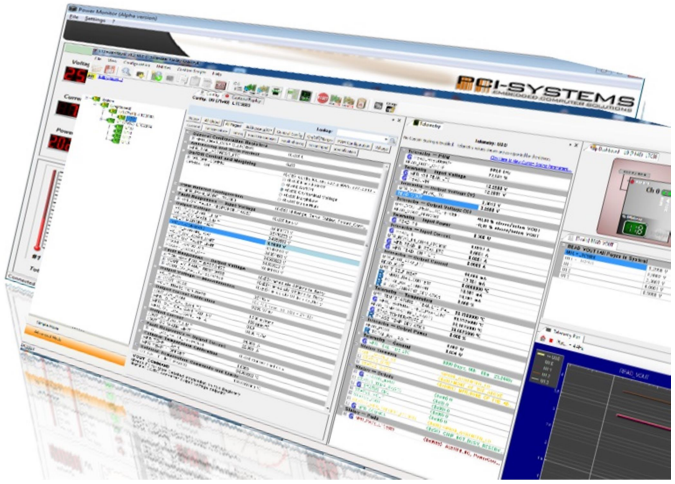
- **12V-40V wide Continuous Input Voltage**
- **9V-40V input optional**
- **Designed for cPCI and VME upgrades**
- **Voltage Rails sequencing programmable**
- VBAT - 400 microAmps source on board
- 2300V Isolation Between Input /Output
- Active Input EMI Filtering
- Transient look ahead/cut-off technology
- 5 Voltage output Rails, **80A at 5V**
- Isolated 3.3V aux standby feature
- 500W Maximum Power
- NO derating up to 85 deg. C at the rail
- 93% Typical Efficiency

VITA 62 3U ISOLATED 500W 28VDC POWER SUPPLY

This 3U power supply works with **12VDC to 36 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**.

[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_800.103**
Input Hold Up time	**1ms**
VITA Compliant	**VITA62**
Size	**3U**
Temp. Range	**-40 +85 C**
Input (AC or DC)	**DC**
Input Range (VDC)	**12-40 9-40 optional**
Active EMI Filtering	**YES**
Power (W, max.)	**500**
Efficiency (%, typ.)	**93**
# of outputs	**5**

OUTPUTS (Total output not to exceed 500W)	
VS1, V@A	**+5@40A**
VS2, V@A	**+3.3@20A**
VS3, V@A	**+5@40A**
AUX, V@A	**+3.3@4A**
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 E	**YES**
MIL-STD-810 G	**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			**2300**	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 50ms -- MIL 1275E**
Under-Voltage Lockout					
- Turn-On Input Voltage Threshold	**11**	**11.5**	**11.8**	V	**9V input optional**

INPUT VOLTAGE SPIKES SUPPRESSION (Vin Centered) Designed to meet the following standards, additional 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		*+5V*	*+3.3V*	*+3.3V aux*	*+12V aux*	*-12V aux*	*Notes*
Output Voltage Set Point, V		**5**	**3.3**	**3.3**	**12**	**-12**	Vin = 28V
- Drift -40 deg.C to 85degC +/- %		**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	Vin = 28V
Output Voltage Trim Range, V		**5**	**3.3**	**3.3**	**12**	**-12**	Over Line/load/temp.
		+/- 10%	+/- 10%	+/- 10%	+/- 10%	+/- 10%	Over Line/load/temp.
Output Voltage Ripple (pk-pk), mV		**50**	**40**	**40**	**50**	**50**	Full load with .1 uF ceramic + 10 uF tantalum capacitor **on ALL slots. Min 4 slots**
Operating Current Range, A		**0-80**	**0-20**	**0-4**	**0-3**	**0-3**	**500W** Total, combined Output
Over-Voltage Protection, V		**6**	**3.6**	**3.6**	**13**	**-13**	Digitally adjustable
Current Limit Inception, A		**85**	**22**	**5**	**3.1**	**3.1**	Digitally adjustable
Maximum Output Capacitance, mF		**10**	**10**	**1**	**1**	**1**	

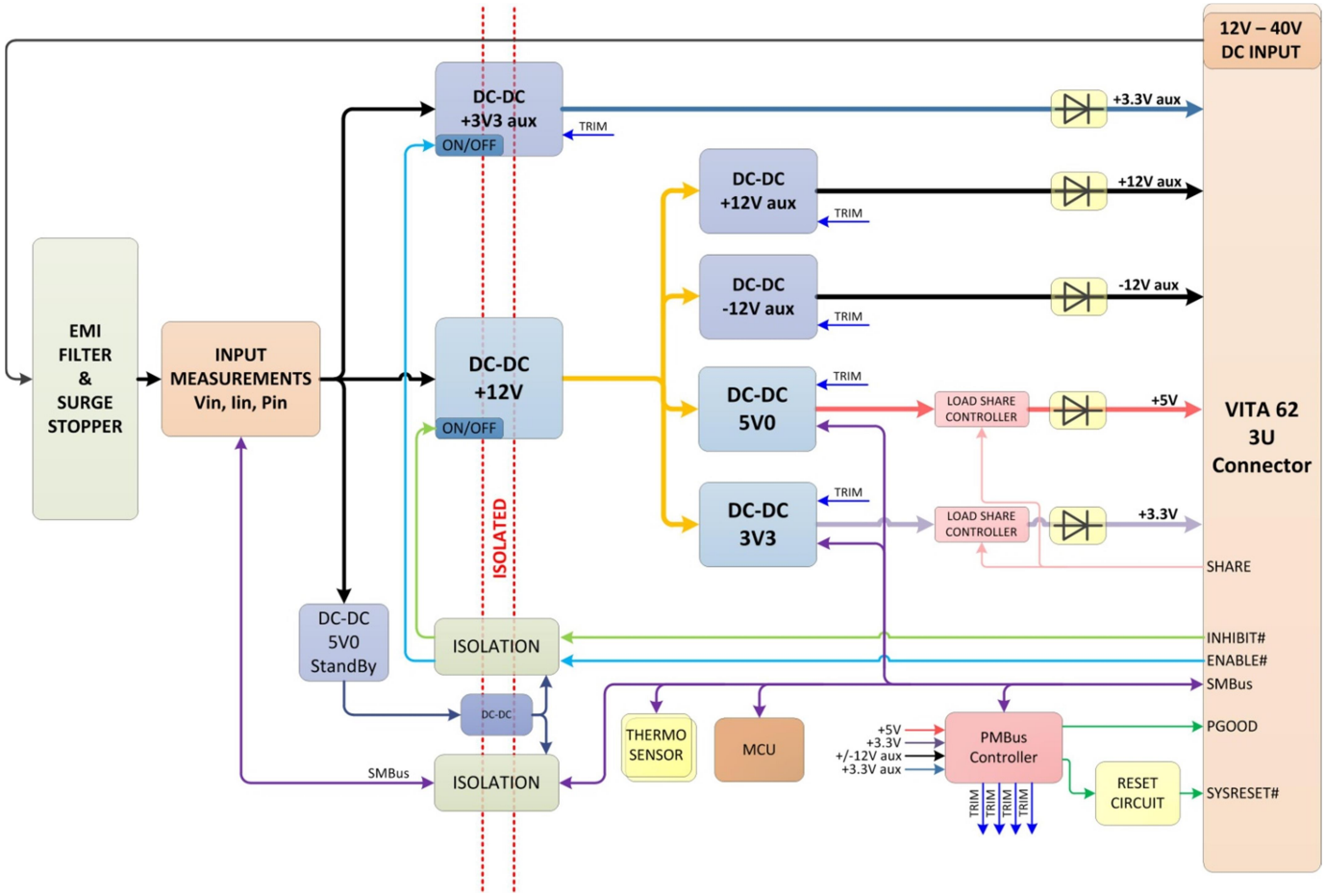
MODULE QUALIFICATION Designed to meet the following standards, additional circuitry in the chassis may be required	
Test Name	*Method*
Random Vibration	**MIL-STD-810, 514.6 - Procedure I, Class V3**
Shock	**MIL-STD-810, 516.6 - Procedure I, VI, Class OS2**
Altitude	**MIL-STD-810, 500.5 - Procedure I, II, III Tested at 45.000 feet pressure**
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**

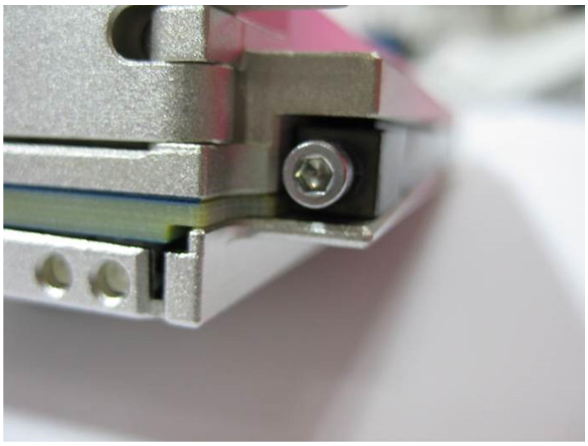
RELIABILITY CHARACTERISTICS

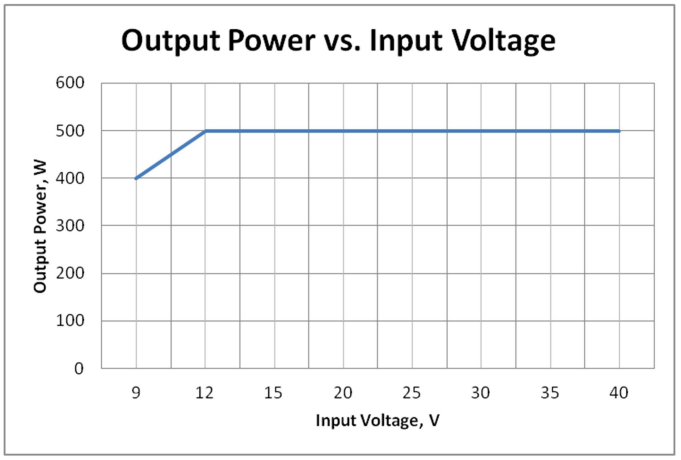
Calculated MTBF per MIL-HDBK-217F (GB) at 70 deg C.2.500.000 Hrs.
Calculated MTBF per MIL-HDBK-217F (GM) at 70 deg C. 480.000 Hrs.

Block Diagram:

9V-40V input optional
12V-40V input standard





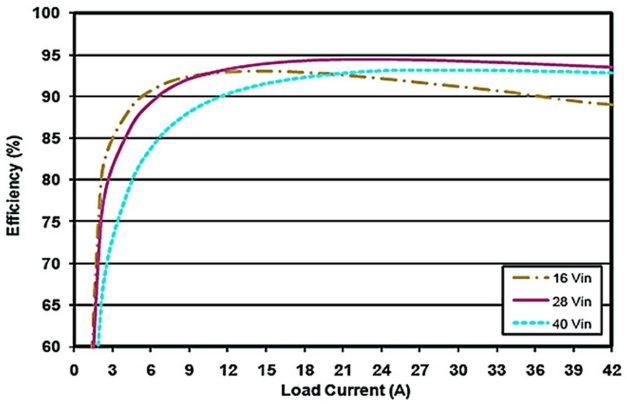


Patent pending 4 way heat transfer design
Results in 90 % more heat transfer surface.
NO chassis slot dimension change needed

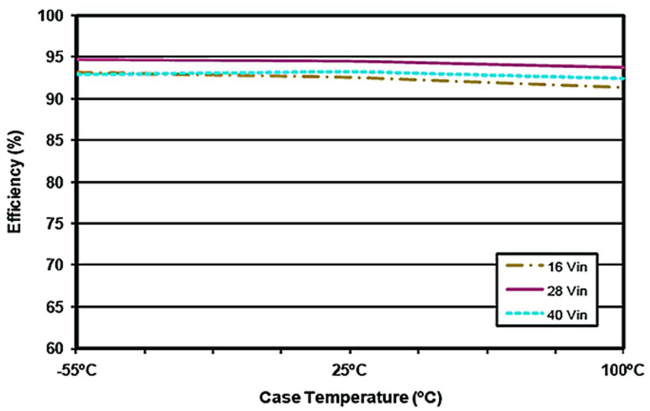
Power Supply Signals

P0 CONNECTOR		
Pin#	**Name**	**Comment**
P1	-DC_IN	
P2	+DC_IN	
LP1	CHASSIS	
A1	UD1	+12V aux (Optional)
B1	UD2	+12V aux (Optional)
C1	UD3	-12V aux (Optional)
D1	UD4	-12V aux (Optional)
A2	VBAT	VBAT - 400 microAmps source
B2	FAIL#	Open-Collector
C2	INHIBIT#	
D2	ENABLE#	
A3	UD0	
B3	+12V_AUX	
C3	NED	Not used
D3	NED_RETURN	Not used
A4	+3.3V_AUX	
B4	+3.3V_AUX	
C4	+3.3V_AUX	
D4	+3.3V_AUX	
A5	GA0#	
B5	GA1#	
C5	SM0	I2C Clock
D5	SM1	I2C Data
A6	SM2	Not used
B6	SM3	Not used
C6	-12V_AUX	
D6	SYSRESET#	Open-Collector
A7	+5V0_SHARE	
B7	+3V3_SHARE	
C7	+5V0_SHARE	
D7	SIGNAL_RETURN	
A8	+5V0_SENSE	
B8	+3V3_SENSE	
C8	+5V0_SENSE	
D8	SENSE_RETURN	
P3	+5V0	
P4	POWER_RETURN	
P5	POWER_RETURN	
LP2	+3V3	
P6	+5V0	

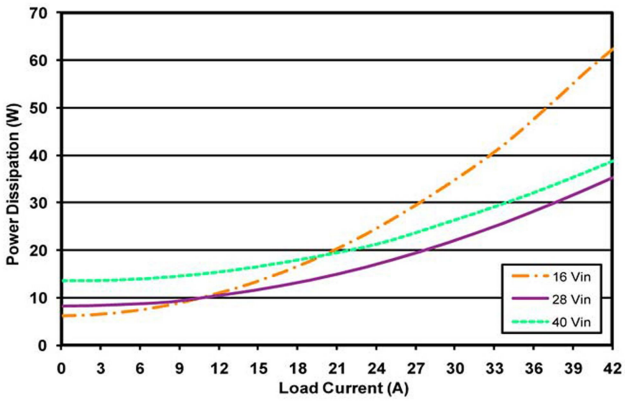
Mechanical Dimensions: **As per VITA 62 specification (1” pitch)**



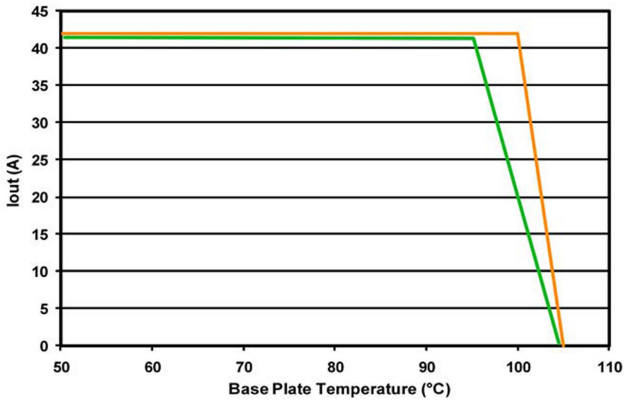
Efficiency at nominal output voltage vs. load curent for min, nom, max input V at 25°C



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_800.103_C	3U VITA 62 28VDC 500W Isolated Rugged Power Supply
PCI_800.103_C_LI	9V minimum input, 3U VITA 62 28VDC 500W Isolated Rugged Power Supply
PCI_800.103_C_H	3U VITA 62 28VDC 500W Isolated Rugged Power Supply high altitude 45,000 feet
	All versions are conformal coated

Release_November_07_2019