




FEATURES

- 3U x 8HP
- 36-75 VDC Input range
- 325 watt continuous output power
- Complies with PICMG 2.11 R1.0 with 47 Pin I/O connector
- Hot-swap capable
- No minimum load
- Outputs individually protected against overloads; automatic recovery
- IPMI functionality
- Operating temperature 0°C-50°C
- Full power with 200lfm airflow

DESCRIPTION

The cPCI325D-10xC is a high-reliability, 325 watt power supply for 3U CompactPCI™ systems. Developed to support hot-swap, redundant operation, the cPCI325D-10xC is designed for compliance with PICMG™ 2.11 R1.0 Power Interface Specification with 47-pin I/O connector. With integral IPMI functionality, this unit was developed with high-availability (HA) telecommunications applications in mind. Current sharing and internal ORing FETs are included to support these and other applications requiring reliable, hot-swap performance and N+1 redundant configuration. The high power density and complement of global agency approvals provide for an advanced, high-efficiency power solution for your CompactPCI™ system requirements.

SELECTION GUIDE

Model Number	Power	Output Current				Modification	
		5V	3.3V	12V	-12V		
CPCI325D-101C	325W	30A	40A	5A	1A	Customer PN in FRU	Yes
CPCI325D-10xC	325W	30A	40A	5A	1A	Customer defined	Yes

INPUT CHARACTERISTICS

Parameter	Conditions	Min	Typ	Max	Units
Input operating voltage		36		75	Vdc
Input voltage withstand		34		75	
Inrush current	36-72VDC input, full load		<8		A _{PK}
Input reverse polarity	A shunt diode across the input clears the input fuse in the event that the input polarity is reversed.				

OUTPUT CHARACTERISTICS

Output Number	Rated Output Voltage (V _{OUT})	Rated Output Current (I _{OUT})			Total Output Regulation ¹
		Min	Typ	Max	
V1	+5.0Vdc	0A		30A	+4/ -2%
V2	+3.3Vdc			40A	
V3	+12Vdc			5.0A	±4%
V4	-12Vdc			1.0A	
Parameter	Conditions	Min	Typ	Max	Units
Temperature Coefficient				0.02	%/°C
Output Ripple & Noise	20MHz bandwidth V1, V2 20MHz bandwidth V3, V4		120	50 240	mV _{P-P}
Output Power	50°C MAX. temp., 200 lfm			325	W
Efficiency	48VDC input, full load		80		%
Transient Response	Peak deviation (50-100% & 100-50% step)			±5	%
	Settling time (within 1% V _{OUT NOM})			500	µs
Over-Voltage Protection	All outputs		125	135	% V _{NOM}
Minimum Load	All outputs	0			A
Holdup time	From -54VDC input		4		msec
Overload Protection	Outputs are individually protected against overloads and indefinite short circuit with automatic recovery upon removal of the fault condition. Overload response for outputs V1-V3 is constant-current mode, with hiccup mode response to a hard short. Overload response for V4 is linear foldback.				
Remote Sense	Outputs V1-V3 are capable of compensating >250mV of line drop. Unit automatically reverts to local sensing in the event that the sense leads are opened for any reason. Unit is protected against reversed or shorted sense leads.				
Current Share	Active droop current sharing on Outputs V1-V3. Accuracy better than 10% of maximum rated load. Passive current sharing on output V4. Up to 8 units can be operated in a parallel array.				

NOTES: 1. Total regulation includes line, load, & cross regulation.



TEMPERATURE CHARACTERISTICS					
Parameter	Conditions	Min	Typ	Max	Units
Specification	200lfm of airflow is required to maintain full output power at 0-50°C ambient. Derate to 160W at 70°C. Unit will deliver full power at 55°C for 96 hours.	0		70	°C
Storage		-20		85	
Over Temperature Protection	Unit is protected against thermal overload. Output will automatically restore upon recovery to acceptable temperatures.				
Altitude	Operating -200 to +10,000 feet with ambient temperature derating above 5,000 feet in accordance with the adiabatic lapse rate (approximately 2°C per 1,000 ft.).				

CONTROL INPUTS & WARNING SIGNALS	
Signal/Indicator	Operational function
Enable (EN#)	Short pin on connector will enable power supply output when the mating pin is grounded. Supply will not power up until this pin is engaged to its mate in the backplane. Unit output will be inhibited as pin is disengaged from the mating connector.
Remote Inhibit (INH#)	Secondary referenced, active low, TTL compatible signal inhibits all outputs upon activation.
Power Fail Warning (FAL#)	Open collector signal indicates output fault condition. Active low.
Thermal Warning (DEG#)	Open collector indicates internal temperatures are approaching the thermal shutdown limit ($\pm 10^{\circ}\text{C}$ TYP.) Active low.
Fault Indicator LED	An amber LED will be ON if output voltages are not within specification. This LED can be extinguished under IPMI command.
Power Present LED	A green LED will be ON when input voltage is present and above the minimum requirement. LED blinks at a rate of 1Hz when input is present but output is inhibited.

IPMI & HOT SWAP CAPABILITY

IPMI
The cPCI325D-10xC is equipped with an IPMI interface to the SM bus. Status functions include output voltage and current levels as well as the DEG warning. Output inhibit control can be toggled under software command. For a complete specification of the firmware solution refer to Application Note ACAN-05 on our website.

HOT SWAP CAPABILITY

Design Verification Testing (DVT) confirms that voltage excursions on the output buses resulting from insertion/extraction events do not exceed $\pm 5\%$. However, routing of power and signal lines in the mating backplane is critical to minimization of such excursions. In addition, performance can be critically affected by load characteristics including negative resistance, resistance, and reactive components. While the control loop responses have been designed for optimum hot-swap performance over a wide range of load characteristics, there may be instances where the voltage excursions exceed published specification. In such cases, the control loop responses can be modified to perform optimally.

OUTPUT FAULT ISOLATION

Output isolation devices are present in all outputs to isolate faults within a failed power supply.

EMC & SAFETY

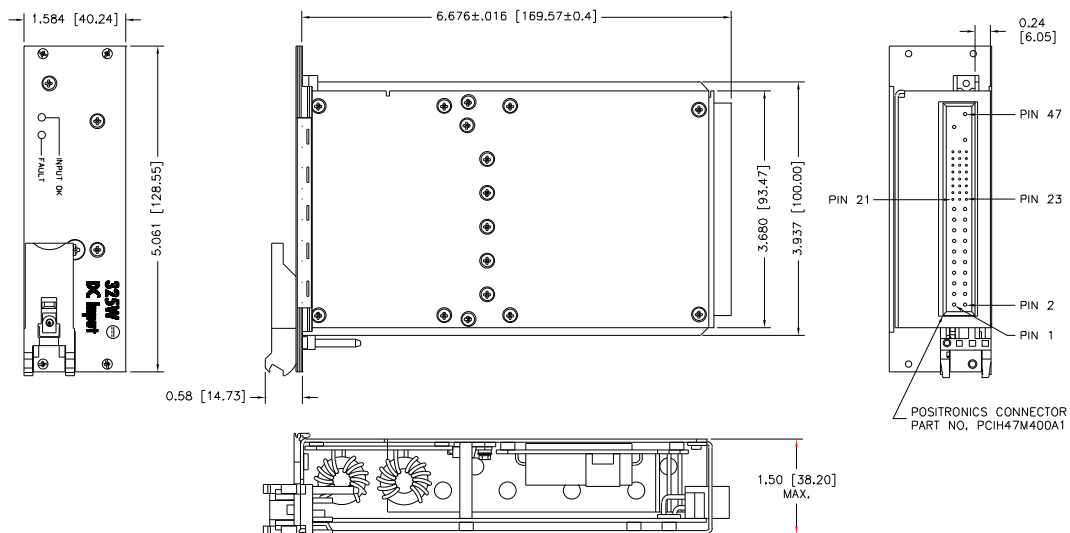
EMI:	Safety Agency Ratings:	325 Watt
■ NEBS Compliant to GR1089 conducted emissions limit.	Input voltage:	36-75 VDC
■ ETSI Compliant to ETS 300-386 conducted emissions test.	Input current:	12A
■ Complies with EN 61000-4-2, EN 61000-4-3, and EN 61000-4-8.	Input power:	430W
	Agency approvals:	UL60950, EN 60950, CE Mark (Low voltage directive).

IPMI/IPMB POWER SUPPLY SATELLITE CONTROLLER FEATURES

- Complies with IPMI V1.5 Rev 1.1 and IPMB V1.0
- Complies with PICMG 2.9 (CompactPCI Systems Management Specification)
- 8 analog inputs configured for monitoring voltages and currents on power supply outputs V1 - V4
- Monitors the thermal sensor (DEG#) and fault signal (FAL#)
- Output inhibit can be controlled by IPMI commands
- Self Test with LED indicator (can be read and overridden by IPMI commands)
- 6 programmable thresholds on each analog sensor; each threshold on each sensor can be enabled to generate event messages if that threshold is crossed
- Thermal sensor can be enabled to generate event messages
- Responds to all mandatory IPMI commands and numerous optional commands as indicated in the functional specification
- Firmware can be upgraded via the IPMB bus
- Includes Device SDR's (Sensor Data Records) – These specify the type of sensor for each input (voltage, current, temperature, etc.) as well as the conversion formulas for raw ADC data to voltages, currents, etc.
- Includes FRU data such as model number, serial number and firmware creation date

PACKAGE SPECIFICATIONS

MECHANICAL DIMENSIONS



All dimensions in inches ±0.01 (mm ±0.25mm).

Weight: 0.7kg

Shock: MIL-STD-810d, Method 516.3, Procedure 1.
 Vibration: MIL-STD-810d, Method 514.3, Procedure 1.
 Dimensions: 3U x 8HP x 160mm.

PACKAGE SPECIFICATIONS (continued)

PIN CONNECTIONS			
Pin # ¹	Staging ²	Signal Name	Description
1-4	M	V1	V1 output
5-12	M	RTN	V1 and V2 return
13-18	M	V2	V2 output
19	M	RTN	V3 return
20	M	V3	V3 output
21	M	V4	V4 output
22	M	RTN	Signal return
23	M	RESERVED	Reserved
24	M	RTN	V4 return
25	M	GA0	Geographic Address Bit 0
26	M	RESERVED	Reserved
27	S	EN#	Enable
28	M	GA1	Geographic Address Bit 1
29 ³	M	V1ADJ	V1 adjust
30	M	V1 SENSE	V1 Remote sense
31	M	GA2	Geographic Address Bit 2
32 ³	M	V2ADJ	V2 adjust
33	M	V2 SENSE	V2 remote sense
34	M	S RTN	Sense return
35 ³	M	V1 SHARE	V1 current share
36	M	V3 SENSE	V3 remote sense
37	M	IPMB SCL	IPMB serial clock line
38	M	DEG#	Degrade signal
39	M	INH#	Inhibit
40	M	IPMB SDA	IPMB serial data line
41 ³	M	V2 SHARE	V2 current share
42	M	FAL#	Fail signal
43	M	IPMB PWR	IPMB power input
44	M	V3 SHARE	Sync start
45	L	CGND	Chassis Grnd (safety Grnd)
46	M	ACN/+DC IN	AC input neutral/+DC input
47	M	ACL/-DC IN	AC input line/-DC input

1. Pin numbers correspond to the female backplane connector.
2. Length Pins; S = Short Length Pins (Last Make, First Break) L = Long Length Pin (First Make, Last Break); M = Medium.
3. These functions are not used in the cPCI325D-10xC Series.

RoHS COMPLIANCE INFORMATION



This series is compatible with RoHS soldering systems with a peak wave solder temperature of 300°C for 10 seconds. The pin termination finish on this product series is Tin Plate, Hot Dipped over Matte Tin with Nickel Preplate. The series is backward compatible with Sn/Pb soldering systems. For further information, please visit www.cd4power.com/rohs

ISO9001

CERTIFIED



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