

cPCI420DC

420 Watt, 6U x 8HP, CompactPCI



- 6U X 8HP
- 36-72 VDC Input Range
- 420 Watts Continuous Output Power
- Complies with PICMG 2.11 R1.0 with 47 Pin I/O Connector
- Hot-Swap Capable
- Outputs Individually Protected Against Overloads; Automatic Recovery
- PCI Voltage Architecture (5V, 3.3V, +12V, -12V)
- No Minimum Load

ISO9001
CERTIFIED

The cPCI420DC is a high-reliability, 420 watt power supply for 6U Compact PCI™ systems. Developed to support hot-swap, redundant operation, the cPCI420DC is designed for compliance with PICMG™ 2.11 R1.0 *Power Interface Specification* with 47-pin I/O connector, as well as the underlying CompactPCI™ standards. Operating from 36-72VDC, this unit was developed with high-availability (HA)

telecommunications applications in mind. Active current sharing and internal ORing diodes are included to support these and other applications requiring reliable, hot-swap performance and N+1 redundant configuration. The 8HP package and complement of agency approvals provide for a complete power solution for your CompactPCI™ system requirements.



SPECIFICATIONS, ALL MODELS

	PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
INPUT	Input Operating Voltage	V _{in}		36		72	VDC
	Input Voltage Withstand			34		75	VDC
	Inrush Current	I _i	36VDC input		8		APK
			72VDC input		16		APK
	Efficiency	μ	48VDC input, 420W load		68		%

	OUTPUT NUMBER	V _{out} RATED OUTPUT VOLTAGE	I _{out} RATED OUTPUT CURRENT		REGULATION		
			MIN	MAX			
OUTPUT	V1	+5.0VDC	0A	50 A*	+2%		
	V2	+3.3VDC	0A	40 A*	+2%		
	V3	+12.0VDC	0A	12 A	+4%		
	V4	-12.0VDC	0A	2.0 A	+/-4%		
	PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
	Voltage Adjustment		V1 and V2 only		±5		%
	Temperature Coefficient	TC				0.02	%/°C
	PARD		20MHz bandwidth all outputs			50 mV _{p,p} or 1.0% P-P whichever is greater	
	Output Power		50°C max temp.			420	W

* Combined currents from outputs V1 & V2 not to exceed 60A.

SPECIFICATIONS, ALL MODELS

Current Share

Active current sharing is employed on outputs V1, V2, and V3. Accuracy exceeds 10% of maximum rated load. $N_{max} = 4$. Output V4 to share within 40% of maximum rated load by means of droop response.

Remote Sense

Outputs V1, V2, and V3 capable of compensating up to 0.5VDC 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.

Output Power

420W continuous maximum, with 400lfm airflow at a maximum ambient of 50°C. See Derating Chart below for additional data.

Overload Protection

Outputs are individually protected against overloads and indefinite short circuit with automatic recovery upon removal of the fault condition.

Over Voltage Protection

Output V1 OVP set at $6.0V \pm 0.5VDC$. Output V2 OVP set at $4.3V \pm 0.5VDC$. Output V3 OVP set at $13.5 \pm 0.5VDC$. Output V4 OVP set at $-13.5 \pm 0.5VDC$. The power supply will shut down and latch off under an OVP fault condition. Restart of the unit is accomplished by cycling of the input power.

Over Temperature Protection

Thermal switch shuts down the power supply in the event that critical temperatures are exceeded. Unit will automatically restart when acceptable temperatures are restored.

Output Fault Isolation

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

Synchronous Start

Interconnection of the Sync Start pin (pin 23) ensures that the outputs of parallel supplies will be enabled simultaneously to ensure sufficient source current in applications where the load current exceeds the capacity of a single power supply module.

Remote Inhibit (INH#)

Secondary referenced, active low, TTL compatible signal inhibits all outputs upon activation.

Power Fail Warning (FAL#)

Secondary referenced, active low, TTL compatible signal indicates output failure.

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.

Temperature Warning (DEG#)

Open collector indicates internal temperatures are approaching the thermal shutdown limit.

Fault Indicator

Red LED will be ON if output voltages are not within specification.

Power Present LED

Green LED will be ON when input voltage is present and above the minimum requirement.

Cooling

400 lfm of airflow required to maintain full output power at 0-50°C ambient. See Derating Chart below for additional data.

Temperature

0-70°C operating range with full output power achievable over the range of 0-50°C. See Derating Chart on page 4 for additional data. Storage temperature limits are -20 to +85°C.

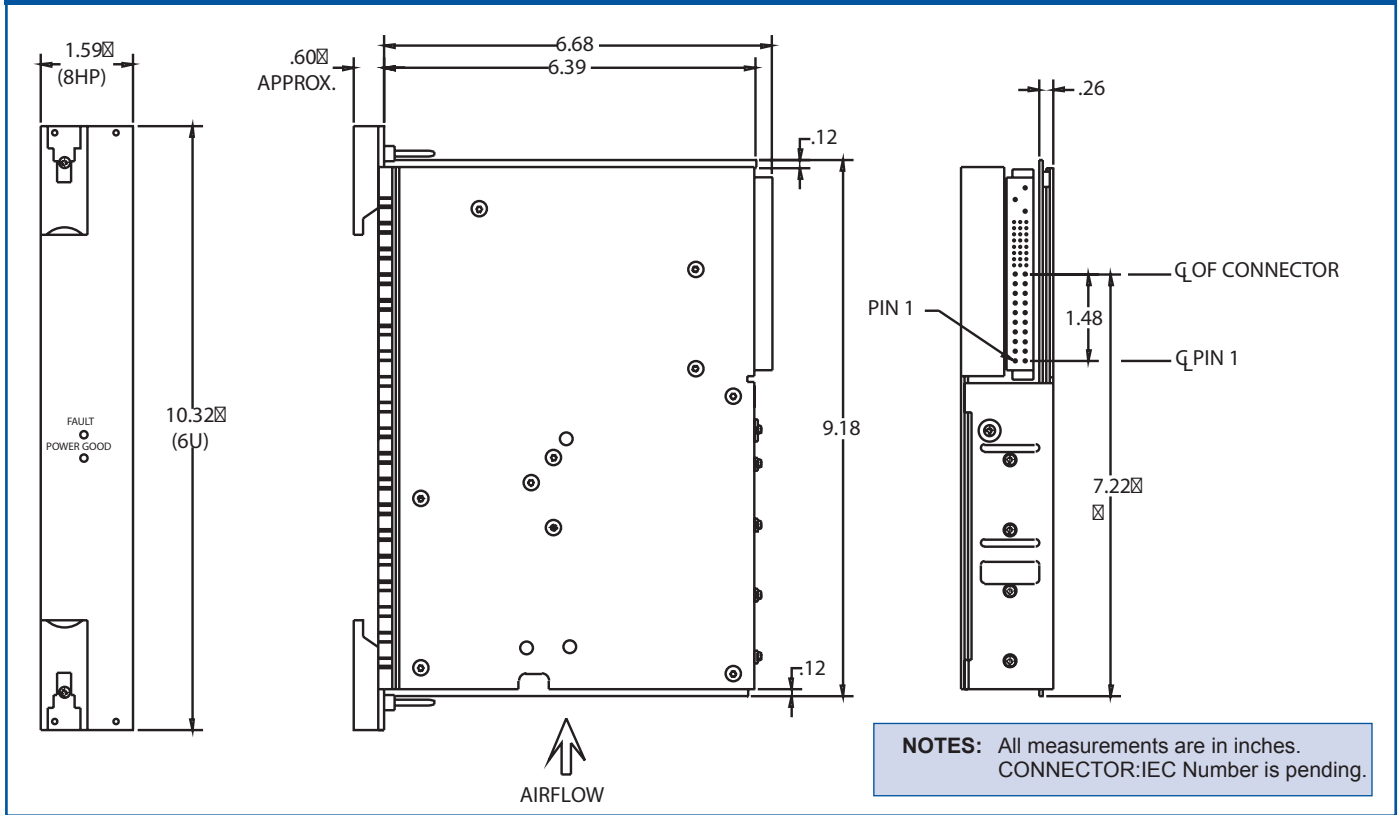
Altitude

Operating: -200 to +10,000 feet with ambient temperature derating above 5,000 feet in accordance with the adiabatic lapse rate.

Hot Swap Capability

Design Verification Testing (DVT) confirms that voltage excursions on the output buses resulting from insertion/extraction events do not exceed +/-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.

MECHANICAL



PIN ASSIGNMENT: Pin assignment consistent with PICMG™ 2.11R1.0 specification. The table below details the PICMG™ assignment.

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 ³	Reserved
24	M	RTN	V4 Return
25	M	GA0 ⁴	Geographic Address Bit 0
26	M	RESERVED	Reserved
27	S	EN#	Enable
28	M	GA1 ⁴	Geographic Address Bit 1
29	M	V1ADJ ⁴	V1 Adjust
30	M	V1 SENSE	V1 Remote Sense
31	M	GA2 ⁴	Geographic Address Bit 2
32	M	V2ADJ ⁴	V2 Adjust
33	M	V2 SENSE	V2 Remote Sense
34	M	S RTN	Sense Return
35	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	M	V2 SHARE	V2 Current Share
42	M	FAL#	Fail Signal
43	M	IPMB PWR	IPMB Power Input
44	M	V3 SHARE	V3 Current Share
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

MECHANICAL

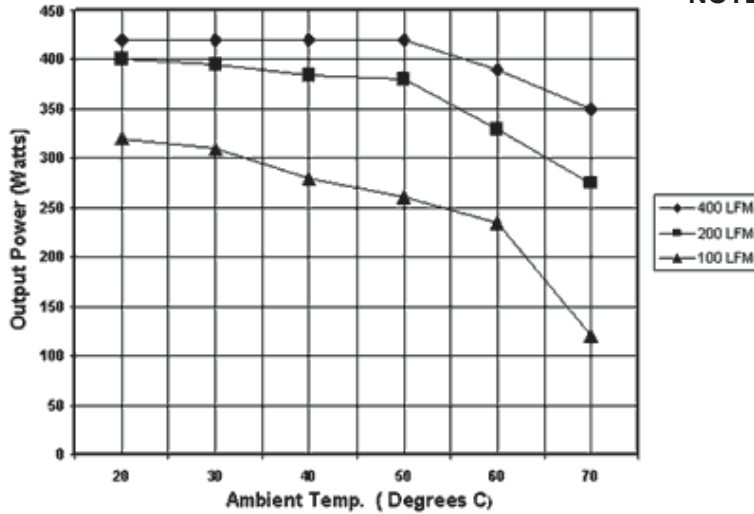
Shock: MIL-STD-810d, Method 516.3, Procedure 1.
 Vibration: MIL-STD-810d, Method 514.3, Procedure 1.
 Dimensions: 6U x 8HP x 160mm (see Mechanical above)

EMC & SAFETY

EMI: NEBS Compliant
 Safety Agency Ratings
 Input Voltage: 48 VDC
 Input Current: 15A
 Input Power: 650W
 Agency Approvals Pending
 UL1950/CSA950, EN60950, CE Mark.
 (Low Voltage Directive)

- NOTES:** (1) Pin numbers correspond to the female backplane connector.
 (2) L = Long Length Pin (First Make, Last Break); M = Medium Length Pins; S = Short Length Pins (Last Make, First Break)
 (3) PICMG™ 2.11 has reserved Pin 23 for future designation -- the cPCI420 uses this pin for synchronous start, required when N>1 for N+1 redundant configurations.
 (4) This function not available in the cPCI420DC.

DERATING CHART



NOTES: Data points are typical.

Power derating is load profile-dependent; data shown reflects output load currents reduced in direct proportion to the power derating.

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