PERFORMANCE TECHNOLOGIES

ZT 6301

Hot-Swap AC Power Supply

Highlights

- >> Hot-Swap N+1 Load Sharing
- >> DIN Input/Output Connector
- >> Protection Features:
  - • Overvoltage
  - • Short Circuit-All Outputs
  - • Overtemperature Protection
- >> Status LEDs: Fault, Input OK
- >> Status Output Signals: (DEG#), (FAL#)
- >> Main Output Remote Sense (+3.3V, +5V)
- >> Built-In EMI Filter
- >> Eurorack-Compatible Module
- >> Front Drawer-Style Handle

The ZT 6301 Hot-Swap AC Power Supply is a highly reliable modular package designed for AC power input systems. This highly dense, redundant supply is ideally suited for telecommunications, industrial automation and a variety of embedded computer applications utilizing the CompactPCI® 3U form factor.

The universal input voltage range is 90 to 254VAC @ 47 to 63Hz with power factor correction. Four outputs are capable of providing a total of 150W for +3.3VDC, +5VDC and ±12VDC with independent output regulation. The low-cost unit meets the electrical and mechanical requirements of the PICMG® specification for CompactPCI systems. It uses a DIN power connector to provide efficient, effective DC connectivity and is UL, CSA, IEC, TUV and CE certified.

The ZT 6311 150-Watt Hot-Swap DC Power Supply is available as the DC alternative.

Design Elements

Operation

The ZT 6301 150W power supply utilizes switching technology to achieve its small size and large power output. An EMI-filtered universal input automatically accepts AC input voltages from 90 to 254V. Optionally, two or more power supplies can be used to implement an N+1, load sharing, fault-tolerant system.

Load Sharing and N+1 Redundancy

Two power supplies can share the same input source. These two supplies each supply approximately 50 percent of the total system power during normal operation, although either is capable of powering the entire system in the event that the other should fail (with a 150W load). This feature increases overall system reliability by sharing the load responsibilities. Additional power supplies may be used to implement true N+1 load sharing (i.e., a 300W system requires two power supplies, plus a third for redundancy).

Hot-Swap and Fault Tolerance

The power supplies can be inserted or removed from the system without disturbing operation or reducing the reliability of any associated devices. Likewise, a failed power supply will not disturb the operation of the system if a redundant power supply is operating in the system.

Power Factor Correction

Power factor correction is utilized on the ZT 6301 to reduce power line harmonics. The input current to the supply is synchronized to the input power waveform. Synchronization effectively reduces power that would otherwise be wasted.

Status LEDs

Two status LED indicators are visible from the front of the power supply. The green "INPUT" LED indicates that the input voltage is present. The amber "FAULT" LED indicates a failed power supply or input source.

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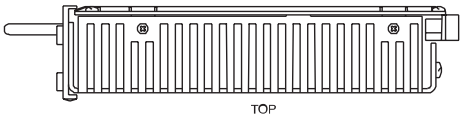
Remote Sense

A common remote sense on the +3.3V and +5V power supply outputs will detect the voltage at a load remote from the power supply, compensating for connector, backplane and wiring voltage drops. The 3S+ and 5S+ signals should be connected to the proper load. The ZT 5610 uses an 21152 PCI-to-PCI bridge to generate the local onboard PCI bus. This ensures that only one load is presented to the CompactPCI bus, meeting the requirements of the specification. Activity LEDs on the board indicate traffic on the local "PMC" bus for diagnostic purposes.

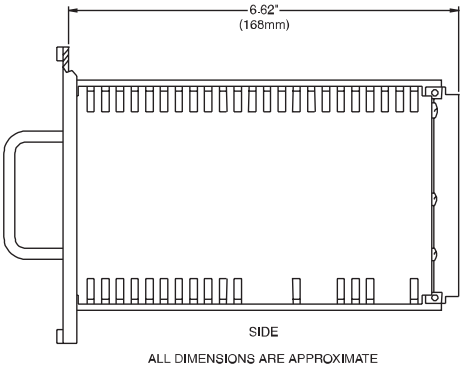
Inhibit/Enable Inputs

The INH# input signal on the rear connector will turn off the outputs when grounded. The enable (EN#) input must always be connected to ground.



System Notification

Two fault outputs are available on the rear connector for system notification. One output (DEG#) is an open collector, low true signal that indicates the internal temperature is approaching 90 C. If action does not reverse the internal temperature rise, at 100 C the supply will shut off the outputs. The second output (FAL#) is an open collector, low true signal that indicates that the supply has a problem or the input voltage has been removed.



Warranty

One year

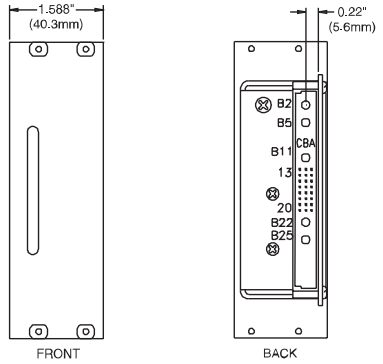


Figure 1. Close Up Views

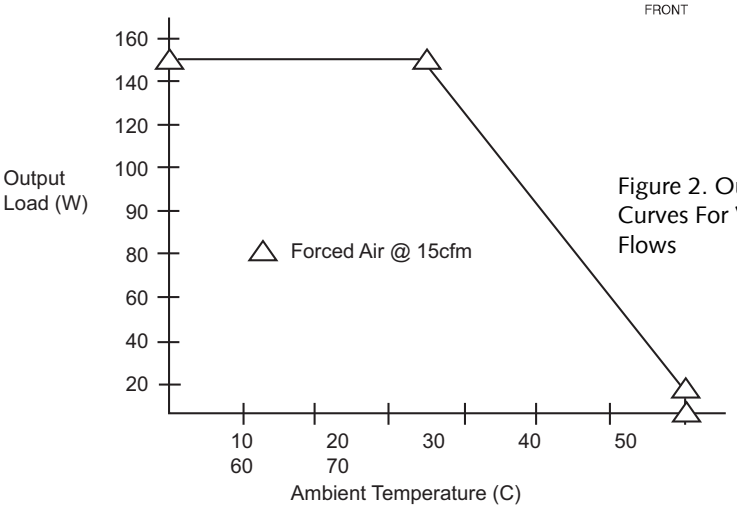


Figure 2. Output Derating Curves For Various Air Flows

Contact Information

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Pin # (1)	Staging (2)	Mnemonic	Description
Column A			
A13	EL	SP	Spare (do not connect)
A14	EL	INH#	Inhibit Signal
A15	EL	ISH	Current Share Signal
A16	EL	S-	Sense -
A17	EL	5S+	5V Sense +
A18	EL	3.3S+	+3.3V Sense
A19	EL	+12V	+12 VDC
A20	EL	-12V	-12 VDC
Column B			
B2	SL	ACL	AC Line
B5	SL	ACN	AC Neutral
B8	–	–	No Pin Loaded
B11	EL	CG(3)	Chassis Ground
B13–18	SL	3.3V	+3.3 VDC
B19	SL	+12V	+12 VDC
B20	SL	-12V	-12 VDC
B22	EL	5V	+5 VDC
B25	EL	GND	Ground
B28	–	–	No Pin Loaded
B31	–	–	No Pin Loaded
Column C			
C13	SL	EN#	Enable Signal
C14	SL	DEG#	Temp. Warning Signal
C15	SL	FAL#	Supply Fail Signal
C16–18	SL	3.3V	+3.3 VDC
C19	SL	+12V	+12 VDC
C20	SL	-12V	-12 VDC

Figure 3. Pin Numbers

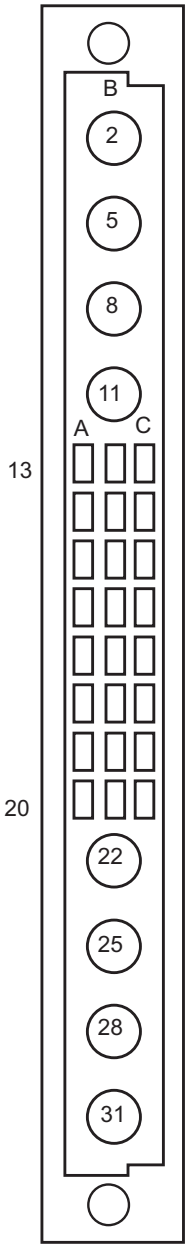

Figure 4. Mating Connector (top view)

Pin numbers illustrated are the pin view of the female mating connector. A mating connector is ERNI part #914374; AMP #148370-1 or #97-7200-016.

Notes:

(1) Mating pin numbers on power supply connector.
(2) EL is an Extra Length pin. SL is a Standard Length pin.
(3) CG must be connected to earth ground.

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Ordering Information

>> **To discuss your specific requirements and/or pricing, please contact sales@pt.com.**

Custom configuration options may be available.

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Specifications

The ZT 6301 is compliant with the following specification:

- CompactPCI® core specification, PICMG 2.0, R2.1

Electrical

- Input Voltage Range: 90-254VAC
- Input Filter Type: Common and Differential mode
- Input Frequency Range AC: 47 to 63Hz

Note: Always connect chassis ground (CG) on the supply to earth ground through a low impedance path.

Environmental

- Operating Temperature: 0 to 70 C
- Storage Temperature: -40 to +85 C
- Non-Condensing Relative Humidity: less than 95% at 40 C

Input Current

- Maximum Continuous: 2.2A @ 115VAC
- Single Cycle, Surge Maximum: <10A
- Power Factor: Yes, >.99

Output Specifications

Total Voltage Accuracy (load, cross and line regulation across temperature):

+3.3V*	@	20A ±2%
+5V	@	25A (2A minimum)* ±2%
+12V	@	5.5A ±2%
-12V	@	0.5A ±4%

*Combined current not to exceed 25A.

Total Output Power (max. continuous @ 30 C): 150W

Ripple and Noise

(measured at full load with 20 MHz bandwidth and 22 µF capacitor at load, or 50mV, whichever is greater):

+3.3V	<1.0% P-P
+5V	<1.0% P-P
+12V	<1.0% P-P
-12V	<1.0% P-P

- Short Circuit Protection: Auto recovery
- Overvoltage Protection (+3.3V, +5V): 135% maximum
- Hold-Up Time: 12ms @ 90V input (full load)

General Specifications

- Efficiency: >69% at 20% to 80% max. load

Environmental Specifications

- Overtemp Shutdown: yes, with output shutdown

Reliability

- MTBF: 450,000 hours (per MIL-HDBK-217E)
- MTTR: one minute (based on module replacement)

Regulatory Compliance

Designed for NEBS/ETSI

CE Certification

The ZT 6301 meets intent of Directive 89/336/EEC for Electromagnetic Compatibility & Low-Voltage Directive 73/23/EEC for Product Safety. Compliance was demonstrated to the following specifications as listed in the Official Journal of the European Communities:

Safety

- UL/cUL 60950 Safety for Information Technology Equipment
- EN/IEC 60950 Safety for Information Technology Equipment
- CB Report Scheme CB certificate and Report

Emissions Test Regulations

- FCC Part 15, Subpart B
- EN 55022
- CISPR 22
- Bellcore GR-1089

EN 50081-1 Emissions

- GR-1089-CORE Sections 2 and 3
- EN 55022 Class A Radiated
- EN 55022 Power Line Conducted Emissions
- EN 61000-3-2 Power Line Harmonic Emissions
- EN 61000-3-3 Power line Fluctuation and Flicker

EN 55024 Immunity

- GR-1089-CORE Sections 2 and 3
- EN 61000 4-2 Electro-static Discharge (ESD)
- EN 61000 4-3 Radiated Susceptibility
- EN 61000 4-4 Electrical Fast Transient Burst
- EN 61000 4-5 Power Line Surge
- EN 61000 4-6 Frequency Magnetic Fields
- EN 61000 4-11 Voltage dips, Variations, & Short Interruptions