

VMICPCI-PS351 CompactPCI Hot-Swap Power Supply

- 350 W in only two slots (8 HP)
- Low cost
- High-performance cooling fins directly in airstream, allows full power operation to 35 °C with specified airflow
- N+1 redundant and hot swap operation on all output voltages
- Current sharing and remote sensing on 5, 3.3, and +12 V outputs
- Power factor correction
- Unique input current limiting eliminates nuisance fuse clearing caused by heavy load configurations or brownout conditions
- Straight-line output current limiting does not fold-back or latch-up during startup or load transients
- Ruggedized mechanical design
- Equipped positronic connector
- UL, cUL approved

INTRODUCTION — The VMICPCI-PS351 350 W

CompactPCI® power supply is a high-performance power supply for use in 6U CompactPCI computer, test, and telecom systems. It meets all of the requirements of the PICMG CompactPCI specification, plus N+1 redundant and hot-swap applications. The high-density cooling fins are positioned directly in the airstream. The LED status indicators are located on the front panel. It has 6U x 8 HP x 160 mm form factor.

ELECTRICAL DATA

Output Power: 350 W

Power Factor: 0.99 typical

Inrush Current: 40 A maximum

Efficiency: 75 percent typical

Holdup Time: 20 ms minimum from input power failure until FAIL# signal drops, at full load and 90 to 264 VAC

Voltage Ranges:

Input Voltage: 90 to 264 VAC, 6 A maximum

Output Voltage/Maximum Current: 5 V/40 A, 3.3 V/25 A, +12 V/9 A, -12 V/2 A

PHYSICAL CHARACTERISTICS

Height with Front Panel: 261.85 mm

Width: 40.34 mm

Depth: 175.26 (mounted)





Remote Sense: The VMICPCI-PS351 compensates for 0.25 V total distribution voltage drop on the 3.3, 5, and +12 V outputs

AC Fail Warning: 5 ms minimum continued operation after FAIL# signal drops

Paralleling: Any number of power supplies can be operated in parallel and will share 3.3, 5, and +12 V, current to within 10 percent

Line/Load Regulation: 0.5 percent of maximum AC input range and 0 to 100 percent load

Ripple/Noise: 50 mV maximum for all outputs, peak-to-peak, DC to 20 MHz with coaxial probe and $0.1 \,\mu$ f/22 μ f capacitors at the connector

Overshoot/Undershoot Turn-On Time: None at turn-on or turn-off, 1 s maximum from AC powerup. All output voltages come up within 10 ms of each other.

Current Limiting: All outputs protected against overload and short circuit. Straightline current limiting, does not fold-back or latch-up during startup or load transients. Automatic recovery.

Overvoltage: Shutdown at 130 percent of nominal Vout. Recycle power to reset.







Overtemperature: Shutdown at internal heat sink temperature of 95 °C. Recycle power to reset.

EMC: EN55022 Class A conducted and radiated. EN60555-2 harmonic distortion.

Input Fuse: Internal one-pole 10 A NTD fuse

Output Isolation: All outputs and control signals are floating SELV circuits referenced to GND and with 0.1 μ f/100 k Ω to chassis ground and reinforced isolation to the AC primary. It can be connected directly to chassis ground on the system backplane.

Leakage Current: 1.5 mA maximum at 240 VAC

Dielectric Strength: 2,200 VDC from either AC input to chassis ground

Indicators: Green LED indicating INPUT OK. Red LED indicating a power supply FAULT. Figure 1 describes the status indicators as related to the conditions of the power supply.

Connector: Positronic part no. 138F4000A1. Connector pinout and description described in Table 2.

Cooling: 15 CFM/400 LFM forced air required through power supply cooling fans and enclosure

Operating Temperature: Full power from -20 to +35 °C with specified air flow. Consult the factory for derating with reduced airflow or increased temperature conditions. Figure 2 provides a graph of output power versus temperature and airflow.

Storage Temperature: -40 to + 85 °C

Shock/Vibration: Ruggedized construction to MIL-HDBK-810E

MTBF: 250,000 hours (217F)

TRADEMARKS

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| Condition | Power Supply On/Off | Input OK LED | Fault LED | Fault No. |
|----------------------------|------------------------|-----------------|--------------|--------------|
| Inputs/Outputs OK, EN# low | On | On | Off | Open |
| INH# signal low | Off | On | On | Low |
| INH# high, EN# high | Off | On | On | Low |
| Low AC or DC input | Off | Off | On* | Low |
| Internal overtemperature | Off | On | On | Low |
| Output undervoltage | Off** | On | On | Low |
| Output overvoltage | Off** | On | On | Low |
| Output short circuit | Off** | On | On | Low |

Figure 1. Status Indicators

*If the input is below approximately 20 V, the FAULT LED will not illuminate.

**Typically, only the output exhibiting the fault conditions will be off.

Note: LFM is the airflow in feet per minute average through the power supply enclosure

| Pin No. | Signal | Pin No. | Signal | Description | |
|---------|--------|---------|--------|---|--|
| 1 | +5 V | 24 | +5S | Remote sense for +5 V output | |
| 2 | +5 V | 25 | EN# | Connect to GND to enable power supply | |
| 3 | +5 V | 26 | -SENSE | Remote sense return for +3.3, +5, +12 V outputs | |
| 4 | +5 V | 27 | +3.3S | Remote sense for +3.3 V output | |
| 5 | GND | 28 | RSVD | RESERVED | |
| 6 | GND | 29 | DEG# | Open-collector, low output when power supply is within | |
| 7 | GND | | | 10 °C of shutting down due to overtemperature | |
| 8 | GND | 30 | +12S | Remote sense for +12 V output | |
| 9 | GND | 31 | INH# | Connect to GND to inhibit power supply | |
| 10 | GND | 32 | +51 | Connect to paralleled power supply for +5 V current sharing | |
| 11 | GND | 33 | +3.31 | Connect to paralleled power supply for +3.3 V current sharing | |
| 12 | GND | 34 | +12I | Connect to paralleled power supply for +12 V current sharing | |
| 13 | +3.3 V | 35 | FAIL# | Open-collector, low output when power supply has failed | |
| 14 | +3.3 V | 36 | CGND | Chassis grounded | |
| 15 | +3.3 V | 37 | N | Neutral (AC) or 48 V return (DC) | |
| 16 | +3.3 V | 38 | Line | (AC) or -48 V (DC) | |
| 17 | GND | | | | |
| 18 | +12 V | | | | |
| 19 | RSVD | | | | |
| 20 | RSVD | | | | |
| 21 | -12 V | | | | |
| 22 | GND | | | | |
| 23 | GND | | | | |

Table 1. Connector Pinout

| | 38 | |
|----|------------------|-----|
| 37 | | ● |
| | 36 | • |
| 34 | 35 | |
| 31 | 33 32 | |
| 26 | ³⁰ 38 | |
| 25 | 24 38 | |
| 22 | 38 21 | ••• |
| 19 | 20 | |
| 17 | 18 | |
| 15 | 16 | |
| 13 | 14 | |
| | | |
| 9 | 10 | |
| 7 | 8 | |
| 5 | 6 | |
| 3 | 4 | ●● |
| 1 | 2 | |
| | | VN |

Table 2. Connector Pinout and Description

| Pin No. | Signal | Pin No. | Description |
|---------|----------|---------|-------------|
| 1 | +5 V | 20 | -48 V RTN |
| 2 | +5 V | 21 | -12 V |
| 3 | +5 V | 22 | GND |
| 4 | +5 V | 23 | GND |
| 5 | GND | 24 | +5S |
| 6 | GND | 25 | EN# |
| 7 | GND | 26 | -SENSE |
| 8 | GND | 27 | +3.3S |
| 9 | GND | 28 | RSVD |
| 10 | GND | 29 | DEG# |
| 11 | GND | 30 | +12S |
| 12 | GND | 31 | EN# |
| 13 | +3.3 V | 32 | +51 |
| 14 | +3.3 V | 33 | +3.31 |
| 15 | +3.3 V | 34 | +121 |
| 16 | +3.3 V | 35 | FAIL# |
| 17 | GND | 36 | CGND |
| 18 | +12 V | 37 | Ν |
| 19 | 48 V OUT | 38 | L |