

CPCI Power Supply Manual

PRODUCT DOCUMENTATION

PD05 CP3-SVE-P200AC

Reference ID: 24139 PD05

Revision: 01

Issued: February 01, 2002



The product described in this manual is in compliance with all applied CE standards.



Revision History

| Manual/Product Title: | | CPCI Power Supply Manual: Product Documentation: CP3-SVE-P200AC | |
|-----------------------|------------------------------|---|---------------|
| Reference ID: | | 24139 PD05 | |
| Rev. Index | Brief Description of Changes | | Date of Issue |
| 01 | Initial Issue | | Feb. 01, 2002 |
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Imprint

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This manual was realized by: **TPD/Engineering, PEP Modular Computers GmbH.**



1. Introduction

The specific product description provided with this product documentation is part of the PEP's CPCI Power Supply manual. For further information, in particular regarding general details as well as safety and warranty statements, refer to the CPCI Power Supply Manual, ID 24139.

2. 200W P-Type Power Supply Unit

The main features of the 3U P-type, 120V/230V input, 200W output AC/DC power supply unit CP3-SVE-P200AC are described in the following table:

Table 1: Distinctive Features of Power Supply Unit CP3-SVE-P200AC

| Feature | Specification |
|-----------------------------|--|
| Form Factor | 3U |
| Frontpanel Size | 40.6 * 128.7 mm |
| Mechanics | 19" rack |
| Plug-In Compatibility | Yes |
| Power Supply Connector | Positronic 47-pin connector |
| Input Voltage | V = 85V..264V AC Frequency: 47Hz..63Hz |
| Voltage Switching | Continuous input range |
| Output Power | 200W with 250 LFM forced-air cooling |
| Output Voltages / Currents | V1 = +5V at 40A V2 = +3.3V at 40A V3 = +12V at 5.5A V4 = -12V at 1.5A |
| Cooling | 250 LFM forced-air cooling |
| Redundant Supply Capability | Always |
| Status Indication | LED's for input good and power fail |
| Special Feature(s) | Power sharing |



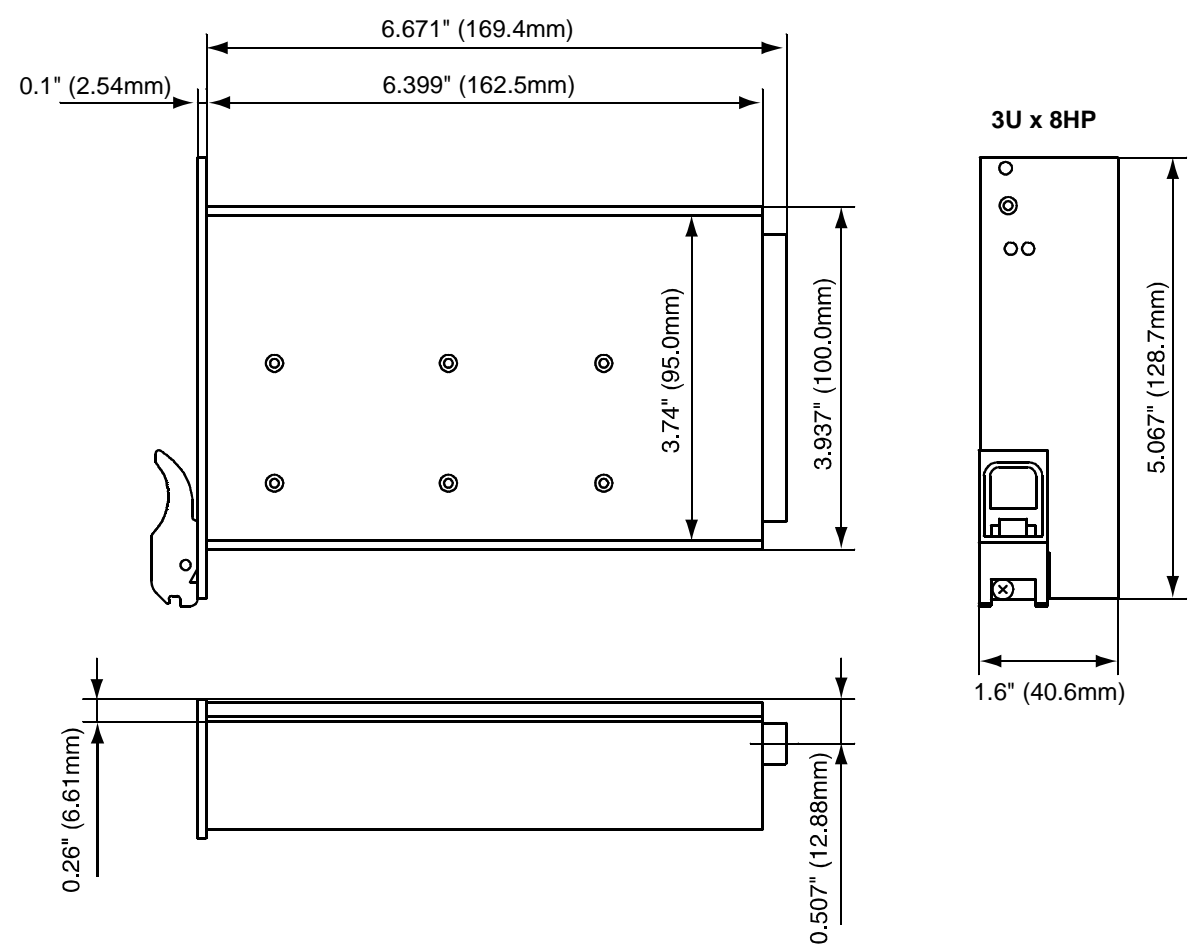
2.1 Mechanical Specifications

Figure 1: View of Power Supply Unit CP3-SVE-P200AC





Figure 2: Power Supply Dimensions





2.2 Power Supply Connector

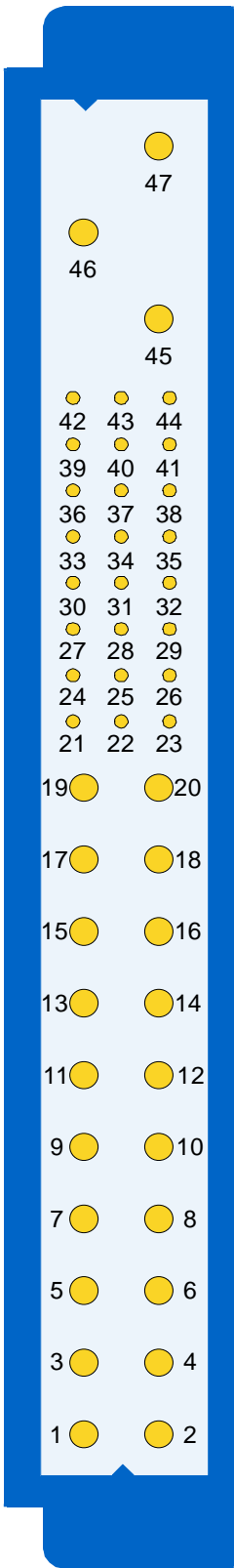


Figure 3: Orientation of the Positronic P-47 Power Supply Connector

The V input voltage to the power supply unit and the V1 ... V4 output voltages from the power supply unit to the back-plane are connected via a 47-pin Positronic male power supply connector.

For the pinouts of the Positronic P-47 power supply connector please refer to the following table.



Table 2: Positronic 47-Pin Connector Pinout

| PIN | SIGNAL NAME | DESCRIPTION | PIN | SIGNAL NAME | DESCRIPTION |
|---------|-------------|-------------------|-----|-------------|------------------|
| 1 - 4 | V1 | V1 OUTPUT (+5V) | 32 | NC | NOT CONNECTED |
| 5 - 12 | RTN | V1 and V2 RETURN | 33 | V2 SENSE | V2 REMOTE SENSE |
| 13 - 18 | V2 | V2 OUTPUT (+3.3V) | 34 | S RTN | SENSE RETURN |
| 19 | RTN | V3 RETURN | 35 | V1 SHARE | V1 CURRENT SHARE |
| 20 | V3 | V3 OUTPUT (+12V) | 36 | V3 SENSE | V3 REMOTE SENSE |
| 21 | V4 | V4 OUTPUT (-12V) | 37 | NC | NOT CONNECTED |
| 22 | RTN | SIGNAL RETURN | 38 | DEG# | DEGRADE SIGNAL |
| 23 | RESERVED | RESERVED | 39 | INH# | INHIBIT |
| 24 | RTN | V4 RETURN | 40 | NC | NOT CONNECTED |
| 25 | NC | NOT CONNECTED | 41 | V2 SHARE | V2 CURRENT SHARE |
| 26 | RESERVED | RESERVED | 42 | FAL# | FAIL SIGNAL |
| 27 | EN# | ENABLE | 43 | NC | NOT CONNECTED |
| 28 | NC | NOT CONNECTED | 44 | V3 SHARE | V3 CURRENT SHARE |
| 29 | NC | NOT CONNECTED | 45 | CGND | CHASSIS GROUND |
| 30 | V1SENSE | V1 REMOTE SENSE | 46 | ACN | AC INPUT NEUTRAL |
| 31 | NC | NOT CONNECTED | 47 | ACL | AC INPUT LINE |

2.3 Installation

Thanks to its plug-in compatibility this P-type power supply unit allows for an easy installation, by which the power supply unit's male Positronic 47-pin power connector is inserted into the backplane's mating female connector without the need of any intermediate adaptation.



Warning!

If this type of power supply is removed for any reason from an operating system, do not reinstall immediately. Wait 1 to 2 minutes before reinstalling. Failure to comply with this may result in an Output Failure indication on the power supply. This is due to an internal protection feature of the power supply which requires time to cool down before the power supply is put back into operation.



2.4 Electrical Specifications

INPUT

| PARAMETER | CONDITIONS / DESCRIPTION | MIN | NOM | MAX | UNITS |
|----------------------|---|-----|-----|-----|-------|
| Input Voltage - AC | Continuous input range. | 85 | | 264 | VAC |
| Input Frequency | | 47 | | 63 | Hz |
| Hold-up Time | | 20 | | | ms |
| Input Protection | Non-user serviceable, internally-located input line fuse. | | | | |
| Inrush Surge Current | Internally limited by thermistor and electronic switch. | | | 30 | A |
| Operating Frequency | Switching frequency of main output transformer. | 125 | | 145 | kHz |

OUTPUT

| PARAMETER | CONDITIONS/DESCRIPTION | MIN | NOM | MAX | UNITS |
|--------------------------|---|----------------------|-----|-----|-------|
| Efficiency | Full rated load, 115 VAC. | 80 | | | % |
| Minimum Load; V1, V2, V3 | Minimum load required to maintain regulation with no load on V4. | None | | | A |
| Minimum Load, V3 | Minimum load on V3 required to maintain regulation on V4. | 50% of V4 Load | | | A |
| Ripple and Noise | Full load, 20 MHz bandwidth. | See Regulation table | | | |
| Output Power | 250 LFM forced-air cooling. | | | 200 | W |
| Overshoot / Undershoot | Output voltage overshoot / undershoot at turn-on. | | | 0 | % |
| Regulation | Varies by output. Total regulation includes: line changes over the specified input range, changes in load starting at 50% load and changing to 100% load. | See Regulation table | | | |
| Turn-on Delay | Time required for initial output voltage stabilization. | | 150 | ms | |
| Initial Setting Accuracy | | | ±1 | | % |

REGULATION

| OUTPUT VOLTAGE | | ADJUSTMENT RANGE | OUTPUT CURRENT | LINE REGULATION | LOAD REGULATION | RIPPLE & NOISE %pk-pk (NOTE 1) |
|----------------|-------|------------------|----------------|-----------------|-----------------|--------------------------------|
| V1 | +5V | N/A | 40A | 0.5% | 1% | 2% |
| V2 | +3.3V | N/A | 40A | 0.5% | 1% | 2% |
| V3 | +12V | N/A | 5.5A | 0.5% | 1% | 1.3% |
| V4 | -12V | N/A | 1.5A | 0.5% | 1% | 1.3% |



PROTECTION AND CONTROL

| PARAMETER | CONDITIONS/DESCRIPTION | MIN | NOM | MAX | UNITS |
|-----------------------------------|--|-----------|-----|-----|-------|
| Overvoltage Protection | Latch style overvoltage protection. | 120 | | 130 | %Vnom |
| Overload Protection | Fully protected against output overload and short circuit. Automatic recovery upon removal of overload condition. | Available | | | |
| Overtemperature Protection | System shutdown due to excessive internal temperature, automatic reset. | Available | | | |
| Power Fail (FAL#) | TTL compatible signal, open collector active low signal. Indicates any output below 90% and/or a low input <85VAC. | Available | | | |
| Current Share | Accuracy of shared current with up to 6 parallel units of the same type of power supply. Single wire current share on V1, V2, and V3. | | | 10 | % |
| Remote Sense | Available on V1, V2, and V3. Total voltage compensation for cable losses with respect to the main output. | | | 150 | mV |
| Inhibit (INH#) | TTL-compatible signal inhibited with GND or TTL "0". | Available | | | |
| Enable (EN#) | Contact closure to external ground to start unit. On shortest pin (last make, first break). | Available | | | |
| Overtemperature Warning (DEG#) | Provides warning when power supply temperature exceeds rating. TTL-compatible open. | Available | | | |
| Front Panel LED Status Indicators | Input OK (Green), Output Failure (Red). In redundant setups, Output Failure may also indicate that there is no main power input to the power supply. | Available | | | |

SAFETY, REGULATORY, AND EMI

| PARAMETER | CONDITIONS/DESCRIPTION | MIN | NOM | MAX | UNITS |
|------------------------------|---|----------|-----|-----|-------|
| Agency Approvals | UL1950, cUL1950, EN60950 (TÜV). | Approved | | | |
| Dielectric Withstand Voltage | Input to Output per EN60950. | 4243 | | | VDC |
| Electromagnetic Interference | EN55022 / CISPR 22 Conducted: Radiated: | A A | | | Class |
| ESD Susceptibility | Per EN61000-4-2, level 4, contact discharge. | 8 | | | kV |
| Radiated Susceptibility | Per EN61000-4-3, level 3. | 10 | | | V/m |
| EFT/Burst | Per EN61000-4-4, level 3. | ± 2 | | | kV |
| Input Surge | Per EN61000-4-5, level 3. Line to Line Line to Ground | 1 2 | | | kV |

**SAFETY, REGULATORY, AND EMI**

| PARAMETER | CONDITIONS/DESCRIPTION | MIN | NOM | MAX | UNITS |
|-----------------------|---------------------------|-----|-----|-----|-------|
| Conducted Disturbance | Per EN61000-4-6, level 2. | | | 3 | V |
| Insulation Resistance | Input to Output. | | 10 | | MΩ |

ENVIRONMENTAL

| PARAMETER | CONDITIONS/DESCRIPTION | MIN | NOM | MAX | UNITS |
|-----------------------|--|------|-----|------------|---------|
| Altitude | Operating. Non-Operating. | | | 10k 40k | ASL Ft. |
| Operating Temperature | With 250 LFM forced-air cooling At 100% load: Derate linearly above 50°C by 2.5% per °C. At 50% load: | -40 | | 50 70 | °C |
| Storage Temperature | | - 40 | | + 85 | °C |
| Relative Humidity | Non-Condensing. | 5 | | 95 | %RH |
| Shock | Peak acceleration. | | | 20 | GPK |
| Vibration | Random vibration, 10 Hz to 2 kHz, 3 axis. | | | 6 | GRMS |

**Warning!**

Adequate thermal cooling of the power supply must be ensured. Therefore do not obstruct or hinder cooling air circulation or heat conduction within the power supply or surrounding equipment.

Failure to comply with this warning may result in damage to your equipment.

RELIABILITY**MTBF acc. to MIL-HDBK-217F, notice 2**

| | |
|---------------------|-------------|
| Ground benign 40°C: | 279.000 hrs |
| Ground fixed 40°C: | 57.000 hrs |
| Ground fixed 70°C: | 31.000 hrs |
| Ground mobile 50°C: | 33.000 hrs |