CPCI
Power Supply
Manual

PRODUCT DOCUMENTATION

PD04
CP3-SVE-M180AC

Reference ID: 24139 PD04
Revision: 01
Issued: February 01, 2002

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

<table>
<thead>
<tr>
<th>Rev. Index</th>
<th>Brief Description of Changes</th>
<th>Date of Issue</th>
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<tbody>
<tr>
<td>01</td>
<td>Initial Issue</td>
<td>Feb. 01, 2002</td>
</tr>
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DISCLAIMER:

PEP Modular Computers GmbH rejects any liability for the correctness and completeness of this manual as well as its suitability for any particular purpose.

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. 180W M-Type Power Supply Unit

The main features of the 3U M-type, 120V/230V input, 180W output AC/DC power supply unit CP3-SVE-M180AC are described in the following table:

Table 1: Distinctive Features of Power Supply Unit CP3-SVE-M180AC

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form Factor</td>
<td>3U</td>
</tr>
<tr>
<td>Frontpanel Size</td>
<td>60.96*133.35 mm</td>
</tr>
<tr>
<td>Mechanics</td>
<td>19” rack</td>
</tr>
<tr>
<td>Plug-In Compatibility</td>
<td>Yes</td>
</tr>
<tr>
<td>Power Supply Connector</td>
<td>DIN M24/8 connector</td>
</tr>
</tbody>
</table>
| Input Voltage                  | $V_{US} = 99V$..138V AC
$V_{EU} = 187V$..264V AC
Frequency: 50Hz..60Hz           |
| Voltage Switching              | Autoranging                                        |
| Output Power                   | 180W                                               |
| Output Voltages/Currents       | $V_{o1} = +3.3V$ at 14A
$V_{o2} = +5.1V$ at 20A
$V_{o3} = +12V$ at 2A
$V_{o4} = -12V$ at 1A          |
| Cooling                        | Free convection                                    |
| Redundant Supply Capability    | —                                                  |
| Status Indication              | Separate LEDs for $V_{o1}$..$V_{o4}$              |
| Special Feature(s)             | —                                                  |
2.1 Mechanical Specifications

Figure 1: View of Power Supply Unit CP3-SVE-M180AC

- 60.5 mm (12HP)
- 100 mm (3U)
- 171.93 mm
2.2 Power Supply Connector

Figure 2: Orientation of the DIN M24/8 Power Supply Connector

The $V_{EU}$ and $V_{US}$ input voltages to the power supply unit and the $V_{o1}...V_{o4}$ output voltages from the power supply unit to the backplane are connected via a 32-pole DIN 24/8 male power supply connector.

For the pinouts of the DIN M24/8 power supply connector please refer to the following table.

Table 2: DIN M24/8 Connector Pinouts

<table>
<thead>
<tr>
<th>Pin</th>
<th>Function</th>
<th>Pin</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>L1 (live connection)</td>
<td>B.17</td>
<td>+3.3V</td>
</tr>
<tr>
<td>5</td>
<td>N (neutral)</td>
<td>B.18</td>
<td>+3.3V</td>
</tr>
<tr>
<td>11</td>
<td>PE (earth protection)</td>
<td>B.19</td>
<td>+12V</td>
</tr>
<tr>
<td>A.13</td>
<td>INT (internally connected)</td>
<td>B.20</td>
<td>-12V</td>
</tr>
<tr>
<td>A.14</td>
<td>N/C</td>
<td>C.13</td>
<td>N/C</td>
</tr>
<tr>
<td>A.15</td>
<td>INT (internally connected)</td>
<td>C.14</td>
<td>DEG</td>
</tr>
<tr>
<td>A.16</td>
<td>OVF</td>
<td>C.15</td>
<td>INT (internally connected)</td>
</tr>
<tr>
<td>A.17</td>
<td>+5VF</td>
<td>C.16</td>
<td>+3.3V</td>
</tr>
<tr>
<td>A.18</td>
<td>+3.3V</td>
<td>C.17</td>
<td>+3.3V</td>
</tr>
<tr>
<td>A.19</td>
<td>+12V</td>
<td>C.18</td>
<td>+3.3V</td>
</tr>
<tr>
<td>A.20</td>
<td>-12V</td>
<td>C.19</td>
<td>+12V</td>
</tr>
<tr>
<td>B.13</td>
<td>+3.3V</td>
<td>C.20</td>
<td>-12V</td>
</tr>
<tr>
<td>B.14</td>
<td>+3.3V</td>
<td>22</td>
<td>+5V</td>
</tr>
<tr>
<td>B.15</td>
<td>+3.3V</td>
<td>25</td>
<td>OVL</td>
</tr>
<tr>
<td>B.16</td>
<td>+3.3V</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N/C = Not connected.
2.3 Installation

Thanks to its plug-in compatibility this DIN M-type power supply unit allows for an easy instal-
lation, by which the power supply unit’s male DIN M24/8 power connector is inserted into the
backplane’s mating female connector without the need of any intermediate adaptation.

Warning!
To ensure a safe 5V operation of your equipment it is necessary that
on the backplane 5VL is connected to 5VF and 0VL to 0VF. PEP sys-
tems provide this configuration by default.
The maximum voltage compensation is 0.25V per line.

2.4 Electrical Specifications

Input

Input voltage ranges

\[ V_{EU} = 187V..264V \text{ AC} \]
\[ V_{US} = 99V..138V \text{ AC} \]
Frequency: 50Hz..60Hz

Voltage switching

Autoranging

Efficiency

Typ. 82%

Input current limitation

Typ. \( \leq 15A_{\text{peak}} \) (cold state)
Typ. \( \leq 20A_{\text{peak}} \) (hot state)

Fuse

6.3 AT

Output

Adjustment range \( V_{o1}, V_{o2} \)

\( \pm 5\% \)

Status indication

Green LED’s for \( V_{o1}, V_{o2}, V_{o3}, V_{o4} \)

Ripple

\( V_{o1}, V_{o2} < 50mV_{pp}, \)
\( V_{o3}, V_{o4} < 30mV_{pp} \)

Noise voltage

Typ. 50mV_{pp} (band width 20MHz)

Temperature coefficient

0.025\% / K

Switch on / switch off performance

No overshooting of \( V_{o} \) (soft-start)

Rise-delay time

< 0.5s

Run-up time

\( \leq 50ms \)
Figure 3: Output Power Diagrams

Regulation

Line regulation
- < 0.2% for \( V_{o1}, V_{o2} \)
- < 0.5% for \( V_{o3}, V_{o4} \)

Load regulation
- < 0.1% for \( V_{o1} \)
- < 0.1% for \( V_{o2} \)
- < 5.0% for \( V_{o3}, V_{o4} \)

Response time
- < 0.5ms at \( I_{o} \) 20..80%

Protection and Control

Overvoltage protection
- 125% ± 5% for \( V_{o1}, V_{o2} \)
- 125% ± 10% for \( V_{o3}, V_{o4} \)
- Automatic repetition

Current limitation
- Typ. 110% of \( I_{\text{Rated}} \) for \( V_{o1}, V_{o2} \)
- Typ. 200% of \( I_{\text{Rated}} \) for \( V_{o3} \)
- Typ. 140% of \( I_{\text{Rated}} \) for \( V_{o4} \)
- Effective for all outputs, outputs short-circuit proof, max. 10 min.

Overtemperature protection
- Switches off when inside temperature becomes too high, switches on again with hysteresis

Mains buffering
- > 20ms at 100% load

Signal DEG (Derate)
- Open-collector, \( I_{\text{max}} = 48mA \)
- Low during start-up of \( V_{o} \),
- high 100-200ms after start-up of \( V_{o} \),
- low ≥ 5ms before break-down of \( V_{o} \)
  (mains failure/switch-off)

Permitted switch off/on cycle time
- ≥ 2s
EMC

Interference suppression/immunity
EN 50082-2: 1992
EN 61000-4-2: Intensity 4
EN 61000-4-3: Noise level 10V/m
EN 61000-4-4: Intensity 4
EN 61000-4-5: Intensity 3
EN 61000-4-11
VDE (with switch-off and re-start)

Interference emission
EN 50081-1: 1992
EN 55011/EN 55022: Class B, interference
transmission depends on assembly

Safety

EN 60950/VDE 0805
Safety Class I, VDE 0100
CSA NRTL/C / UL 1950 / CSA 22.2-950

Operating Data

Temperature range
0°C..+70°C with free convection

Temperature derating
2% / K at +50°C (see diagram)

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.