FEATURES

- UPS-Ready, Power Management Software Included
- Built-In 24V Lead-Acid Battery Charger
- 80% Minimum Efficiency
- Meets Medical and ITE Grade Safety Standards
- Intel's Haswell Compatible
- BF Rated

INPUT SPECIFICATIONS

- Input Voltage Range: 90-264 VAC
- Input Frequency: 47-63Hz
- Input Current: 8A rms @ 100 VAC, 60Hz
- Inrush Current: 30A @ 115 VAC, 60A @ 230 VAC, at 25°C cold start
- Earth Leakage Current: 300µA max. @ 264 VAC, 63Hz

OUTPUT SPECIFICATIONS

- Output Power Ratings: See rating chart
- Load Regulation: See rating chart
- Line Regulation: ±1% max. @ full load
- Ripple & Noise*: 50mV peak to peak on 3.3V and 1% peak to peak max. on other voltage outputs
- Hold Up Time: 17ms min.
- Over Voltage Protection: Latch off
- Over Current Protection: +3.3V, +5V, & +12V: Latch off +5Vsb: Auto-recovery
- Short Circuit Protection: +3.3V, +5V, & +12V: Latch off +5Vsb: Auto-recovery
- Over Temp. Protection: Latch off
- Battery: 24V lead-acid type, not included
- Battery Charge Current: 2.5A max.
- Battery Backup Power: 400W

GENERAL SPECIFICATIONS

- Efficiency: 80% min. @ full load
- Power Factor: 0.9 min. @ full load
- Switching Frequency: 40-150 KHz
- Operating Altitude: 5,000 meters max.
- Operating Temperature: 0°C to +50°C
- Storage Temperature: -20°C to +60°C
- Derating: Derate from 100% @ +50°C linearly to 50% @ +70°C, applicable to forced-air cooling conditions
- Relative Humidity: 5% to 95% non-condensing
- Withstand Voltage: 4,000 VAC input-output (2MOPP), 1,500 VAC input-ground (1MOPP), 1,500 VAC output-ground
- MTBF: 100K hours minimum at full load & 25°C ambient, calculated per Telcordia SR-332

STANDARDS & COMPLIANCES

- IEC/EN 60601-1-2: 2014 ... EMC & Immunity Performance
- EN 55011 / EN 55022........ Class B, conducted & radiated
- FCC / VCCI .................. Class B, conducted & radiated
- EN 61000-3-2 .................. Harmonic distortion, Class A
- EN 61000-3-3 .................. Line fluctuations & flicker
- EN 61000-4-2 .................. ESD, ±15 KV air and ±8 KV contact
- EN 61000-4-3 .................. Radiated immunity, 10 V/m
- EN 61000-4-4 .................. Fast transient/burst, ±2 KV
- EN 61000-4-5 .................. Surge, ±1 KV diff., ±2 KV com.
- EN 61000-4-6 .................. Conducted immunity, 6 Vrms
- EN 61000-4-8 .................. Magnetic field immunity, 30 A/m
- EN 61000-4-11 ............... Voltage dip immunity, 30% reduction for 500ms, 60% reduction for 100ms and >95% reduction for 10ms
- Safety Standards*: UL/IEC/ EN 60601-1 (3rd Ed.)
- Agency Approvals .......... UL, cUL, CB (Report), TUV
- Other Compliance .......... RoHS

*Pending

OUTPUT VOLTAGE & CURRENT RATING CHART

<table>
<thead>
<tr>
<th>Output Voltage</th>
<th>Minimum Load</th>
<th>*Maximum Load</th>
<th>Load Regulation</th>
<th>Ripple &amp; Noise* VP-P Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>+3.3V</td>
<td>0A</td>
<td>20A</td>
<td>±5%</td>
<td>50mV</td>
</tr>
<tr>
<td>+5V</td>
<td>0A</td>
<td>20A</td>
<td>±5%</td>
<td>50mV</td>
</tr>
<tr>
<td>+12Vv1</td>
<td>0A</td>
<td>16A</td>
<td>±5%</td>
<td>120mV</td>
</tr>
<tr>
<td>+12Vv2</td>
<td>0A</td>
<td>16A</td>
<td>±5%</td>
<td>120mV</td>
</tr>
<tr>
<td>-12V</td>
<td>0A</td>
<td>0.5A</td>
<td>±5%</td>
<td>120mV</td>
</tr>
<tr>
<td>+5Vsb</td>
<td>0A</td>
<td>3A</td>
<td>±5%</td>
<td>50mV</td>
</tr>
</tbody>
</table>

*The overall output power with battery charger is 550W maximum.
*The total output power for +3.3V & +5V is 120W maximum.
*The total output power for +12Vv1, +12Vv2, & +12Vv2 is 432W maximum.
*The total output power for +3.3V, +5V, +12Vv1, +12Vv2, +12Vv3, -12V, & +5Vsb is 500W maximum.
MECHANICAL SPECIFICATIONS

STANDARD CABLE SET

<table>
<thead>
<tr>
<th>Output Connectors</th>
<th>Cable Length</th>
<th>Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motherboard 24 Pin</td>
<td>400mm</td>
<td>1</td>
</tr>
<tr>
<td>CPU 4+4 Pin</td>
<td>400mm</td>
<td>1+1</td>
</tr>
<tr>
<td>PCIe 8+2 Pin</td>
<td>500+150mm</td>
<td>1+1</td>
</tr>
<tr>
<td>SATA</td>
<td>400+150mm</td>
<td>1+1</td>
</tr>
<tr>
<td>PATA</td>
<td>400+150+150mm</td>
<td>1+1+1</td>
</tr>
<tr>
<td>USB Interface</td>
<td>600mm</td>
<td>1</td>
</tr>
</tbody>
</table>

COMMUNICATION PORT

<table>
<thead>
<tr>
<th>PIN</th>
<th>NAME</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AC_FAIL_T</td>
<td>OUTPUT</td>
</tr>
<tr>
<td>2</td>
<td>SHUTDOWN_T</td>
<td>OUTPUT</td>
</tr>
<tr>
<td>3</td>
<td>BATTERYLOW_T</td>
<td>OUTPUT</td>
</tr>
<tr>
<td>4</td>
<td>USB_VCC</td>
<td>INPUT</td>
</tr>
<tr>
<td>5</td>
<td>USB_D+</td>
<td>IO</td>
</tr>
<tr>
<td>6</td>
<td>USB_D-</td>
<td>IO</td>
</tr>
<tr>
<td>7</td>
<td>USB_GND</td>
<td>GND</td>
</tr>
<tr>
<td>8</td>
<td>GD</td>
<td>GND</td>
</tr>
<tr>
<td>9</td>
<td>PSION_N</td>
<td>INPUT</td>
</tr>
<tr>
<td>10</td>
<td>POWERBUTTON_N</td>
<td>INPUT</td>
</tr>
<tr>
<td>11</td>
<td>BEEP</td>
<td>OUTPUT</td>
</tr>
<tr>
<td>12</td>
<td>PWBTN_N</td>
<td>OUTPUT</td>
</tr>
</tbody>
</table>

BATTERY PORT

<table>
<thead>
<tr>
<th>PIN</th>
<th>NAME</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>VBATT+</td>
<td>POWER</td>
</tr>
<tr>
<td>2</td>
<td>VBATT-</td>
<td>POWER</td>
</tr>
<tr>
<td>3</td>
<td>VBATT+</td>
<td>POWER</td>
</tr>
<tr>
<td>4</td>
<td>SMBDAT</td>
<td>IO</td>
</tr>
<tr>
<td>5</td>
<td>SMBCLK</td>
<td>CLK</td>
</tr>
<tr>
<td>6</td>
<td>VBATT</td>
<td>POWER</td>
</tr>
<tr>
<td>7</td>
<td>VBATT</td>
<td>POWER</td>
</tr>
<tr>
<td>8</td>
<td>VBATT</td>
<td>POWER</td>
</tr>
<tr>
<td>9</td>
<td>BATTERY_INSERT</td>
<td>INPUT</td>
</tr>
<tr>
<td>10</td>
<td>BI</td>
<td>OUT</td>
</tr>
</tbody>
</table>

Notes:
1. Units: mm
2. Tolerance: 0.5 mm, unless otherwise noted.
3. Battery Port Connector: JWT P/N C4201WR0-10NPNL or equivalent, mating with JWT P/N C4202H00-2X5P or equivalent.
4. Communication Port Connector: CVILUX P/N CI5012SL000 or equivalent, mating with CVILUX P/N CI5012P1HD0-LF or equivalent.
5. Weight: 1.8 kgs (3.97 lbs) approx.