General Specifications:

**Model: PCI504-1022-4 Series**

CompactPCI® Power Supplies

**500 Watt – 6U 8HP**

(PICMG® COMPLIANT*)

*AC or DC Input; Four DC Outputs.*

**FEATURES:**

- Standard PCI Output Voltages: 5.0V, 3.3V, ±12.0V.
- Hot Swap, N+1 Redundant with Internal OR-ing MOSFETs.
- Input: >.99 Power Factor Corrected AC 90-264V, or DC 36-72V.
- Current Sharing on 5.0V, 3.3V and +12.0V Outputs.
- Standard 47 Pin Connector Configuration.
- Custom Configurations To Meet User Specified Requirements.
- Excellent Performance, Competitively Priced.
- 2 Year Warranty.
- Complies With All Requirements Of PICMG Power Interface Specifications.
- Fully Compliant with the EU RoHS Directive.
- cCSAus, CE Marked.

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GENERAL PRODUCT SPECIFICATIONS:

-INPUT-
Voltage/Current .......... AC 90-264V, 8.0A max, 47-63Hz, 1 Phase, or DC 36-72V, 13.2A @ 48.0V (nom.)
Fusing ...................... AC: 10.0A, 250V time lag internal fuse provided, non-user serviceable.
AC Power Factor ............... Meets Harmonic Correction per IEC 1000-3-2. 0.99 line PFC typical at AC 115V, full load.
Efficiency ..................... AC 73% typical at 115V, full load.
DC 77% typical at 48V.
Inrush Current ............... Soft start, -25ºC cold start current: AC 30.6A (rms) @ 230V, DC 20.5ApK @ 48V.
Input Voltage Protection (UVP/OVP) .... Auto DC output shutdown when input rises or falls below safe operating limits. Automatic recovery when input returns to within normal operating range.
AC: UVP = 80V or 150V.
DC: UVP = 36V, OVP = 75V.

-OUTPUTS-
Voltage/Current (V/A) .......... V1 V2 V3 V4
AC: PCI504-1022-4 5.0/50, 3.3/30, +12/10((15pk), -12/3.0(5pk).
DC: DPCI504-1022-4 5.0/50, 3.3/30, +12/10((15pk), -12/3.0(5pk).
Total continuous loading on all outputs not to exceed 500W.
Peak loading <60sec., with a duty cycle <10%.
Line Regulation .............. At the sense point over full input range, ±0.10% typical, sense leads connected.
Load Regulation .............. AC: typical, V1, V2 ±0.5%; V3 ±1.0%; V4 ±3.0%,
DC: typical, V1 ±1.0%; V2 ±1.5%; V3, V4 ±4.0%.
Minimum Loading ............. AC: None required in single unit applications.
4.0A minimum required on V1 in N+1 configurations.
DC: 3-5A minimum required on V1.
Stability ...................... Output drift <±0.2% after 20 minute warm-up.
Temp. Coefficient .............. 0º - 50ºC, after 20 minute warm-up.
AC: ±<0.04%/ºC; DC: ±<0.02%/ºC.
Dynamic Response .......... AC: Peak transient less than 250mV, recovers to within 1% in less than 0.5msec with a 50% load change.
DC: Peak transient less than 250mV, recovers to within 1% in less than 1.0msec with a 25% load change.
Remote Sense ............... V1, V2, V3 outputs compensate for up to 0.25V total line drop, in the load cables, sense leads connected. Outputs are internally sensed if the leads are opened.
Ripple and Noise (PARD) ................. For all outputs, 50mV max or 1% peak-to-peak nominal, which ever is greater, DC to 20MHz bandwidth with a coaxial probe and 0.1µF/22µF capacitors at the output terminals.
Current Sharing/ Parallel N+1 Operation .. V1, V2, V3 outputs. Single wire connection for ±10% current sharing between any number of units.
Over/Under Shoot .............. None at turn-on or turn-off.
Hold-Up Time (AC) ............. Outputs remain in regulation following loss of AC power 22.8msec min @ 115V or 230V, full load.
Redundant/Hot Swap .... Full power N+1 redundant, hot swap capable.
Over Temperature Protection ............ Internal temperature sensing. Causes all outputs to latch off. Automatic recovery when the condition causing the overtemp is corrected.
Over Current/Short Circuit Protection ... Current limit on all outputs, 120-130% max load typical. Automatic recovery when the overload is removed.
Over Voltage Protection .............. Non-crowbar type. Any output that exceeds 25% ±10% of nominal Vout will cause all outputs to latch off. Remote inhibit, enable or input recycle required to reset.

-SIGNALS, INDICATORS and CONTROLS-
Remote Enable ............... Enabled by closed circuit or TTL logic 0. Disabled by open circuit or TTL logic 1.
Remote Inhibit ............... Enabled by open circuit or TTL logic 1. Disabled by closed circuit or TTL logic 0.
Power Fail Warning ............. Loss of input AC causes a TTL compatible signal to go low >4msec prior to V1 or V2 output dropping out of regulation. At AC turn-on, signal stays low until outputs are in regulation. PF signal also triggered in both AC and DC input models by any output dropping below 10% of nominal.
LED Indicator .............. Dual uni-color LEDs. Normally On, Green “Power” indicates input power ON and outputs within regulation. Normally Off, Amber “Fault” indicates an output power fault or remote output inhibit enabled.
Output Adjust ............... Remote electrical trim available for V1, V2.
CAUTION: User adjustment of output voltage from factory set points is not recommended in order to maintain current sharing compatibility in N+1 applications.
Switch, On/Off (Optional) .......... Integral with lower latch. Outputs are disabled with open (unlocked) latch.

-OPERATING ENVIRONMENT-
Operating Temperature ........ AC: 20º to +50ºC ambient; DC: 0º to +50ºC at full load, with specified airflow. Derates linearly to 50% at +70ºC.
Cooling ..................... A minimum of 800 lfm direct forward airflow required to achieve full rated power and specified MTBF. Consult factory for derating guidelines with reduced or reversed airflow.
Relative Humidity .......... Up to 90% RH, non-condensing.
Operational Vibration ....... 2.0G peak, 5 – 500Hz along three orthogonal axes.
Storage Temperature ........ AC: -30º to 85ºC. DC: -40º to 85ºC.
Altitude ..................... Operating to 10,000 ft; Storage to 30,000 ft.
MTBF ......................... Designed for 100,000 hrs at 25ºC.
Calibration ..................... Modules will maintain the output voltage and load capacity over the life of the equipment. Annual re-calibration or other maintenance service is not required.

-MECHANICAL-
Outline ................. 6U x 8HP x 233mm Eurocard. Complies with all current PICMG® CompactPCI specifications.
**SAFETY, REGULATORY and EMC**

Designed to comply with the relevant industry standards of the authorities having jurisdiction.


**DC**: Pending JE engineering evaluation of the final design configuration, this model series may be submitted for certification to U.S. and Canadian Bi-National Standards; and for approval to IEC Standards. CE Mark pending final configuration acceptance.

**EMI Filtering** .............. Meets FCC Class A, and CISPR EN 55022 Level A, radiated and conducted.

**Transient Protection** ....... MOV. Withstands transients/bursts as specified by EN 61000-4-4. AC: Level 2; DC: Level 1.

**Touch Current** ............... Typical 0.7mA @ 50/60Hz, 230V AC per UL 60950 test procedures (Sec. 5.0).

**Dielectric Withstand** ........ Meets IEC 60950 regulations.

**Routine Factory Tests** ....... Di-electric strength (hi-pot) input-to-chassis and input-to-outputs: **AC**: 2121V DC; **DC**: 1500V DC; MegOhm to 500V output-to-chassis.

**INTERCONNECT**

**I/O CONNECTOR FUNCTIONS**

<table>
<thead>
<tr>
<th>PIN#</th>
<th>SEQ</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>01-04</td>
<td>2</td>
<td>+5.0V V1 Output.</td>
</tr>
<tr>
<td>01-05</td>
<td>2</td>
<td>-5.0V V1 Return.</td>
</tr>
<tr>
<td>01-13</td>
<td>2</td>
<td>+3.3V V2 Output.</td>
</tr>
<tr>
<td>13-18</td>
<td>2</td>
<td>-3.3V V2 Return.</td>
</tr>
<tr>
<td>19</td>
<td>2</td>
<td>+120V V3 Output.</td>
</tr>
<tr>
<td>20</td>
<td>2</td>
<td>-120V V3 Return.</td>
</tr>
<tr>
<td>21</td>
<td>2</td>
<td>V4 Output.</td>
</tr>
<tr>
<td>22-23</td>
<td>2</td>
<td>V4 Return.</td>
</tr>
<tr>
<td>24</td>
<td>2</td>
<td>GND No Connection (Reserved).</td>
</tr>
<tr>
<td>25-26</td>
<td>2</td>
<td>N/C No Connection (Reserved).</td>
</tr>
<tr>
<td>27</td>
<td>3</td>
<td>R/EN Remote Enable. Close circuit to GND.</td>
</tr>
<tr>
<td>28</td>
<td>3</td>
<td>N/C No Connection (Reserved).</td>
</tr>
<tr>
<td>29</td>
<td>3</td>
<td>V1-ADJ V1 Remote Voltage Adjust.</td>
</tr>
<tr>
<td>30</td>
<td>3</td>
<td>+S1 +5.0V (V1) Remote Sense.</td>
</tr>
<tr>
<td>31</td>
<td>3</td>
<td>N/C No Connection (Reserved).</td>
</tr>
<tr>
<td>32</td>
<td>3</td>
<td>V2-ADJ V2 Remote Voltage Adjust.</td>
</tr>
<tr>
<td>33</td>
<td>3</td>
<td>+S2 +3.3V (V2) Remote Sense.</td>
</tr>
<tr>
<td>34</td>
<td>3</td>
<td>S-RTN Sense Return for V1, V2, V3.</td>
</tr>
<tr>
<td>35</td>
<td>3</td>
<td>ISHR-1 +5.0V (V1) Current Share.</td>
</tr>
<tr>
<td>36</td>
<td>3</td>
<td>+S3 +12.0V (V3) Remote Sense.</td>
</tr>
<tr>
<td>37</td>
<td>3</td>
<td>N/C No Connection (Reserved).</td>
</tr>
<tr>
<td>38</td>
<td>3</td>
<td>DEG Thermal Degradation Signal.</td>
</tr>
<tr>
<td>39</td>
<td>3</td>
<td>R/INH Remote Inhibit. Close circuit to GND.</td>
</tr>
<tr>
<td>40</td>
<td>3</td>
<td>N/C No Connection (Reserved).</td>
</tr>
<tr>
<td>41</td>
<td>3</td>
<td>ISHR-2 +3.3V (V2) Current Share.</td>
</tr>
<tr>
<td>42</td>
<td>3</td>
<td>PF Power Fail Signal.</td>
</tr>
<tr>
<td>43</td>
<td>3</td>
<td>N/C No Connection (Reserved).</td>
</tr>
<tr>
<td>44</td>
<td>3</td>
<td>ISHR-3 +12.0V (V3) Current Share.</td>
</tr>
<tr>
<td>45</td>
<td>1</td>
<td>PE Protective Ear (chassis) Ground.</td>
</tr>
<tr>
<td>46</td>
<td>2</td>
<td>Input Pwr AC: Neutral (N/ACC) Input Power; DC: +Vin.</td>
</tr>
<tr>
<td>47</td>
<td>2</td>
<td>Input Pwr AC: Line (L/AC) Input Power; DC: -Vin.</td>
</tr>
</tbody>
</table>

(1) Contact mating sequence. 1= First to make/Last to break.

**PACKAGING and SHIPPING**

Every reasonable precaution is taken to ensure that the customer receives Jasper Electronics products in good condition. Each item was new when it left the factory and was packed in a container approved by the carrier.

JE makes shipments FOB from the Anaheim, CA, factory or other subsidiary facilities. When placed on board the carrier's vehicle, the equipment becomes the customer's property. The customer is responsible for examining each container when it arrives at the customer's facility, and for immediately reporting any damage to the delivering carrier. The customer shall make any and all subsequent claims for redress of in-transit damage directly to the carrier that delivered the shipment to the customer's facility and not to JE.

**LIMITED WARRANTY POLICY**

All Jasper Electronics (JE) standard model power supplies and products are guaranteed to be free of defects in workmanship and materials for a minimum of two (2) years from the date of original shipment, when operated within specification. This warranty applies only to defects that result in a failure to comply or perform to published specifications. Non-standard (custom) power supplies and products may be warranted on an individual basis. The unused portion of this warranty is fully transferable with the original equipment in which the power supply is installed.
Mechanical Outline
(Dimensions in millimeters [inches])
ORDERING INFORMATION:

A multi-character option code is required following the base model description to define the desired model configuration. Codes added in the following sequence, 1 from each category:

<table>
<thead>
<tr>
<th>•</th>
<th>PCI504-1022-</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>•Input: AC – Blank</td>
<td>Base Model w/ Vout Code. 504 – 500W, 4 Output</td>
<td>4- Connector Type</td>
<td>Latch Type</td>
<td>On/Off Switch</td>
<td>Overlay Type</td>
<td>-MXXXX User Specified Config.</td>
<td>G RoHS Compliant Model</td>
</tr>
<tr>
<td>DC – D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Configuration Options** -

Option: Code:

1. Connector Type ............. 4 = 47 pin PICMG standard. No other options currently available.

2. Latch Type .................. T = Telecom Type VII.
   N = None provided.

3. On/Off Switch .......... Blank = Not included (standard).
   I = Included option. Not available with option N latch.

4. Overlay ..................... S = Standard, with JE logo, model designation, etc.
   B = Blank overlay applied; no logo, model designation, etc.
   N = No overlay provided;
   M = Custom overlay – User specified. May require a factory assigned custom model code (5).

5. Custom Configuration ............ M = Modified, followed by a factory assigned 4-digit number to identify a user specified configuration. Such models may include special or non-standard features and/or options, or be in a configuration differing sufficiently from the design of the approved similar standard model from which it is derived to require re-evaluation of all or part of the design to insure continuing compliance with all safety requirements. Option codes 2, 3 and 4 may not be present in the model description as these requirements are generally included in the user specification documentation on file with the factory. Consult the factory for exact requirements.
   (May incur additional cost. Consult factory.)

6. RoHS Compliant ............ G = Required code. All Jasper products in this series are fully compliant with the requirements of Directive 2002/95/EC Restrictions of Hazardous Substances (RoHS) and are identified with the letter code “G” in the JE part number and model description on the unit labels and related documents (sales orders, etc). All materials, processes and packaging used in the assembly and shipping of this product comply.

Examples: PCI504-1022-4-TSG (AC input, std model)
DPCI504-1022-4-M4662G (DC input, custom model)

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