

## **POWER SUPPLY INSTALLATION INSTRUCTIONS**

### **CPCIBQ2933 (175W)**

### **CPCICQ2933 (200W)**

Intended for use in Centralized DC Power Systems only.

These instructions apply to standard configuration UNIPOWER Corporation power supply models.  
Consult factory for additional documentation that may be required for user specified custom variations.

- 1.0 CAUTIONS Damage can result unless the following precautions are taken:
- 1.1 Do not remove protective covers or panels at any time. There are no operator serviceable components contained within any equipment or assemblies covered by these installation instructions. Doing so will expose the operator to hazardous voltages or currents, and will void all warranties on the equipment. Refer all service to qualified factory service personnel only.
- 1.2 Do not apply DC power to any output.
- 1.3 Do not apply AC hipot voltage; apply DC hipot only. Repeated hipot testing may result in insulation deterioration.
- 1.4 Do not operate this equipment at full load when the DC input voltage is less than 36V or above 72V.
- 1.5 Do not apply loads that exceed the maximum output rating of any individual output, or exceed the maximum total output power rating of the power supply. Refer to the output power ratings shown on the manufacturers labels applied to this equipment.
- 1.6 Do not restrict cooling airflow at either the input or exhaust air vents. Allow sufficient clearance to surrounding equipment for adequate cooling.
- 1.7 Do not operate the power supply(s) at full load when the available cooling air ambient temperature exceeds 50C (122F). Refer to the factory for output derating guidelines.
- 1.8 This power supply is designed for use in redundant mode (N+1, N2) type systems. Prior to installing a new or replacement UNIPOWER power supply in a system containing units from other sources, or vice versa, it is the users responsibility to verify that the supplies are compatible. This includes, but is not limited to, the input and output voltage and current ratings, the connector pinout functions, and connector type and location.
- 1.9 This power supply is designed for "Hot Swap" replacement. It is not necessary to disconnect the DC source prior to inserting or removing a single power supply from a multiple power supply system, provided that the total output load demand on the remaining operational units does not exceed their total output capacity.
- 1.10 Caution should be used when removing a power supply from the end use equipment as some or all of the unit enclosure may become hot under certain operating conditions.
- 2.0 OPERATING CONDITIONS and RESTRICTIONS
- 2.1 A minimum of 15 cfm / 400 lfm of direct forward airflow is required for continuous operation under low line, full output load conditions, and maximum 50C ambient air. Consult factory for de-rating guidelines with reduced or reversed airflow.
- 2.2 An internal circuit board protection fuse rated 10.0A 250V AC is installed in the power supply. In case of failure, the power supply must be returned to UNIPOWER Corporation for service.
- 2.3 The Protective Earthing (PE) connection is made through a pin in the I/O connector of the power supply. The mating connector socket in the users' equipment must be properly grounded to the mains protective earthing termination at end use. Use of the mating connector specified by UNIPOWER Corporation is required to insure the PE is a "make first/break last" connection when installing or removing the power supply. Refer to the power supply general specifications elsewhere in this document.
- 2.4 This power supply is not authorized for use in life support systems, equipment used in hazardous environments or nuclear control systems without obtaining expressed written approval from authorized UNIPOWER Corporation personnel prior to installing or using this equipment.
- 3.0 RATINGS Refer to the manufacturers label applied to the power supply for specific DC input power requirements and DC output ratings.
- 4.0 INITIAL INSPECTION Inspect all components of this power supply system for shipping damage prior to installing or applying power. Use of damaged power supplies is never recommended and may be hazardous for the user.
- 5.0 DO NOT make any connections until the user has verified the following:
- 5.1 Users power source supplies the correct input voltage;
- 5.2 Input terminals in the users equipment has been wired for correct polarity;
- 5.3 Output voltages are correct for the users application;
- 5.4 Output current is sufficient for the users' application;
- 5.5 Output terminal connections in the users' equipment match the polarity of the power supply terminals;
- 5.6 The mating connector installed in the users' equipment is the type and model specified by UNIPOWER Corporation for use with this power supply. Refer to UNIPOWER Outline Configuration Dwg.# 02600-000, and to the power supply general specifications elsewhere in this document;
- 5.7 See CAUTIONS, Sec. 1.8 and 1.9.
- 6.0 HIPOT TESTING Use DC Hipot only:
- 6.1 Extreme caution is necessary when performing Hipot tests to prevent harm to the operator or the power supply.
- 6.2 Hipot input to chassis, and input to outputs only.  
CAUTION: Hipot testing between the outputs and the chassis is not recommended. If this test is performed, do not exceed DC 100V, or damage to the power supply may result.
- 6.3 Notes:
- 6.3.1 Isolation resistance between the DC outputs and the chassis should equal or exceed 10 megohms, measured with a meg-ohmmeter set to DC 100V maximum.
- 6.3.2 All DC outputs within this equipment are rated under DC 42V, and are tested at DC 100V to chassis ground, with all output terminals bussed together.
- 6.4 Test set-up:
- 6.4.1 Buss the DC (+) and DC (-) terminals together.
- 6.4.2 Buss all outputs and chassis or power supply ground terminals together.
- 6.4.3 Refer to users hipot test equipment instructions. With hipot tester test voltage set to zero (0.0) volts, connect hipot tester between DC input terminal buss and the output common buss.

- 6.5 Test procedure:
- 6.5.1 At a rate of no greater than 200V per second, slowly ramp up the test voltage to DC 1250V, and hold for a minimum of one (1) second, or up to DC 1000V and hold for a minimum of one (1) minute.
- 6.5.2 At a rate of no greater than 200V per second, reduce the test voltage to zero (0.0) volts prior to disconnecting.
- 7.0 MOUNTING
- 7.1 The CPCIBQ/CQ series power supplies comply with the Eurorack packaging utilized for CompactPCI®. The power supply may be mounted in any orientation required by the user when installed directly into the users equipment, provided forward cooling airflow is not restricted at either the input or exhaust openings. Refer to the Outline Configuration Drawing elsewhere in this document.
- 8.0 INSTALLATION
- 8.1 See CAUTIONS, Sec. 1.8.
- 8.2 The model CPCIBQ2933 or CPCICQ2933 power supplies are designed be installed directly into the users equipment into a recess (slot) provided by the user. It is not necessary to disconnect the DC source prior to inserting or removing a single power supply from a multiple power supply system. See CAUTIONS, Sec. 1.9.
- 8.3 Before inserting the power supply into the recess, inspect the recess to insure there are no obstructions.
- 8.4 Unlatch the standard Type VII "Telecom" retaining latch on the front panel by depressing the locking tab located at the end of the latch handle, then pulling the latch away from the front panel.
- 8.4.1 For models with the optional Type IV latch, push the latch end away from the center of the panel to an angle approximately 45.
- 8.5 In addition to the latches, the units are supplied with 2.5x11mm Posipanhead screws, 1 located at each end of the front panel, to secure the unit in the user's equipment. Back these screws out 1 full turn max on the threaded portion. These screws may be withdrawn completely and not used at the user's option.
- 8.6 The 47-pin "hot swap" I/O connector is located on the end of the power supply opposite the front panel. Examine the recess and locate the mating connector. Orientate the power supply so that the connectors are aligned. Guide rails are provided on each side of the power supply. Slide the power supply into the recess with the guide rails in the mating guide slots in the user's equipment, and push in with sufficient pressure to insure the I/O connector has fully engaged.
- 8.7 Lock the power supply in place by pushing the standard Type VII latch flush to the front panel until a "click" is heard as the latch lock engages. Push the optional Type IV latch towards the panel center until the detent at the latch base is engaged. If used, install the 2 retaining screws, 6in/lb max. Front panels are pre-drilled to allow 2 additional 2.5x11mm Posipanhead screws to be used at the user's option.
- 8.8 Check to insure the power supply is properly retained by grasping the latch handle and pulling lightly. No movement should occur.
- 8.9 The unit is functioning within specifications when the "Power" LED indicator located in the front panel is green and the "Fault" LED is off. "Power" off or "Fault" amber indicates an input and/or output fault condition.
- 8.10 Removal is performed in the reverse order. Caution should be used when removing a power supply as some or all of the unit enclosure may become hot under certain operating conditions.
- 9.0 TROUBLESHOOTING
- 9.1 Unit does not glide smoothly into PSU bay, or does not engage mating connector. Check to insure-  
Guides in the PSU bay are the correct type, properly installed and straight. Refer to guide requirements in the General Specifications, Mechanical, below;  
The mating connector in the users equipment is the type specified by UNIPOWER for use with the power supply model being installed, and is properly located within the equipment at the correct depth. Refer to the connector requirements in the General Specifications elsewhere in this document or to UNIPOWER product literature or Mechanical Outline Drawings for the connector location on the equipment backplane.
- 9.2 Unit does not turn on (front panel "Power" LED is off). Check to insure-  
The power supply is completely engaged in the users' equipment connector;  
The I/O connector DC input pins are not damaged or bent;  
The users DC power source is properly connected and functioning within specifications.
- 9.3 No output ("Fault" LED is amber), DC input OK. Check to insure-  
The remote inhibit, enable switch settings in the user's equipment are correct;  
The remote sense leads in the users' equipment are connected correctly. Cycle DC input off-on, or cycle remote inhibit or enable to reset power supply;  
That cooling airflow is adequate and unblocked at both the inlet and outlet sides. Automatic recovery when the units' internal temperature drops into the operational range;  
That the equipment load demand does not exceed the capacity of the power supply(ies). Automatic recovery following overload removal.  
See CAUTIONS, Sec. 1.9;  
Following an output over voltage fault condition, cycle DC or inhibit/enable to reset.

#### **-LIMITED WARRANTY POLICY-**

All UNIPOWER Corporation standard model power supplies and products are guaranteed to be free of defects in workmanship and materials for a period 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.  
For complete warranty and return conditions please request a copy from our Sales Offices.

All statements and technical information contained herein are believed by UNIPOWER to be reliable as of the publication date of this document, but the accuracy or completeness is not guaranteed, and UNIPOWER reserves the right to change specifications without prior notification. However, every reasonable effort will be made by UNIPOWER to inform users of UNIPOWER products of changes to design form, fit or function that may affect the user's applications. UNIPOWER supplies a quality product, equal to any available in the marketplace; however, these products are intended to be used in accordance with the specifications described in this document. Any use or application that deviates from the stated operating specifications is not recommended and may be unsafe.

## GENERAL SPECIFICATIONS

Typical at Nominal 115/230VAC Line or 48VDC, Full Load and 25°C Unless Otherwise Noted.

### Input Specifications

Voltage/Current.....	36-72V (48V nominal). 6.9A max @ 175W output. 7.9A max @ 200W output.
Fusing.....	Internal line fuse provided, non-user serviceable 10.0A, 250V.
Transient Protection.....	MOV. Withstands transients as specified by IEEE C62.41 - 3KV (differential and common mode).
EMI Line Filtering.....	Meets IFCC Level B, and EN55022 Level B.
Efficiency.....	70% typical at 48VDC, full load.
Redundant/Hot Swap....	Full power N+1 redundant, hot-swap capable.

### Output Specifications

Line Regulation.....	<±1%, at the sense point, over full input range with sense leads connected.
Load Regulation.....	V1: 0.25V min load to full load. V2: 0.15V no load to full load. V3: 0.25V no load to full load. Output voltage droops with increasing load.
Minimum Loading.....	None required.
Stability.....	<±0.2% output drift after 20 minutes warm-up.
Temp. Coefficient.....	<±0.02%/°C, 0°- 50°C, after 20 minute warm-up.
Dynamic Response.....	<3% deviation with a 25% load change at 1A/µsec. Output returns to within 1% in less than 300µsec.
Ripple and Noise.....	<50mV for all outputs, or 1% pk-pk nominal, which ever is greater, DC to 20MHz bandwidth with a coaxial probe and 0.1µF/22µF capacitors at the output terminals.
Current Sharing/ N+1 Operation.....	V1, V2, V3 outputs, droop method standard.
Remote Sense.....	V1, V2, V3 outputs compensate for up to 0.25V total line drop in the load cables. Outputs are internally sensed if leads are opened.
Over/Under Shoot.....	None at turn-on or turn-off.
Hold-Up Time.....	>15msec following loss of AC power at low line, full load.
Over Current/Short Circuit Protection.....	Current limit on all outputs. Automatic recovery when overload is removed.
Over Temperature Protection.....	Internal temperature sensing. Causes all outputs to shut down. Automatic recovery.
Under Voltage Alarm.....	Any output dropping below 10% of nominal triggers the power fail warning signal.
OVP.....	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.

### Signal & Control Line, Indicators

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 any output dropping out of regulation. At AC turn-on, signal stays low until all outputs are in regulation. Also triggered by an under voltage condition on any output.
LED Indicator.....	Dual LEDs. Green indicates input power ON and outputs within regulation. OFF or Amber indicates input and/or output power fault.

### Operating Environment

Temperature Range Operating.....	0° to 50°C ambient at full load, with specified airflow.
Storage Temperature....	-40° to 85°C.
Cooling.....	A minimum of 15cfm/400lfm 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....	0.75G peak, 5-500Hz along three orthogonal axes.
Altitude.....	Operating to 10,000 ft. Storage to 30,000 ft.
MTBF.....	Designed for 150,000 hrs at 25°C.

### Mechanical

Outline.....	3U x 8HP front panel. Refer to Mechanical Outline on page 3. Complies with all current PICMG® CompactPCI PSU specifications.
Weight (Approx.).....	1.8lbs / 1.06kgs.
Retaining Latches.....	Supplied with a single Rittal #3686.135 Type VII.

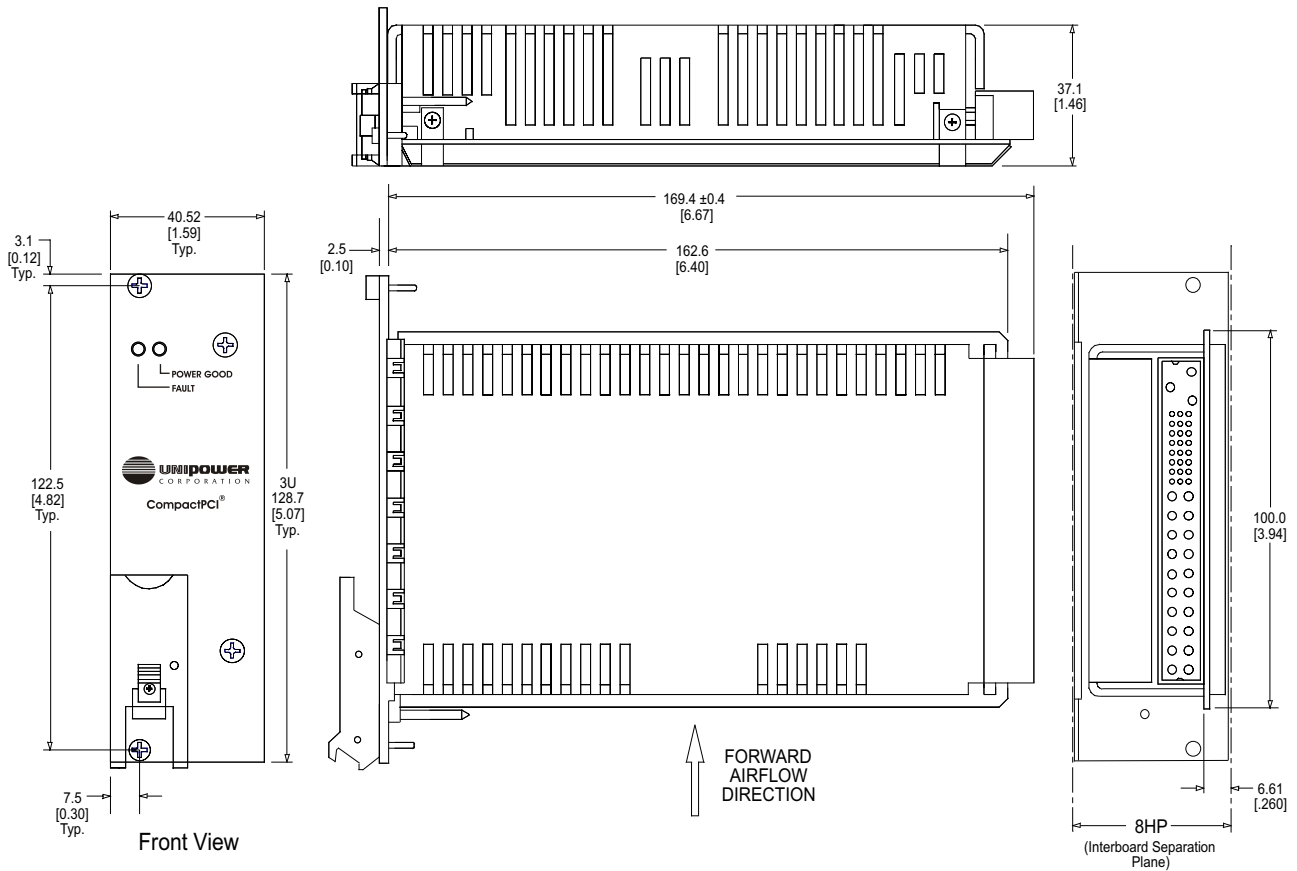
### Safety

Recognised to U.S. and Canadian Bi-National Standard CSA22.2  
 No. 60950 / UL60950, 3rd Edition (cULus).  
 CE Marked in accordance with LVD73/23/EEC and EN60950/A1-A4/A11.

### Interconnect

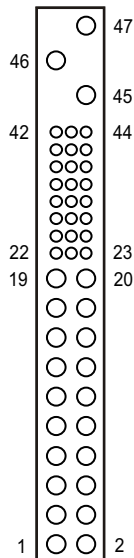
47 Circuit.....	Positronic Ind. P/N PCIH47M400A1. Mates with PI P/N PCIH47F300A1.1. Use of the specified mating connector is required to ensure proper contact sequence.
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### DIMENSIONS & CONNECTOR PINOUTS



#### PIN CONNECTIONS - 47 PICMG

PIN	FUNCTION	PIN	FUNCTION
1	V1 Out (+5V)	25	N/C
2	V1 Out (+5V)	26	N/C
3	V1 Out (+5V)	27	Remote Enable
4	V1 Out (+5V)	28	N/C
5	V1 & V2 Return	29	N/C
6	V1 & V2 Return	30	Remote Sense V1 (+5V)
7	V1 & V2 Return	31	N/C
8	V1 & V2 Return	32	N/C
9	V1 & V2 Return	33	Remote Sense V2 (+3.3V)
10	V1 & V2 Return	34	Sense Return (V1, V2 & V3)
11	V1 & V2 Return	35	Current Share V1
12	V1 & V2 Return	36	Remote Sense V3 (+12V)
13	V2 Out (+3V3)	37	N/C
14	V2 Out (+3V3)	38	Thermal Degrade
15	V2 Out (+3V3)	39	Remote Inhibit
16	V2 Out (+3V3)	40	N/C
17	V2 Out (+3V3)	41	Current Share V2
18	V2 Out (+3V3)	42	Input Power Fail
19	V3 Return	43	N/C
20	V3 Out (+12V)	44	Current Share V3
21	V4 Out (-12V)	45	Chassis Ground
22	Signal Return	46	+DC Input
23	N/C	47	- DC Input
24	V4 Return		



Pin staging:  
 Pin 45 is leading and first to connect.  
 Pins 27, 35, 41 & 44 are lagging and last to connect.

ALL DIMENSIONS IN MILLIMETERS (in).  
 All specifications subject to change without notice.