

POWER SUPPLY INSTALLATION INSTRUCTIONS

CPCIB2933 (175W)

CPCIC2933 (200W)

These products are not intended for use with IT power systems.

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 AC 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 when the AC input voltage is less than 100V or above 250V.
- 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) when the available cooling air ambient temperature exceeds 50C (122F). Refer to the factory for output derating guidelines.
- 1.8 This power supply module is designed for use in redundant mode (N+1, N2) type systems. Prior to installing a new or replacement UNIPOWER module in a system containing units from other sources, or vice versa, the user must verify that the modules 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 module is designed for "Hot Swap" replacement. It is not necessary to disconnect the AC source prior to inserting or removing a single module from a multiple module system, provided that the total output load demand on the remaining operational modules does not exceed their total output capacity.
- 1.10 Caution should be used when removing a power supply module from the end use equipment as some or all of the module enclosure may become hot under certain operating conditions.
- 2.0 **OPERATING CONDITIONS and RESTRICTIONS**
- 2.1 A minimum of 15 cfm (400 lfm) of airflow is required for continuous operation under low line, full output load conditions with 50C ambient air.
- 2.2 An internal circuit board protection fuse rated 3.15A, 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 UNIPOWER 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 AC 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 outline drawing and to the power supply general specifications elsewhere in this document;
- 5.7 See CAUTIONS, Sec. 1.8 and 1.9.
- 6.0 **HI-POT TESTING** All CPCIB and CPCIC series power supply modules received Electric Strength (hi-pot) tests prior to shipment to the user as part of the final inspection process. Additional hi-pot tests prior to installation in the end equipment are not recommended unless deemed necessary by the user, and then AQL sampling is suggested. **Caution:** Repeated hi-pot tests may result in insulation deterioration.
- 6.1 Use DC Hi-pot only:
- 6.2 Extreme caution is necessary when performing Hi-pot tests to prevent harm to the operator or the power supply.
- 6.3 Hi-pot input to chassis, and input to outputs only.
Caution: Hi-pot 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.
- 6.4 Notes:
- 6.4.1 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.
- 6.4.2 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.
- 6.5 Test set-up:
- 6.5.1 Buss the AC (L) and ACC (N) input terminals together.
- 6.5.2 Buss all outputs (+V, -V) and chassis or power supply ground terminals together.
- 6.5.3 Refer to user's hi-pot test equipment instructions. With hi-pot tester test voltage set to zero (0.0) volts, connect one hi-pot tester lead to the AC input terminal buss and the other lead to 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 2121V, and hold for a minimum of one (1) second, or up to DC 1700V 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 and discharging the test leads.
6.6 Remove the buss connections from the input and output terminals.

7.0 MOUNTING

- 7.1 The CPCIB/CPCIC 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 CPCIB/CPCIC series power supply module is designed to be installed directly into the users equipment into a recess (slot) provided by the user. It is not necessary to disconnect the AC 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 Set the standard model "Type VII" (Telecom) retaining latch at the lower end of the front panel to the "Unlatched" position 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" flush latch, pushing the latch end away from the center of the panel to an angle approximately 45.
8.5 In addition to the latch, the units are supplied with 2 2.5x11mm Posipanhead screws, one 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 before installing.
8.6 The 47-pin "hot swap" I/O connector, located on the end of the power supply opposite the front panel, is mounted offset on the power supply. Examine the recess and locate the mating connector. Orientate the power supply so that the connectors are aligned. Integral guide rails are provided on each end 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 "Type VII" latch towards the panel center until a "click" is heard as the latch lock engages. For the optional "Type IV" latch, push the latch handle towards the front panel until the detent at the base of the latch is engaged. Install the 2 retaining screws, 6in/lb max.
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. Off, or an amber "Fault" LED indicates an input 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 unit guide rail offset matches the installed guides;
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 LED is off). Check to insure-
The power supply is completely engaged in the users' equipment connector;
The I/O connector AC input pins are not damaged or bent;
The users AC power source is properly connected and functioning within specifications.
9.3 No output (Power LED is green, Fault LED is off or amber). 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 AC 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 AC 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.....	90-264VAC, 47-63Hz, Single Phase. 2.8A max @ 175W output. 3.2A max @ 200W output.
Fusing.....	Internal line fuse provided, non-user serviceable AC - 3.15A, 250V.
AC Power Factor.....	0.99 line PFC typical at 115VAC, full load.
AC Inrush Current.....	Thermistor soft start. ~25°C AC cold start current 15Apk @ 115VAC; 30Apk @ 230VAC.
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 115VAC, 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.

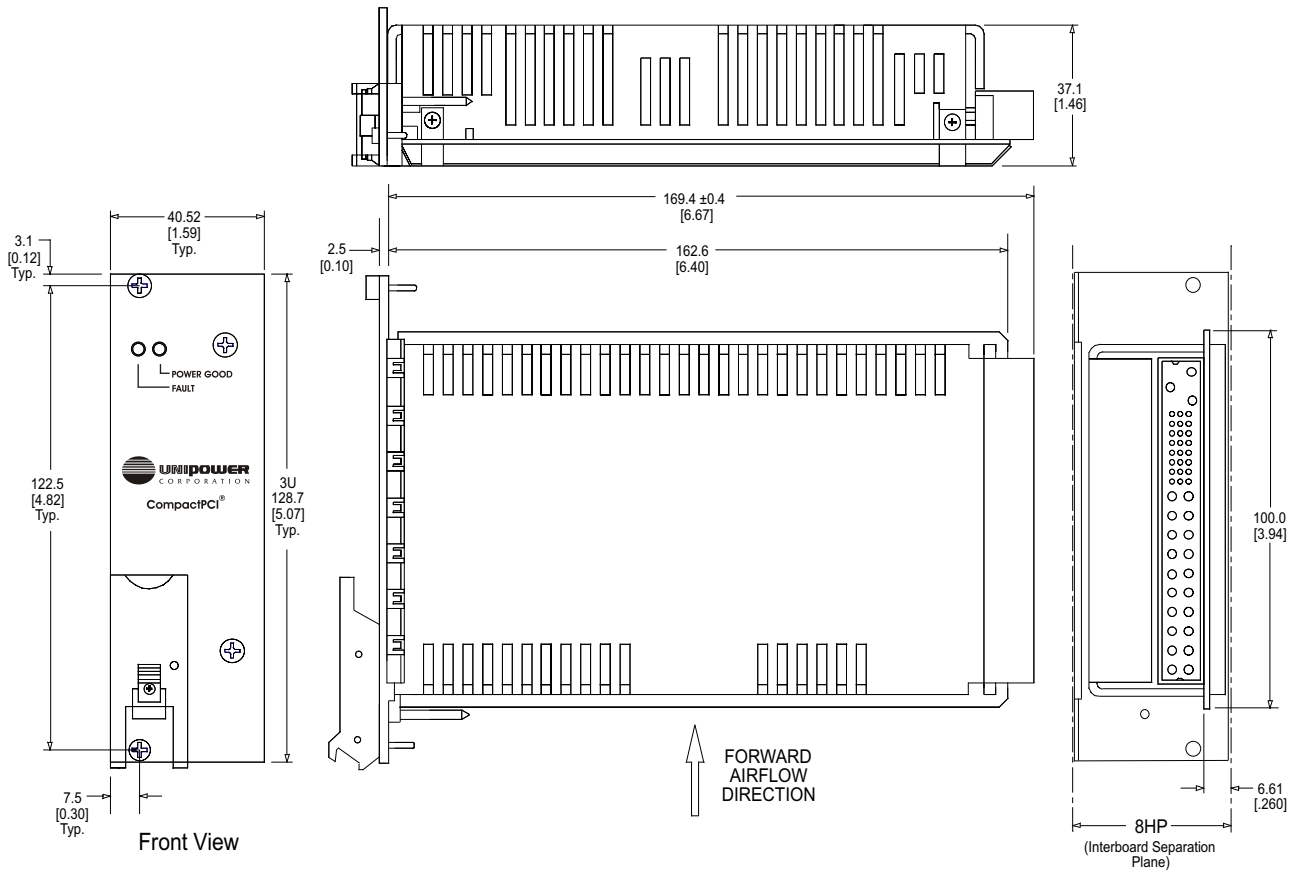
Safety

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

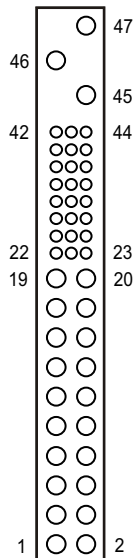
47 Circuit.....	Positronic Ind. P/N PCIH47M400A1. Mates with PI P/N PCIH47F300A1.1. Use of the specified mating connector is required to ensure proper contact sequence.
-----------------	---

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	AC Neutral
23	N/C	47	AC Live
24	V4 Return		



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