

Compac Series NHS Rectifiers and Shelves



208Vin SINGLE OR THREE PHASE

Description

NHS rectifiers and shelves can be configured with other Compac Series distribution, controller, and temperature compensation panels. These rectifier/shelf systems are designed for use in both indoor racks and outdoor cabinets. NHS Series rectifiers are hot-swappable and provide a complete set of interface signals.

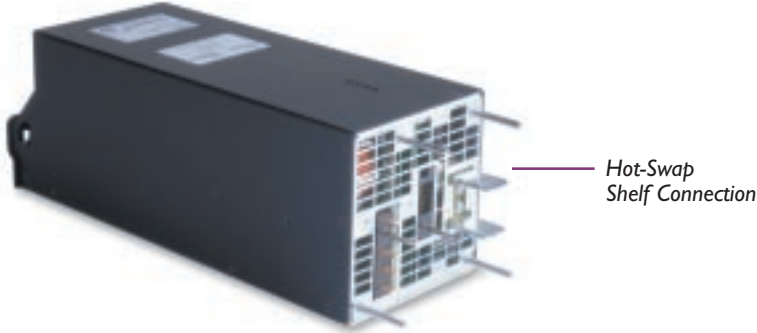
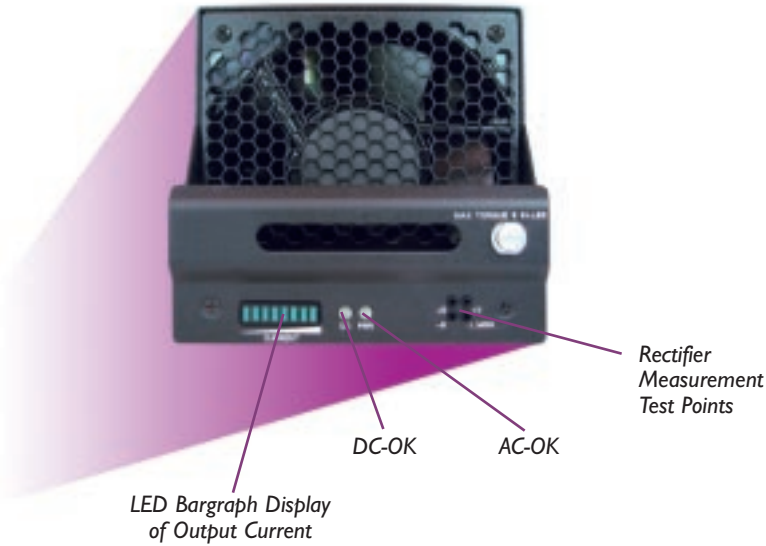
Features

- ▶ Compact 3U height.
- ▶ 24 and 48 volt rectifiers.
- ▶ 50 amp rectifier at 48V.
- ▶ 100 amp rectifier at 24V.
- ▶ 180-264 VAC single-phase or three-phase inputs.
- ▶ Hot-swappable rectifiers are true plug-and-play. No adjustments required.
- ▶ High power density (9.8W/in³).
- ▶ High reliability, >700,000 hours MTBF.
- ▶ Power Factor Correction (PFC).
- ▶ Active current sharing.
- ▶ Near unity power factor eliminates excessive input harmonic current draw, which minimizes cable and fuse/circuit breaker input sizing.
- ▶ International Standards Compliance.

Rectifier and Shelf Selection

	NPS4-S Shelf	NPS3-S Shelf	NPS3-S-I-FM Shelf	NHS24/100 Rectifier	NHS48/50 Rectifier
Output Voltage	Dependant on rectifier	Dependant on rectifier	Dependant on rectifier	25 to 29VDC (24V optional)	51 to 59VDC (48V optional)
Output Current	200A @ 48V 400A @ 24V (4 rectifiers)	150A @ 48V 300A @ 24V (3 rectifiers)	150A @ 48V 300A @ 24V (3 rectifiers)	100A	50A
Input Voltage	180-264 VAC Single Phase 60 Hz	180-264 VAC Single or Three Phase 50-60 Hz	180-264 VAC Single Phase 50-60 Hz	180-264 VAC Single Phase 50-60 Hz	180-264 VAC Single Phase 50-60 Hz
Input Current	60A @ 230V	45A @ 230V	45A @ 230V	15A @ 230V	15A @ 230V
Soft Start	See Rectifier	See Rectifier	See Rectifier	30A peak, max 5 mS	30A peak, max 5 mS
Input Breaker Rating	4 x 40A (1 per rectifier feed)	3 x 40A (1 per rectifier feed)	100A	N/A	N/A
Full Load Efficiency	N/A	N/A	N/A	86%	86%
BTU/Hr (full load)	N/A	N/A	N/A	1255	1255
Input Configuration	4 inputs 1 per rectifier max. 8 AWG wire	3 inputs 1 per rectifier max. 8 AWG wire	1 set of input studs feeds all rectifiers	N/A	N/A
Mounting	Mounting brackets recessed 4" from front of shelf	Mounting brackets recessed 4" from front of shelf	Mounting brackets flush with front of shelf	N/A	N/A
Width	21.5", mounts in 23" rack	17.5", mounts in 19" rack	17.5", mounts in 19" rack	5"	5"
Blank Panel	NHS-BP	NHS-BP	NHS-BP	N/A	N/A

Compac Series NHS Rectifiers and Shelves



Compac Series rectifiers and shelves are available in a complete Compac power plant or subassemblies for cabinet applications.

Compac Series

NHS Rectifiers and Shelves

TECHNICAL SPECIFICATIONS

ELECTRICAL SPECIFICATIONS:

AC Input Range:	180 - 264VAC - three-phase optional
Power Factor:	>0.99 (50 - 100% load)
AC Transient:	3000V, 2 Joules
Voltage Regulation:	+/- 0.4%
Transient Response:	+/- 0.4% at load variations 10-90% or 90-10%, recovery time 10 mS
Load Sharing:	5% of nominal current
Ripple:	<1% pk - pk
Radiated RFI	EN 50081-1

PROTECTION:

Overcurrent	100-105% constant current type. Automatic recovering upon removal of fault, short circuit current <110% full load.
Overvoltage	Latching high voltage shutdown @ 60VDC ±1%
Overtemperature	Rectifier will shut down if temperature reaches unsafe level, Restart is automatic

STATUS & ALARMS:

Status:	Green LED indicates input power within acceptable range Red LED indicates overvoltage shutdown or rectifier alarm
Alarms:	High voltage, low voltage, loss of AC, rectifier failure, minor and major alarm

MECHANICAL SPECIFICATIONS:

Cooling	Fan cooled
Weight	Rectifier: 12.6 lbs, NPS3 Shelf: 21 lbs, NPS4 shelf: 24 lbs
Dimensions (H x W x D)	Rectifier: 5" x 5" x 12.25" (12.7cm x 12.7cm x 31.1cm) NPS3: 3U 5.25" x 17.5" (13.3cm x 44.5cm) + mounting ears wide x 16" max. depth (40.6cm) NPS4: 3U 5.25" x 21.5" (13.3cm x 54.6cm) + mounting ears wide x 16" max. depth (40.6cm)

ENVIRONMENTAL:

Altitude Rating:	13000 ft., derate 7°C/1000 ft above 8000 feet
Audible Noise	60 dBA
Ambient Temperature	-25 to +50°C, -40°C to +85°C Storage
Humidity	0% to 95%, non-condensing

COMPLIANCE:

EMI	FCC Part 15, class A; EN55022, Level A; Bellcore GR-1089-CORE
Safety	UL 1950, CSA 22.2 #950 TUV EN60950

Note: All specifications are subject to change without notification.



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Revised: 6/01 CPR601-A

Compac Series Compac Rack Systems



24VDC @ 800 AMP SYSTEM

Bottom of frame open for user installed equipment.



48VDC @ 400 AMP SYSTEM

5 battery trays for 100 to 150 Ah battery reserve strings.



48VDC @ 1200 AMP SYSTEM

Rear connection point for external battery strings.

Description

Compac power plants are modular systems designed for applications requiring 50 to 1200 amps. An almost limitless combination of rectifiers, breaker panels, and battery shelves is available. Stand-alone configurations with up to 750 Ah of battery backup are available. Each rack can hold up to 24 rectifiers or a maximum of five battery trays. Systems can be ordered with ultimate capacity for future addition of rectifiers and batteries.

Standard features include timer-controlled equalize and battery test functions, current and voltage display meters, LED's for local alarm indications, user-programmable alarm set points, and a full complement of form "C" alarm contacts for remote monitoring. Optional features include low voltage disconnect, complete battery systems, and battery temperature compensation.

The Compac systems distribution architecture can be designed for load shedding during power outages, allowing the critical loads to stay up longer on battery power by eliminating the non-critical equipment loads earlier in the discharge cycle.

Features

- ▶ Modular systems from 50 to 1200 amps.
- ▶ 24 or 48V outputs.
- ▶ 180-264 VAC single or three-phase inputs.
- ▶ Rack widths of 19" or 23".
- ▶ Hot-swappable rectifiers.
- ▶ Small footprint for where real estate is at a premium.
- ▶ Scalable N+1 redundancy with current sharing.
- ▶ Power Factor Correction (PFC).
- ▶ Extensive monitoring capabilities.
- ▶ Options include integrated battery systems and extensive breaker and fuse layouts.
- ▶ A single seven foot rack can provide distribution, 400 amps of rectifiers, and 750Ah of batteries.
- ▶ International Standards.



LOW VOLTAGE DISCONNECT

An optional low voltage disconnect provides protection against deep discharge of the batteries by disconnecting the battery from the load at a user-specified cut-out voltage. Reconnection of the battery is automatic upon return of AC to the rectifier. A front panel mounted Emergency Power Off (EPO) switch is provided for emergency or service disconnection of the batteries. Remote contacts for the EPO switch are provided to enable the installer to place a remote switch at a more convenient location, as many city fire codes require.

BREAKER PANELS

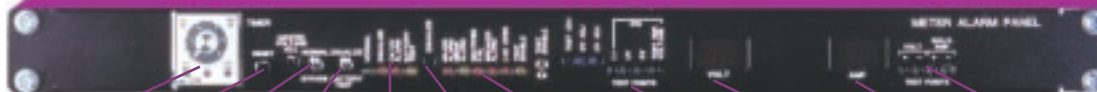
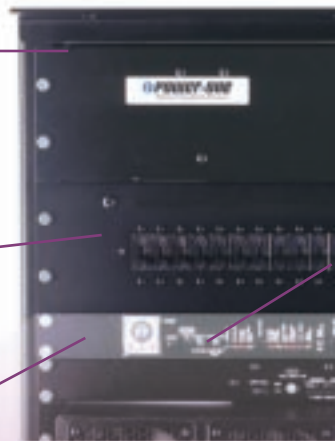
Breaker panel options include:

- ▶ Twenty positions for 5 to 100 amp breakers.
- ▶ Two positions for 125 to 250 amp breakers.
- ▶ A single position 450 amp or 525 amp breaker.

DIGITAL METER, ALARM, AND CONTROL PANEL

The Digital Meter, Alarm, and Control (DMAC) panel monitors system bus voltage and load current, and provides a variety of alarm and control functions. DMAC features include:

- ▶ Single point system voltage adjust.
- ▶ Programmable timer for battery test or equalization.
- ▶ Front panel LED's for alarms as designated below.
- ▶ User-adjustable set points for under/over voltage and low voltage disconnect.
- ▶ Digital meters and test points monitor plant voltage and current.



- Equalize and battery test timer
- Timer reset button
- System voltage adjust pot
- Normal/Bypass, and Equalize/Battery test switches
- Equalize, OV/UV alarm and battery test LED's
- Equalize, undervoltage and overvoltage alarm setting adjust pots
- Major alarm, minor alarm, rectifier fail, breaker alarm, and LVD open LED's
- System voltage test points
- Digital Voltmeter
- Digital Ammeter
- System amperage test points

Compac Series Compac Rack Systems



DMAC BATTERY TEST AND EQUALIZATION

Battery testing is performed by setting the desired length of time and activating the test cycle. During the test cycle, the controller automatically decreases the rectifier voltage in order to transfer the load onto the batteries. Measurement of battery voltage and current may be taken to determine health of the battery string. The system will automatically return to normal rectifier float voltage when the test is completed.

Battery equalization is performed by setting the desired length of time and activating the equalization cycle. During the cycle, the controller automatically increases the rectifier voltage to the user-programmable level in order to equalize the battery voltage.

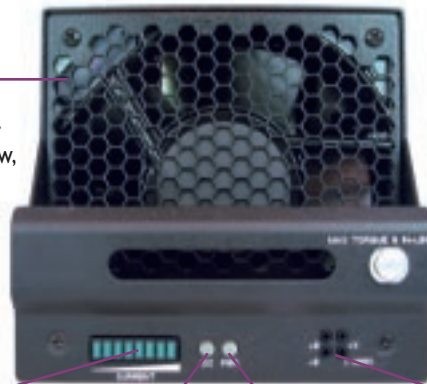
TEMPERATURE COMPENSATION

The temperature compensation panel works in conjunction with the DMAC controller. Temperature compensation automatically adjusts the float voltage according to the ambient temperature. Alarms include temperature delta, which indicates battery thermal runaway and sensor failure. In the event of sensor or panel failure, the compensation defaults to the normal float voltage set by the controller.

COMPAC SERIES RECTIFIERS

- ▶ High power density allows for more room for other system components.
- ▶ Near unity power factor eliminates excessive input harmonic current draw, which minimizes cable and fuse/circuit breaker input sizing.
- ▶ Hot-swappable, true plug-and-play. No adjustments required.

See the Compac Rectifier data sheet for further information.



LED Bargraph Display
of Output Current

DC-OK

AC-OK

Rectifier Measurement
Test Points

Compac Series Compac Rack Systems

TECHNICAL SPECIFICATIONS

ELECTRICAL SPECIFICATIONS:

Input Voltage	180-264 VAC, single or three-phase, 50-60 Hz
Input Current	15 amp per rectifier at full load, 30 amp peak
Input Breaker Rating	40 amp per rectifier
Input Wire Size	8 AWG maximum
DC Bus Rating	800 or 1200 amp options
Maximum Current Rating per Breaker Panel	400 amps
Low Voltage Disconnect (LVD):	
Contactor Rating	800 or 1200 amp options
Disconnect Voltage	User adjustable, factory set @ 21V for 24V systems, 42V for 48V systems
LVD Disconnect Range	34 to 51VDC for 48V systems, 18 to 26VDC for 24V systems
Reconnect Voltage	Approx. 6.5V above disconnect voltage (4.7V for 24V systems)
DMAC Controller:	
Digital Meters	3.5 digits, $\pm 2\%$ accuracy
UV/OV Adjustment	22V/29V for 24VDC $\pm 1.5V$ 44V/58V for 48VDC $\pm 1.5V$
Equalization & Battery Test Timer Range	0.5 seconds to 130 hours
Current Measurement DC Shunt	1200A:50mA
Rectifier:	See Compac Rectifier data sheet
Battery Trays Option:	
Optional Battery Fuses	Fuses rated at 225 amps
Connection	Cabling provided, includes Anderson Quick-Disconnect connectors.

MECHANICAL SPECIFICATIONS:

Width	19" or 23"
Battery Tray Depth	21", 25" or 29"
Floor Mounting	Mounting holes provided, pattern varies with configuration, contact factory
Color	Texture Black Gloss (Shelf & Rectifiers)

ENVIRONMENTAL:

Temperature Range	0- 50°C operating, -50 to +85°C storage
Humidity	10-90% RH, operating, 5-95% storage, non-condensing
Temperature Coefficient	$\pm 0.0008\%/^{\circ}\text{C}$ from 0-50°C after one hour warm-up
Altitude Range	13,000 ft., derate 7°C/1000 ft. above 8,000 ft.
Heat Dissipation /BTU per Hour per Rectifier	1,255 BTU's per hour at full load

Note: All specifications are subject to change without notification.

CPA SERIES - 250 WATT

Advanced Product Release

The AC input CPA250-4530 is a hot-swap, CompactPCI® power supply which is fully compliant to the PICMG® 2.11 Power Interface Specification using a standard Positronic 47-pin connector. Extra-high current density using innovative Power-One EDGE technology allows this unit to deliver up to 40 amperes on both the +5 and +3.3 volt outputs at 50°C.

Remote sense and active current share on the +5, +3.3, and +12 volt outputs along with ORing FETs allow these units to be used in redundant, hot-swap applications.

The CPA250-4530 is feature rich, meets international safety standards, and displays the CE Mark for the Low Voltage Directive (LVD).

FEATURES

- Wide Input Range (85-264 VAC)
- Delivers 40A for the +5V and +3.3V Outputs (No Restrictions)
- Single-wire Current Share on Outputs V1, V2, and V3
- Remote Sense on Outputs V1, V2, and V3
- Overtemperature, Overvoltage, and Overcurrent Protection
- Input Good and Power Fail LED Indicators
- Power Fail and Temperature Warning Signals
- Inhibit and Enable Inputs
- Fully Compliant to PICMG® 2.11 CompactPCI® Specification
- Extra-High Current Density in Industry-Standard 3U x 8HP x 160mm Package



AC INPUT MODEL SELECTION CHART

MODEL	OUTPUT VOLTAGE	ADJUSTMENT RANGE	OUTPUT CURRENT	LINE REGULATION	LOAD REGULATION	RIPPLE & NOISE %pk-pk (NOTE 1)
CPA250-4530	+5V	N/A	40A	0.5%	1%	2%
	+3.3V	N/A	40A	0.5%	1%	2%
	+12V	N/A	5.5A	0.5%	1%	1.3%
	-12V	N/A	1.5A	0.5%	1%	1.3%

NOTES: 1) Maximum peak-to-peak expressed as a percentage of output voltage, 20 MHz bandwidth.

INPUT SPECIFICATIONS

PARAMETER	CONDITIONS/DESCRIPTION	MIN	NOM	MAX	UNITS
Input Voltage - AC	Continuous input range.	85		264	VAC
Input Frequency		47		63	Hz
Hold-up Time		20			ms
Input Protection	Non-user serviceable, internally-located input line fuse.				
Inrush Surge Current	Internally limited by thermistor and electronic switch.			30	A
Operating Frequency	Switching frequency of main output transformer.	125		145	kHz

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CPA SERIES - 250 WATT

OUTPUT SPECIFICATIONS

PARAMETER	CONDITIONS/DESCRIPTION	MIN	NOM	MAX	UNITS
Efficiency	Full rated load, 115 VAC.	80			%
Minimum Load; V1, V2, V3	Minimum load required to maintain regulation with no load on V4.	None			A
Minimum Load, V3	Minimum load on V3 required to maintain regulation on V4.	50% OF V4 Load			A
Ripple and Noise	Full load, 20 MHz bandwidth.	See Model Selection Chart			
Output Power	250 LFM forced-air cooling.			200	W
Output Power	400 LFM forced-air cooling.			250	W
Overshoot /Undershoot	Output voltage overshoot/undershoot at turn-on.			0	%
Regulation	Varies by output. Total regulation includes: line changes over the specified input range, changes in load starting at 50% load and changing to 100% load.	See Model Selection Chart			
Turn-on Delay	Time required for initial output voltage stabilization.		150		ms
Initial Setting Accuracy			±1		%

INTERFACE SIGNALS AND INTERNAL PROTECTION

PARAMETER	CONDITIONS/DESCRIPTION	MIN	NOM	MAX	UNITS
Overvoltage Protection	Latch style overvoltage protection.	120		130	%Vnom
Overload Protection	Fully protected against output overload and short circuit. Automatic recovery upon removal of overload condition.				
Overtemperature Protection	System shutdown due to excessive internal temperature, automatic reset.				
Power Fail (FAL#)	TTL compatible signal, open collector active low signal. Indicates any output below 90% and/or a low input <85VAC.				
Current Share	Accuracy of shared current with up to 6 parallel units. Single wire current share on V1, V2, and V3.			10	%
Remote Sense	Available on V1, V2, and V3. Total voltage compensation for cable losses with respect to the main output.			150	mV
Inhibit (INH#)	TTL-compatible signal inhibited with GND or TTL "0".				
Enable (EN#)	Contact closure to external ground to start unit. On shortest pin (last make, first break).				
Overtemperature Warning (DEG#)	Provides warning when power supply temperature exceeds rating. TTL-compatible open.				
Front Panel LED Status Indicators	Input OK (Green), Output Failure (Red).				

SAFETY, REGULATORY, AND EMI SPECIFICATIONS

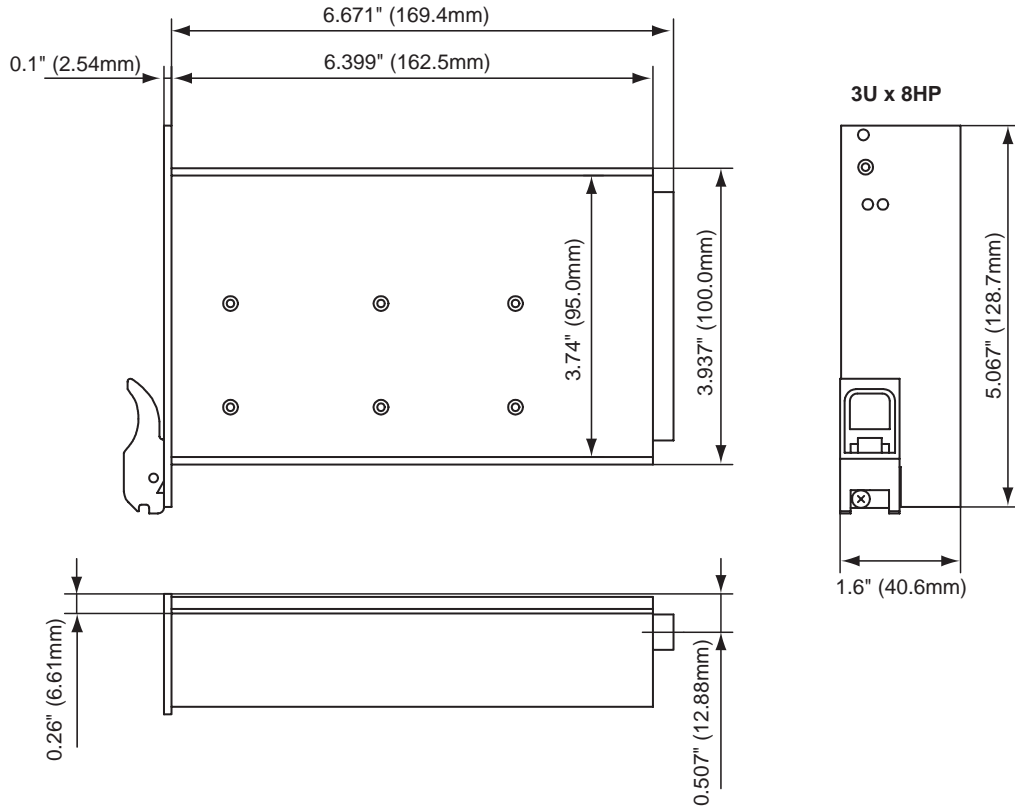
PARAMETER	CONDITIONS/DESCRIPTION	MIN	NOM	MAX	UNITS
Agency Approvals	UL1950. cUL1950. EN60950 (TÜV).		Approved		
Dielectric Withstand Voltage	Input to Output per EN60950.	4243			VDC
Electromagnetic Interference	EN55022 / CISPR 22 - Conducted. Radiated.	A A			Class
ESD Susceptibility	Per EN61000-4-2, level 4.	8			kV
Radiated Susceptibility	Per EN61000-4-3, level 3.	10			V/M
EFT/Burst	Per EN61000-4-4, level 3.	±2			kV
Input Surge	Per EN61000-4-5, level 3.		Line to Line Line to Ground	1 2	kV
Conducted Disturbance	Per EN61000-4-6, level 2.			3	V
Insulation Resistance	Input to Output.		10		MΩ

ENVIRONMENTAL SPECIFICATIONS

PARAMETER	CONDITIONS/DESCRIPTION	MIN	NOM	MAX	UNITS
Altitude	Operating. Non-Operating.			10k 40k	ASL Ft. ASL Ft.
Operating Temperature	With 400 LFM forced-air cooling Derate linearly above 50°C by 2.5% per °C.	At 100% load: At 50% load:	0	50 70	°C °C
Storage Temperature			-40	85	°C
Relative Humidity	Non-Condensing.	5		95	%RH
Shock	Peak acceleration.			20	GPK
Vibration	Random vibration, 10 Hz to 2 kHz, 3 axis.			6	GRMS

CPA SERIES - 250 WATT

OVERALL SIZE: 5.07"H x 1.60"W x 6.40"D (128.7mm x 40.6mm x 162.5mm)
WEIGHT: 1.75 lb (0.8 kg)



Tolerances $\pm 0.012"$ (0.3mm) unless otherwise indicated.



For the Most Up-To-Date Information

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24 Hours/Day—7 Days/Week

CPA SERIES - 250 WATT

PIN ALLOCATION CHART

PIN	PIN-LENGTH TYPE (NOTE 1)	SIGNAL NAME	DESCRIPTION	PIN	PIN-LENGTH TYPE (NOTE 1)	SIGNAL NAME	DESCRIPTION
1-4	M	V1	V1 OUTPUT	32	M	NC	NOT CONNECTED
5-12	M	RTN	V1 and V2 RETURN	33	M	V2 SENSE	V2 REMOTE SENSE
13-18	M	V2	V2 OUTPUT	34	M	S RTN	SENSE RETURN
19	M	RTN	V3 RETURN	35	M	V1SHARE	V1 CURRENT SHARE
20	M	V3	V3 OUTPUT	36	M	V3SENSE	V3 REMOTE SENSE
21	M	V4	V4 OUTPUT	37	M	NC	NOT CONNECTED
22	M	RTN	SIGNAL RETURN	38	M	DEG#	DEGRADE SIGNAL
23	M	RESERVED	RESERVED	39	M	INH#	INHIBIT
24	M	RTN	V4 RETURN	40	M	NC	NOT CONNECTED
25	M	NC	NOT CONNECTED	41	M	V2SHARE	V2 CURRENT SHARE
26	M	RESERVED	RESERVED	42	M	FAL#	FAIL SIGNAL
27	S	EN#	ENABLE	43	M	NC	NOT CONNECTED
28	M	NC	NOT CONNECTED	44	M	V3SHARE	V3 CURRENT SHARE
29	M	NC	NOT CONNECTED	45	L	CGND	CHASSIS GROUND
30	M	V1SENSE	V1 REMOTE SENSE	46	M	ACN	AC INPUT NEUTRAL
31	M	NC	NOT CONNECTED	47	M	ACL	AC INPUT LINE

NOTE 1) L = Long-Length Pins, M = Medium-Length Pins, S= Short-Length Pins

NUCLEAR AND MEDICAL APPLICATIONS Power-One products are not authorized for use as critical components in life support systems, equipment used in hazardous environments, or nuclear control systems without the express written consent of the President of Power-One, Inc.

TECHNICAL REVISIONS The appearance of products, including safety agency certifications pictured on labels, may change depending on the date manufactured. Specifications are subject to change without notice.

CPD SERIES - 250 WATT

Advanced Product Release

The DC input CPD250-4530 is the first in a series of hot-swap, CompactPCI® power supplies that are fully compliant to the PICMG® 2.11 Power Interface Specification using a standard Positronic 47-pin connector. Extra-high current density using innovative Power-One EDGE technology allows this unit to deliver up to 40 amperes on both the +5 and +3.3 volt outputs at 50°C.

Remote sense and active current share on the +5, +3.3 and +12 volt outputs along with ORing FETs allow these units to be used in redundant, hot-swap applications.

The CPD250-4530 is feature rich, meets international safety standards, and displays the CE Mark for the Low Voltage Directive (LVD).

FEATURES

- Wide Input Range (36-75 VDC)
- Delivers 40A for the +5V and +3.3V Outputs (No Restrictions)
- Single-wire Current Share on Outputs V1, V2, and V3
- Remote Sense on Outputs V1, V2, and V3
- Overtemperature, Overvoltage, and Overcurrent Protection
- Input Good and Power Fail LED Indicators
- Power Fail and Temperature Warning Signals
- Inhibit and Enable Inputs
- Fully Compliant to PICMG® 2.11 CompactPCI® Specification
- Extra-High Current Density in Industry-Standard 3U x 8HP x 160mm Package



DC INPUT MODEL SELECTION CHART

MODEL	OUTPUT VOLTAGE	ADJUSTMENT RANGE	OUTPUT CURRENT	LINE REGULATION	LOAD REGULATION	RIPPLE & NOISE %pk-pk (NOTE 1)
CPD250-4530	+5V	N/A	40A	0.5%	1%	1.2%
	+3.3V	N/A	40A	0.5%	1%	2%
	+12V	N/A	5.5A	0.5%	1%	1%
	-12V	N/A	1.5A	0.5%	1%	1%

NOTES: 1) Maximum peak-to-peak expressed as a percentage of output voltage, 20 MHz bandwidth.

INPUT SPECIFICATIONS

PARAMETER	CONDITIONS/DESCRIPTION	MIN	NOM	MAX	UNITS
Input Voltage - DC	Continuous input range.	36		75	VDC
Hold-up Time	From 48 VDC Input.	4			ms
Input Current	At full rated load; 36 VDC, 48 VDC.		7.6, 5.4		A
Input Protection	Non-user serviceable, internally-located input line fuse.				
Inrush Surge Current	Internally limited by thermistor and electronic switch.			12	A
Operating Frequency	Switching frequency of main output transformer.	125		145	kHz
Input Transient Protection	Varistor.				

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REV. 12/07/01

CPD SERIES - 250 WATT

OUTPUT SPECIFICATIONS

PARAMETER	CONDITIONS/DESCRIPTION	MIN	NOM	MAX	UNITS
Efficiency	Full rated load, 48 VDC Input.		80		%
Minimum Load; V1, V2, V3	Minimum load required to maintain regulation with no load on V4.	None			A
Minimum Load, V3	Minimum load on V3 required to maintain regulation on V4.	50% OF V4 Load			A
Ripple and Noise	Full load, 20 MHz bandwidth.	See Model Selection Chart			
Output Power	250 LFM forced-air cooling.			200	W
Output Power	400 LFM forced-air cooling.			250	W
Overshoot /Undershoot	Output voltage overshoot/undershoot at turn-on.			0	%
Regulation	Varies by output. Total regulation includes: line changes over the specified input range, changes in load starting at 50% load and changing to 100% load.	See Model Selection Chart			
Turn-on Delay	Time required for initial output voltage stabilization.		150		ms
Initial Setting Accuracy			±1		%

INTERFACE SIGNALS AND INTERNAL PROTECTION

PARAMETER	CONDITIONS/DESCRIPTION	MIN	NOM	MAX	UNITS
Overvoltage Protection	Latch style overvoltage protection.	120		130	%Vnom
Overload Protection	Fully protected against output overload and short circuit. Automatic recovery upon removal of overload condition.				
Overtemperature Protection	System shutdown due to excessive internal temperature, automatic reset.				
Power Fail (FAL#)	TTL compatible signal, open collector active low signal. Indicates any output below 90% and/or a low input <36VDC.				
Current Share	Accuracy of shared current with up to 6 parallel units. Single wire current share on V1, V2, and V3.			10	%
Remote Sense	Available on V1, V2, and V3. Total voltage compensation for cable losses with respect to the main output.			150	mV
Inhibit (INH#)	TTL-compatible signal inhibited with GND or TTL "0".				
Enable (EN#)	Contact closure to external ground to start unit. On shortest pin (last make, first break).				
Overtemperature Warning (DEG#)	Provides warning when power supply temperature exceeds rating. TTL-compatible open.				
Front Panel LED Status Indicators	Input OK (Green), Output Failure (Red).				

SAFETY, REGULATORY, AND EMI SPECIFICATIONS

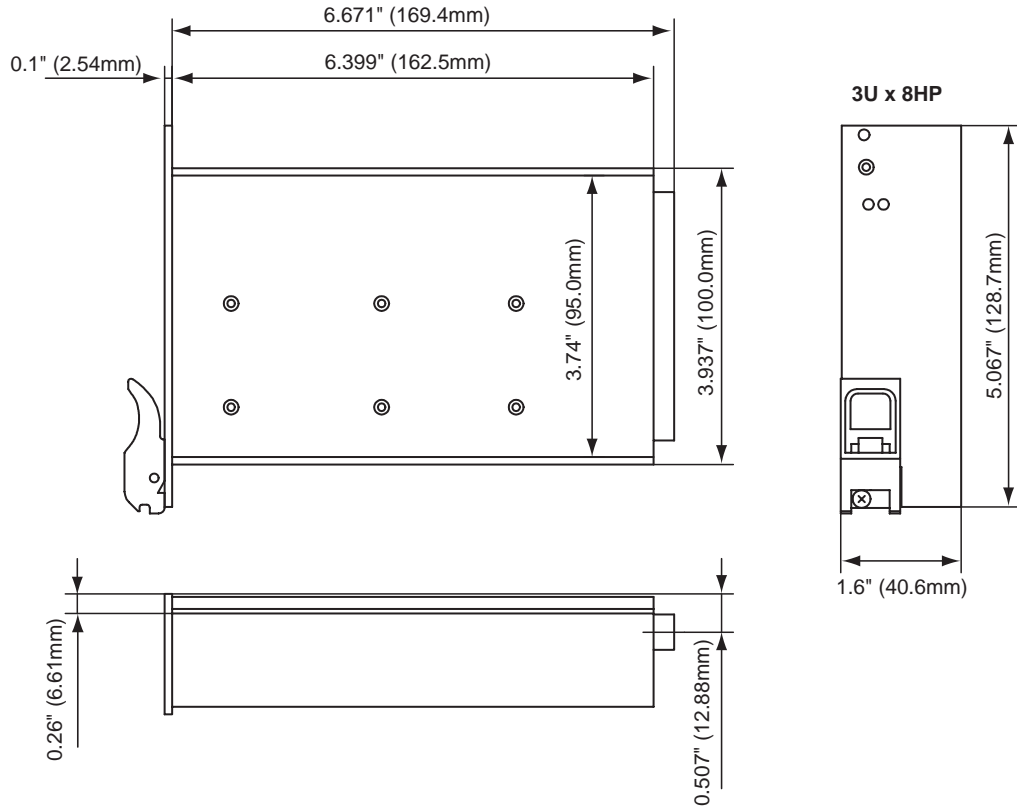
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Agency Approvals	UL1950. cUL1950. EN60950 (TÜV).		Approved		
Dielectric Withstand Voltage	Input to Output per EN60950.	4243			VDC
Electromagnetic Interference	EN55022 / CISPR 22 - Conducted. Radiated.	A A			Class
ESD Susceptibility	Per EN61000-4-2, level 4.	8			kV
Radiated Susceptibility	Per EN61000-4-3, level 3.	10			V/M
EFT/Burst	Per EN61000-4-4, level 3.	±2			kV
Input Surge	Per EN61000-4-5, level 3.		Line to Line Line to Ground	1 2	kV
Conducted Disturbance	Per EN61000-4-6, level 2.			3	V
Insulation Resistance	Input to Output.		10		MΩ

ENVIRONMENTAL SPECIFICATIONS

PARAMETER	CONDITIONS/DESCRIPTION	MIN	NOM	MAX	UNITS
Altitude	Operating. Non-Operating.			10k 40k	ASL Ft.
Operating Temperature	With 400 LFM forced-air cooling Derate linearly above 50°C by 2.5% per °C.	At 100% load: At 50% load:	0	50 70	°C
Storage Temperature			-40	85	°C
Relative Humidity	Non-Condensing.	5		95	%RH
Shock	Peak acceleration.			20	GPK
Vibration	Random vibration, 10 Hz to 2 kHz, 3 axis.			6	GRMS

CPD SERIES - 250 WATT

OVERALL SIZE: 5.07"H x 1.60"W x 6.40"D (128.7mm x 40.6mm x 162.5mm)
WEIGHT: 1.75 lb (0.8 kg)



Tolerances $\pm 0.012"$ (0.3mm) unless otherwise indicated.



For the Most Up-To-Date Information

www.power-one.com

24 Hours/Day—7 Days/Week

CPD SERIES - 250 WATT

PIN ALLOCATION CHART

PIN	PIN-LENGTH TYPE (NOTE 1)	SIGNAL NAME	DESCRIPTION	PIN	PIN-LENGTH TYPE (NOTE 1)	SIGNAL NAME	DESCRIPTION
1-4	M	V1	V1 OUTPUT	32	M	NC	NOT CONNECTED
5-12	M	RTN	V1 and V2 RETURN	33	M	V2 SENSE	V2 REMOTE SENSE
13-18	M	V2	V2 OUTPUT	34	M	S RTN	SENSE RETURN
19	M	RTN	V3 RETURN	35	M	V1SHARE	V1 CURRENT SHARE
20	M	V3	V3 OUTPUT	36	M	V3SENSE	V3 REMOTE SENSE
21	M	V4	V4 OUTPUT	37	M	NC	NOT CONNECTED
22	M	RTN	SIGNAL RETURN	38	M	DEG#	DEGRADE SIGNAL
23	M	RESERVED	RESERVED	39	M	INH#	INHIBIT
24	M	RTN	V4 RETURN	40	M	NC	NOT CONNECTED
25	M	NC	NOT CONNECTED	41	M	V2SHARE	V2 CURRENT SHARE
26	M	RESERVED	RESERVED	42	M	FAL#	FAIL SIGNAL
27	S	EN#	ENABLE	43	M	NC	NOT CONNECTED
28	M	NC	NOT CONNECTED	44	M	V3SHARE	V3 CURRENT SHARE
29	M	NC	NOT CONNECTED	45	L	CGND	CHASSIS GROUND
30	M	V1SENSE	V1 REMOTE SENSE	46	M	+DCIN	+ DC INPUT
31	M	NC	NOT CONNECTED	47	M	-DCIN	- DC INPUT

NOTE 1) L = Long-Length Pins, M = Medium-Length Pins, S= Short-Length Pins

NUCLEAR AND MEDICAL APPLICATIONS Power-One products are not authorized for use as critical components in life support systems, equipment used in hazardous environments, or nuclear control systems without the express written consent of the President of Power-One, Inc.

TECHNICAL REVISIONS The appearance of products, including safety agency certifications pictured on labels, may change depending on the date manufactured. Specifications are subject to change without notice.