

AC/DC Rectifier/Front End

4000 Watts CDP4K Series

XPiQ inc.

Intelligent Design Quality Product



- Hot Swap N + 1 Redundant
- Single Phase or Three Phase Input
- Rack Option for 3 Modules
- Single Wire Current Sharing
- Power Factor Corrected
- Constant Power Characteristics
- International Safety Approvals

Specification

Input

- Input Voltage** • 180-264 VAC single phase (nominal 208 VAC 3 phase optional)
- Input Frequency** • 47-63 Hz
- Inrush Current** • 50 A max
- Input Current** • 25.5 A at 180 VAC full load single phase, 15 A/phase at 180 VAC full load 3 phase
- Remote On/Off** • On = TTL high or open, Off = TTL low
- Input Fusing** • 30 A internal
- Transient Protection** • MOV and Gas Tube

Output

- Output Voltage** • 27 VDC or -54 V DC nominal
- Output Power** • 4,000 Watts
- Minimum Load** • No minimum load required
- Output Voltage Range** • 19 to 30 or -40 to -59 VDC programmable
- Line/Load Regulation** • $\pm 0.5\%$ using remote sense, otherwise $\pm 5\%$
- Ripple & Noise** • $\pm 1\%$ pk-pk
- Transient Response** • 3% Max deviation 500 μ s recovery time for a 25% load change
- Start-up Time** • 2 seconds max
- Hold Up Time** • >20 ms at low line
- Output Rise Time** • 250 ms
- Overshoot/Undershoot** • 1% at turn on/off
- Temperature Coefficient** • 0.02%/°C
- Overvoltage Protection** • 29.5 V to 30.5 V or -58.5 V - 59.5 V recycle input to reset
- Overcurrent Protection** • 110% to 140% with auto recovery Constant power mode

- Overtemperature Protection** • Shutdown at +95 °C with auto reset
- Remote Sense** • Compensates for up to 0.5 V loss
- Current Share** • Single wire $\pm 5\%$ at full load
- Oring Diodes** • Built in

General

- Efficiency** • 90% typical at 230 VAC
- Power Factor** • 0.99 for single phase input
0.95 for 3 phase input
- MTBF** • 300,000 hrs per Bellcore-std
- LED Indicators** • AC OK (Amber), DC OK (Green)
Temp OK (Green)
- Size** • 5.00" x 5.00" x 14.12"
(not including handle)

Environmental

- Operating Temperature** • 0 °C to +50 °C, derate linearly 2.2%/°C to +65 °C
- Cooling** • Internal ball bearing fan
- Humidity** • <95% RH, non-condensing
- Storage Temperature** • -40 °C to +70 °C
- Shock & Vibration** • MIL STD-810F NEBS Compliant to Bellcore GR63

EMC & Safety

- Safety Approvals** • UL1950, CSA 22.2 No. 650 EN60950, CE Mark LVD
- EMI/EMC** • Meets EN61000-3-2, -3
CISPR22 and FCC Part 15 Class A
Bellcore GR-1089-Core
- Immunity and Surge** • Meets EN55082-2
(EN61000-4-2, -3, -4, -5)
Performance criteria A

OUTPUT VOLTAGE & CURRENT RATINGS

CDP4K

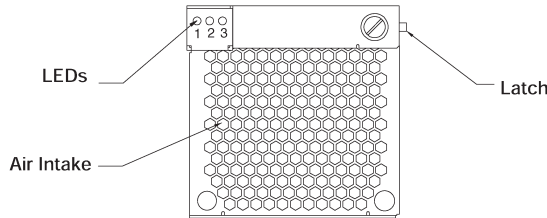
Voltage Set Point	Output Voltage Range ⁽²⁾	Output Current	Standby Output	Max Power	Model Number ⁽¹⁾
27 VDC	20 to 29 VDC	199.8 to 137.8 A	5.0 V/0.5 A	4,000 W	CDP4KPS24
-54 VDC	-40 to -58 VDC	99.9 to 68.9 A	5.0 V/0.5 A	4,000 W	CDP4KPS48

Notes

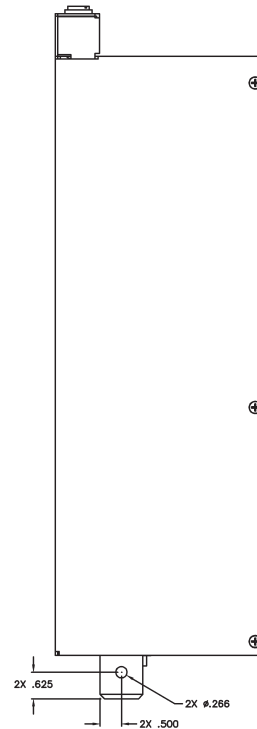
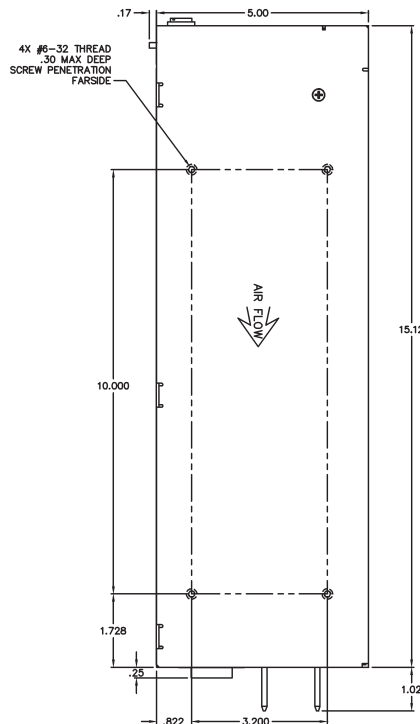
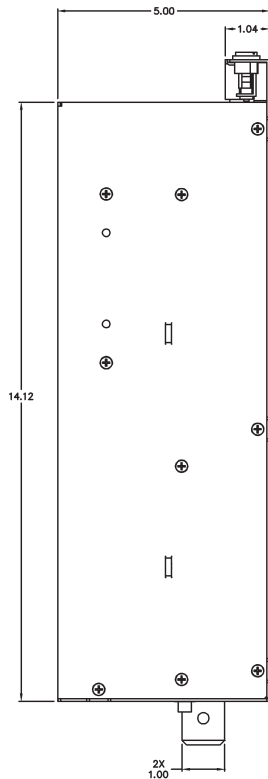
1. For optional 3 phase AC input, add suffix '-3P' to model number.
2. CDP4KPS24 is factory set to 27 V/148 A, CDP4KPS48 is factory set to -54 V/83 A. Voltages between each range are available - consult factory.

Mechanical Details - Module

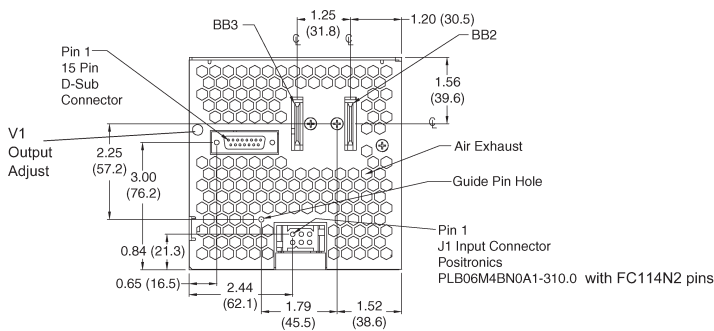
Weight : 13.5 lbs, 6.11 kg



LEDs	
1	AC Good (Amber)
2	Temp OK (Green)
3	DC Good (Green)

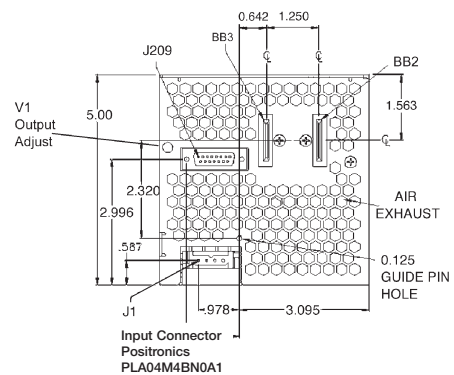


Single Phase



Input Mating Connector is: Positronics PLB06F0000 with FC114N2 pins.

3 Phase



Input Mating Connector is: Positronics PLA04F8000 with FC114N2 pins.

Module Connection Charts

OUTPUT (BUS BAR)

Bus Bar	Function
BB2	V1 for +27 V or V1 RTN for -54 V
BB3	V1 RTN for +27 V or V1 for -54 V

INPUT CONNECTOR - SINGLE PHASE

Pin No.	Function
1,4	Chassis Ground
2,5	Line (L)
3,6	Neutral

INPUT CONNECTOR - 3 PHASE

Pin No.	Function
1	Line 1
2	Line 2
3	Line 3
4	Chassis Ground

SIGNALS CONNECTOR

Pin No.	Function	Description
1	5Vsb	+5 V 500 mA Standby
2	5Vsb Rtn	Return of 5Vsb
3	Module Present	Module Detection
4	PGood	TTL High when DC OK, WRT Pin 2
5	On/Off	TTL Low turns output OFF, WRT Pin 2
6	I share	Active Current Share
7	Mod-Ena	Connect to Pin 14 to enable output
8	OVP Test Point	For internal use
9	AC Fail	TTL High when AC OK, WRT Pin 2
10	V Program	+2.0 V to 9.2 V, WRT Pin 14 ⁽¹⁾
11	V1 Sense	+ Sense, Local Sense if open circuit
12	I Monitor	1 V + 40 mV/A (0 A = 1 V)
13	Temp. Ok	TTL High when Temp OK, WRT Pin 2
14	V1 Sense -	- Sense, Local Sense if open circuit
15	N/C	No Connection

Notes

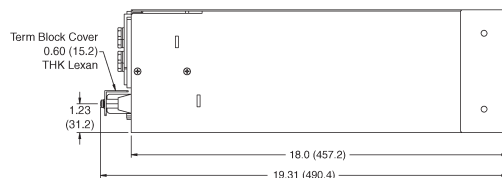
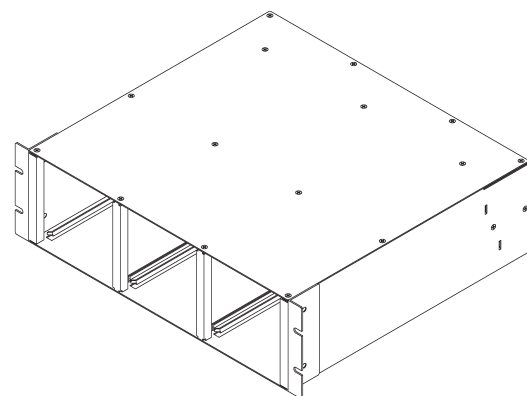
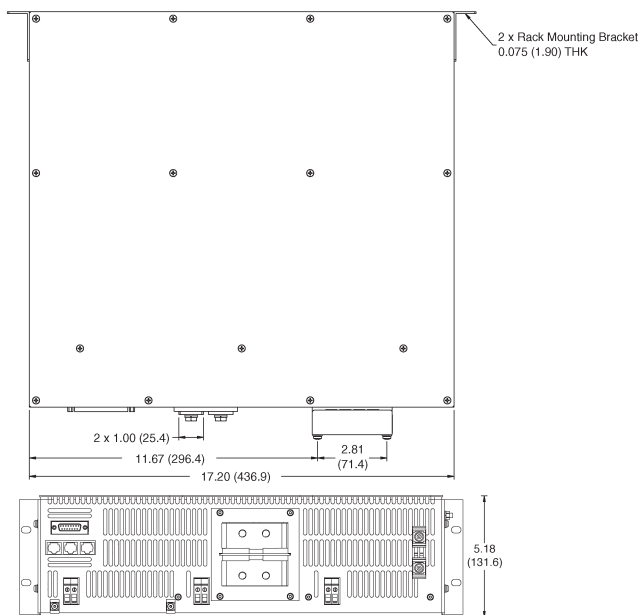
- For 24 V version, output voltage is 19 V with 2 V applied to Pin 10 WRT Pin 14. For each additional 1 V applied to Pin 10 the output voltage increases by 1.375 V.
For -48 V version, output voltage is -40 V with 2 V applied to Pin 10 WRT Pin 14. For each additional 1 V applied to Pin 10 the output voltage increases by -2.375 V.

Mechanical Details - Rack

CDP4K-1U3R - Single Phase Input

CDP4K-3U3R - 3 Phase Input

Polarity of rack must also be specified, add suffix '-P' for positive rack (27 V modules) or '-N' for negative rack (-54 V modules).



Rack Connection Pin Charts

INPUT CONNECTOR (3 POSITIONS)

Pin No	Description
1	Live
2	Neutral
Ground (PE)	Connection via M5 stud

Notes

Phoenix front 4HP762, 2 pole for 4mm² cable.

DC OUTPUT TERMINALS

Positive Output	Lower Bus Bar
Negative Output	Upper Bus Bar

Notes

Each Bus Bar has two M8 x 15 threaded studs with 1" spacing.

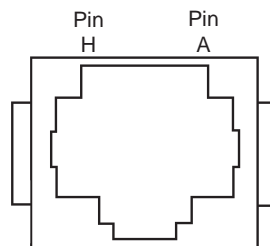
ALARM CONNECTIONS

Pin No	Function	Description
1	5VSBRTN	+5V standby voltage return (floating max.100 V)
2	Temp OK	Open collector, pulled LOW when temperature OK WRT Pin 1
3	Power Good	Open collector, pulled LOW when output voltage within limits WRT Pin 1
4	AC Fail	Open collector, goes HIGH 2msec before loss of output regulation WRT Pin 1
5	Module Present	Open collector, pulled LOW when all modules present WRT Pin 1
6	Not used	
7	-V sense	Negative sense input
8	+V sense	Positive sense input
9	Not used	
10	Not used	
11	5VSBRTN	+5V standby voltage return (floating max 100 V)
12	5VSBRTN	+5V standby voltage return (floating max 100 V)
13	5VSB	+5V, 500mA standby voltage (floating max 100 V)
14	5VSB	+5V, 500mA standby voltage (floating max 100 V)
15	Not used	

RJ45 (3 POSITIONS)

Pin	Function	Description
A	+Iout	Current monitor 1V + 40 mV/A
B	-Iout	On signal ground
C	+Vprog	V program
D	-Vprog	On signal ground
E	Ishare	Active Current Share
F	Alarm	Open collector, goes HIGH if temp too high, if AC fail, if DC not good or module missing WRT Pin G
G	Signal Ground	Connected to 0V via 22Ω
H	ON/OFF	Remote ON/OFF

RJ45 Connector Pin Placement



Notes

The rectifiers and racks are available as +48 VDC front end versions with constant current output.
 Model Numbers : CFP4KPS48FE for single phase input version, CFP4KPS48FE-3P for three phase input version.
 Rack Model Numbers : CFP4K-1U3R-FE for single phase, CFP4K-1U3R-FE for three phase.

See website for detailed specifications & application notes