

Features

- RoHS lead solder exemption compliant
- Power Factor Correction meets EN61000-3-2 (AC input versions)
- Fully-regulated outputs
- Remote sense
- Logic level Inhibit
- Current Share, Power Fail, and Power Good Signals
- Overtemperature, overvoltage, and overcurrent protected
- Available with metric or SAE mountings
- Input transient & ESD compliance to EN61000-4-2/-3/-4/-5
- Fan output voltage and optional fan
- Optional isolation diodes for parallel or redundant operation
- DC input versions (36-75VDC)

Description

The PFC500/PDC500 products of the PerFormanCe Power Series combine high performance midrange power with high power density (4.4 watts/in3) and high reliability to meet the requirements of communications, commercial, and industrial systems.

Providing tightly regulated DC power, the PFC500/PDC500 delivers full output performance with only 300 Linear Feet per Minute (LFM) forced-air cooling (factory-installed fan optional). Main channel current sharing is provided for redundant applications, and AC input units can be paralleled with DC input versions. Units are available with SAE mountings or optional metric mountings.

The PFC500/PDC500 product line is approved to the latest international regulatory standards, and displays the CE Mark.

Single-Output Model Selection

MODEL	OUTPUT VOLTAGE	ADJUSTMENT RANGE	MAXIMUM OUTPUT CURRENT (NOTE 3)	LINE REGULATION	LOAD REGULATION (NOTE 4)	RIPPLE & NOISE %p-p (NOTE 5)	INITIAL SETTING ACCURACY
PFC500-1024/PDC500-1024D (NOTE 1)	24V	21.6V to 26.4V	21A	0.5%	0.2%	1%	23.88V to 24.12V
PFC500-1028 (NOTE 2)	28V	25.2V to 30.8V	17.9A	0.5%	0.2%	1%	27.86V to 28.14V
PFC500-1048 (NOTE 2)	48V	46.0V to 56.0V	10.4A	0.5%	0.5%	1%	47.52V to 48.48V

NOTES:
1) For AC input, use PFC500 prefix; use PDC500 prefix for DC input versions.
2) Consult factory for availability of 28V and 48V units with DC input.
3) Output currents ratings are expressed with 300 LFM forced air.
4) Remote sense connected. See Application Note #P1 for load regulation when using the D option for 24V units.
5) Maximum peak to peak noise expressed as a percentage of output voltage, 20 MHz bandwidth. For ripple/noise on "D" option models, see options data on page 3.

PFC500 Input Specifications

PARAMETER	CONDITIONS/DESCRIPTION		MIN	NOM	MAX	UNITS
Input Voltage - AC	Continuous input range.		85		264	VAC
Input Frequency	AC Input.		47		63	Hz
Brown Out Protection	Lowest AC input voltage that regulation is maintained with full rated loads.		85			VAC
Hold-Up Time	Over full AC input voltage range at full rated load.		20			ms
Input Current	85 VAC at full rated load.				7.8	ARMS
Input Protection	Non-user serviceable internally located AC input line fuse, F10A, 250V.					
Inrush Surge Current	Internally limited by thermistor, one cycle, 25°C.	110 VAC 220 VAC			35 65	APK
Power Factor	Per EN61000-3-2.		0.98			W/VA
Operating Frequency	Switching frequency of main transformer.			100		kHz

PDC500 Input Specifications

PARAMETER	CONDITIONS/DESCRIPTION	MIN	NOM	MAX	UNITS
Input Voltage - DC	Continuous input range. Full power at 42-75 VDC. Derate linearly from 40 VDC to 36 VDC, 400W.	36		75	VDC
Low Voltage Protection	Lowest DC input voltage.	34			VDC
Hold-up Time	At full load over DC input range.	17			ms
Input Current	48 VDC at full rated load.			14	ADC
Input Protection	Non-user serviceable internally located fuse.				
Inrush Surge Current	Vin = 75 VDC, cold thermistor.			TBD	APK

Output Specifications (PFC500 and PDC500)

PARAMETER	CONDITIONS/DESCRIPTION		MIN	NOM	MAX	UNITS
Efficiency	Full rated load, 110 VAC (PFC500)/ 48VDC (PDC500).		75			%
Minimum loads		PFC/PDC500-1024	0.6			
		PFC500-1028	0.6			Amps
		PFC500-1048	1.2			
Ripple and Noise	Full load, 20 MHz bandwidth.		See Model Selection Charts			
Output Power	300 LFM forced air cooling required for operation. See optional fan. Continuous power, multiple output models. PDC500 requires derating below 42 VDC; see PDC500 input specifications.			500		Watts
Overshoot / Undershoot	Output voltage overshoot/undershoot at turn-on.				0	V
Regulation	Without connection of remote sense.	PFC/PDC500-1024			0.8	
		PFC500-1028			0.7	%
		PFC500-1048			1.0	
Transient Response	Recovery time, to within 1% of initial set point due to a 50-100% load change, 3% max. deviation.			1		ms
Turn-on Delay	Time required for initial output voltage stabilization.				1	Sec
Turn-on Rise Time	Time required for output voltage to rise from 10% to 90%.			10		ms

Interface Signals and Internal Protection (PFC500 and PDC500)

PARAMETER	CONDITIONS/DESCRIPTION		MIN	NOM	MAX	UNITS
Overvoltage Protection		PFC/PDC500-1024	27.0		30.7	
		PFC500-1028	32.0		35.0	V
		PFC500-1048	60.0		70.0	
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.					
Remote Sense	Total voltage compensation for cable losses with respect to the main output.				250	mV
Current Share	Accuracy of shared current with up to 6 parallel units.				10	%
Inhibit	TTL compatible logic signal will inhibit outputs by the application of a logic low signal. An open circuit or external TTL high signal allows normal operation.					
Input Power Fail Warning	TTL compatible logic signal. Time before regulation dropout due to loss of input power at 110 VAC.		4			ms
Power Good	TTL compatible signal. Signal is low if main output is greater or less than 10% of nominal. For models without the "D" option, internal pull-up resistor is 1kΩ> For "D" option, pull-up resistor is 475Ω. See Apps Note #P1 for details.	PFC/PDC500-1024	22.08		27.36	
		PFC500-1028	25.20		30.80	V
		PFC500-1048	44.20		54.72	
Fan Voltage	Provides 170mA current to user supplied fan if fan option is not selected.			12		V

Safety, Regulatory, and EMI Specifications

PARAMETER	CONDITIONS/DESCRIPTION		MIN	NOM	MAX	UNITS
Agency Approvals	UL1950. UL 60950 / CSA60950-00 (cULus Mark) EN60950 (TÜV). PDC500 (Pending).			Approved		
Dielectric Withstand	Meets reinforced insulation of IEC60950.					
Electromagnetic Interference	FCC CFR title 47 Part 15 Sub-Part B - Conducted. EN55022 / CISPR 22 Conducted.		B B			Class
ESD Susceptibility	Per EN61000-4-2, level 4.		8			kV
Radiated Susceptibility	Per EN61000-4-3, level 3.		10			V/M
EFT/Burst (PFC500)	Per EN61000-4-4, level 4.		±4			kV
EFT/Burst (PDC500)	Per EN61000-4-4, level 4.		TBD			kV
Input Transient Protection	PFC500 Per EN61000-4-5 class 3. PDC500 (class 2)	Line to Line (PFC500) Line to Ground (PFC500) Line to Line (PDC500) Line to Ground (PDC500)	1 2 0.5 0.5			kV
Insulation Resistance	Input to output.			10		MΩ
Leakage Current (PFC500)	Per EN60950, 264 VAC.				2.0	mA

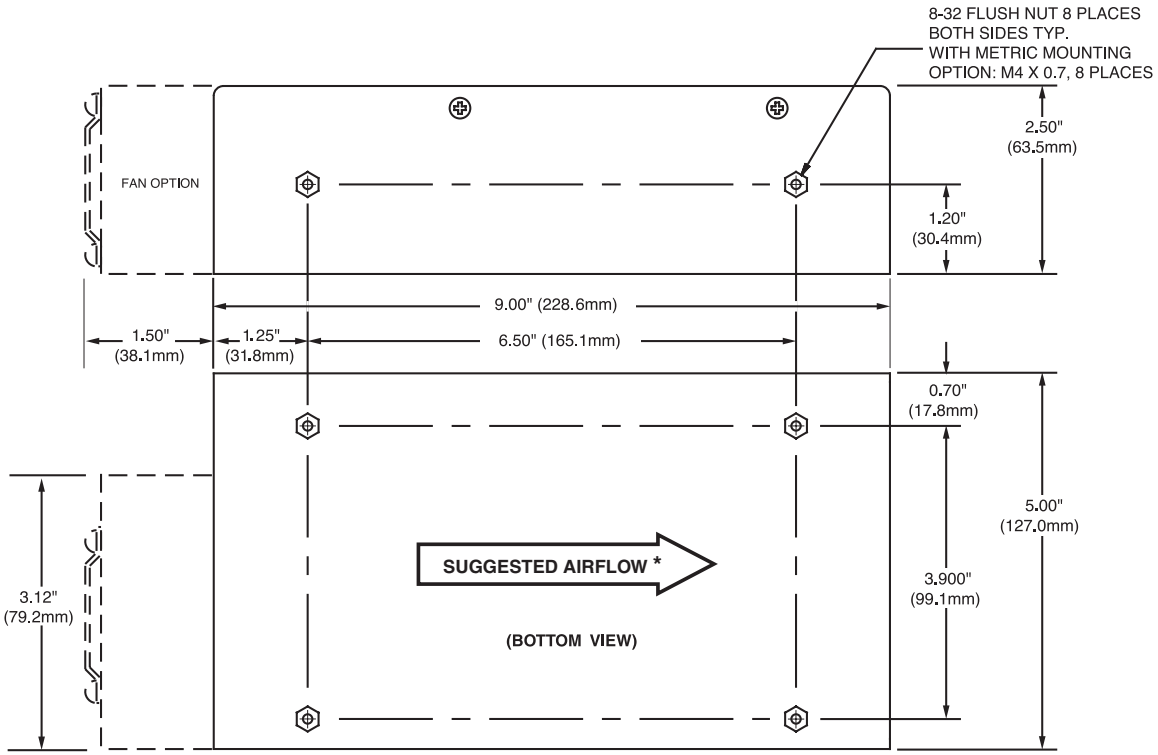
Environmental Specifications

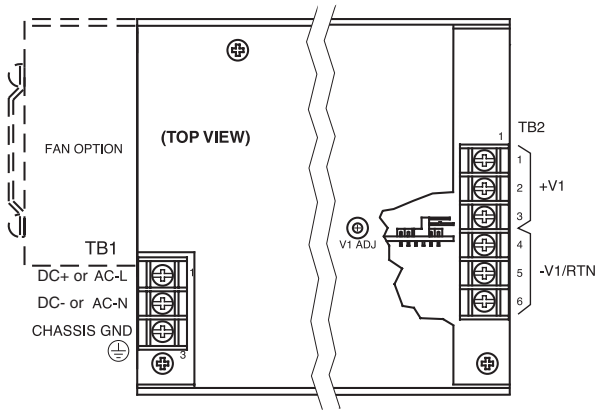
PARAMETER	CONDITIONS/DESCRIPTION		MIN	NOM	MAX	UNITS
Altitude	Operating. Non-Operating.				10k 40k	ASL Ft. ASL Ft.
Operating Temperature	 Derate linearly above 50°C by 2.5% per °C.	At 100% load At 50% load	0 0		50 70	°C °C
Storage Temperature			-55		85	°C
Forced Air Cooling	Forced air cooling of 300 LFM (400 LFM for PDC500) is required if the internal fan is not specified Cooling air velocity is measured at the output exiting window (2.5" x 5"). Airflow direction is from the input section to the output section.					
Temperature Coefficient	0°C to 70°C (after 15 minute warm-up).			±0.02	±0.05	%/°C
Relative Humidity	Non-Condensing.		5		95	%RH
Shock	Operating: 10±3mSec, 3 axis, Half Sine. Non-operating: 10±3mSec, 3 axis, Half Sine.				20 40	G
Vibration	Operating: 5-32Hz 32-2000Hz Sinusoidal Non-operating:				0.02 1 6.15	in (DA) GPK GRMS

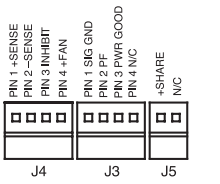
Options

DESCRIPTION	NOTES	SIZE IMPACT
Isolation Diodes	Add "D" as a suffix to the model number to order factory installed isolation diodes for parallel or redundant operation. For 24V models with the "D" option, external caps are required to meet the 1% noise/ripple spec. Power Good has a pull-up resistor of 475Ω on the 24V models. See Application Note #P1 for details.	N/A
Fan	Add "F" as a suffix to the model number to order integral fan. Fan provides the required 300 LFM (400 LFM for PDC500) of forced air cooling, or otherwise provided by the end user.	10.50" x 5.00" x 2.50" (266.7mm x 127.0mm x 63.5mm)
Metric Mounting	Add "M" as a suffix to the model number to order chassis with M4 x 0.7 mounting inserts.	N/A

Overall Size: 9.00" x 5.00" x 2.50" (228.6mm x 127.0mm x 63.5mm)
Overall Length With Fan: 10.50" (266.7mm)
Weight: 4.3 lb (1.95 kg)







J4, J3, J5
Molex Series 5048, 0.46mm
Square pins on 2.50mm centers.
Customer connection:

P4,P3,P5 Mating Housing:
Molex 5051, 5102, or Equiv.
P4,P3,P5 Mating Terminals:
Molex 4809 or 40445, or Equiv.

Input and Output Connections: 6-32 Screw Terminal on 0.375" (9.5mm) centers

Chassis: 0.090" (2.3mm) Aluminum Alloy, With Clear Finish

* Airflow should be measured at the exiting window (5” x 2.5”).

NUCLEAR AND MEDICAL APPLICATIONS - Power-One products are not designed, intended for use in, or 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 respective divisional president of Power-One, Inc.

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