PFC500 Series

AC-DC Power Supplies

The PFC500 products of the PerFormanCe Power Series combine high performance midrange power with high power density (4.4 watts/in^3) and high reliability to meet the requirements of communications, commercial, and industrial systems.

Providing tightly regulated DC power, the PFC500 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.

Units are available with SAE mountings or optional metric mountings.

The PFC500 Series is approved to the latest international regulatory standards.

RoHS Compliant

KEY FEATURES

- RoHS Compliant
- Power Factor Correction meets EN 61000-3-2 (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 EN 61000-4-2/-3/-4/-5
- Fan output voltage and optional fan
- Optional isolation diodes for parallel or redundant operation

1. SINGLE-OUTPUT MODEL SELECTION

MODEL[5]	OUTPUT VOLTAGE	ADJUSTMENT RANGE	MAX. OUTPUT CURRENT[2]	LINE REGULATION	LOAD REGULATION[3]	RIPPLE & NOISE % p-p[4]	INITIAL SETTING ACCURACY
PFC500-1024G	24 V	21.6 V to 26.4 V	21.0 A	0.5%	0.2 %	1 %	23.88 V to 24.12 V
PFC500-1028G[1]	28 V	25.2 V to 30.8 V	17.9 A	0.5%	0.2 %	1 %	27.86 V to 28.14 V
PFC500-1048G[1]	48 V	46.0 V to 56.0 V	10.4 A	0.5%	0.5 %	1 %	47.52 V to 48.48 V

NOTES:

1 Consult factory for availability of 28 V and 48 V units with DC input.
2 Output currents ratings are expressed with 300 LFM forced air.
3 Remote sense connected. See Application note for load regulation when using the D option for 24 V units.
4 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.
5 Models without suffix G are not RoHS-compliant (leaded solder used) and are not recommended for new designs or already EOL.

2. 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	A_{RMS}
Input Protection	Non-user serviceable internally located AC input line fuse, F10A, 250 V.					
Inrush Surge Current	Internally limited by thermistor, one cycle, 25°C.	110 VAC 220 VAC			35 65	A_{PK}
Power Factor	Per EN61000-3-2.		0.98			W/VA
Operating Frequency	Switching frequency of main transformer.			100		kHz

3. OUTPUT SPECIFICATIONS

PARAMETER	CONDITIONS / DESCRIPTION		MIN	NOM	MAX	UNITS
Efficiency	Full rated load, 110 VAC.		75			%
Minimum loads		PFC500-1024G PFC500-1028G PFC500-1048G	0.6 0.6 1.2			A
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.			500		W
Overshoot / Undershoot	Output voltage overshoot/undershoot at turn-on.				0	V
Regulation	Without connection of remote sense.	PFC500-1024G PFC500-1028G PFC500-1048G			0.8 0.7 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	s
Turn-on Rise Time	Time required for output voltage to rise from 10% to 90%.			10		ms

4. INTERFACE SIGNALS & INTERNAL PROTECTION

PARAMETER	CONDITIONS / DESCRIPTION		MIN	NOM	MAX	UNITS
Overvoltage Protection		PFC500-1024G PFC500-1028G PFC500-1048G	27.0 32.0 60.0		30.7 35.0 70.0	V
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 1k> For “D” option, pull-up resistor is 475. See Apps Note #P1 for details.	PFC500-1024G PFC500-1028G PFC500-1048G	22.08 25.20 44.20		27.36 30.80 54.72	V
Fan Voltage	Provides 170 mA current to user supplied fan if fan option is not selected.			12		V

5. SAFETY, REGULATORY AND EMI SPECIFICATIONS

PARAMETER	CONDITIONS / DESCRIPTION		MIN	NOM	MAX	UNITS
Agency Approvals	Approved to the latest edition of the following standards: UL/CSA 60950-1, EN 62368-1 and IEC 62368-1			Approved		
Dielectric Withstand	Input to Output		4242			VDC
Electromagnetic Interference	FCC CFR title 47 Part 15 Sub-Part B - Conducted. EN 55032 / CISPR 32 Conducted.		B B			Class
ESD Susceptibility	Per EN 61000-4-2, level 4.		8			kV
Radiated Susceptibility	Per EN 61000-4-3, level 3.		10			V/M
EFT/Burst	Per EN 61000-4-4, level 4.		±4			kV
Input Transient Protection	Per EN 61000-4-5 class 3.	Line to Line Line to Ground	1 2			kV
Insulation Resistance	Input to output.			10		MΩ
Touch Current	Per EN 62368-1, 264 VAC.				2	mA

6. ENVIRONMENTAL SPECIFICATIONS

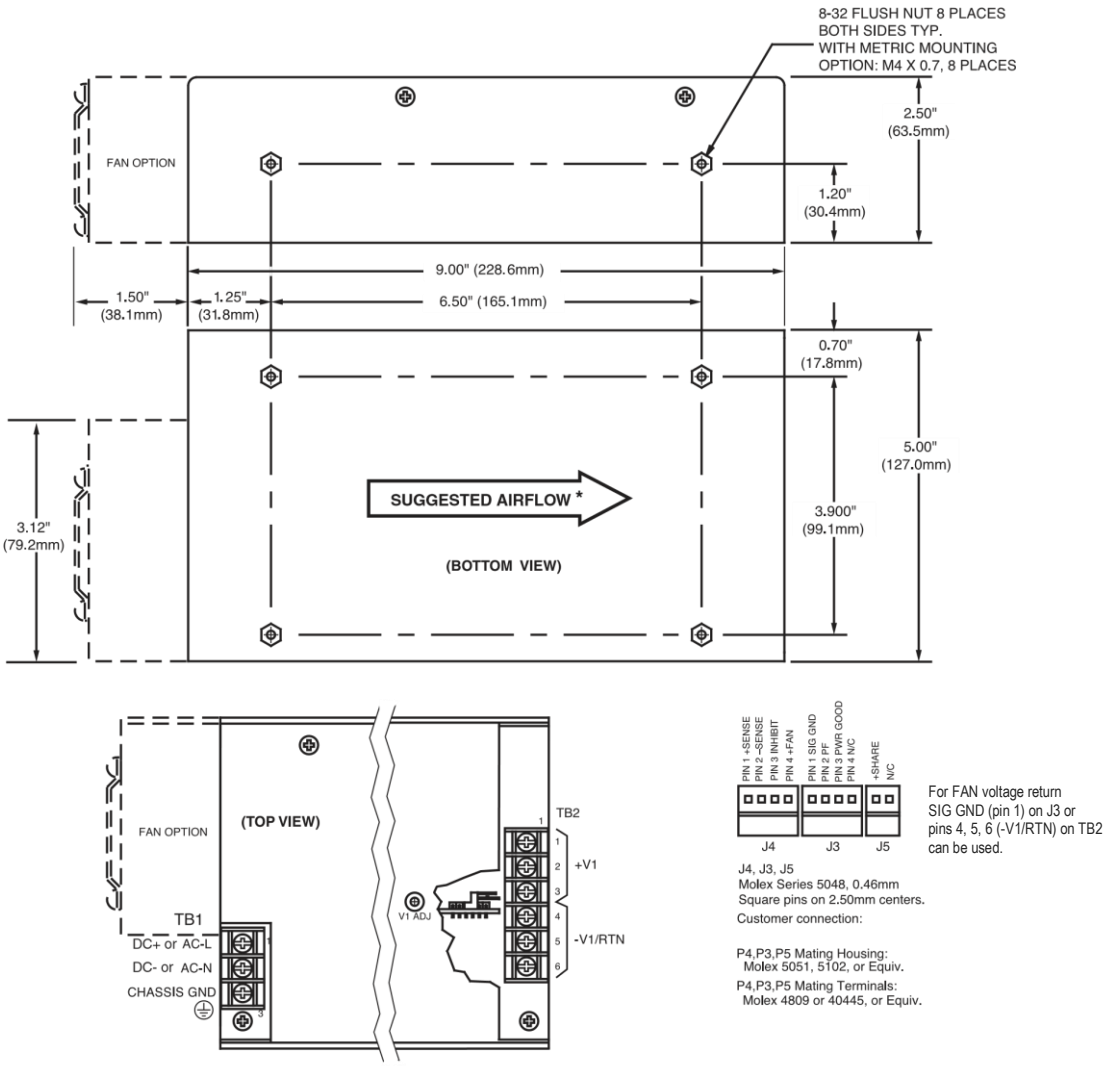
PARAMETER	CONDITIONS / DESCRIPTION		MIN	NOM	MAX	UNITS
Altitude	Operating. Non-Operating.				10k 40k	ASL Ft.
Operating Temperature	Derate linearly above 50°C by 2.5% per °C.	At 100% load At 50% load	0 0		50 70	°C
Storage Temperature			-55		85	°C
Forced Air Cooling	Forced air cooling of 300 LFM is required 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: 5-32 Hz 32-2000 Hz Sinusoidal Non-operating:				0.02 1 6.15	in (DA) G_{PK} G_{RMS}

7. MECHANICAL SPECIFICATIONS

PARAMETER	CONDITIONS / DESCRIPTION	MIN	NOM	MAX	UNITS
Dimensions	Overall Size		228.6 x 127.0 x 63.5 9.00 x 5.00 x 2.50		mm in
	Overall Length With Fan		266.7 10.50		mm in
Weight			1.95 4.3		kg lb

8. OPTIONS

PARAMETER	CONDITIONS / DESCRIPTION	MIN	NOM	MAX	UNITS
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 475 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 of forced air cooling, or otherwise provided by the end user.		266.7 x 127.0 x 63.5 10.50 x 5.00 x 2.50		mm in
Metric Mounting	Add "M" as a suffix to the model number to order chassis with M4 x 0.7 mounting inserts.		N/A		



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

NOTES:

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

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

Figure 1. Mechanical Drawing of PFC500 model

For more information on these products consult: tech.support@psbel.com

NUCLEAR AND MEDICAL APPLICATIONS - Products are not designed or intended for use as critical components in life support systems, equipment used in hazardous environments, or nuclear control systems.

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.

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