PFC375 Series

AC-DC Power Supplies

The PFC375 products of the PerFormanCe Power Series incorporate high performance midrange power, active Power Factor Correction (PFC), and high reliability to meet varied commercial and industrial requirements.

Providing tightly-regulated DC power in a wide variety of single and multiple output configurations, the PFC375 is designed to provide full output power with only 300 Linear Feet per Minute (LFM) forced-air cooling (factory installed fan optional). Other features include remote sense, power fail, logic level inhibit, and DC power good. Main channel current sharing is provided for redundant applications. The PFC375 is available with SAE mountings or optional metric mountings.

The PFC375 Series is approved to the latest international regulatory standards.

RoHS Compliant

KEY FEATURES

- RoHS Compliant
- Greater than 1 million hours demonstrated MTBF
- Power Factor Correction (PFC) meets EN61000-3-2
- Fully-regulated outputs
- Main output remote sense
- Current Share, Power Fail, and Power Good signals
- Overtemperature, overvoltage, and overcurrent protected
- Available with metric and SAE mountings
- Input transient & ESD compliance to EN61000-4-2/-3/-4/-5
- Fan output voltage and optional fan

1. SINGLE-OUTPUT MODEL SELECTION

MODEL	OUTPUT VOLTAGE	ADJUSTMENT RANGE	MAX. OUTPUT CURRENT [1]	LINE REGULATION	LOAD REGULATION	RIPPLE & NOISE % p-p [2]	INITIAL SETTING ACCURACY
PFC375-1012G	12 V	10.8 V to 13.5 V	30 A	0.2 %	0.8 %	1 %	11.94 V to 12.06 V
PFC375-1015G	15 V	12.0 V to 17.0 V	25 A	0.2 %	0.6 %	1 %	14.94 V to 15.06 V
PFC375-1024G	24 V	21.6 V to 26.4 V	15 A	0.5 %	0.8 %	1 %	23.88 V to 24.12 V
PFC375-1028G	28 V	25.2 V to 30.8 V	13.4 A	0.5 %	0.9 %	0.9 %	27.86 V to 28.14 V
PFC375-1048FG	48 V	46.0 V to 56.0 V	7.8 A	0.5 %	1.0 %	1 %	47.5 V to 48.48 V

NOTES:

1 Output currents ratings are expressed with 300 LFM forced air.

2 Maximum peak-to-peak noise expressed as a percentage of output voltage, 20 MHz bandwidth.

3 Models without suffix G are not RoHS-compliant (leaded solder used) and are not recommended for new designs or already EOL.

Model numbers highlighted in yellow are not recommended for new designs or EOL.

2. MULTIPLE-OUTPUT MODEL SELECTION

Isolated V3 and V4 Can Be Used as Positive Or Negative Output

MODEL	OUTPUT VOLTAGE	ADJUSTMENT RANGE	OUTPUT CURRENT[1]	PEAK OUTPUT CURRENT[3]	LINE REGULATION	LOAD REGULATION	RIPPLE & NOISE % p-p[2]	INITIAL SETTING ACCURACY
PFC375-4000G	+5V	4.5V to 5.5V	3.5 - 40A	40A	0.4%	0.8%	1%	4.98V to 5.02V
	+12V	11.3V to 12.6V	10A	16A	0.9%	0.9%	1%	11.9V to 12.1V
	12V	11.3V to 12.6V	6A	6A	0.9%	0.9%	1%	11.9V to 12.1V
	5V	Fixed	3A	3A	2.0%	2.0%	2.4%	4.9V to 5.1V
PFC375-4001G[4]	+5V	4.5V to 5.5V	3.5 - 40A	40A	0.4%	0.8%	1%	4.98V to 5.02V
	+12V	11.3V to 12.6V	10A	16A	0.9%	0.9%	1%	11.9V to 12.1V
	12V	11.3V to 12.6V	6A	6A	0.9%	0.9%	1%	11.9V to 12.1V
	12V	11.0V to 15.8V	3A	3A	0.9%	0.9%	1%	11.9V to 12.1V
PFC375-4002G[5]	+5V	4.5V to 5.5V	3.5 - 40A	40A	0.4%	0.8%	1%	4.98V to 5.02V
	+12V	11.3V to 12.6V	10A	16A	0.9%	0.9%	1%	11.9V to 12.1V
	12V	11.3V to 12.6V	6A	6A	0.9%	0.9%	1%	11.9V to 12.1V
	24V	22.0V to 28.0V	3A	3A	0.5%	0.8%	1%	23.8V to 24.2V
PFC375-4004G	+5V	4.5V to 5.5V	3.5 - 40A	40A	0.4%	0.8%	1%	4.98V to 5.02V
	+12V	11.3V to 12.6V	10A	16A	0.9%	0.9%	1%	11.9V to 12.1V
	15V	14.2V to 15.8V	4A	4A	0.7%	0.7%	1%	14.9V to 15.1V
	15V	14.2V to 15.8V	4A	4A	0.7%	0.7%	1%	14.9V to 15.1V
PFC375-4005G[6]	+5V	4.5V to 5.5V	3.5 - 40A	40A	0.4%	0.8%	1%	4.98V to 5.02V
	+12V	11.3V to 12.6V	10A	16A	0.9%	0.9%	1%	11.9V to 12.1V
	24V	22.0V to 28.0V	3A	3A	0.5%	0.8%	1%	23.8V to 24.2V
	24V	22.0V to 28.0V	3A	3A	0.5%	0.8%	1%	23.8V to 24.2V
PFC375-4200G	+24V	21.5V to 26.4V	1 - 10A	10A	0.5%	0.8%	1%	23.8V to 24.2V
	+5V	4.5V to 5.5V	10A	16A	0.4%	0.8%	1%	4.98V to 5.02V
	12V	11.4V to 12.6V	4A	4A	0.5%	1.0%	1%	11.9V to 12.1V
	12V	11.4V to 12.6V	4A	4A	0.5%	1.0%	1%	11.9V to 12.1V
PFC375-4201G	+24V	21.5V to 26.4V	1 - 10A	10A	0.5%	0.8%	1%	23.8V to 24.2V
	+5V	4.5V to 5.5V	10A	16A	0.4%	0.8%	1%	4.98V to 5.02V
	15V	14.2V to 16.0V	4A	4A	0.5%	0.8%	1%	14.9V to 15.1V
	15V	13.7V to 16.0V	4A	4A	0.5%	0.8%	1%	14.9V to 15.1V
PFC375-4500G	+5V	4.5V to 5.5V	3.5 - 50A	50A	0.4%	0.8%	1%	4.98V to 5.02V
	+12V	11.3V to 12.6V	10A	16A	0.9%	0.9%	1%	11.9V to 12.1V
	12V	11.3V to 12.6V	6A	6A	0.9%	0.9%	1%	11.9V to 12.1V
	5V	4.5V to 5.5V	3A	3A	2.0%	0.9%	1%	4.9V to 5.1V

NOTES:

1. Output currents ratings are expressed with 300 LFM forced air.
2. Maximum peak-to-peak noise expressed as a percentage of output voltage, 20 MHz bandwidth.
3. Peak loads up to 450 Watts for 60 seconds or less are acceptable, (10% duty cycle max.). Peak power must not exceed 450 Watts.
4. V4 can be adjusted to 16 V with a minimum load of 5 A on V1.
5. For operation of V4 greater than 24 V, consult factory.
6. V3 and V4 may be series connected to obtain 48 V.
7. Models without suffix G are not RoHS-compliant (leaded solder used) and are not recommended for new designs or already EOL.

Model numbers highlighted in yellow are not recommended for new designs or EOL

3. 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.				6	A_{RMS}
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	A_{PK}
Power Factor	Per EN61000-3-2.		0.98			W/VA
Operating Frequency	Switching frequency of main transformer.			100		kHz

4. OUTPUT SPECIFICATIONS

PARAMETER	CONDITIONS / DESCRIPTION	MIN	NOM	MAX	UNITS
Efficiency	Full rated load, 110 VAC. Varies with distribution of loads among outputs.	68			%
Minimum Loads	Single output models. Multiple output models, 5 V main output only. Multiple output models, 24 V main output only.	0 3.5 1			A
Ripple and Noise	Full load, 20MHz bandwidth.		See Model Selection Charts		
Output Power	300 LFM forced air cooling required for operation. See optional fan. Continuous power, multiple output models. Peak power, all models.		375	 450	W
Overshoot / Undershoot	Output voltage overshoot/undershoot at turn-on.			0	V
Regulation	Varies by output. Total regulation includes: line changes from 85-132 VAC or 170-264 VAC, changes in load starting at 20% load and changing to 100% load.		See Model Selection Charts		
Transient Response	Recovery time, to within 1% of initial set point due to a 50-100% load change, 3% max. deviation. (Main output only on multi-output units).		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

5. INTERFACE SIGNALS & INTERNAL PROTECTION

PARAMETER	CONDITIONS / DESCRIPTION		MIN	NOM	MAX	UNITS
Overvoltage Protection	Provided on single output units and the main output only of multiple output units.					
	PFC375-30XXG, PFC375-40XXG, PFC375-45XXG		6.0		6.4	V
		PFC375-1012G	13.5		15.5	
		PFC375-1015G	17.0		19.5	
		PFC375-1024G	27.0		30.7	
		PFC375-1028G	30.8		35.0	
		PFC375-1048G	60.0		70.0	
		PFC375-42XXG	27.0		30.7	
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 5 loss of input power at 110 VAC.		5			ms
Power Good	TTL compatible signal. Signal is low if main output is greater or less than 10% of nominal.					
Fan Voltage	Provides 170 mA current to user-supplied fan, if fan option is not selected.			12		V

6. 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 Voltage	Input to Output		4242			VDC
Electromagnetic Interference	FCC CFR title 47 Part 15 Sub-Part B - Conducted.		B			Class
	EN 55032 / CISPR 32 Conducted.		B			
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 level 3.	Line-to-Line	1			kV
		Line-to-Ground	2			
Insulation Resistance	Input-to-Output.			10		MΩ
Touch Current	Per EN 62368-1, 264 VAC.				2	mA

7. 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 option is not specified. Cooling air velocity is measured 1/4" above, at the middle of the chassis. Airflow direction is from the input section to the output section.					
Temperature Coefficient	0°C to 70°C (after 15 minute warmup).			± 0.02	± 0.05	%/°C
Relative Humidity	Non-Condensing.		5		95	%RH
Shock	Operating: 10±3mS, 3 axis, Halfsine. 20 G Non-operating: 10±3mS, 3 axis, Halfsine.				20 40	G
Vibration	Operating: 5-32 Hz 32-2000 Hz Sinusoidal Non-operating:				0.02 1 6.15	in (DA) G_{RMS} G_{RMS}

8. 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

9. OPTIONS

PARAMETER	CONDITIONS / DESCRIPTION	MIN	NOM	MAX	UNITS
Metric Mounting	Add “M” as a suffix to the model number to order chassis with M4 x 0.7 mounting inserts.		228.6 x 127.0 x 63.5 9.00 x 5.00 x 2.50		mm in
Fan	Add “F” as a suffix to the model number to order integral fan. (Provides required 300 LFM of forced air cooling).		266.7 x 127.0 x 63.5 10.50 x 5.00 x 2.50		mm in

10. INPUT AND OUTPUT CONNECTIONS

6-32 Screw Terminal on 0.375" (9.5mm) Centers
Bus Bar Main Output, E1 & E2, 10-32 Screw Terminal
Chassis: 0.090" (2.3mm) Aluminum Alloy, With Clear Finish

TERMINAL BLOCKS have 6-32 (PHILSLOT) screw connections on 0.375" (9.53mm) centers; open space clearance for connections is 0.31" (7.87mm).

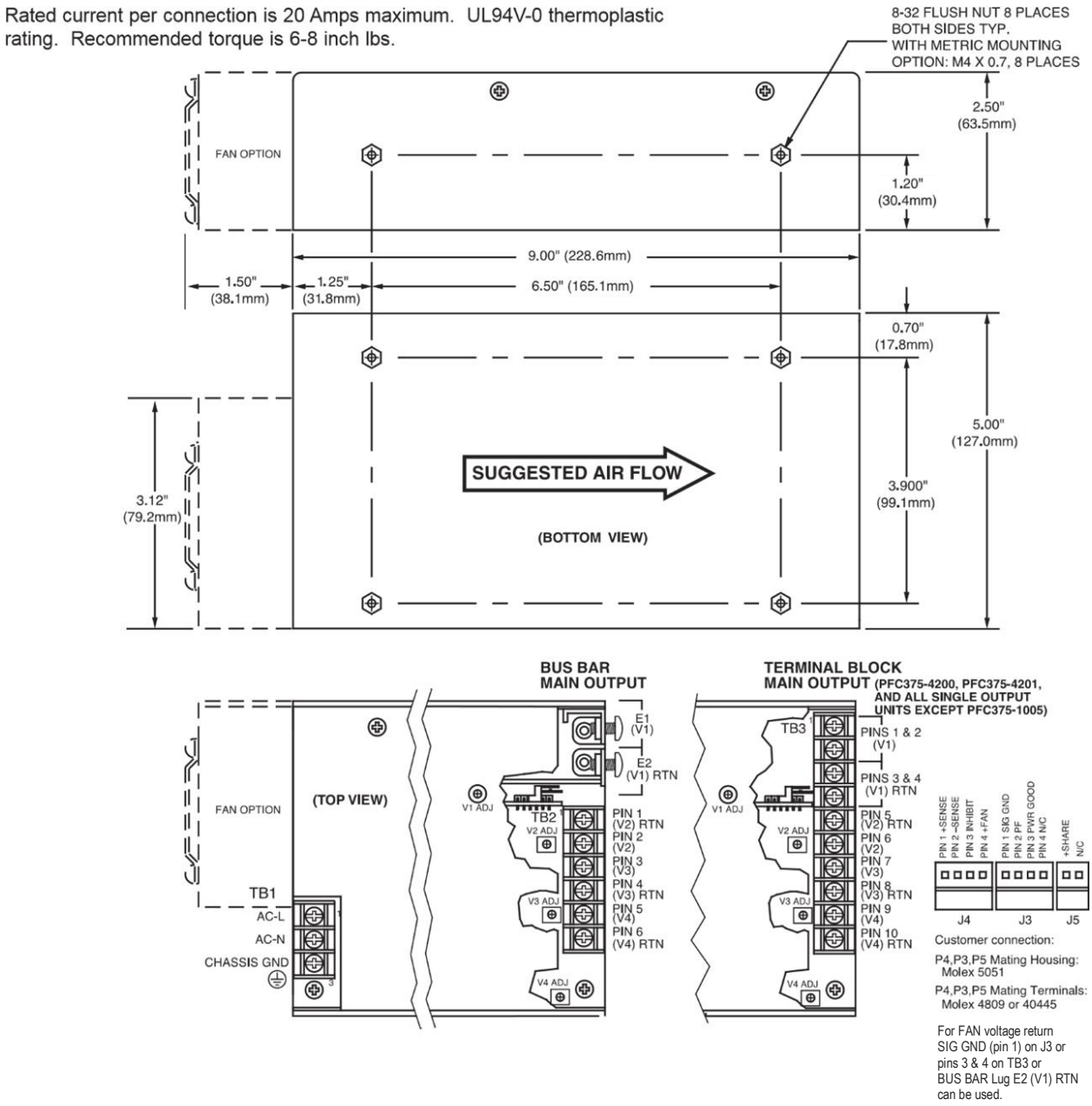

Figure 1. Mechanical Drawing PFC375

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.