

Distributed Power Front-End



FXC6000
Front & Rear Views

Features

- Three-phase AC input
- Suitable for 3U or 5U height mounting
- Single-wire current share or droop current share
- Remote voltage adjust and current monitoring
- Overtemperature, overload, and overvoltage protection
- LED supply status indicators
- Current share control for up to 30 units
- Front panel selectable-input-range

Description

The FXC6000 Series of standalone or rack-mounted power systems provides true AC front-end capability to automatic test equipment, telecom, data communications, and other distributed power designs. The FXC systems may be paralleled up to 180 kW of output power and is intended for chassis-mounted installations with bolted connections. These power supplies provide excellent protection against input voltage transients.

The FXC has its fan located at the front of the supply, and voltage adjust, indicator lights, output bussbars, and connectors on the rear. Airflow is from the front through

the rear. Alarm, monitoring, and control signals are floating from the main output and can be referenced to the positive or negative output or sense line of the power supply. The output is floating with respect to the chassis and may be used as a positive or negative polarity supply.

The FXC6000 Series meets international safety requirements and is CE Marked to the Low Voltage Directive. This series operates on three-phase European voltages as well as (up to) 480VAC, D or Y.

Chassis-Mountable Model

MODEL	OUTPUT VOLTAGE	INPUT VOLTAGE RANGE 3-PHASE (VAC)	ADJUSTMENT RANGE	MAXIMUM OUTPUT CURRENT	LINE REGULATION	LOAD REGULATION (NOTE 1)	INITIAL SETTING ACCURACY
FXC6000-48-S (NOTE 2)	48V	180 to 264 or 342 to 528	45.6V to 50.4V	125A	0.15%	0.2%	47.90V to 48.10V

NOTES: 1) With Remote Sense connected.
2) User-selectable input voltage ranges.

Input Specifications

PARAMETER	DESCRIPTION/CONDITIONS	MIN	NOM	MAX	UNITS	
Input Voltage - AC	3-phase delta low input range, nominal.	200		240		
	3-phase delta high input range, nominal.	380		480		
	Continuous deviation from the above nominals.	-10		+10	%	
Input Current	Per phase at full rated load.	FXC6000 at 180 VAC:			28	ARMS
Inrush Surge Current	Internally limited.	Vin = 264VAC (one cycle). 25° C:			38	APK
		Vin = 528VAC (one cycle). 25° C:			38	
Input Frequency	AC input.	50		60	Hz	
Hold-up Time	After last AC line peak at full power.	208 VAC:	20		ms	
		415 VAC:	20			
Operating Frequency	Switching frequency, fixed.		100		kHz	
Power Factor		0.90			W/VA	

Output Specifications

PARAMETER	DESCRIPTION/CONDITIONS	MIN	NOM	MAX	UNITS
Output Voltage Adjustment Range	An additional 1.0 Volt is provided to the output terminals to provide for load lead losses.	45.6	48	50.4	V
Output Power	Continuous duty rating.			6000	Watts
Output Current	Continuous duty rating.			125	A
Efficiency	Full rated load (208Vac).	88	91		%
Regulation	Load, Maximum deviation with 0 to 100% load change: With Remote Sense connected: With Remote Sense not connected: Utilizing Droop Current Share: Line, Under all specified operating conditions.			0.2 0.75 2.0 0.2	%
Ripple & Noise	Measured at mating connector w/ 0.01 μ F + 10 μ F Tant. 20 MHz BW: 100 MHz BW:			1 2	% p-p
Overshoot / Undershoot	Output voltage overshoot/undershoot at turn-on.			0	%
Minimum Loads	Minimum loading required to maintain regulation.	0			A
Transient Response	Maximum recovery time, to within 1% of initial set point due to a 25% load change, 1A/ μ S. Time: Deviation:			400 3	μ s %
Turn-On Delay	Time required for initial output voltage stabilization after power-up.			3	s
Turn-on Rise Time	Time required for output voltage to rise from 10% to 90%.			100	ms

Interface Signals and Internal Protection

PARAMETER (NOTE 1,2)	DESCRIPTION/CONDITIONS	MIN	NOM	MAX	UNITS
AC Power Fail Warning	Warning provided prior to Vout dropping 5% after loss of AC input.	5			ms
Auxiliary Power	Output voltage - diode isolated. Inclusive of line, load, and initial tolerances. Output current.	11.5	12.0	12.7 500	V mA
Current Monitor	Monitor output current over a compliance range of 0~10V. Nominal full load output: 50~100% load tolerance: <50% load tolerance:		12.5 0 0		mA μ A/A μ A/A
Current Share	Static sharing deviation as a percent of full-load rating for loads >10%. Active: Passive:			5 10	%
Input Range Select Status	Maximum signal resistance in high input voltage range selection.			0.10	Ω
Loss of Phase Warning	Warning provided prior to protective reduction in current limit.	500			ms
Output Inhibit	Voltage required to enable supply (0.5 mA sink). (NOTE 3)			1.0	V
Output Interlock	Voltage required to enable supply (6 mA sink). (NOTE 3)			1.0	V
Output Overload Protection	Straight line current limit (above approx. 5V Vout).	129		134	A
Output Overload Warning	Signal level on overload.	2.2			V
Output Short Circuit Protection	Occurs on overload when Vout is below approx. 5V. May operate in burst-mode. Iavg:	21		65	A
Output Voltage Fault Signal	Deviation from adjusted Vout that is considered as a fault.	\pm 3	\pm 4	\pm 5	%
Output Voltage Margin	Output voltage swing available from Margin pin (analog).	\pm 4.8	\pm 5.0	\pm 5.2	%
Overtemperature/ Fan Failure Warning	Time between fault warning and shutdown. Latching shutdown.	100			ms
Overvoltage Protection	Latch style overvoltage protection.	55.2	57.6	60.0	V
Power Supply Present Signal	Resistance to logic ground upon insertion of supply.		1000		Ω
Remote Sense	Maximum load lead loss compensation (round trip).			1.0	V

NOTES: 1) All logic outputs listed below feature a standard active pull-down output with 0.4V max at 40 mA sink capability, and a 100k pull-up to 5V.

2) In addition to those listed below, signals and front-panel LEDs are provided to indicate: overtemperature/fan fault, AC phase imbalance, output good, interlock open, and supply inhibited. The FXP also provides 4 LED's indicating output loading.

3) **Both signals must be pulled to logic ground for the unit to operate.** Enables are 100% redundant internally for applications where redundant inhibit is desirable. Contact factory for additional design details.

Safety, Regulatory, and EMI Specifications

PARAMETER	CONDITIONS/DESCRIPTION	MIN	NOM	MAX	UNITS
Agency Approvals	UL60950/CSA60950-00 (cULus), IEC60950-1, EN60950 (TÜV), CE marked for the Low Voltage Directive				
Electromagnetic Interference	FCC CFR title 47 Part 15 Sub-Part B - Conducted. EN55022 / CISPR 22 Conducted.	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 4.	±4			kV
Input Transient Protection	Per EN61000-4-5. Line-to-Line: Line-to-Ground:	4 3			kV
Voltage Sag Immunity	Per SEMI F47-0200 FXC/FXP6000			Pending	
Leakage Current	Per UL60950 and EN60950:			FXC6000 at 240 VAC, 60 Hz: FXC6000 at 400 VAC, 50 Hz: FXC6000 at 480 VAC, 60 Hz:	5 7 10 mA

Environmental Specifications

PARAMETER	CONDITIONS/DESCRIPTION	MIN	NOM	MAX	UNITS
Altitude	Operating. Non-Operating.			10k 40k	ASL Ft.
Operating Temperature	At 100% load: At 60% load:	0		50 70	°C
Storage Temperature		-40		85	°C
Temperature Coefficient	0°C to 70°C (after 15-minute warm-up).			.02	%/°C
Relative Humidity	Non-Condensing.			95	%RH
Shock	Operating: half-sine 10 ms, 3 axis Non-operating: half-sine 10 ms, 3 axis			+20 +40	G _{PK}
Vibration	Operating: swept sine 5-2000-5 Hz, 5-32 Hz, 0.02iDA, 32-2000 Hz Non-operating: random 10-2000 Hz			1 6.15	G _{PK} Grms
Airflow	Airflow provided through the supply from front to rear.			135 3.8 483 2.5	cfm m ³ /min lfm m/s
Weight				27 12	lb kg

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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.

FXC6000 OVERALL SIZE: 15.17" x 8.00" x 5.00" (385.3mm x 203.2mm x 127.0mm)

