

SFP1050-12BG

AC-DC Power Supply

12V Output, 1050 Watts



Key Features & Benefits

- Ideal server form factor optimizes, space, efficiency, and load variations
- High efficiency maximized between
- 30-80% load conditions
- Unconditionally stable under any load condition
- Wide input voltage range (90-264 VAC) with PFC
- 1U or 2U height configurations
- Active current share with ORing FET
- Incorporate Remote sense
- I²C interface status monitoring
- Primary and secondary voltage and current monitor over I²C
- Standby voltage of 3.3 VDC @ 3 A
- Overtemperature, overload, and overvoltage protection
- Status LEDs: AC OK, POWER GOOD, PS FAIL

The Bel Power Solutions SFP1050-12BG is a 1050 W, power factor corrected (PFC) front-end which provides a 12 VDC output for datacom and other distributed power applications. Its compact size enables mounting in both 1U and 2U height racks.

High efficiencies, advanced thermal management techniques, and an internal fan increase reliability over a broad range of operating conditions. Internal ORing FETs facilitate use in hot-swap (plug)*, redundant configurations. Status is provided with front panel LEDs, logic signals, and via the I²C management interface bus.

The SFP1050-12BG meets international safety requirements and is CE marked to the Low Voltage Directive (LVD).

* Proper hot-swap (plug) operation instruction: Power supply is not intended to be inserted into the system with AC cord already applied. Alternatively, if there is an application where power supply insertion with AC cord is required; PS_ON must be toggled or AC recycled after insertion into the system to reset the power supply.

Applications

- Datacom
- Distributed Power Systems

North America
+1-866.513.2839

Asia-Pacific
+86.755.29885888

Europe, Middle East
+353 61 225 977

tech.support@psbel.com
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SFP1050-12BG

Model Selection

MODEL	NOMINAL OUTPUT VOLTAGE	ADJUSTMENT RANGE	MAXIMUM OUTPUT CURRENT (Amps)	REGULATION	RIPPLE & NOISE @ 20 MHz BW
SFP1050-12BG	12 VDC 3.3 VDC (Standby)	N/A N/A	86.7 A 3 A	±3 % ±3 %	100 mV 100 mV

Input Specifications

PARAMETER	CONDITIONS / DESCRIPTION	MIN	NOM	MAX	UNITS
AC Input Voltage	Single-phase continuous input range.	90	264	264	VAC
Input Frequency	AC input.	47	63	63	Hz
Hold-up Time	After last AC line peak at full power.	At 115 VAC	20		ms
Input Current	At full-rated load.	At 90 VAC		15	Arms
Inrush Surge Current	Excluding Xcap. Vin = 264 VAC, T = 25 °C			25	Apk
Power Factor	Per EN61000-3-2	> 0.95			W/Va

Output Specifications

PARAMETER	CONDITIONS / DESCRIPTION	MIN	NOM	MAX	UNITS
Efficiency ¹	With Vin at 110 VAC and 50% to 75% load on V1.	87			%
	With Vin at 110 VAC and 75% to 100% load on V1.	85			%
	With Vin at 220 VAC and 50% to 75% load on V1.	88			%
	With Vin at 220 VAC and 75% to 100% load on V1.	89			%
Minimum Load	Minimum loading required to maintain regulation.	0			A
Output Power				1050	W
Overshoot	Output voltage overshoot at turn-on.			< 5	%
Transient Response	Maximum recovery time to within 1% of initial set point due to a 25% load change, 1A/μs.	12 V output: Standby output:	5 5		ms ms
	Maximum deviation:	12 V output: Standby output:	3 3		% %
Turn-On Delay with PS_ON signal	Time required for initial output voltage stabilization after application of AC input or ON/OFF signal.			1500	ms
Output Regulation	See Model Selection table above.				

I²C Bus Management Interface²

PARAMETER	CONDITIONS / DESCRIPTION
Static	Includes static information such as: part number and revision level, output rating, serial number, date code, and manufacturing location.
Status (Logic 1 or 0)	AC Input OK. DC Output OK. Overtemperature. Overcurrent. Fan OK. Oversupply Alert Undervoltage Alert
Real-Time Monitoring	Output voltage (main output). LSB = 20 mV Output current (main output). LSB = 100 mA

¹ Internal fan is considered part of the load as it is driven from the 12 V output; Vaux load is set to 0.5 A for efficiency measurements.

² Reference "I²C Management Interface" and "EEPROM Table of Contents" documents for SFP1050-12BG (consult factory).

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Interface Signals & Internal Protection³

PARAMETER	CONDITIONS/DESCRIPTION	MIN	NOM	MAX	UNITS
Overvoltage Protection	Latch-style overvoltage protection.			15	V
Overcurrent Protection	Current limit (Latching Mode). 12V output: Standby output:	91	3.2	112.7	A
Short-Circuit Protection	Latching Mode.			6	
Overtemperature/Fan Failure Warning	12 V output will shut down in the event of an overtemperature condition or blocked fan rotor. OT setpoint is 55 ±3 °C. Supply's fan and Vaux are active. Power supply will recover when OT condition is removed. Amber OT LED will turn ON to indicate fault condition.				
PS_ON	Output enable. Pulled low allows V1 to be activated.				
+12V Current Share	0 to 8 V signal used for active current sharing.				
Write Protect	For factory use only.				
PS A0, PS A1	I ² C Address.				
SDA	I ² C Data line (3.3 V).				
SCL	I ² C Clock line (3.3 V).				
Tach_1	Two pulses per fan revolution.				
AC_OK/H	High signal indicates AC is within PSU limits.				
Present/L	100 Ohm resistor internally connected to RTN allowing the PSU to be detected on insertion.				
Alert/L	Low signal indicates PSU fan is running below speed or an overtemperature limit was exceeded.				
PWROK/H	High signal indicates both outputs are within regulation limits.				

Safety, Regulatory and EMI Specifications

PARAMETER	CONDITIONS / DESCRIPTION	MIN	NOM	MAX	UNITS
Agency Approvals	Approved to the latest edition of the following standards: UL/CSA60950-1, IEC60950-1 and EN60950-1. CE Mark for LVD				
Electromagnetic Interference	FCC CFR title 47 Part 15 Sub-Part B, EN 55022/CISPR 22.	Conducted: Radiated:	A A		Class
Harmonics	Per IEC 61000-3-2.		A		Class
Voltage Fluctuation and Flicker	Per IEC 61000-3-3.		Pass		
ESD Susceptibility	Per EN 61000-4-2, Level 4, Performance criteria A	Contact Discharge: Air Discharge:	±8 ±15	.	kV
Radiated Susceptibility	Per EN 61000-4-3, Level 3, Performance criteria A		10	.	V/m
EFT/Burst	Per EN 61000-4-4, Level 4, Performance criteria A		±4	.	kV
Input Transient Protection	Per EN 61000-4-5, Class 4, Performance criteria A	Line-to-Line: Line-to-Ground:	2 4	.	kV
RF Conducted Disturbances	Per EN 61000-4-6, Level 2, Performance criteria A		3	.	V
Voltage Interruptions	Per EN 61000-4-11, performance criterion B 30%. Per EN 61000-4-11, performance criterion C 60%. Per EN 61000-4-11, performance criterion C 95%.		10 100 5	.	ms ms Sec
Leakage Current	Per EN 60950, 264 VAC @ 60Hz:		1.75	mA	

³ Refer to product specification for internal pull up impedances and timing of these signals.

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Environmental Specifications

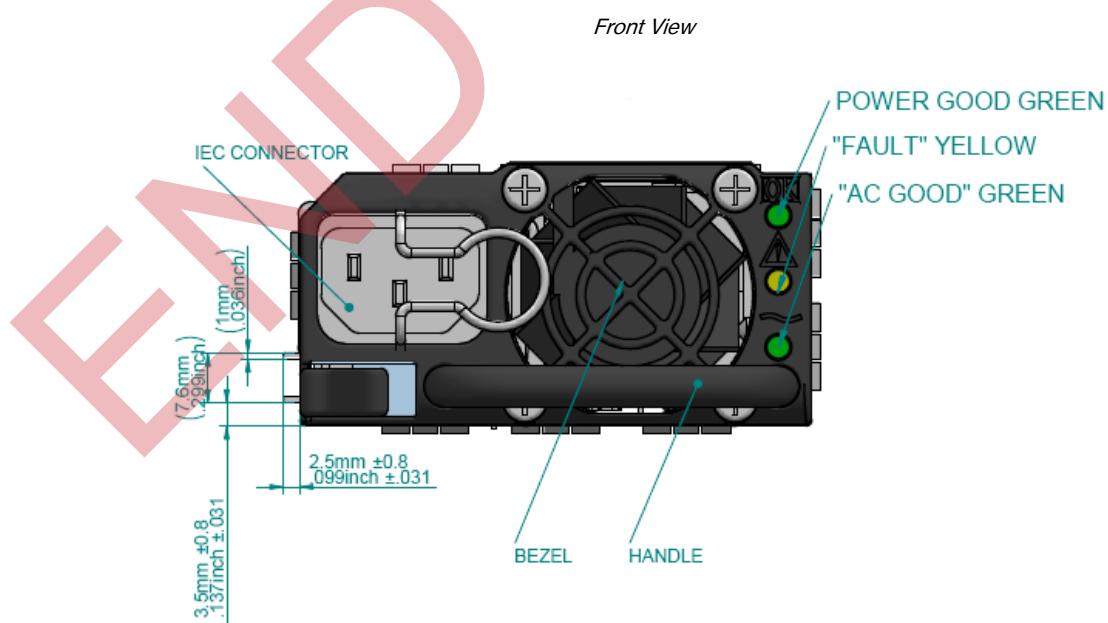
PARAMETER	CONDITIONS / DESCRIPTION	MIN	NOM	MAX	UNITS
Altitude	Operating. Non-Operating.			10K 40K	ASL ft
Operating Temperature	Internal DC fan for cooling.	At 100% load:	0	50	°C
Storage Temperature			-40	85	°C
Temperature Coefficient	0 °C to 45 °C (after 15-minute warm-up).			0.02	%/°C
Relative Humidity	Non-condensing. @ 40 °C		5	93	%RH
Shock	Operating: half-sine, 11 ms, 10 shock per face, 6 faces Non-Operating: half-sine, 11 ms, 10 shock per face, 6 faces			7 30	G
Vibration	Operating: 3 axis swept sine 5-500 Hz, 1 octave/min, 5 sweep cycles per axis Non-operating: random 10-500 Hz.			1 3.5	G Grms
Reliability MTBF	(Calculated) Bellcore Ground Benign @ 25 °C. Demonstrated		100 000 300 000		hrs

LED Indicators

Indicator	LED Color
Power Good	GREEN
AC OK	GREEN
PS FAIL	AMBER

Mechanical Specifications

PARAMETER	CONDITIONS / DESCRIPTION
Dimensions	78 x 40 x 340.5 mm
Weight	1.62 kg (3.57 lb)



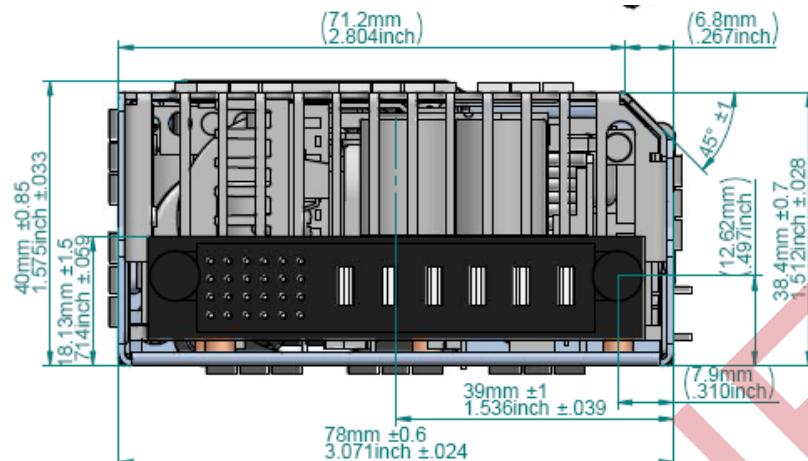
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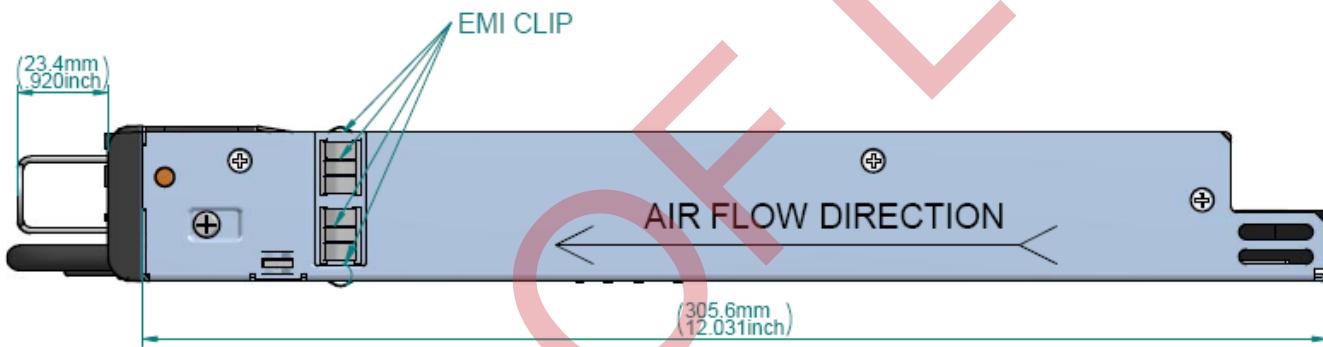
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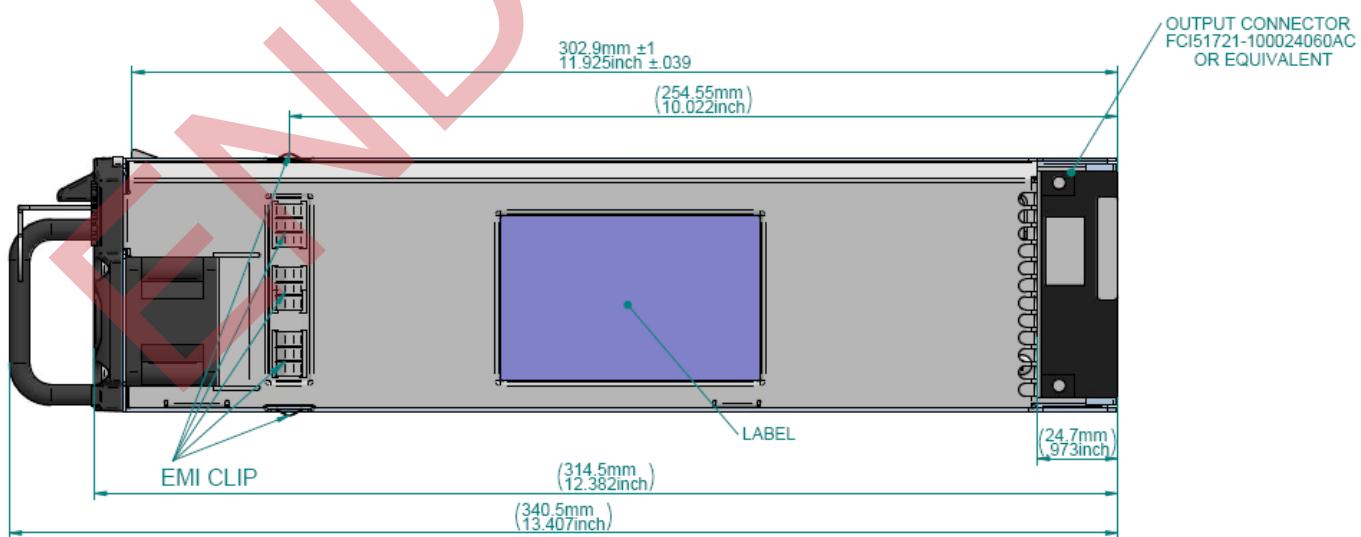
Rear View



Side View



Top View



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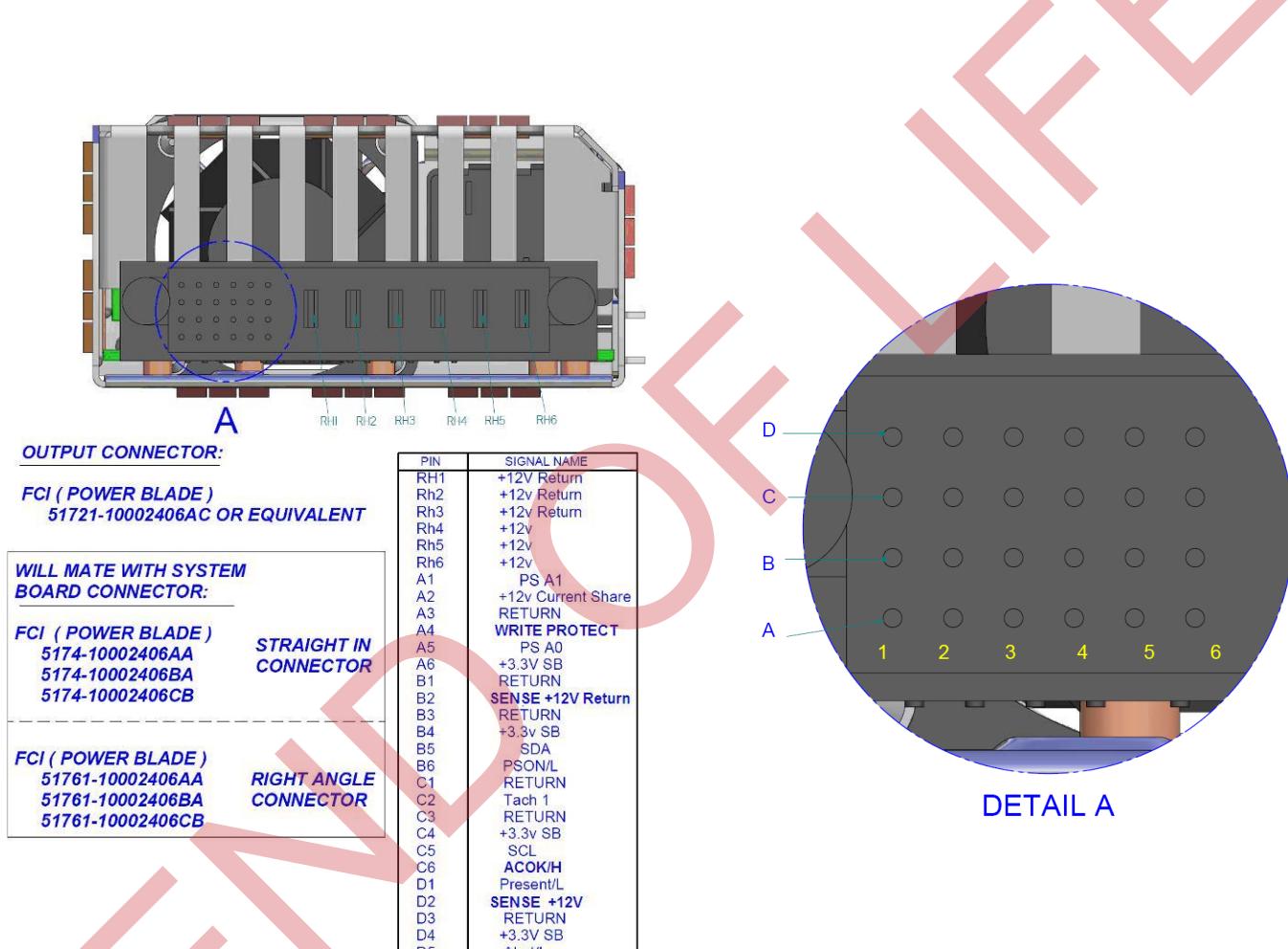
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Connector Information

Power Supply:	Input - IEC 320 input (Male) standard line cord connection Output - P/N FCI 51721-10002406AA or equivalent								
Mating Connections:	Input - IEC 320 output (Socket) Standard line cord (15A) Output - P/N: FCI 51741-10002406CC								
Input IEC Connector:	<table><thead><tr><th>Input</th><th>Location</th></tr></thead><tbody><tr><td>Chassis (Safety) Ground</td><td>Ground</td></tr><tr><td>Line 1 (Line)</td><td>L</td></tr><tr><td>Line 2 (Neutral)</td><td>N</td></tr></tbody></table>	Input	Location	Chassis (Safety) Ground	Ground	Line 1 (Line)	L	Line 2 (Neutral)	N
Input	Location								
Chassis (Safety) Ground	Ground								
Line 1 (Line)	L								
Line 2 (Neutral)	N								

Output Connector Details



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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