Distributed Power Front-End

FXP7000
Front and 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
- Standard & customized rack adaptors available
- Front panel selectable-input-range

The FXP7000 Series of rack-mounted power systems provides AC front-end capability to automatic test equipment, telecom, data communications, and other distributed power designs. The pluggable FXP supplies do not include an output isolation diode and may be paralleled up to 210 kW of total output power. These supplies provide excellent protection against input voltage transients.

Access to interfaces for remote sensing, remote voltage adjust, current sharing, current monitoring, power supply status, standby voltage and inhibit, as well as power connections, is through a connector at the rear of the supply. The FXP has its fan, handles, voltage adjust, and indicator lights on the front panel and a single hot-plug connector 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 FXP7000 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, delta or wye.

Hot-Pluggable Model

MODEL	OUTPUT VOLTAGE	INPUT VOLTAGE RANGE 3-PHASE (VAC)	ADJUSTMENT RANGE	MAXIMUM OUTPUT CURRENT	LINE REGULATION	LOAD REGULATION (NOTE 1)	INITIAL SETTING ACCURACY
FXP7000-48-S	48V	180 to 264 or 342 to 528	45.6V to 50.4V	145A	0.15%	0.2%	47.90V to 48.10V

NOTES: 1) With Remote Sense connected.

Input Specifications

PARAMETER	DESCRIPTION/CONDITIONS		MIN	NOM	MAX	UNITS
Input Voltage - AC	3-phase delta low input range, nominal. 3-phase delta high input range, nominal. Continuous deviation from the above nominals.		200 380 -10		240 480 +10	VAC %
Input Current	Per phase at full rated load.	FXP7000 at 180 VAC:			30	ARMS
Inrush Surge Current	Internally limited.	Vin = 264VAC (one cycle). 25° C: Vin = 528VAC (one cycle). 25° C:			38 38	APK
Input Frequency	AC input.		50		60	Hz
Hold-up Time	After last AC line peak at full power.	208 VAC: 400 VAC:	17 13			ms
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.				7000	Watts
Output Current	Continuous duty rating.				145	A
Efficiency	Full rated load (208Vac).		88	91		%
Regulation	Load, Maximum deviation with 0 to 100% load change:					
		With Remote Sense connected:			0.2	%
		With Remote Sense not connected:			0.75	
		Utilizing Droop Current Share:			2.0	
	Line, Under all specified operating conditions.				0.2	
Ripple & Noise	Measured at mating connector w/ 0.01µF + 10µF Tant.					
		20 MHz BW:			1	% p-p
		100 MHz BW:			2	
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/µS.	Time:			800	µs
		Deviation:			3.2	%
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 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.		4			ms
Auxiliary Power	Output voltage - diode isolated. Inclusive of line, load, and initial tolerances.		11.6	12.0	12.4	V
	Output current.				500	mA
Current Monitor	Monitor output current over a compliance range of 0~10V.					
		Normal output:		0.10		mA/A
		Total error current:	0.5	0	0.5	mA
Current Share	Static sharing deviation as a percent of full-load rating for loads >10%.	Active:			5	%
		Passive:			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).		149		156	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:	25		90	A
Output Voltage Fault Signal	Deviation from adjusted Vout that is considered as a fault.		±3	±4	±5	%
Output Voltage Margin	Output voltage swing available through Margin pin (analog).		±4.8	±5.0	±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.

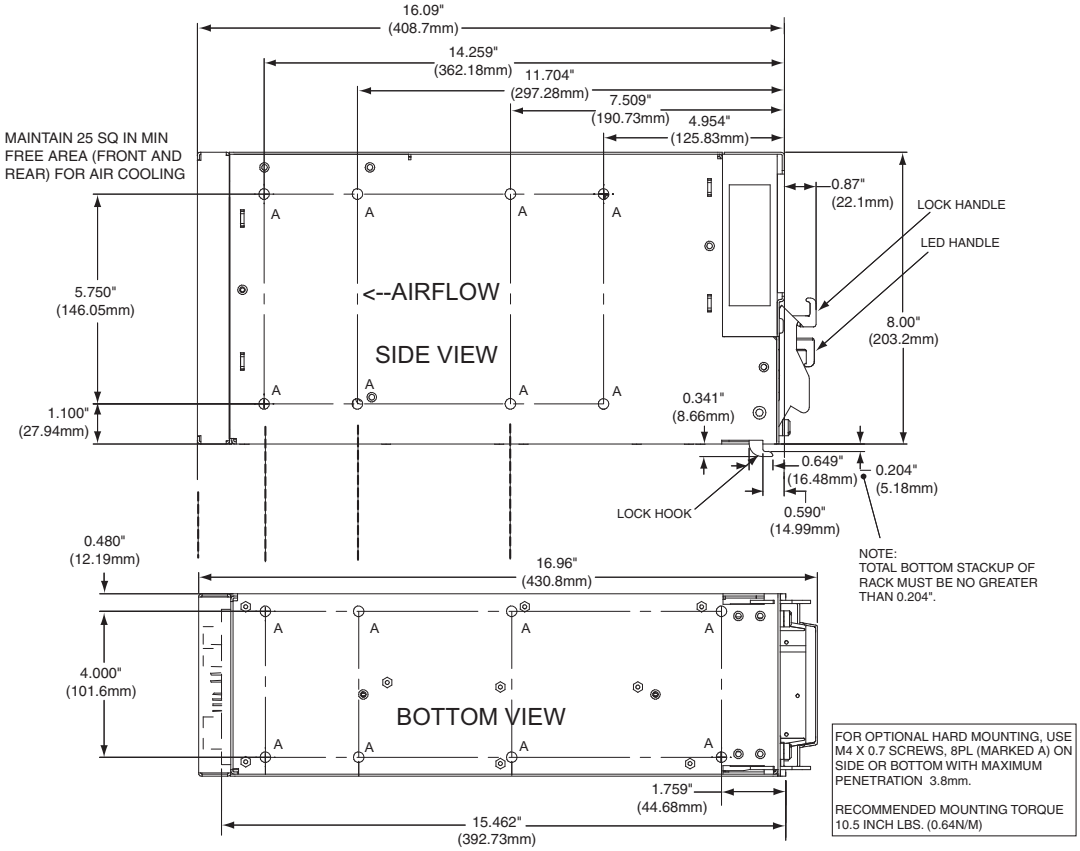
Safety, Regulatory, and EMI Specifications

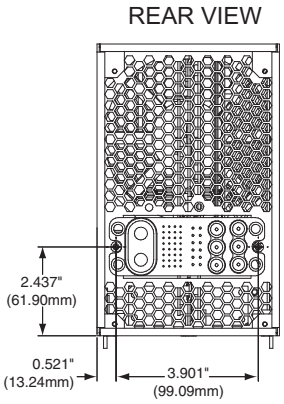
PARAMETER	CONDITIONS/DESCRIPTION		MIN	NOM	MAX	UNITS
Agency Approvals	UL60950/CSA60950-00 (cULus), IEC60950, EN60950 (TÜV), CE marked for the Low Voltage Directive					
Electromagnetic Interference	FCC CFR title 47 Part 15 Sub-Part B - Conducted. EN55022 / CISPR 22 Conducted.		A A			Class
ESD Susceptibility	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/FXP7000			Pending		
Leakage Current	Per UL60950 and EN60950:	FXP7000 at 240 VAC, 60 Hz: FXP7000 at 400 VAC, 50 Hz: FXP7000 at 480 VAC, 60 Hz:			5 7 10	mA

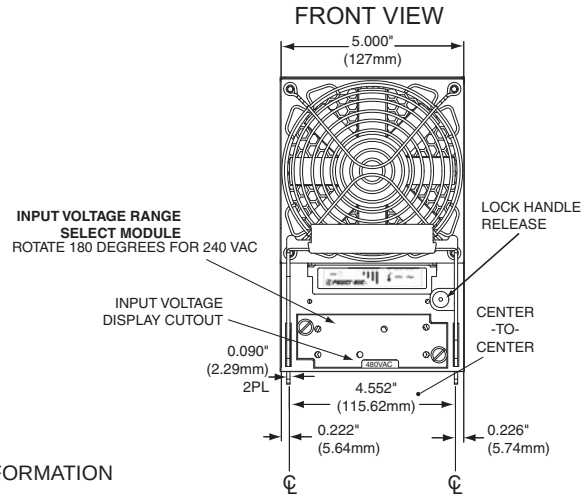
Environmental Specifications

PARAMETER	CONDITIONS/DESCRIPTION		MIN	NOM	MAX	UNITS
Altitude	Operating. Non-Operating.				10k 40k	ASL Ft.
Operating Temperature		At 100% load: At 50% load:	0		40 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	GPK
Vibration	Operating: swept sine 5-2000-5 Hz, 5-32 Hz, 0.02ïDA, 32-2000 Hz Non-operating: random 10-2000 Hz				1 6.15	GPK Grms
Airflow	Airflow provided through the supply from front to rear.			155 4.4 555 2.8		cfm m^3/min lfm m/s
Weight					29 13	lb kg

FXP7000 OVERALL SIZE: 16.96" x 8.00" x 5.00" (430.8mm x 203.2mm x 127.0mm)







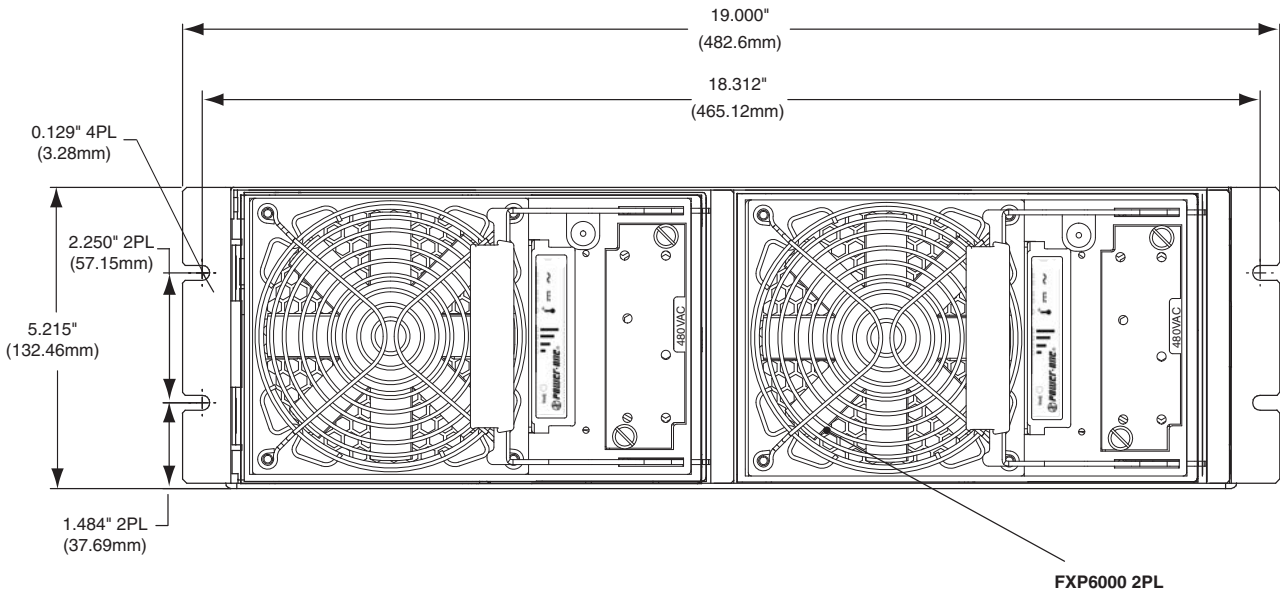
MATING CONNECTOR INFORMATION

Tyco PN	Elcon PN	Description
1648601-1	296-22-01100	CONN HSING FEM 52P TOP DRAWER
1648420-1	712-12-01107	CONTACT SOCKET #0 DOUBLE CROWN
1648318-1	702-32-01107	CONN SOCKET #12 BLIND MATE
1648325-1	702-92-01109	CONN SOCKET #20 BLIND MATE

FRH7000 Power Shelves are Not Recommended for New Designs

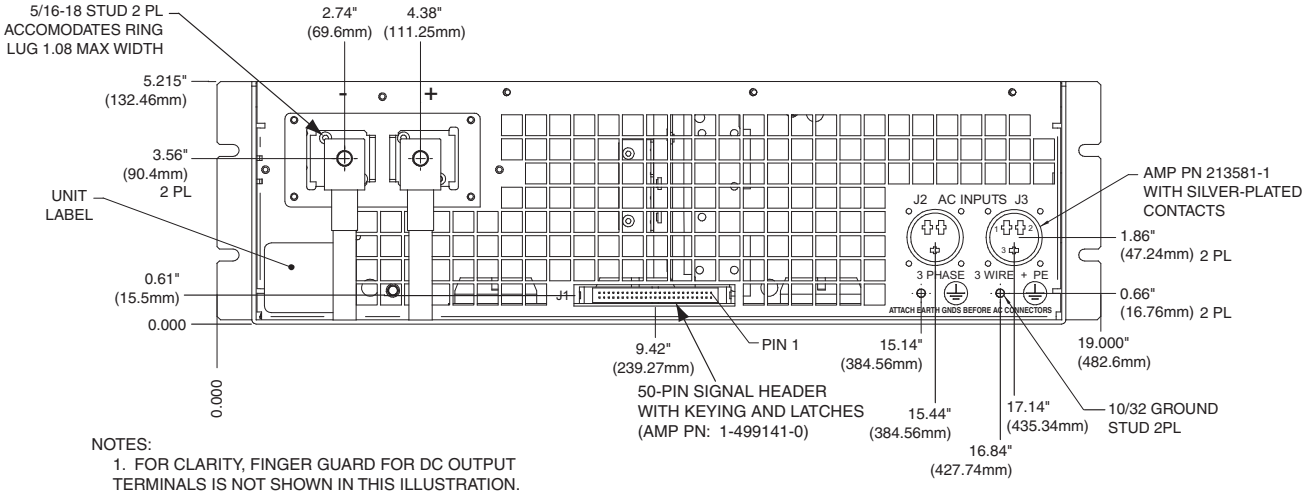
FRH7000 POWER SHELF, FRONT VIEW

NOTE:
FXP6000 POWER SUPPLIES ARE SHOWN FOR ILLUSTRATION PURPOSES ONLY AND ARE NOT INCLUDED AS PART OF POWER SHELF ASSEMBLY.



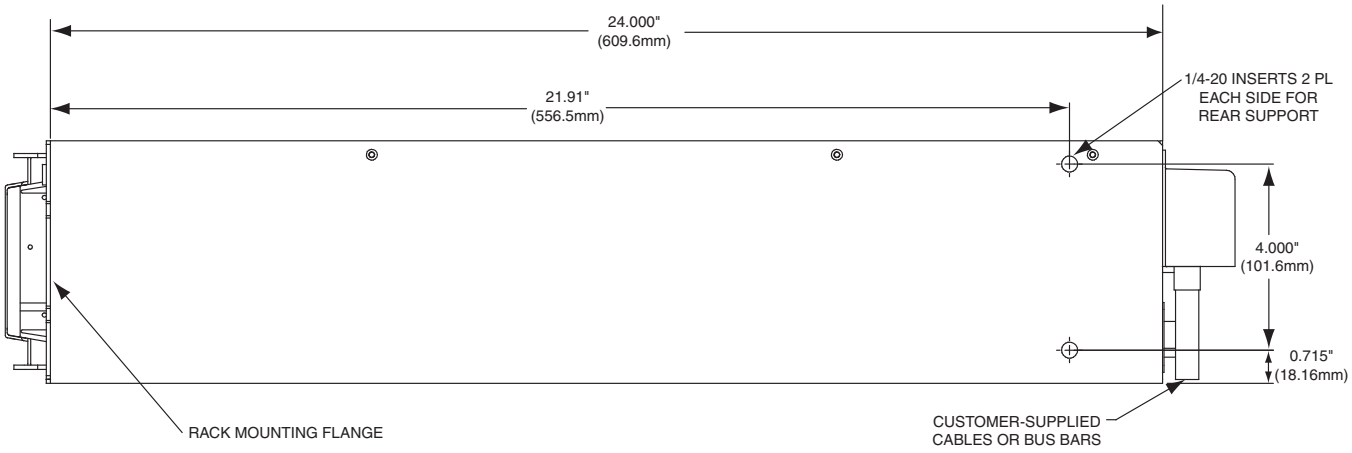
Note: The FRH7000 Power Shelf is designed for alternative vertical mounting with the right side down.

FRH7000 POWER SHELF, REAR VIEW



NOTES:
1. FOR CLARITY, FINGER GUARD FOR DC OUTPUT TERMINALS IS NOT SHOWN IN THIS ILLUSTRATION.

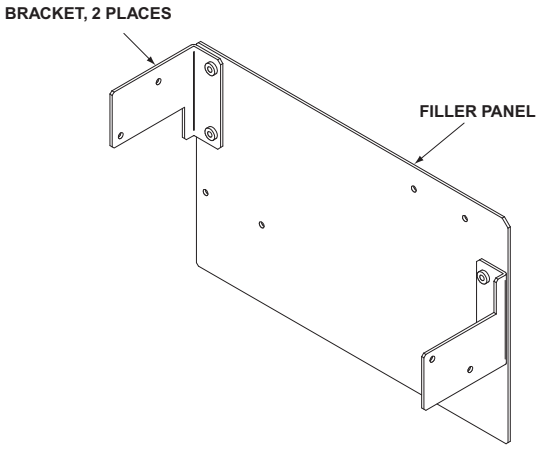
FRH7000 POWER SHELF, RIGHT-SIDE VIEW



FILLER PANEL KIT, PN: 088-101378

(Used with FRH7000 Power Shelf)

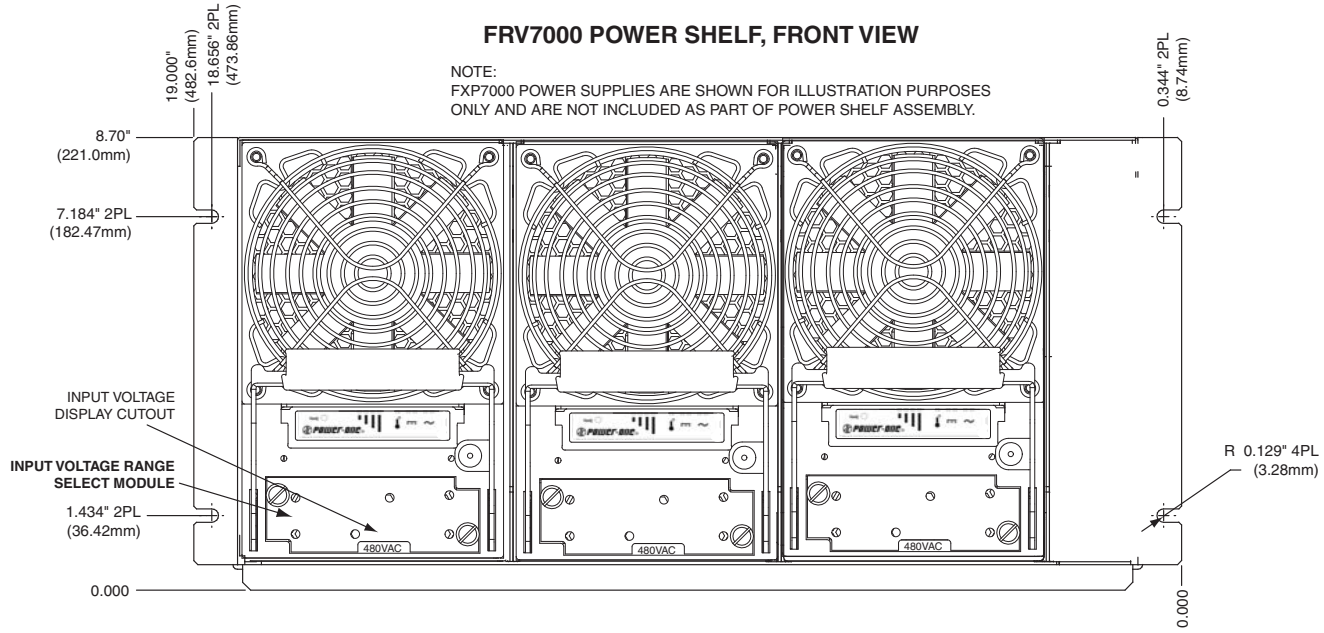
This kit is used to cover an unused right-side slot of the FRH7000 Power Shelf (as viewed from the front of the FRH7000). The kit can be installed before, or after installation of the power shelf into the rack.



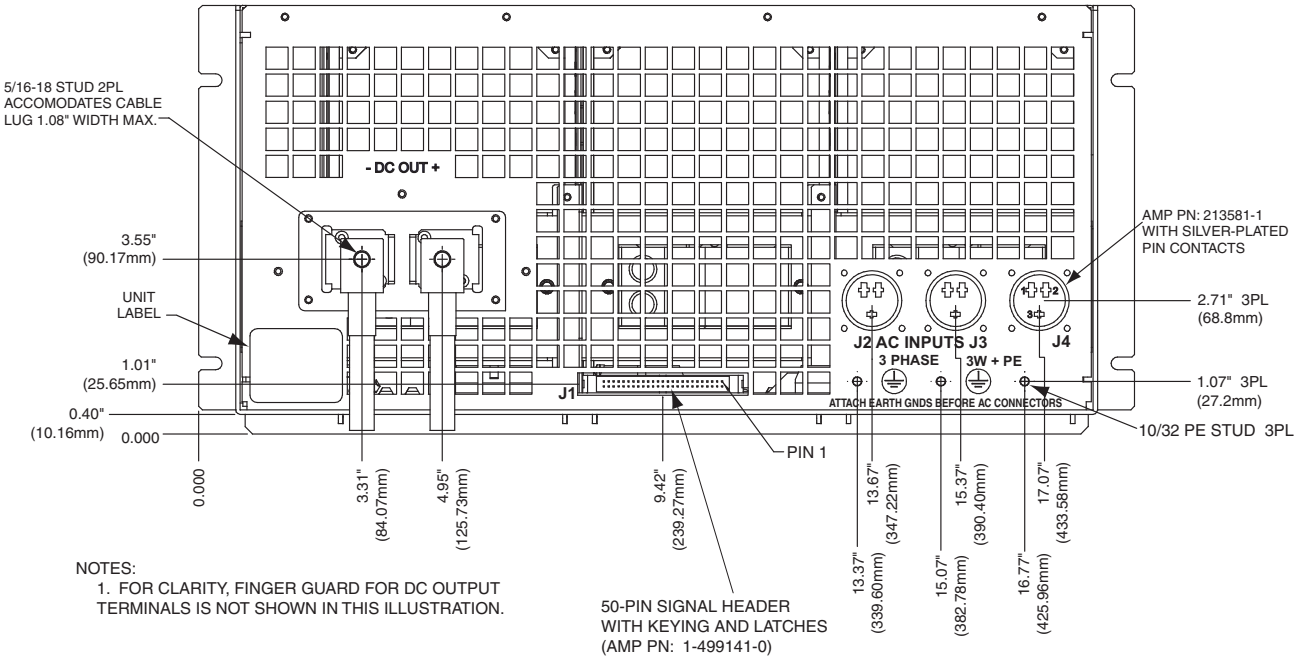
(FILLER PANEL KIT AS SEEN FROM INSIDE OF POWER SHELF)

FRV7000 Power Shelves are Not Recommended for New Designs

FRV7000 POWER SHELF, FRONT VIEW



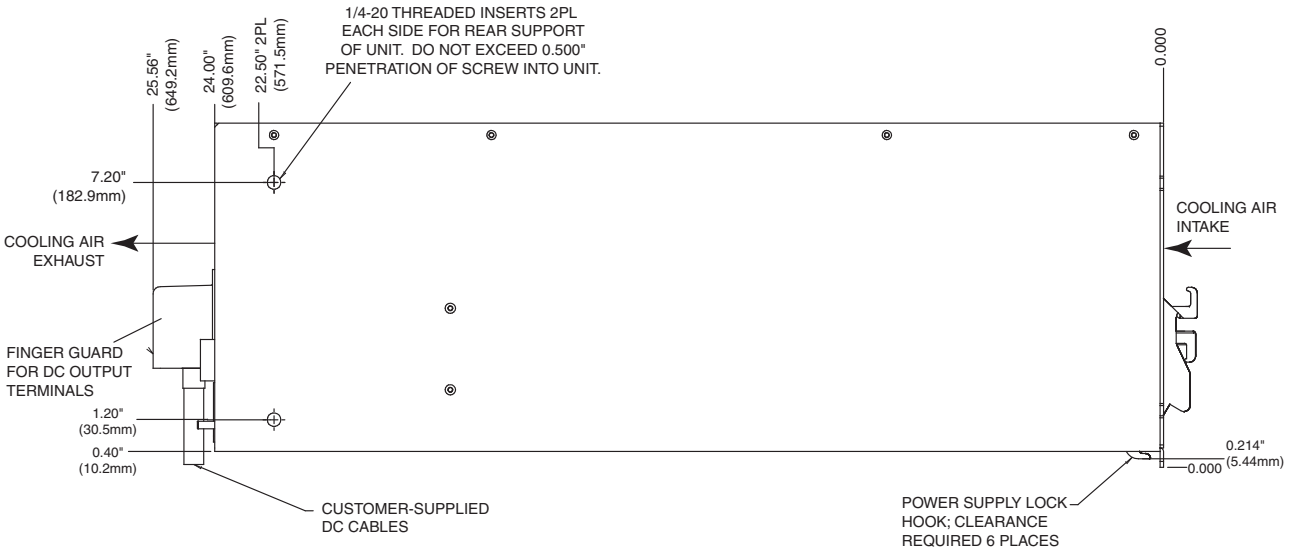
FRV7000 POWER SHELF, REAR VIEW



NOTES:
1. FOR CLARITY, FINGER GUARD FOR DC OUTPUT TERMINALS IS NOT SHOWN IN THIS ILLUSTRATION.

50-PIN SIGNAL HEADER WITH KEYING AND LATCHES (AMP PN: 1-499141-0)

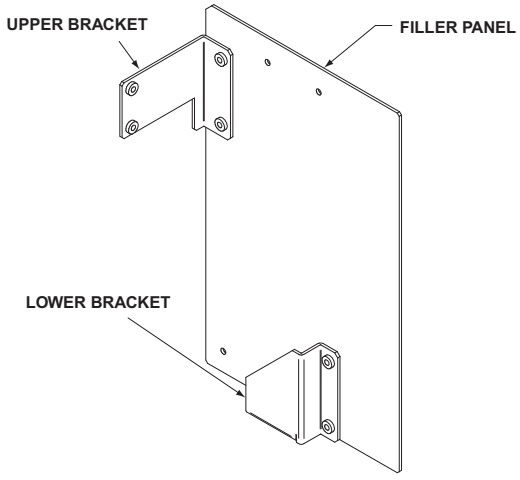
FRV7000 POWER SHELF, LEFT-SIDE VIEW



FILLER PANEL KIT, PN: 088-101348

(Used with FRV7000 Power Shelf)

This kit is used to cover an unused left or center slot of the FRV7000 Power Shelf (as viewed from the front of the FRV7000). One kit is required per slot. Kits can be installed before, or after installation of the power shelf into the rack.



(FILLER PANEL KIT AS SEEN FROM INSIDE OF POWER SHELF)

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.

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.