

Fault Managed Power System

SPECIFICATIONS

The Fault Managed Power System (FMPS) shall be a novel remote power delivery system that allows System Integrators to provide power to remote devices. The FMPS shall remotely power electrical devices such as remote radios, small cells, security cameras, access controls, and indoor and outdoor Distributed Antenna Systems (DAS). The system shall be safe, simple to install, easy to manage or upgrade over time, and can provide power over long distances. The FMPS shall comply with the latest UL 1400-1 Standard and shall be ideal for larger venues or complex installations that require a centralized power solution. The FMPS shall be scalable and shall allow multiple configurations of three hot-swappable power supplies and nine hot-swappable transmitter modules with quick-insert screw terminals and deliver up to 4.8 kW to remote receivers up to 2 km away. The remote receivers shall accept power feeds from multiple transmitter modules, deliver up to 1.6 kW of power to an unlimited number of end devices, and shall be compatible with devices that require ± 48 VDC (PXR1AJD) or ± 56 VDC (PXR1AJF) power. The remote receivers shall be easily configured, monitored, and controlled using the graphical user interface for the system. The FMPS shall minimize rack space used with its 1 RU design and shall use an additional RU for cable management if desired.

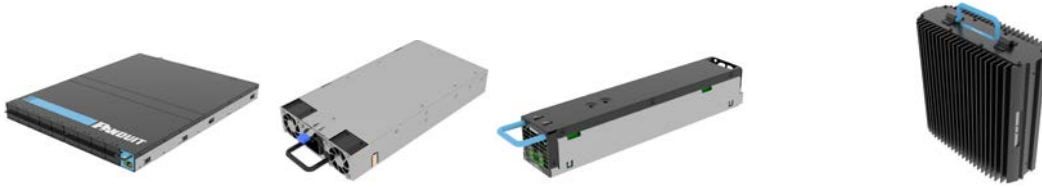
TECHNICAL INFORMATION


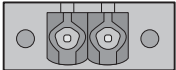


	Transmitter Chassis	Power Supply Unit	Transmitter Module	Receiver	
Model Number	PXTCYZ	PXUYZ	PXTMY	PXRYZ	PXRJF
Part Number	PXTC1ARA	PXU1AJANNXX	PXTM1AF	PXR1AJD	PXR1AJF
Input Voltage	Transmitter Chassis accepts up to 3 Power Supply Units. See Power Supply Module specifications for details.	115 to 230 VAC, single phase, 50-60 Hz (Output power derates at <180 VAC)	± 180 VDC nominal Meets high impedance requirement by UL-1400-1 Standard	± 180 V Pulses 2 ms ON with a max duty cycle of 66%	± 180 V Pulses 2 ms ON with a max duty cycle of 66%
Input Current		15.2 Amps at 115 VAC nominal 7.6 Amps at 230 VAC nominal	—	3.0A pk max.	3.0A pk max.
Inrush Current		50 Amps cold start	—	—	—
Leakage Current		<1.1 mA at 230 VAC	—	—	—
Output Voltage		Transmitter chassis accepts up to 9 Transmitter Modules. See Transmitter Module specifications for details.	360 VDC ± 12.5 VDC $\pm 1\%$, 300 mV pk -pk ripple	± 180 V Pulses 2 ms ON, max. duty cycle of 66%	± 48 VDC $\pm 2\%$ at 77°F (25°C)
Output Current	4.5 Amps		7 Amps pk max. current, limited on each pulse	Receiver accepts up to 3 inputs from Transmitter Modules. Per input channel: 11 Amps $\pm 5\%$ at 25°C	Receiver accepts up to 3 inputs from Transmitter Modules. Per input channel: 10 Amps $\pm 5\%$ at 25°C
Output Power	4800 W (Based on fully loaded Transmitter Chassis)	1600 W (Based on 208 VAC input)	600 W	Per input channel: 600 W Maximum per Receiver: 1600 W	Per input channel: 600 W Maximum per Receiver: 1600 W
Efficiency	—	>92%	Peak efficiency 99%	Peak efficiency 97%	Peak efficiency 97%
Power Factor	—	>0.9 at 230 VAC at Full Load	—	—	—
Isolation	—	3kV input to output 2kV input to ground 0.5kV output to ground	—	—	—
Insulation	—	100 M Ω minimum at 500 VDC 25°C 70% Relative Humidity	—	—	—
Recommended Breaker Size	—	2-pole 20 Amps feed	—	—	—
Alarm Output	80mA AC or DC, 30 Ω max, 5kV RMS isolation, <1 μ A leakage at 350 V, Contacts rated for 30 V Maximum wire size: 16 AWG (1mm ²)	—	—	—	—

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TECHNICAL INFORMATION (CONTINUED)



	Transmitter Chassis	Power Supply Unit	Transmitter Module	Receiver		
Model Number	PXTCYZ	PXUYZ	PXTMY	PXRYZ	PXRJF	
Part Number	PXTC1ARA	PXU1AJANNXX	PXTM1AF	PXR1AJD	PXR1AJD	
Mechanical	Dimensions L x W x H	22 in. x 17.5 in. x 1.7 in. (553.9mm x 445.8mm x 43.8mm) 1 RU	11.1 in. x 5.63 in. x 1.61 in. (282mm x 143mm x 41mm)	8.78 in. x 1.66 in. x 1.61 in. (223mm x 42.1mm x 41mm)	9.45 in. x 9.4 in. x 4.2 in. (240mm x 239mm x 107mm)	9.45 in. x 9.4 in. x 4.2 in. (240mm x 239mm x 107mm)
	Weight	Base Configuration: 12.75 lbs. (5.78 kg)	3.7 lbs. (1.68 kg)	1 lb. (0.45 kg)	15.45 lbs. (7 kg)	15.45 lbs. (7 kg)
	Mounting	Horizontal or Vertical Mounting L Brackets for 2-Post of 4-Post Racks	Hot-swappable via quick release mount	Hot-swappable via quick release mount	Wall-mountable	Wall-mountable
	Connections	Inlet: IEC 60320 C-19 Transmitter Module Outlet: Screw terminal plug (12-30 AWG) Alarm Outlet: 2-pin spring loaded terminal (16-26 AWG) Network: TG-Style RJ45 connector	Inlet: IEC 60320 C-19 	Outlet: Screw terminal plug (12-30 AWG) 	Inlet: 3-Screw terminal plugs per channel (12-30 AWG) Outlet: 3-Screw terminal plugs (8-24 AWG)	Inlet: 3-Screw terminal plugs per channel (12-30 AWG) Outlet: 3-Screw terminal plugs (8-24 AWG)
Environmental	Operating Temperature	14°F to 122°F (-10°C to 50°C)			Vertically Mounted: 14°F to 140°F (-10°C to 60°C)	Vertically Mounted: 14°F to 140°F (-10°C to 60°C)
	Storage Temperature	14°F to 140°F (-10°C to 60°C)				
	Humidity	0% to 85%, non-condensing				
	Pollution Degree	3				
	Altitude	6500 ft. (2000m) Above 6500 ft. (2000m) de-rate operating ambient temperature 41°F per 328 ft. (100m)				

The Transmitter Chassis comes preloaded with a Management Module that has the following Software Specifications

Protocols:	DHCP, SNTP, SNMP V3/V2c, HTTP/HTTPS DNS, SSH, LDAP, RADIUS, SMTP *platform upgrades will allow protocol support to be increased through out the life of the product.
On board web server:	Onboard web application that supports monitoring, control, configuration, and firmware updates of the system components. No configuration necessary. Simply enter the IP address of the Management Module in a browser and start viewing system data.
System logs:	System event logging capable of storing logs using on board memory. System log triggers tied to monitoring data and utilizing pre-defined critical threshold levels. Ready to use out of the box.
Notifications:	Web application, SNMP, and future protocols to support the ability to indicate critical notification information.



All Part Numbers Compliant with the U.S. Trade Agreements Act (TAA) for purchases shipped to the United States.

Fault Managed Power System

KEY FEATURES AND BENEFITS

UL 1400-1 standard certified:	The first Class 4 Power system available on the market
Safe high-voltage power:	A fault management system with built-in redundancy that detects and instantly stops power transmission when a fault occurs, making it a safe power delivery system that has all the safety benefits of Class 2 power systems.
Significant power over long distance:	Up to 30x the power and up to 30x the distance of a Class 2 power system using less copper pairs and thinner wire gauge, saving up to 60% on cable costs.
Simple & efficient installation:	No conduit, as with traditional power. Technicians may install copper and fiber cabling simultaneously for greater cost and time savings over traditional power. Save up to 40% on material and installation costs.
Latest industry standard compliance:	Safe and compliant with the latest industry standards, for peace of mind when hiring technicians. Gain faster approval from local Jurisdiction Having Authorities (JHA) and expedite installation.
Remote monitoring & control:	Monitor, troubleshoot, and control your system remotely through web-based access or SNMP interface. Increase operational efficiency with full visibility into your power usage and the ability to remotely shutdown individual components helping you avoid costly site visits.
Hot-swappable components:	Easy to move/add/change for a flexible and scalable power delivery system to grow with rising wireless demands. Minimizes equipment downtime and reduces business interruptions. Intelligent LED indicators on all system components for easier installation, onsite maintenance, and troubleshooting.

AGENCY COMPLIANCE

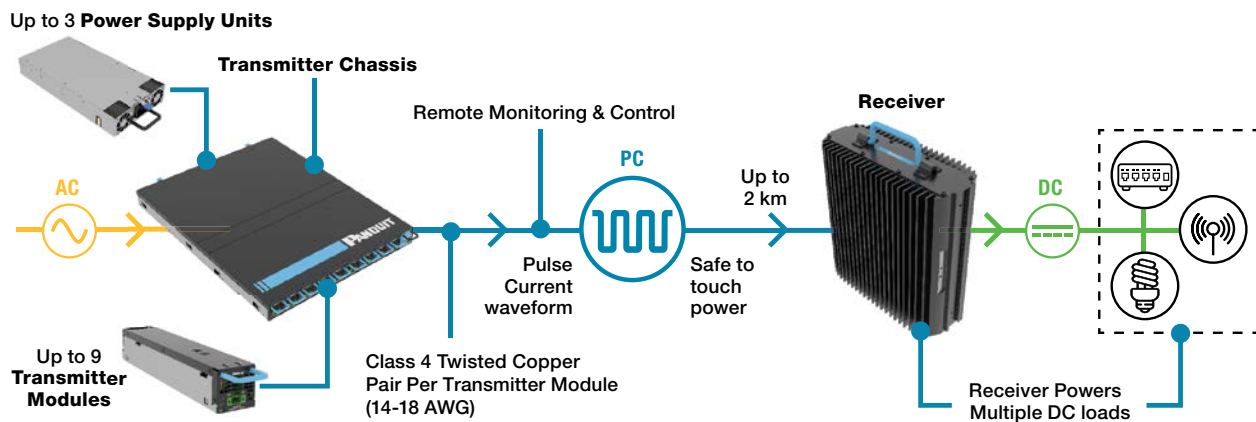
Emissions & immunity:	EN 55032, CFR47 (FCC) Part 15, Class A EN 55035, CE This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause operation. CAN ICES-3(A)/NMB-3(A) ICES-003
Safety:	UL-1400-1 Standard (Class 4); IEC 62368-1 and IEC 61508.
Environmental:	REACH RoHS (Directive 2011/65/EU of the European Parliament and of the Council of 8-June- 2011 on the restriction of the use of certain hazardous substance in electrical and electronic equipment (recast).



Hot-Swappable Components
Modular Plug and Play Installation

Deliver Power Up to 2 km Away
Up to 600 W Per Copper Pair

Power Multiple DC Loads
(No Limit on Number of Devices)



Overview of the FMPS, showing the Transmitter Chassis which typically resides in the headend, delivering power in a Pulse Current waveform, through multi-conductor Class 4 cable, and sending it to the FMPS Receiver which is typically distributed throughout the building near devices that require power.

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