

Fault Managed Power Transmitter



Application

The Clearfield Fault Managed Power Transmitter provides the centralized power and control for a Clearfield Fault Managed Power system. Paired with a compatible FMP receiver, it continuously monitors the circuit between the transmitter and the remote load. If it detects cable damage, a short circuit, contact with an exposed conductor, or another fault condition, it rapidly shuts down the affected output to help protect people, equipment, and infrastructure.

As part of a listed Class 4 system installed in accordance with NFPA 70 Article 726, Fault Managed Power can simplify the delivery of power to remote equipment. Power and fiber can follow a coordinated pathway, reducing the need for conventional AC or DC power infrastructure at the remote location and helping streamline installation, turn-up, and ongoing management.

Each 1U transmitter shelf supports up to two hot-swappable 3 kW power modules and four independently monitored output channels. A fully populated shelf delivers up to 6 kW, with transmission distances of up to 6,000 feet to compatible receivers. It is ideal for remote OLT and DAA nodes, small cells, wireless backhaul, edge compute, IoT enclosures, and other locations where utility power is costly, slow to provision, or unavailable.



Description

The transmitter chassis is a 1U, 19"/23"-rack-mountable shelf that accepts up to two hot-swappable power modules. A single module delivers up to 3 kW; populate both bays and the shelf delivers up to 6 kW — full-power operation on either configuration requires an input of 208 VAC or greater. Power modules can be pulled and replaced in service, without dropping the other channels on the shelf.

Each shelf exposes four independent Fault Managed Power output channels, each capable of up to 4.68 A, wired with field-terminated 18–12 AWG copper conductors through a pluggable, tool-less connector. Output reaches up to 6,000 ft over cable rated to 40 pF/ft, giving designers real routing flexibility between the equipment room and the remote load.

- Rack fit: 19" / 23" EIA
- Output channels: 4 × DE / Class 4
- Power modules: 1–2, hot-swap
- Output voltage: 315–350 VDC

Managed like network equipment, not a power strip

The transmitter carries its own management interface — a 10/100 Mbps Ethernet port supporting IPv4/IPv6, a web GUI, and SNMP v1/v3 — so operations teams can monitor and manage FMP shelves the same way they manage the rest of the outside plant electronics, rather than treating power as a separate, unmonitored system.

A dry contact input lets the shelf take a signal from external equipment (such as a battery back-up system) to trigger policy actions like load shedding, and a dry contact alarm output (one normally-open, one normally-closed) reports fault conditions back to a NOC or alarm panel. Front-panel LEDs give an on-site technician an immediate read on channel and management status without opening a laptop.

Features and Benefits

Safety by design

- Listed Class 4 system per NFPA 70 Article 726 — the circuit between transmitter and receiver disconnects on fault, including accidental contact with a conductor
- UL 1400-1 and IEC 61508 (SIL) functional-safety listings
- Minimum 18 AWG copper conductor requirement and a 450 Vrms minimum transmission-wiring rating keep the circuit within its designed safety margin
- Compatible only with matched FMP receivers

Deployment Flexibility

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- Reach up to 6,000 ft on a single run, using lighter, lower-voltage-class cable than a comparable AC or DC power circuit
- Horizontal or vertical rack mounting; power modules must sit at the bottom of the shelf in a vertical install
- Half-power installs can be stacked with zero unit separation; full-power installs call for 1U of clearance for airflow
- Accepts 100–250 VAC input, single-phase or bi-phase (L1/L2 or Line/Neutral), so it drops onto the power sources already available at most remote sites

Remote visibility and control

- Web GUI and SNMP v1/v3 over a dedicated 10/100 Mbps Ethernet management port
- Zero-config IP discovery via hostname.local, with a documented default AutoIP fallback for first-time bring-up
- Dry contact alarm output for NOC/alarm-panel integration; dry contact input for triggering local policy such as load shedding on battery back-up
- Per-channel fault codes (disconnected, overload, short circuit, temperature, input power, and more) reported to the front-panel LEDs and the management interface for fast field triage

Built for the outside plant

- Operator-accessible design rated -20°C to 50°C, with a documented derating curve above 40°C
- Hot-swappable power modules keep the shelf in service during maintenance
- Field-terminated, lever-style output connectors — no crimping or soldering required at turn-up
- 15.25 lb, 1U chassis rated for a 30-year service life, dependent on use case

Technical Specifications

Parameter	Specification	Notes
Input voltage	100–250 VAC	208 VAC or greater required for full-power operation
Max current per shelf	16 A RMS per power module	Minimum breaker size: 20 A per input connection
Output voltage	315–350 VDC	Fault Managed Power / Class 4 output
Total power per shelf	Up to 6 kW	One module = 3 kW; both modules = 6 kW. Full power requires ≥208 VAC
Output channels	4	—
Max current per channel	4.68 A	Use standard design rules for delivered power calculations
Output wiring size	18–12 AWG	Copper conductors only
Max distance	6,000 ft	—
Recommended cable capacitance	40 pF/ft (131.2 pF/m) max	Higher-capacitance cable may reduce performance

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ENVIRONMENT AND MECHANICAL

Parameter	Specification	Notes
Access location	Operator accessible	—
Operating temperature	-20°C (-4°F) to 50°C (122°F)	Derate above 40°C with 1U spacing; conditioned environment recommended
Altitude	Up to 2,000 m	—
Humidity	20%–70%, non-condensing	—
Dimensions	1U; 19.20" (487.7 mm) W × 18.67" (474.2 mm) D × 1.75" (44.8 mm) H	Fits 19" and 23" racks
Weight	15.25 lbs	—
Safe lifetime	30 years max	Dependent on use case

COMMUNICATIONS AND I/O

Parameter	Specification	Notes
Ethernet	RJ45, 10/100 Mbps	Remote monitoring and control via web GUI and SNMP v1/v3
Dry contact alarm output	1× NO, 1× NC	Max steady-state current 500 mA at 25°C
Dry contact alarm input	1× NO, 1× NC	Connect to open or closed circuit only — do not apply voltage. Max cable length 3 m; 14–22 AWG; default mode open circuit