Fault Managed Power
Outdoor Receiver

Application

The Clearfield Fault Managed Power Outdoor Receiver converts power delivered over a supervised Class 4 circuit into regulated 56 VDC at the remote end. Paired with a compatible Clearfield FMP transmitter, it completes a monitored power system for equipment located at the pole, on a rooftop, or elsewhere at the network edge. If a fault occurs on the circuit between the transmitter and receiver, the transmitter disconnects power, helping reduce the risk of fire, equipment damage, and personal injury.

The receiver delivers up to 2,500 W of constant-voltage power at 51–57 VDC, with a nominal output of 56 VDC and efficiency up to 95%. It is designed to power 5G small cells and rooftop macros, smart poles, fixed wireless access and broadband equipment, rail and transit systems, and industrial applications.

Designed for outdoor deployment, the IP66-rated receiver operates from -40°C to 70°C, with cold starts limited to -20°C and output derating above 46°C. It supports wall or pole mounting and must be installed with its connectors facing down to maintain the IP66 rating and maximize cooling. A sunshield is required when the receiver is exposed to direct sunlight.

Description

The receiver accepts power from up to four independent Fault Managed Power channels across two field-terminated input ports, with two channels per port. Each channel supports up to 5 A, with a combined input-current limit of 12 A. Nominal input is 350 VDC and must be supplied by a compatible UL Recognized or Listed Clearfield FMP transmitter shelf to form the supervised Class 4 circuit.

Two output ports provide regulated constant-voltage power at 51–57 VDC, with a nominal output of 56 VDC. Each port supports up to 45 A, subject to a combined maximum output current of 45 A. The receiver delivers up to 2,500 W at up to 95% efficiency and uses 8 AWG field wiring on the output side.

- Output power: Up to 2,500 W
- Output voltage: 51–57 VDC, 56 VDC nominal
- Output current: 45 A maximum total
- Full-load efficiency: 95% typical
- Enclosure rating: IP66

Built for unattended outdoor operation

The finned enclosure is rated IP66 per IEC 60529 and operates from -40°C to 70°C. Cold starts are limited to -20°C, and output power is derated above 46°C. For outdoor installations, the receiver must be mounted vertically with its connectors facing down to maintain the IP66 rating and maximize cooling. A sunshield is required when the unit is exposed to direct sunlight.

Integrated protection includes common-mode surge protection up to 6 kV and differential-mode surge protection up to 1 kV, with support for up to five surges at each rating. The receiver also protects against short circuits, overload, over-voltage, and over-temperature conditions. It automatically recovers after overload or over-temperature conditions clear, while an over-voltage shutdown requires the unit to be re-powered.

Important: *the output circuit between the receiver and the load is not a protected FMP / Class 4 circuit. The unit must be de-energized before contacting any exposed output conductors, and the receiver is intended for installation in a Restricted Access Area accessible only to skilled or properly instructed persons, per IEC 62368-1.*

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Features and Benefits

Safety by design

- Paired with a compatible Clearfield FMP transmitter, the receiver completes a supervised Fault Managed Power circuit installed as a Class 4 circuit in accordance with NFPA 70 Article 726.
- The receiver must be used with a compatible FMP transmitter for Class 4 compliance. Any UL 1400-2 listed Class 4 cable may be used between the transmitter and receiver.
- Over-voltage protection shuts down the output at 60–67 VDC and requires the receiver to be re-powered before operation resumes.
- Designed for installation in a Restricted Access Area in accordance with IEC 62368-1.
- The output circuit between the receiver and connected equipment is not a protected FMP or Class 4 circuit. The receiver must be de-energized before contacting exposed conductors or connecting or disconnecting a load.

Outdoor-ready construction

- IP66-rated enclosure for outdoor operation from -40°C to 70°C, with cold starts limited to -20°C and output derating above 46°C.
- Vertical outdoor mounting with the connectors facing down maintains the IP66 rating and supports proper cooling.
- Sunshield is required when the receiver is exposed to direct sunlight and is available separately.
- Supports wall or pole mounting, with an optional pole-mount kit available for field installation.
- Weighs 24 lb without the sunshield and 30 lb with the sunshield.
- Backed by a three-year warranty.

Regulated, high-power DC output

- Delivers up to 2,500 W of constant-voltage power at 51–57 VDC, with a nominal output of 56 VDC.
- Supports up to 45 A per output port, subject to a combined maximum output current of 45 A.
- Provides up to 95% efficiency, with 95% typical efficiency at full load.
- Integrated protection addresses output surge, short-circuit, overload, over-voltage, and over-temperature conditions.
- Automatically recovers after overload and over-temperature conditions clear. Over-voltage shutdown requires the receiver to be re-powered.
- Uses 8 AWG output wiring with field-wireable, screw-terminated connectors.

Fast field diagnostics

- Front-panel LEDs provide status for each of the four input channels, communications, output power, and four fault categories.
- Dedicated fault indicators identify load, environmental, internal, and input or system conditions without requiring a laptop.
- Each fault category corresponds to a documented troubleshooting path, including checking wiring, reducing the load, adding transmitter pairs, or contacting support.
- In-line communications between the FMP transmitter and receiver support end-to-end system operation and monitoring.
- Clearly identified input, output, and protective-earth connections support accurate field termination.

Technical Specifications

INPUT		
Parameter	**Specification**	**Notes**
Input Voltage	240–350 VDC, 350 VDC nominal	Must be supplied by a compatible UL Recognized or Listed FMP transmitter shelf
Number of Ports	2	Each port supports two channels
Number of Channels	4	—
Current per Input Channel	5.0 A maximum	—
Total Input Current	12.0 A maximum	—
Input Wire	14–18 AWG	—
Input Cable Diameter	0.24–0.49 in. (6.0–12.5 mm)	—

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Technical Specifications

OUTPUT		
Parameter	**Specification**	**Notes**
Output Voltage	51–57 VDC, 56 VDC nominal	—
Number of Ports	2	—
Current per Output Channel	45.0 A maximum	—
Total Output Current	45.0 A maximum	Combined across both output ports
Output Wire	8 AWG	—
Output Cable Diameter	0.57–0.75 in. (14.5–19.0 mm)	—
Output Mode	Constant voltage	
Maximum Output Power	2,500 W	—

EFFICIENCY		
Parameter	**Specification**	**Notes**
Typical Efficiency	95%	At full load

ENVIRONMENT		
Parameter	**Specification**	**Notes**
Operating temperature	-40°C to 70°C (-40°F to 158°F)	Cold start limited to -20°C (-4°F); output derating begins above 46°C
Altitude	Up to 2,000 m	—
Weatherproofing	IP66	Per IEC 60529; unit must be oriented with panel-mount connectors facing down to maintain the IP rating

MECHANICAL		
Parameter	**Specification**	**Notes**
Dimensions	18.99 × 7.98 × 7.60 in.	482.3 × 202.8 × 193.1 mm
Weight without sunshield	24 lb	—
Weight with sunshield	30 lb	—
Mounting orientation	Vertical for outdoor installations	Connectors must face down to maintain the IP rating and maximize cooling
Mounting options	Wall or pole mount	Pole-mount kit sold separately

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Technical Specifications

PROTECTION		
Parameter	**Specification**	**Notes**
Common-mode surge protection	6 kV maximum	Rated for up to five surges
Differential-mode surge protection	1 kV maximum	Rated for up to five surges
Overload protection	100–115% of rated current	Output shuts down after five seconds and automatically recovers after the overload condition clears
Over-voltage protection	60–67 VDC	Output shuts down and the unit must be re-powered to recover
Over-temperature protection	Output shuts down	Automatically recovers after the temperature decreases
Short-circuit protection	Integrated	—

Accessories

INCLUDED HARDWARE			
Accessory	**Quantity**	**Part Number**	**Notes**
Amphenol 4-position female field connector	1	C01620D00311010	Input connector mate
Amphenol 2-position male field connector	1	PWM-02BFMB-TL7001	Output connector mate
Two-hole compression lug, #10 stud, 6 AWG	1	YAV6CL2TC10FX	Protective-earth grounding connection
18-8 locknut with external-tooth lock washer, 10-32	2	96278A411	—

SOLD SEPARATELY		
Accessory	**Part Number**	**Description**
RXDC-56-2K-03 Connector Kit	CON-56-2K-03	Includes one input connector mate and one output connector mate
RX Sunshield	SS-RX-01	Required for outdoor installations exposed to direct sunlight
RX Pole Mount Kit	PMK-RX-01	Includes two adjustable stainless-steel mounting bands
RX Input Junction Box	JBKIT-RX-4P-03	Outdoor four-pair receiver input terminal box; required when using 12 AWG input cable
RX Output Kit	PDKIT-RX-03	Outdoor power-distribution kit; required when connected loads use cable smaller than 8 AWG