

### DESCRIPTION

The FMPe20.48G rectifier incorporates resonant technology to reduce component stresses, providing increased system reliability and a best-in-class efficiency. The rectifier features a wide input operating voltage range to maximize power availability within demanding utility power environments.

These compact rectifiers support up to 8kW in a 1RU 19" or 10kW in a 1RU 23" shelf.

A wide variety of distribution options are available to provide the maximum system flexibility for a wide range of communications applications that demand efficiency, reliability, and flexibility including wireless base stations, remote switches, and broadband access.

The FMPe20.48G is one of several rectifier types that can be installed in the Guardian Series DC power systems, see additional information on the [UNIPOWER web site](http://www.unipowerco.com).

### FEATURES

- ◆ High efficiency (>96% typical) and energy saving
- ◆ Leading power density up to 21.5W/in<sup>3</sup>
- ◆ Rugged input voltage range
- ◆ Thermal protection
- ◆ Hot-swappable
- ◆ International standards compliance

**THREE YEAR WARRANTY**

### SAFETY CERTIFICATIONS

CAN/CSA C22.2 No 62368-1:2014  
 UL 62368-1:2014  
 EN 62368-1:2014/A11:2017

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LVD2006/95/EC  
 ROHS2011/65/EU



### RECTIFIER MODULE ORDERING GUIDE

MAX. POWER	OUTPUT VOLTAGE	OUTPUT CURRENT	INPUT VOLTAGE <sup>2</sup>	INPUT CURRENT <sup>3</sup>	MODEL NO.
2000W	48.0VDC 53.5VDC <sup>1</sup>	41.7A 37.4A	85-275VAC	11.7A/8.7A	FMPe20.48G

Notes:

1. Default factory setting.
2. Units will operate over the full range from 85VAC to 275VAC, automatically limiting output current according to the actual input voltage range applied.
3. Input currents shown are nominal values at 110VAC/240VAC as appropriate.



### SHELF ORDERING GUIDE

APPLICATION	RECTIFIER POSITIONS	RACK WIDTH	MODEL NUMBER
48V only	4	19"	XG1948G
	5	23"	XG2348G
Dual 48/24V	4	19"	XG1900G
	5	23"	XG2300G

### SHELF ACCESSORIES

PART NUMBER	DESCRIPTION
XGB-01-G	Blank cover plate for empty slot.
1-157379-G	Bus Bar hardware kit for single shelf applications; consisting of set of screws and washers for attaching DC power cables. Must be ordered with each shelf used in standalone applications.
1-155302-G	Bus Bar hardware kit for parallel shelf applications; consisting of DC bus link bars and set of screws and washers for attaching DC power cables. Must be ordered with each shelf used in parallel applications.

## Specifications

INPUT	
Voltage	Operating Range: 85-275VAC
	Permitted variation: 85-300VAC (L-PE and N-PE <250VAC)
Current	<8.7A @ 240VAC <11.7A @ 110VAC
Frequency	47-63Hz
Power Factor	>0.99 at >25% load
Fuse	Two 25A fast blow (L & N)
OUTPUT	
Voltage Range	44-57.6VDC
Power	2000W at $\geq 180$ VAC; 1100W at 110VAC; 779W at 85VAC
Current	@ 48V 41.7A at $\geq 180$ VAC; 22.9A at 110VAC; 16.2A at 85VAC
	@ 53.5V 37.4A at $\geq 180$ VAC; 20.6A at 110VAC; 14.6A at 85VAC
Derating	12.9W/Vin from 180-85Vin
Efficiency	
Tolerance	Vout $\pm 0.5\%$ from 10-90% load
Transient Response	$\pm 6\%$ at load variation 10-90% or 90-10%, recovery time 50ms
Load Sharing	<5% of nominal current
Ripple	<200mV p-p (BW 20MHz)
Psophometric	<2mV, according to CCITT norms
STANDARDS	
Inrush Current	ETSI ETS 300 132-1
Harmonics	EN61000-3-2
EMC	ETSI EN300 386 V1.3.2 EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4 EN55024 performance criterion A EN55022 Class B Telcordia NEBS GR1089
Safety	CAN/CSA C22.2 No 62368-1:2014 UL 62368-1:2014 EN 62368-1:2014/A11:2017
Environmental	Storage: ETSI EN300 019-2-1 Transport: ETSI EN300 019-2-2 Operation: ETSI EN300 019-2-3 Damp Heat: IEC60068-2-78

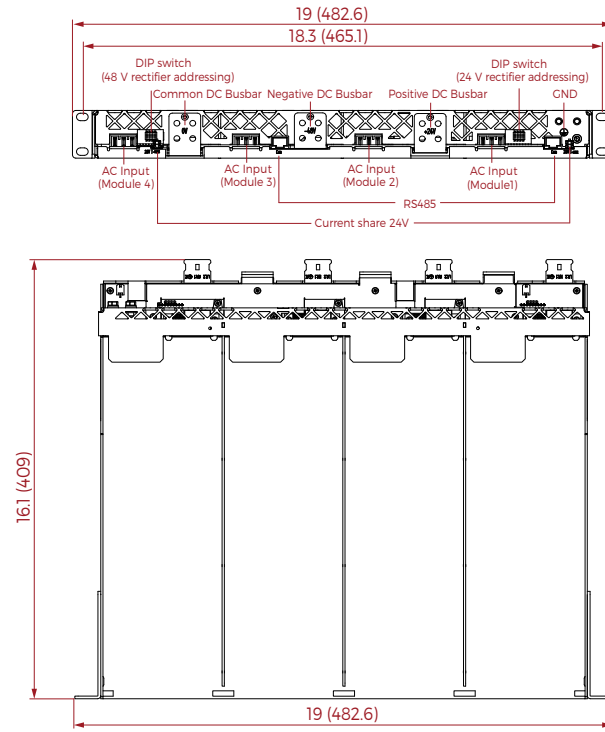
MECHANICAL	
Dimensions, inches (mm)	4.2 W x 14.0 D x 1.6 H (107 W x 355 D x 41 H)
Weight	4.6lbs. (2.1kg)
Cooling	Fan-cooled, speed controlled
Insulation	4.25kVDC primary-secondary 2.12kVDC primary-ground 0.2kVDC secondary-ground
Enclosure	IP20
Mounting	19in/23in x 1U subrack up to 4/5 modules
GENERAL	
Protection	Short circuit protection, automatic current/power limiting, input/output overvoltage protection, thermal protection.
Alarms	Fan failure Short circuit/arcing protection High temperature/output voltage Low output voltage Input voltage out of range Low fan speed (warning) Internal communication failure
LED Indicators	Green: AC normal operation Yellow steady: Low fan speed, High temperature Yellow flashing: Comms. failure Red: Module alarm / shutdown
Audible Noise (nominal input)	<39dBA @ $\leq 25^\circ\text{C}$ (50% load) <57dBA (100% load)
Operating Temperature	-40°C to +75°C up to 2000m Reduced spec -40°C to -20°C.  Derate linearly from full power at 55°C to 50% output power at $\sim 74^\circ\text{C}$ . Thermal shutdown at 75°C.  
	For 3000m altitude derated by 5°C
Storage Temperature	-60°C to +85°C
MTBF	>350,000 hours (without fan) at 25°C to MIL-HDBK-217F-2

## 1RU Power shelf Specifications

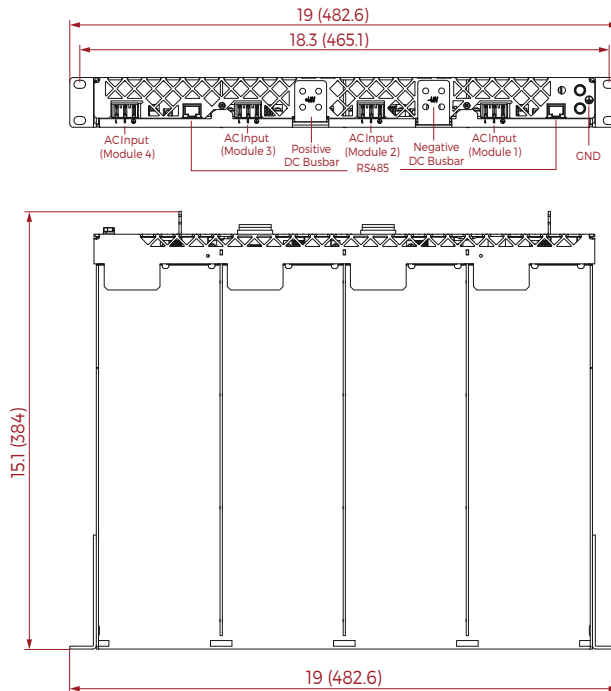
INTERFACE / SIGNALING	
Addressing	For controller supervision each module position is addressed via DIP switches. Each switch can set 4-bit binary address, which means up to 16 Power Shelves (with up to 64 modules) can be supervised. Addressing is performed by setting the four bits to ON or OFF (ON=1, OFF=0).
Communication	Internal Communication bus RS485
DESIGN STANDARDS	
EMC	IEC/EN61000-4-6; GR-1089; IEC/EN61000-4-3; EN55022/CISPR 22 Class B; FCC E222CFR
Safety	UL60950-1 CSA60950-1 EN60950-1 (UL approval only for input voltage levels 120 VAC / 250 VAC) IEC60950-1 CB report CE-mark for LVD/EMI
GENERAL	
Environmental Immunity	IEC/EN60068-2-64 - 1993-05-28; IEC/EN60068-2-27 - 1987-06-15; IEC/EN60068-2-27 - 1987-06-15; IEC/EN60068-2-29 - 1987-03-30
Storage	ETSI EN 300 019-2-1
Transport	ETSI EN 300 019-2-2
Operation	ETSI EN 300 019-2-3
Damp Heat	IEC60068-2-78
Operating Temperature and Altitude	-40°C to +55°C up to 2000m; Reduced specification: -40°C to -20°C
Extended Temperature and Altitude	Linear derating from 100% to 70% maximum power at 55 to 65°C Reduced ambient temperatures by 5°C at 3000m
Cooling	Designed for fan cooled, speed controlled modules (front to rear airflow)
Module Configuration	Hot-swappable modules (N+1)
Insulation	Basic: from input to chassis Reinforced: from input to output
Enclosure	IP21
Dimensions, inches (mm)	XG1948G: 19.0 (483) W x 1.75 (44.5) H x 15.1 (384) D XG2348G: 23.0 (584) W x 1.75 (44.5) H x 15.1 (384) D XG1900G: 19.0 (483) W x 1.75 (44.5) H x 16.1 (409) D XG2300G: 23.0 (584) W x 1.75 (44.5) H x 16.1 (409) D
Weight (no modules)	XG1948G: 11.0 lb (5.0 kg) XG2348G: 13.2 lb (6.0 kg) XG1900G: 13.2 lb (6.0 kg) XG2300G: 14.3 lb (6.5 kg)
Mounting	19" or 23"
Application	XG1948G & XG2348G - 48V only XG1900G & XG2300G - dual 48V & 24V or 24V only

TRU Power shelf Mechanical - 19"

**XG1900G** - Top and rear view with position and description of connectors



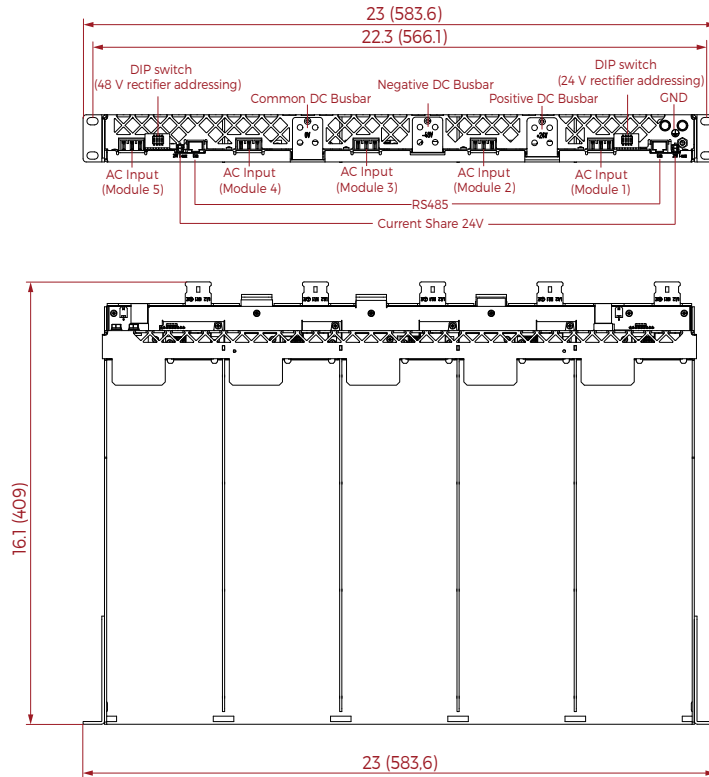
**XG1948G** - Top and rear view with position and description of connectors



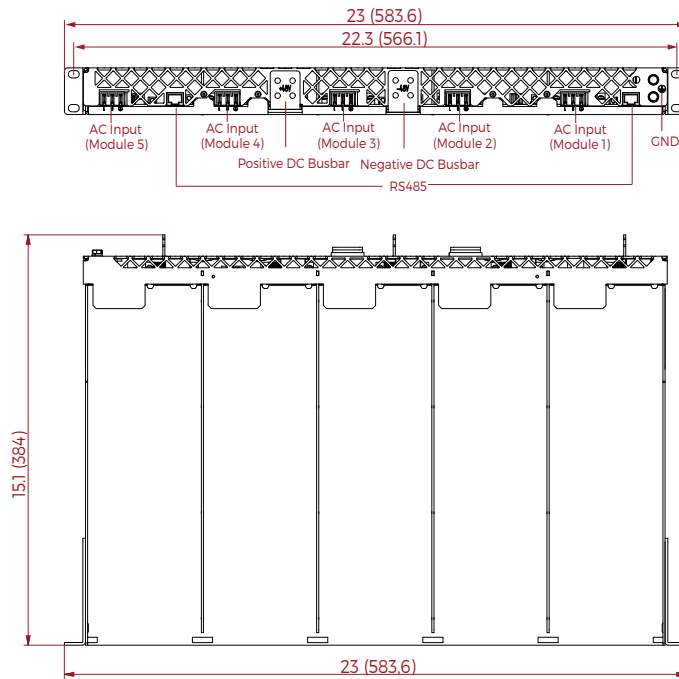
Dimensions in inches (mm)

1RU Power shelf Mechanical - 23"

**XG2300G** - Top and rear view with position and description of connectors



**XG2348G** - Top and rear view with position and description of connectors



Dimensions in inches (mm)