

DATASHEET

RP Series - 5G Repeater Power

Outdoor; 240V_{AC} Input; -48V_{DC} Nominal Output; 150-450W Output



The RP450 system is an integrated pole mount solution that combines a high efficiency rectifier, UL Service Entrance rated AC input breaker and Surge Protection, 6 output DC breakers or 6 GMT Fuses and surge protection in a pole/wall mountable enclosure to simplify small cell / 5G Repeater deployments.

Applications

- Pole mounted power for 5G small cell and repeater deployments.
- Outdoor DC power distribution for low consumption – 48V_{DC} loads.

Features

- Compact IP65 rated enclosure
- Dimensions 22.5" x 8" x 5"
- Integrated AC input shutoff breaker
- Integrated DC output breakers or fuses with surge protection
- Integrated AC 20kA surge protection
- Suitable for Use as Service Equipment by evaluation to the applicable requirements in UL 489; 240V Split Phase (3W-GND) input
- Direct cable interface
- Internal screw terminal wiring connections
- Cord grips for cable strain relief
- Accommodates 3/4" conduit use for AC input where required
- Six -48V_{DC} output magnetic hydraulic circuit breakers or six GMT fuses.

Technical Specifications

Absolute Maximum Ratings

Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only, functional operation of the device is not implied at these or any other conditions in excess of those given in the operations sections of the data sheet. Exposure to absolute maximum ratings for extended periods can adversely affect the device reliability.

Parameter	Device	Min	Max	Unit
Input Voltage - Continuous operation	All	175	265	V _{AC}
Transient Excursion Input Voltage - no damage	All	90	275	V _{AC}
Operating Ambient Temperature (at 450W)	All	-40	65	°C
Storage Temperature	All	-40	85	°C
Humidity (non - condensing)	All	5	95	%
Altitude	All		3000	m
Isolation Voltage - Input to Output	All		3000	V _{AC}
Output to Safety Ground	All		4242	V _{AC}
Input to Safety Ground	All		2250	V _{AC}
AC Short Circuit	All		22	kA

Electrical Specifications

Parameter	Device	Min	Typ	Max	Unit
Operating Input Voltage	All	175	240	265	V _{AC}
Input Source Frequency	All	47	60	63	Hz
Input Current (V _{in} = 200 V _{AC})	All		2.6		A _{RMS}
Input Power Factor (240 V _{AC} , Full Load)	All	0.95			
Inrush Transient Current (V _{in} = 265 V _{AC} , T _{amb} = 25 °C)	All			60	A _{peak}
Leakage Current to earth ground (V _{in} = 265 V _{AC})	All			0.1	mA
Output Voltage Setpoint (factory default)	All		-54		V _{DC}
Output Voltage Tolerance (due to set point, temperature variations, load and line regulation)	All	-1		1	%
Output Voltage Adjustment Range	All	-48		-57	V _{DC}
Psophometric Noise (US or UK test method)	All			200	mV _{DC}
Output Load Regulation	All			1	%V _{out}
Output Line Regulation	All			0.5	%V _{out}
Output Ripple and Noise – measured with 0.1µF ceramic capacitor and 470µF polymer capacitor in parallel Peak-to-peak (20MHz Bandwidth)	All			500	mV _{p-p}
Dynamic Load Response – 50% to 100% load transient, 1°/µs slew rate					
Output voltage deviation	All			5%	%
Settling Time	All			500	µs
Efficiency: V _{in} = 240V _{AC} , 20% load	All		87.5		%
50% load	All		92		%
100% load	All		88		%
Output Current	All	0		8.3	A _{DC}
Maximum Output Capacitance	All			1000	µF
Output Overvoltage protection	All	55	56	57	V _{DC}
Holdup Time (240V _{AC})	All	11			ms

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Technical Specifications (continued)

General Specifications

Parameter	Device	Symbol	Typ	Unit
Calculated Reliability based on Telcordia SR-332 Issue 2: Method 1 Case 3 ($V_{IN}=240V_{AC}$, $I_o = 32A$, $T_A = 40\text{ }^{\circ}C$, 90% confidence)	All	MTBF	>250,000	Hours
Weight	All		17.5	Lbs

Feature Specifications

Parameter	Device	Min	Typ	Max	Unit
Turn-on delay	All		5		S
Output Voltage Rise Time (walk-in disabled)			200		ms
Output Voltage Rise Time (walk-in enabled)			20		ms
Output Overvoltage Protection	All	59	59.5	59.99	V_{DC}
Input Undervoltage lockout					
Turn-on Threshold (100% load)	All	80	85	90	V_{AC}
Turn-off Threshold (100% load)	All	75	79	85	V_{AC}

Environmental Specifications

Parameter	Device	Specification / Test
Radiated Emissions	All	CISPR32 Class B
Conducted Emissions	All	CISPR32 Class B
ESD	All	IEC61000-4-2 Level 3
Radiated Susceptibility	All	IEC61000-4-3, Level 2
Electrical Fast Transient Common Mode	All	IEC61000-4-4, Level 3
Surge Immunity	All	IEC61000-4-6 Level 4
Conducted RF Immunity	All	IEC61000-4-6, Level 3
Input Voltage Dips	All	Output stays within regulation for 1/2 cycle interruption or 25% dip from nominal line for 1 second
Shock and Vibrations	All	Per IPC-9592B, Class II
Ambient Temperature Operating Range	All	-40°C to +65°C, start up at -40°C
Ambient Temperature storage and transport	All	-40°C to +85°C, ETSI EN 200 019-1
Altitude	All	-400 to +3000m
Audible Noise	All	<55dBA to meet GR-63 Core

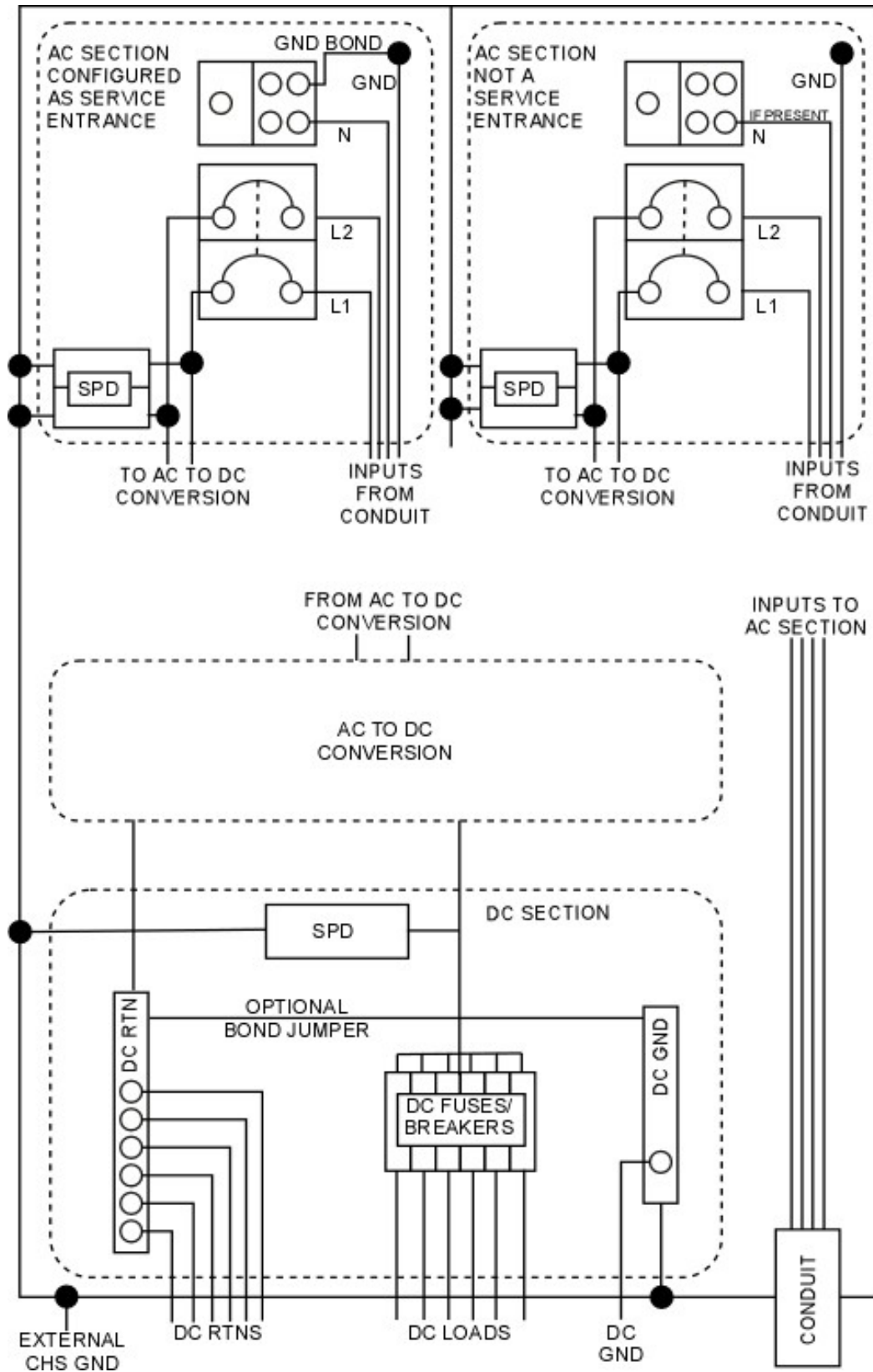
Safety Specifications

Parameter	Device	Specification
Dielectric Withstand Voltage (between input and output)	All	Minimum of 4,250V _{DC} for 1 minute
Insulation Resistance (between input and output)	All	Minimum of 5 MΩ
Safety Standards	All	Class 1, IEC62368, UL489, with the following deviations: Nemko, UL 62368 (Listed Component), cUL (Canadian Approval by UL)

See footnotes on page x

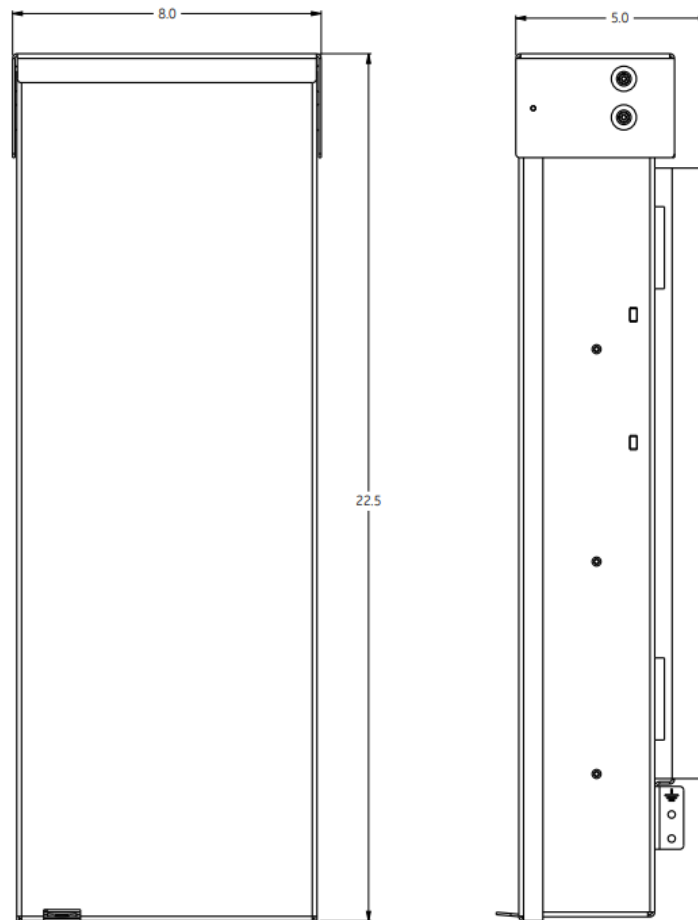
Technical Specifications (continued)

Electrical specifications drawing



Technical Specifications (continued)

Mechanical Dimensions



Electrical Connections

Connector	Cable Size	Clearance Hole Sizing (for conduit use)	Mating Connector
AC Input Connection	12 AWG to 8 AWG	1.109 inch	Screw Terminal
DC Breaker Output Connections	18 AWG to 14AWG	.625 inch	Screw Terminal
DC Fuse Output Connections	20 AWG to 14AWG	.625 inch	Screw Terminal

Replaceable Surge Protectors - UL Ratings

AC Surge Protection		DC Surge Protection	
Nominal discharge current	20 kA	Nominal discharge current	20 kA
Maximum discharge current*	40 kA	Maximum discharge current	65 kA
Voltage Protection Rating L-L	1200V	Voltage Protection Rating +/-	400V
Voltage Protection Rating L-G	700V	Voltage Protection Rating +/G	400V
Power Distribution System	240V _{AC} Split Phase	Voltage Protection Rating -/G	600V

* Unit short circuit tested and qualified for up to 22kA

Ordering Information

Ordering code	Model	Output Voltage	Redundancy	DC output	Surge Protection
1600361512A	RP450-48-PS1-DC6B-SRG	54V _{DC}	No	6 Breakers	AC & DC
1600408704A	RP450-48-PS1-DC6F-SRG	54V _{DC}	No	6 GMT Fuses	AC & DC

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