

# Compact HE rectifiers for small to medium telecom applications

The Flatpack S rectifiers incorporate Telecom specifications, high efficiency, ORing protection on output and high power in a small, 217 mm deep box.

Used in the 1U high, 2 or 3 rectifier positions power rack with Smartpack S controller and battery and load distributions, the Flatpack S rectifiers cover 2 to 5.4kW applications using a minimum of space, less than 6 liters, and low heat dissipation.



## Flatpack S 48V Rectifiers

### 1000W HE & 1800W HE

Doc 241122.1x5.DS3 – v2.3

#### APPLICATIONS

##### TELECOM – MOBILE / WIRELESS

- RADIO BASE STATIONS/ CELL SITES
- LTE / 4G / WIMAX
- DISTRIBUTED ANTENNA SYSTEMS
- MICROWAVE
- BROADBAND

##### TELECOM - FIXED

- TELEPHONY SERVERS / SWITCHES
- FIBER OPTICS / FTTX
- MICROWAVE
- CABLE
- BROADBAND



1U 50A system



1U 100A system



3U system BULK OUTPUT

#### KEY FEATURES

- SMALL
- SHORT
- POWER DENSITY - 47 W/INCH 3
- HIGH EFFICIENCY
- ORING PROTECTION ON OUTPUT
- HOT PLUGGABLE
- VOLTAGE AND POWER KEYING



Smartpacks SYSTEM CONTROLLER

# Flatpack S 48V Rectifiers



Doc 241122.1x5.DS3 – v2.3

Model	48/1000 HE	48/1800 HE
Part number	241122.105	241122.125
<b>INPUT DATA</b>		
Voltage (nominal)	185 - 270 V <sub>AC</sub> / 185 - 250 V <sub>DC</sub> <sup>1)</sup>	195 <sup>2)</sup> - 277 V <sub>AC</sub> / 195 <sup>2)</sup> - 250 V <sub>DC</sub> <sup>1)</sup>
Voltage (operating range)	85 - 300 V <sub>AC</sub> / 85 - 250 V <sub>DC</sub> <sup>1)</sup>	85 <sup>2)</sup> - 305 V <sub>AC</sub> / 85 <sup>2)</sup> - 250 V <sub>DC</sub> <sup>1)</sup>
Current (maximum) @ nominal input, full load	5.9 A <sub>RMS</sub>	9.9 A <sub>RMS</sub>
Frequency	45 - 66 Hz / 0 Hz <sup>1)</sup>	
Power Factor	> 0.99 at 50% load or more	
Protection	Fuse in L & N, Varistor, Shutdown when input voltage is out of operating range	
<b>OUTPUT DATA</b>		
Voltage (default)	53.5 V <sub>DC</sub>	
Voltage (adjustable range)	43.5 - 57.6 V <sub>DC</sub>	
Power (maximum) @ nominal input	1000 W	1800 W
Power @ 85 VAC	420 W	700 W <sup>2)</sup>
Current (maximum) @ nominal input	20.9 A (@V <sub>OUT</sub> < 48V <sub>DC</sub> )	37.5 A (@V <sub>OUT</sub> < 48V <sub>DC</sub> )
Hold up time, maximum output power	>20ms; output voltage > 41 V <sub>DC</sub>	>10ms; output voltage > 42 V <sub>DC</sub>
Current sharing (10 - 100% load)	±5% of maximum current from 10 to 100% load	
Static Voltage regulation (10 - 100% load)	±0.5%	
Dynamic Voltage regulation	±5.0% for 10-90% or 90-10% load variation, regulation time < 50ms	
Ripple	< 150 mV <sub>PP</sub> , 30 MHz bandwidth	
Protection	ORing FET, Short circuit proof, High temperature protection, Over voltage Shutdown	
<b>OTHER SPECIFICATIONS</b>		
Efficiency	Up to 95.5 %	Up to 95.8 %
Isolation	3.0 kV <sub>AC</sub> - input to output, 1.5 kV <sub>AC</sub> - input to earth, 710 V <sub>DC</sub> - output to earth	
Alarms: Red LED	Low / high input voltage shutdown, High / low temperature shutdown, Rectifier Failure, Overvoltage shutdown on output, Fan failure, Low output voltage alarm, CAN bus failure	
Warnings: Yellow LED	Rectifier in power de-rate mode, Remote output current limit activated, Input voltage out of range, flashing at overvoltage, Loss of CAN communication with controller	
Normal operation: Green LED		
MTBF (Telcordia SR-332 Iss.I method III (a))	>315 000 (@ T <sub>ambient</sub> : 25 °C)	>300 000 (@ T <sub>ambient</sub> : 25 °C)
Operating temp. (5-95% RH n.cond. hum.)	-40 to + 85°C [-40 to +185°F]	
Max output power de-rates above temp / to	45°C [113°F] / 600W @ 85°C[185°F]	45°C [113°F] / 1000W @ 85°C[185°F]
Storage temperature	-40 to +85°C (-40 to +185°F), humidity 0 - 99% RH non-condensing	
Dimensions[WxHxD] / Weight	72 x 41.5 x 217mm (2.83 x 1.63 x 8.54") / < 850 g (1.9 lbs)	
<b>DESIGN STANDARDS</b>		
Electrical safety	UL 60950-1, EN 60950-1	
EMC	ETSI EN 300 386 EN 61000-6-1 / -2 / -3 / -4 TS 61000-6-5 FCC CFR 47 Part 15	
Environment	ETSI EN 300 019: 2-1 (Class 1.2), 2-2 (Class 2.3) & 2-3 (Class 3.2) RoHS (2011/65/EU) and WEEE (2002/96/EC) compliant	
<p>1) DC input only allowed when up-stream breaker is rated for the applicable DC input voltage and has a maximum current rating of 32A</p> <p>2) For HW revisions 1 - 1.31, nominal range is 207 - 277 V<sub>AC</sub> / 207 - 250 V<sub>DC</sub>, maximum output power at 176 V<sub>AC/DC</sub> is 1180 W with further linear de-rating to 90W at 122 V<sub>AC/DC</sub>. Not to be used in applications with 110/120 V<sub>AC</sub> mains.</p>		

Specifications are subject to change without notice.