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

For higher capacity, a 2U system with 9kW capacity is also available.

Flatpack S 48V Rectifiers

1000W HE & 1800W HE

Doc PEDM0000524792 – v02

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 2kW system

1U 5.4kW system

2U 9kW system

KEY FEATURES

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

Smartpack S system controller

Flatpack S 48V Rectifiers

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Model	48/1000 HE	48/1800 HE
Part number	241122.105	241122.125
INPUT DATA		
Voltage (nominal)	185 - 250 V_{AC} / 185 - 250 V_{DC} 1)	195 - 277 V_{AC} / 195 - 250 V_{DC} 1)
Voltage (operating range)	85 - 300 V_{AC} / 85 - 250 V_{DC} 1)	85 - 305 V_{AC} / 85 - 250 V_{DC} 1)
Current (maximum) @ nominal input, full load	5.9 A_{RMS}	9.9 A_{RMS}
Frequency	45 - 66 Hz / 15 - 18.5 Hz2) / 0 Hz1)	45 - 66 Hz / 0 Hz1)
Power Factor	> 0.99 at 50% load or more	
Protection	Fuse in L & N, Varistor, Shutdown when input voltage is out of operating range	
OUTPUT DATA		
Voltage (default)	53.5 V_{DC}	
Voltage (adjustable range)	43.5 - 57.6 V_{DC}	
Power (maximum) @ nominal input	1000 W	1800 W
Power @ 85 VAC	420 W	700 W2)
Current (maximum) @ nominal input	20.9 A (@V_{OUT} < 48V_{DC})	37.5 A (@V_{OUT} < 48V_{DC})
Hold up time, maximum output power	>20ms; output voltage > 41 V_{DC}	>10ms; output voltage > 42 V_{DC}
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_{PP} , 30 MHz bandwidth	
Protection	ORing FET, Short circuit proof, High temperature protection, Over voltage Shutdown	
OTHER SPECIFICATIONS		
Efficiency	95.5 %	96 %
Isolation	4.0 kV_{DC} - input to output, 2.5 kV_{DC} - input to earth, 710 V_{DC} - output to earth	5.0 kV_{DC} - input to output, 2.5 kV_{DC} - input to earth, 710 V_{DC} - 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 (@ $T_{ambient}$: 25 °C)	>300 000 (@ $T_{ambient}$: 25 °C)
Operating temp. (5-95% RH n.cond. hum.)	-40 to + 85°C [-40 to +185°F]	-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]	55°C [113°F] / 1000W @ 85°C[185°F]
Storage temperature	-40 to +85°C (-40 to +185°F), humidity 0 - 99% RH non-condensing	
Altitude	2000m (~6500ft)	4000m (~13000ft)
Dimensions[WxHxD] / Weight	72 x 41.5 x 217mm (2.83 x 1.63 x 8.54") / < 850 g (1.9 lbs)	
DESIGN STANDARDS		
Electrical safety	EN 62368-1:2020+A11:2020, IEC 62368-1:2018, UL 62368-1:2019 IEC 60950-1:2013	
EMC	EN 61000-6-1:2019, -6-2:2019, - 6-3:2007 + A1:2011, - 6-4:2019 IEC 61000-6-5:2015+Cor1:2017, EN 50121 -4:2016/A1:2019, -5:2017/A1:2019 ETSI EN 300 386 V.2.1.1, FCC CFR47 part 15B:2020 (parts of)	
Marine	DNVGL-CG-0339[3]	
Environment	ETSI EN 300 019: 2-1 (Class 1.2) & 2-2 (Class 2.3) Normal operating conditions as per IEC 62040-5-3:2016 clause 4.2. Other operating conditions as per IEC 62040-5-3:2016 clause 4.3, must be advised EU 2015/863 (RoHS), 2012/19/EU (WEEE), IEC 63000:2018	

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
2) Power derating 415W@ 15Hz and 450W@16 2/3 Hz
3) Only valid for pn 241122.105M and 241122.125M