

# Flatpack S 48V SHE Rectifier

1000W SHE



Smartpack S system controller



1U 2kW system



1U 5.4kW system



2U 9kW system

## Compact SHE rectifier 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.

Future proof solution with minimum losses and demand for cooling can be realized using this rectifier and its super high efficiency of 97%.

The Flatpack S 48/1000 SHE fits in the existing 1U or 2U Flatpack S power cores including Smartpack S controller, battery and load distributions, covering 2 to 5kW applications using a minimum of space, less than 6 and 12 liters, and super low heat dissipation.

## Key features

- Small
- Short
- Power Dense - 26 W/inch 3
- Super High Efficiency – 97%
- Oring Protection On Output
- Hot Pluggable
- Voltage And Power Keying

## Applications

- Telecom – mobile / wireless
  - Radio Base Stations/ Cell Sites
  - LTE / 5g / Wimax
  - Distributed Antenna Systems
  - Microwave
  - Broadband
- Telecom – fixed
  - Telephony Servers / Switches
  - Fiber Optics / FTTX
  - Microwave
  - Cable
  - Broadband

# Flatpack S 48V SHE Rectifier

| Model       | 48/1000 SHE |
|-------------|-------------|
| Part number | 241122.106  |

| Input data                                   |  |
|--|--|
| Voltage (nominal)                            | 185 - 250 V <sub>AC</sub>  |
| Voltage (operating range)                    | 85 - 275 V <sub>AC</sub>   |
| Current (maximum) @ nominal input, full load | 5.9 A <sub>RMS</sub>   |
| Frequency                                    | 45 - 66 Hz   |
| Power Factor                                 | > 0.99 at full load  |
| Protection                                   | Fuse in L & N, Shutdown when input voltage is out of operating range |

| Output data                                |  |
|--|--|
| Voltage (default)                          | 53.5 V <sub>DC</sub>   |
| Voltage (adjustable range)                 | 42 - 57.6 V <sub>DC</sub>  |
| Power (maximum) @ nominal input            | 1000 W   |
| Power @ 85 VAC                             | 420 W  |
| Current (maximum) @ nominal input          | 20.9 A (@V <sub>OUT</sub> < 48V <sub>DC</sub> )                                    |
| Hold up time, 950W output power            | >10ms; output voltage > 40 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 mVPP , 30 MHz bandwidth  |
| Protection                                 | ORing FET, Short circuit proof, High temperature protection, Over voltage Shutdown |

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| Other specifications                      |   |
|---|---|
| Efficiency                                | > 97%   |
| Isolation                                 | 4.0 kV <sub>DC</sub> - input to output, 2.5 kV <sub>DC</sub> - input to earth, 710 V <sub>DC</sub> - output to earth  |
| Alarms: Single LED = Red                  | 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: Single LED = Yellow             | 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: Single LED = Green      |   |
| Operating temp. (5-95% RH n.cond. hum.)   | -40 to + 85°C [-40 to +185°F]   |
| Max output power de-rates above temp / to | 55°C [113°F] / 400W @ 85°C[185°F]   |
| Dimensions[WxHxD] / Weight                | 72 x 41.5 x 217mm (2.83 x 1.63 x 8.54") / 620 g ( 1.37 lbs)   |

| Design standards  |   |
|-------------------|---|
| Electrical safety | EN IEC 62368-1:2020/A11:2020, IEC 62368-1:2018, UL 62368-1:2021 C22.2 No. 62368-1:2021, IEC 60950-1:2013  |
| EMC               | EN IEC 61000-6-1:2019, -6-2:2019, -6-3:2021, -6-4:2019, -6-5: 2015<br>FCC CFR 47 Part 15:2020, ETSI EN 300 386:v2.2.1, DNV-CG-0339:2021<br>IEC 62236-4:2018, -5:2018, EN 50121-4:2016+A1:2019, -5:2017+A1:2019  |
| Marine            | DNVGL-CG-0339   |
| Environment       | ETSI EN 300 019: 2-1 (Class 1.2) & 2-2 (Class 2.3)<br>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<br>EU 2015/863 (RoHS), 2012/19/EU (WEEE), IEC 63000:2018 |

Specifications are subject to change without notice

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