

## Reliability, flexibility and power density

The combination of cost-effective design, power density and reliability makes the Flatpack2 a product family that truly stands out and provides unparalleled network availability.

The versatility of the Flatpack2 rectifier means that it can be used in a wide variety of applications across the globe.



# FLATPACK2 48/2000

## RECTIFIER MODULE

Doc 241115.100.DS3 – v12

### APPLICATIONS

#### TELECOM MOBILE

- RADIO BASE STATIONS/ CELL SITES
- LTE/4G/WIMAX
- MOBILE SWITCHING CENTER (MSC)
- MICROWAVE
- BROADBAND

#### TELECOM – FIXED

- CENTRAL OFFICE
- TELEPHONY SERVERS / SWITCHES
- FIBER OPTICS
- MICROWAVE
- BROADBAND
- BROADCAST

#### POWER UTILITIES

- SCADA



FLATPACK2 SYSTEM IN TYPE3 OUTDOOR CABINET

### KEY FEATURES

- **DIGITAL CONTROLLERS**  
the number of component has been reduced by 40% - for highly reliable, long life, trouble free DC power systems
- **HEAT MANAGEMENT**  
Front-to-back air flow with chassis-integrated heat sinks and no limitations in the scalability of the desired system solution
- **ORING PROTECTION ON OUTPUT**  
Ideal for battery-less applications
- **UNIQUE CONNECTION**  
time-to-install and cost-reducing solution
- **GLOBAL APPROVALS**  
CE and UL recognized and nebs certified for world wide installation



FLATPACK2 2U 150A SYSTEM

# FLATPACK2 48/2000

## RECTIFIER MODULE

Model	FLATPACK2 48/2000
Part number	241115.100
<b>INPUT DATA</b>	
Voltage (nominal)	185 - 275 V <sub>AC</sub>
Voltage (operating range)	85 - 300 V <sub>AC</sub> <sup>1)</sup>
Frequency	44 - 66 Hz
Current (maximum) @ nominal input, full load	12.5 A <sub>RMS</sub>
Power Factor	> 0.99 above 50% load
Protection	Fuse in L & N, Varistors, Disconnect above 290 V <sub>AC</sub>
<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)	2000 W
Power maximum (@ 85 V <sub>AC</sub> input)	850 W
Current (maximum) @ nominal input, full load	41.7 A (@ 48 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
Hold up time, 1500 W output power	>20ms; output voltage > 43.5 V <sub>DC</sub>
Ripple and noise	< 100 mV peak to peak, 30 MHz bandwidth, < 0.96 mV <sub>RMS</sub> psophometric noise
Protection	ORing diode, Short circuit proof, High temperature protection, Overvoltage shutdown
<b>OTHER SPECIFICATIONS</b>	
Efficiency @ nominal input	Up to 92.5%
Isolation	3.0 kV <sub>AC</sub> - input to output, 1.5 kV <sub>AC</sub> - input to earth, 500 V <sub>DC</sub> - output to earth
Alarms: Red LED	Low and high input voltage shutdown, High and low temperature shutdown, Rectifier Failure, Overvoltage shutdown on output, Fan failure, Low output voltage alarm at 43.5V <sub>DC</sub> , 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	
Cooling	Single fan (front to back airflow, temperature and load regulated speed) <sup>2)</sup>
Acoustic noise	< 55dBA at nominal input and full load (T <sub>ambient</sub> < 30°C)
MTBF (Telcordia SR-332 Issue I method III (a))	>350 000 (@ T <sub>ambient</sub> : 25 °C)
Operating temperature Maximum output power derates above temp / to	-40 to + 75°C [-40 to +167°F] humidity 5 - 95% RH non-condensing 45°C [113°F] / 1350 W @ 75°C [+167°F]
Storage temperature	-40 to +85°C (-40 to +185°F), humidity 0 - 99% RH non-condensing
Dimensions[WxHxD] / Weight	109 x 41.5 x 327mm (4.25 x 1.69 x 13") / 1.9 kg (4.2 lbs)
<b>DESIGN STANDARDS</b>	
Electrical safety	UL 60950-1:2007, IEC 60950-1:2005 + A1:2009 EN 60950-1: 2006 + A11:2009 + A1:2010 + A12:2011
EMC	EN 61000-6-1:2007, -6-2:2005, - 6-3:2007 + A1:2011, - 6-4:2007 + A1:2011 ETSI EN 300 386 V.1.6.1, Telcordia NEBS GR1089 CORE
Environment	ETSI EN 300 019: 2-1 (Class 1.2), 2-2 (Class 2.3) & 2-3 (Class 3.2) ETSI EN 300 132-2, Telcordia NEBS GR63 CORE Zone 4 RoHS (2011/65/EU) and WEEE (2002/96/EC) compliant
1) also certified for 140 - 250 V <sub>DC</sub> , but will have de-rate maximum power 850 - 1900W 2) from HW revision 4. Two fans for HW revisions < 4	