

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 - v10

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
INPUT DATA		
Voltage (nominal)		185 - 275 V _{AC}
Voltage (operating range)		85 - 300 V _{AC} ¹⁾
Frequency		44 - 66 Hz
Current (maximum) @ nominal input, full load		12.5 A _{RMS}
Power Factor		> 0.99 above 50% load
Protection		Fuse in L & N, Varistors, Disconnect above 290 V _{AC}
OUTPUT DATA		
Voltage (default)		53.5 V _{DC}
Voltage (adjustable range)		43.5 - 57.6 V _{DC}
Power maximum (@ nominal input)		2000 W
Power maximum (@ 85 V _{AC} input)		850 W
Current (maximum) @ nominal input, full load		41.7 A (@ 48 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
Hold up time, 1500 W output power		>20ms; output voltage > 43.5 V _{DC}
Ripple and noise		< 100 mV peak to peak, 30 MHz bandwidth, < 0.96 mV _{RMS} psophometric noise
Protection		ORing diode, Short circuit proof, High temperature protection, Overvoltage shutdown
OTHER SPECIFICATIONS		
Efficiency @ nominal input		Up to 92.5%
Isolation		3.0 kV _{AC} - input to output, 1.5 kV _{AC} - input to earth, 500 V _{DC} - 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 _{DC} , 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) ²⁾
Acoustic noise		< 55dBA at nominal input and full load (T _{ambient} < 30°C)
MTBF (Telcordia SR-332 Issue I method III (a))		>350 000 (@ T _{ambient} : 25 °C)
Operating temperature		-40 to + 75°C [-40 to +167°F] humidity 5 - 95% RH non-condensing
Maximum output power derates above temp / to		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)
DESIGN STANDARDS		
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_{AC}, but will have de-rate maximum power 850 - 1900W
2) from HW revision 4. Two fans for HW revisions < 4