

# Reliable rectifier for industrial applications

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 48VDC and 24VDC applications across the globe.



## Flatpack2 24V Rectifier

24/2000

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### APPLICATIONS

#### RAILWAY & METRO

- Control and protection

#### POWER UTILITIES

- Control and monitoring systems.
- Alarm systems
- PLC systems



Flatpack2 1U 19" power shelf (pn 268035)



Smartpack S panel mounted controller

### KEY FEATURES

- BATTERY LESS APPLICATIONS
  - ORing protection on output
- 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.
- UNIQUE CONNECTION
  - Time - to -install and cost-reducing solution.
- GLOBAL APPROVALS
  - CE and UL recognized and nebs certified for world wide installation.

# Flatpack2 24V Rectifier



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Model	Flatpack2 24/2000
Part number	241115.200
<b>INPUT DATA</b>	
Voltage (nominal range)	176 V <sub>AC</sub> - 290 V <sub>AC</sub>
Voltage (operating range)	85 V <sub>AC</sub> - 290 V <sub>AC</sub>
Frequency (range)	45 - 66 Hz
Maximum current, nominal input	13.0 A <sub>RMS</sub>
Power Factor	> 0.99 at 50% load or more
Protection	Fuse in both lines, Varistor for transient protection, Disconnect above 290 V <sub>AC</sub>
<b>OUTPUT DATA</b>	
Voltage (default)	26.7 V <sub>DC</sub>
Voltage (adjustable range)	21.0 - 29.0 V <sub>DC</sub>
Max power, nominal input	2000 W (1800 W for V <sub>OUT</sub> > 28 V <sub>DC</sub> )
Max power, @ 85 V <sub>AC</sub>	650 W
Max current	84 A (@V <sub>OUT</sub> < 24 V <sub>DC</sub> )
Current sharing	±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	>20ms; output voltage > 21 V <sub>DC</sub> and 2000 W load
Ripple and Noise	< 100 mV <sub>PP</sub> , 30 MHz bandwidth < 0.96 mV <sub>RMS</sub> psophometric
Protection	Blocking OR-ing Diode, Short circuit proof, Over voltage protection and High temperature protection
<b>OTHER SPECIFICATIONS</b>	
Peak Efficiency	89.0 %
Isolation	3.0 kV <sub>AC</sub> – input and output, 1.5 kV <sub>AC</sub> – input earth, 0.5 kV <sub>DC</sub> – output earth
Alarms (Red LED)	High and Low mains shutdown, High and low temperature shutdown, Rectifier Failure, Overvoltage shutdown on output, Fan failure (one or both), Low voltage alarm, CAN bus failure
Warnings (Yellow LED)	Rectifier in power de-rate mode, Remote battery current limit activated, Input voltage out of range, flashing at overvoltage, Loss of CAN communication with control unit
Normal (Green LED)	Input and output ok
Cooling	2 fans (front to back airflow, temperature and load regulated)
Acoustic Noise	< 65dBA at nominal input and 70% load (T <sub>ambient</sub> < 30°C)
MTBF (Telcordia SR-332 Iss.I method III (a))	> 240 000 (@ T <sub>ambient</sub> : 25 °C)
Operating temperature (5 - 95% RH non-cond.)	- 40 – 75°C [-40 – 167°F ]
Max output power de-rates above temp / to	45°C [+113°F] / 1400 W
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 g (3.97 lbs)
<b>DESIGN STANDARDS</b>	
Electrical safety	EN 60950-1:2006+A11:2009+A1:2010+A12:2011, IEC 60950-1:2005+A1:2009, UL 60950-1:2011, CSA C22.2 No. 60950-1-07
EMC	EN 61000-6-1:2007, -6-2:2005, -6-3:2007 + A1:2011, -6-4:2007 + A1:2011, EN 300 386:v1.6.1, FCC CFR 47 Part 15:2013, Telcordia GR-1089 CORE
Environment	ETSI EN 300 019: 2-1 (Class 1.2), 2-2 (Class 2.3) & 2-3 (Class 3.2) 2011/65/EU (RoHS) & 2008/98/EC (WEEE), Telcordia NEBS GR-63 CORE Zone4

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Specifications are subject to change without notice