

## Compact HE rectifier for rail and power utilities applications

Applications in these markets demand state of the art, reliable and safe DC power systems. Flatpack S delivers an industry leading power density in its segment, many safety functions, wide operating temperature range and superb reliability in its small 217mm deep housing.

Used in the 3U rack with Smartpack S controller, the Flatpack S rectifiers cover 2 to 8kW applications using a minimum of space, less than 18 liters, and low heat dissipation.



# Flatpack2 24V Rectifier

## 24/500 HE

Doc 241122.215.DS3 – v1

### APPLICATIONS

#### RAILWAY & METRO

- Control and protection

#### POWER UTILITIES

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



3U 8kW system



1U 3kW bulk feed power shelf



2pos standalone power shelf (PN: 241122.903)

### KEY FEATURES

- SMALL
- SHORT
- POWER DENSE, 26 W / CU IN
- HIGH EFFICIENCY
- ORING PROTECTION ON OUTPUT
- HOT PLUG-ABLE
- VOLTAGE KEYING



Efficiency vs load plot

# Flatpack2 24V Rectifier



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Model	24/500 HE
Part number	241122.205
<b>INPUT DATA</b>	
Voltage (nominal range)	185 V <sub>AC/DC</sub> - 305 V <sub>AC</sub> / 300V <sub>DC</sub>
Voltage (operating range)	85 V <sub>AC/DC</sub> - 305 V <sub>AC</sub> / 300V <sub>DC</sub>
Frequency (nominal / range)	DC, 45 - 66 Hz / 0-66Hz
Maximum current, nominal input	3.2 A <sub>RMS</sub> <sup>1)</sup>
Power Factor	> 0.975 at 75% load or more
Protection	Fuse Shutdown above 305 V <sub>AC</sub> / 300 V <sub>DC</sub>
<b>OUTPUT DATA</b>	
Voltage (default)	26.7 V <sub>DC</sub>
Voltage (adjustable range)	21.75 - 28 V <sub>DC</sub>
Max power, nominal input	500 W
Max power, @ 85 V <sub>AC/DC</sub>	200 W
Max current	19 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>
Ripple	< 160 mV <sub>PP</sub> , 30 MHz bandwidth
Protection	Blocking OR-ing Diode, Short circuit proof, Over voltage protection and High temperature protection
<b>OTHER SPECIFICATIONS</b>	
Peak Efficiency	92.5 %
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)	Low mains shutdown, High and low temperature shutdown, Rectifier Failure, Overvoltage shutdown on output, Fan failure, 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
Normal (Green LED)	Input and output ok
Potential alarm relay (normally closed)	Opens on alarms and mains outage
MTBF (Telcordia SR-332 Iss.I method III (a))	> 300 000 (@ T <sub>ambient</sub> : 25 °C)
Operating temperature (5 - 95% RH non-cond.)	- 40 – 85°C [-40 – 185°F ]
Max output power de-rates above temp / to	45°C [+113°F] / 260 W
Storage temperature	-40 to +85°C (-40 to +185°F), humidity 0 - 99% RH non-condensing
Dimensions[WxHxD] / Weight	72 x 41.5 x 217mm (2.83 x 1.63 x 8.54") / < 850 g (1.9 lbs)
<b>DESIGN STANDARDS</b>	
Electrical safety	EN 60950-1:2006+A11:2009+A1:2010+A12:2011, UL 60950-1:2011
EMC	EN 61000-6-1:2007, -6-2:2005, -6-3:2007 + A1:2011, -6-4:2007 + A1:2011, TS 61000-6-5, EN 300 386:v1.6.1, FCC CFR 47 Part 15:2013
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)
1) will increase up to 5.5 A <sub>RMS</sub> for V <sub>IN</sub> < 150 V <sub>AC/DC</sub> when output is overload and pulled below 24 V <sub>DC</sub>	

Specifications are subject to change without notice