

## Compact HE rectifiers for marine, offshore and process industry 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 210mm deep housing.

The Flatpack S 24/1000 SIL3 OVP is targeted Safety and Automation Systems (SAS) in offshore and process industry requiring SIL rated overvoltage protection on DC output.

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.



# FLATPACK S 24V RECTIFIER

## 1000W SIL3 OVP

Doc 241122.290.DS3 – v4

### APPLICATIONS

#### OFFSHORE AND PROCESS INDUSTRY

- SAFETY AND AUTOMATION SYSTEMS (SAS)



3 TIMES 2 RECTIFIERS SYSTEM IN A 3U RACK



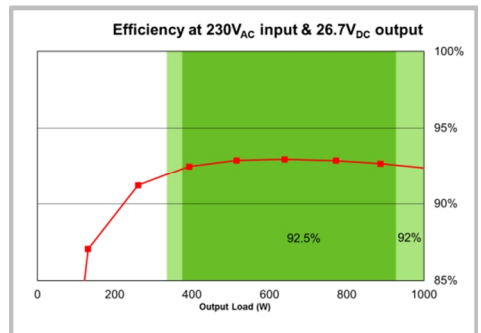
SMARTPACK S CONTROLLER



8 RECTIFIERS 3U SYSTEM - BULK OUTPUT

### KEY FEATURES

- SMALL
- SHORT
- POWER DENSE, 26 W / CU IN
- HIGH EFFICIENCY
- ORING PROTECTION ON OUTPUT
- SIL3 RATED OVERVOLTAGE PROTECTION ON OUTPUT
- HOT PLUGGABLE
- VOLTAGE KEYING



FLATPACKS 24V 1000W EFFICIENCY PLOT

# FLATPACK S 24V RECTIFIER

1000W SIL3 OVP



Model		24/1000 SIL3 OVP
Part number	241122.290	
<b>INPUT DATA</b>		
Voltage (nominal)	230 V <sub>AC/DC</sub>	
Voltage (full power)	185 - 275 V <sub>AC/DC</sub>	
Voltage (full power, reduced power factor)	275 - 305 V <sub>AC/DC</sub>	
Voltage (reduced power, linear de-rating)	85 - 185 V <sub>AC/DC</sub>	
Frequency (nominal / range)	45 - 66 Hz / 0 Hz	
Current (maximum)	5.9 A <sub>RMS</sub>	
Power Factor	> 0.99 at 50% load or more	
Protection	Fuse and Shutdown above 305 V <sub>AC</sub> / 300 V <sub>DC</sub> and below 85V <sub>AC/DC</sub>	
<b>OUTPUT DATA</b>		
Voltage (default)	26.7 V <sub>DC</sub>	
Voltage (adjustable range)	21.5 - 28 V <sub>DC</sub>	
Power (maximum) @ nominal input	1000 W	
Power @ 85 V <sub>AC</sub>	420 W	
Current (maximum) @ nominal input	41.7 A (@V <sub>OUT</sub> < 24 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	>20ms; output voltage > 41 V <sub>DC</sub>	
Ripple	< 200 mV peak to peak, 30 MHz bandwidth	
Protection	Blocking OR-ing Diode, Short circuit proof and High temperature protection	
Overvoltage protection, SIL3 parameters	<ul style="list-style-type: none"><li>• Protection level: 30V</li><li>• Proof test interval: 15 years</li><li>• Handles dual component failure</li><li>• PFD = TBS</li><li>• SFF = TBS</li></ul>	
<b>OTHER SPECIFICATIONS</b>		
Efficiency @ nominal input	92.50 %	
Isolation	3.0 kV <sub>AC</sub> - input to output, 1.5 kV <sub>AC</sub> - input to earth & 0.5 kV <sub>DC</sub> - output to 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 derate mode, Remote battery current limit activated, Input voltage out of range, flashing at overvoltage	
Normal operation: Green LED		
Potential alarm relay (normally open)	Opens on alarms, mains outage and >40% loaded (ensures redundancy in 1+1 system) when not connected to a controller	
Normal (module running): Green LED 'on'		
Acoustic noise	< 46dBA at nominal input and full load	
MTBF (Telcordia SR-332 Issue I method III (a))	>300 000 (@ T <sub>ambient</sub> : 25 °C)	
Operating temperature	-40 to +85°C (-40 to +185°F), humidity 5 - 95% RH non-condensing Output power de-rates linear from 1000W @ 45°C (113°F) to 400W @ 85°C(185°F)	
Storage temperature	-40 to +85°C (-40 to +185°F), humidity 0 - 99% RH non-condensing	
Dimensions[WxHxD] / Weight	72 x 41.5 x 210mm (2.83 x 1.63 x 8.27") / < 1 kg (2 lbs)	
<b>DESIGN STANDARDS</b>		
Electrical safety	UL 60950-1, EN 60950-1, IEC 61508	
Marine	DNV-OS-D202, Ch.2 Sec.4 (DNV2.4): Temperature Cl.B, Humidity Cl.B, Vibration Cl.A, EMC Cl.B <sup>1)</sup> IEC 60945-4 <sup>th</sup> edition	
EMC	ETSI EN 300 386 V.1.4.1 EN 61000-6-1 / -2 / -3 / -4 / -5 FCC Part 15 Subpart 109	
Environment	ETSI EN 300 019: 2-1 (Class 1.2), 2-2 (Class 2.3) & 2-3 (Class 3.2) RoHS (2011/65/EU) and WEEE (2002/96/EC) compliant	
1) Class B requires external filter on input (p/n 241120.930)		