

## High efficiency and reliable rectifiers

The most efficient power conversion module in the industry! Since the launch the Flatpack 2 family has expanded into a wide selection of power ratings and voltages



# FLATPACK2 110-125V RECTIFIERS

110V<sub>DC</sub>/2000W HE & 110-120V<sub>DC</sub>/20A HE

Doc 24111x.805.DS3 – v4

### APPLICATIONS

#### POWER UTILITIES

- SWITCH TRIPPING
- CONTROL & PROTECTION SYSTEMS
- EMERGENCY LIGHTING

#### RAILWAY INFRASTRUCTURE

- CONVERTER STATIONS
- POWER STATIONS

VARIOUS OTHER APPLICATIONS IN DEMANDING INDUSTRIES LIKE MARINE, OIL & GAS, PROCESS ETC.



FLATPACK2 POWER RACK FOR HVDC(PN: 268035)



CTO30210.XXX FLATPACK2 WALLBOX - A 2 RECTIFIERS SYSTEM

### KEY FEATURES

- PROVEN RELIABILITY
- HIGH POWER DENSITY
- APPLICATION FLEXIBILITY, 2KW - 2MW
- ACCEPTS DC INPUT (DC/DC CONVERTER)
- GLOBAL COMPLIANCE (CE, UL, NEBS)
- MARINE & OFFSHORE CERTIFICATIONS
- PATENTED TECHNOLOGY
- DIGITAL CONTROLLERS

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## APPLICABLE SYSTEMS

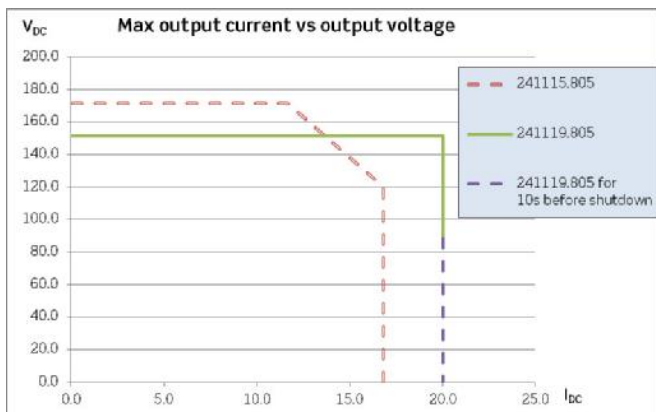


2U FLATPACK2 BULK OUTPUT RACK WITH EARTH FAULT DETECTION



IBB SYSTEM IN FPC CABINET

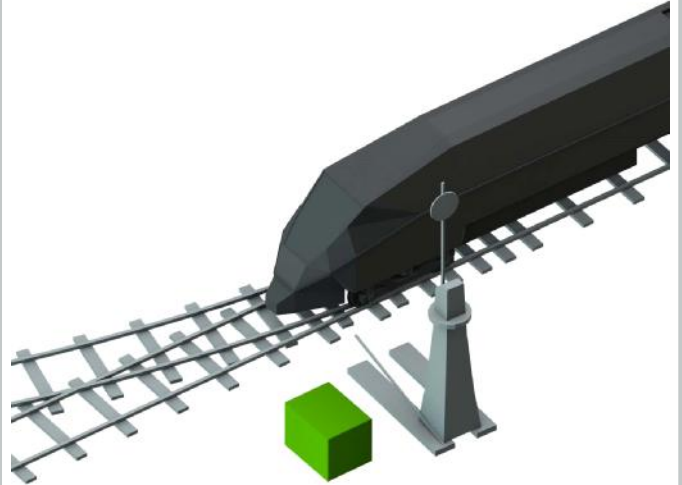
## AVAILABLE CURRENT AT NOMINAL INPUT



IBB SYSTEM IN FPC CABINET

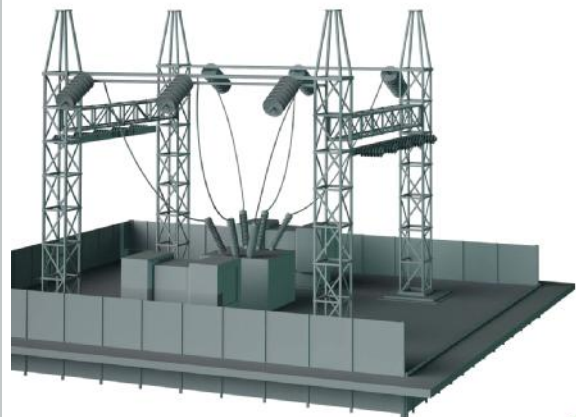
## APPLICATION EXAMPLE

### RELIABLE POWER FOR RAIL & METRO



Uninterruptable power solutions based on 110V<sub>DC</sub> have many advantages and provide an extreme power reliability and power availability.

### HV AND MV SWITCHGEAR



Safe and energy efficient powering of HV and MV switchgear

# FLATPACK2 110-125V RECTIFIERS



110V<sub>DC</sub>/2000W HE & 110-120V<sub>DC</sub>/20A HE

Model	110 / 2000 HE WOR	110-120 / 20A HE
Part number	241115.805	241119.805
<b>INPUT DATA</b>		
Voltage range (nominal)	185 - 275 V <sub>AC/DC</sub>	176 - 277 V <sub>AC</sub> <sup>1)</sup>
Voltage range	85 - 300 V <sub>AC/DC</sub>	85 - 305 V <sub>AC</sub> <sup>1)</sup>
Frequency	0 - 66 Hz	45 - 66 Hz
Maximum current	11.9 A <sub>RMS</sub>	18.64 A <sub>RMS</sub>
Power Factor	0.99 (@ 50-100 % load)	0.99 (@ 50-100 % load)
THD (@ 230 V <sub>AC</sub> )	< 5 % (@ full load)	< 4 % (@ full load)
Protection	Varistor for transient protection, fuse in both lines, shutdown above 300/305 V	
<b>OUTPUT DATA</b>		
Default voltage	122.5 V <sub>DC</sub>	
Voltage range	89.2 <sup>2)</sup> - 171.6 V <sub>DC</sub>	90.0 <sup>2)</sup> - 151.25 V <sub>DC</sub> <sup>1)</sup>
# Pb cell supported (1.8 - 2.4 V <sub>DC</sub> /cell)	54 - 71	54 - 60
# NiCad cell supported (1.05 - 1.65 V <sub>DC</sub> /cell)	85 - 104	86 - 91
Max power, nominal input	2000 W	3025 W <sup>1)</sup>
Max power, 85V input	850 W	1280 W
Max current	16.7 A	20 A
Hold-up time, default voltage and 1500 W load	20 ms, V <sub>OUT</sub> > 99.7 V <sub>DC</sub>	10 ms, V <sub>OUT</sub> > 99.7 V <sub>DC</sub>
Current sharing	±5% of maximum current from 10 to 100% load	
Static voltage regulation	±0.5% from 10% to 100% load and nominal input	
Dynamic voltage regulation	±5.0% for 10-80% or 80-10% load variation, regulation time < 50ms	
Rippel and noise, 30 MHz bandwidth	< 500 mV <sub>PP</sub>	
Protection	Overvoltage shutdown, short circuit proof, high temperature, hot plug-in inrush current limiting, ORing diode	
<b>OTHER SPECIFICATIONS</b>		
Efficiency	> 94%	> 94%
Isolation	3.0 kV <sub>AC</sub> – input and output, 1.5 kV <sub>AC</sub> – input earth, 1.5 kV <sub>DC</sub> – output earth 3 kV <sub>AC</sub> CAN – input, 3kV <sub>AC</sub> CAN – output	
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 (Green LED)	Input and output ok	
MTBF (Telcordia SR-332 Issue I method III (a))	>391 000h (@T <sub>AMBIENT</sub> = 25°C)	>400 000h (@T <sub>AMBIENT</sub> = 25°C)
Operating temperature (5 - 95% RH non-cond.)	-40 to +75°C [-40 to +167°F]	
Output power de-rates above temp / to	+55°C / 1350W @ +75°C +50°C / 1150 W @ +75°C	
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 (WxHxD) [4.25 x 1.69 x 13"] / 1.950 kg [4.3lbs]	
<b>DESIGN STANDARDS</b>		
Electrical safety	UL 60950-1, EN 60950-1, CSA 22.2	
EMC	ETSI EN 300 386 V.1.3.2 EN 61000-6-1 / -2 / -3 / -4 / -5	
Mains Harmonics	EN 61000-3-2	
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 2011/65/EU (RoHS) & 2008/98/EC (WEEE)	
Marine compliance (EMC class B with AC filter)	DnV Rules for Classification of Ships, High Speed & Light Craft and DnV Offshore Standards	
<sup>1)</sup> Specification valid for HW version 2 and newer. For older revision see DS:24111x.805.DS3 ver1. <sup>2)</sup> Output voltage will increase at light loads (< 1.6A)		