

The original HE rectifier

The most efficient power conversion module in the industry!
 Since the launch, the Flatpack2 family has expanded into a wide selection of power ratings and voltages.

The Flatpack2 110/2000 HE and Flatpack2 110-120/20A HE are cost-efficient and reliable rectifiers for 110-125V lead acid or NiCad battery systems.



Flatpack2 110V HE Rectifiers

110-125V/2000W & 110-120V/20A

Doc PEDM0000872947 v00

APPLICATIONS

RAILWAY & METRO

- Converter stations
- Power stations

POWER UTILITIES

- Switch tripping
- Control and protection systems
- Emergency lighting

Various other application in demanding industries as marine, oil and gas and process.



8kW or 80A per 1U 19" shelf



Flatpack2 Wallbox - a 2 rectifiers system

KEY FEATURES

- PROVEN RELIABILITY
- HIGH EFFICIENCY (HE)
- POWER DENSE, 22 W/INCH³
- WIDE TEMPERATURE RANGE
- APPLICATION FLEXIBILITY 2KW TO MULTI CABINET INSTALLATIONS
- GLOBAL COMPLIANCE (CE, UL)
- PATENTED HE TECHNOLOGY



Smartpack2 Touch and Basic Industrial controller

Flatpack2 110V HE Rectifiers

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Applicable systems



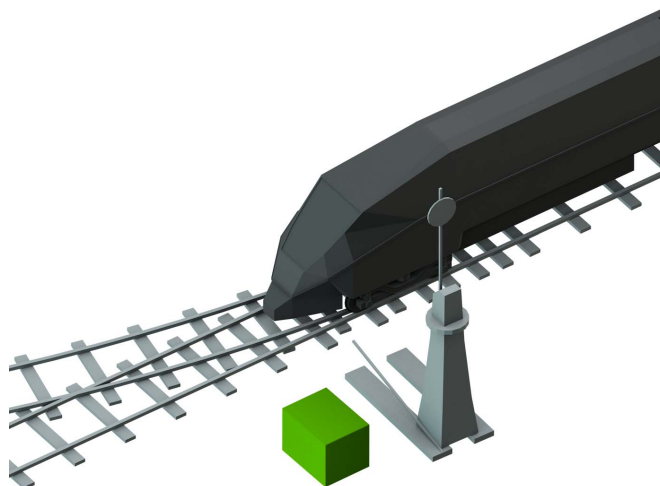
2u Flatpack2 bulk output rack with earth fault detection



IBB system in FPC cabinet

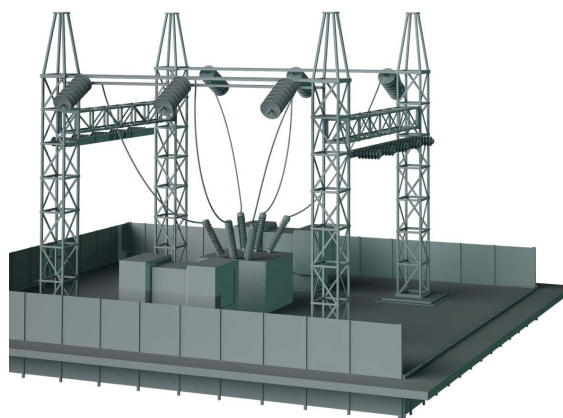
Application examples

RELIABLE POWER FOR RAIL & METRO



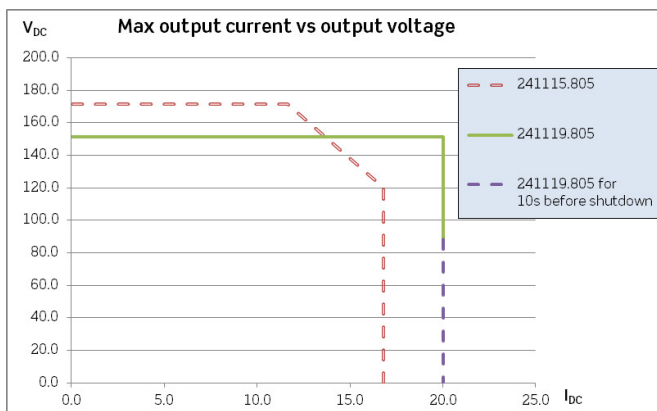
Uninterruptable power solutions based on 110VDC have many advantages and provide an extreme power reliability and power availability.

HV AND MV SWITCHGEAR



Safe and energy efficient powering of
HV and MV switchgear

Available current at nominal input & temperature



Flatpack2 110V HE Rectifiers

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Model	110-125/2000 HE	110-120/20A HE
Part number	241115.805	241119.805
INPUT DATA		
Voltage range (nominal)	185 - 275 V _{AC} / 185 - 300 V _{DC}	176 - 277 V _{AC}
Voltage range	85 - 300 V _{AC} / 85 - 300 V _{DC}	85 - 305 V _{AC}
Frequency	45 - 66 Hz, 15-18.5 Hz ¹⁾ / 0 Hz	45 - 66 Hz
Maximum current	11.9 A _{RMS}	18.64 A _{RMS}
Power Factor	0.99 (@ 50-100 % load)	0.99 (@ 50-100 % load)
THD (@ 230 V _{AC})	< 5 % (@ full load)	< 4 % (@ full load)
Protection	Varistor for transient protection, fuse in both lines, shutdown above 300/305 V	
OUTPUT DATA		
Default voltage	122.5 V _{DC}	
Voltage range	89.2 ²⁾ - 171.6 V _{DC}	90.0 ²⁾ - 151.25 V _{DC}
# Pb cell supported (1.8 - 2.4 V _{DC} /cell)	54 - 71	54 -60
# NiCad cell supported (1.05 - 1.65 V _{DC} /cell)	85 - 104	86 - 91
Max power, nominal input	2000 W	3025 W
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 _{OUT} > 99.7 V _{DC}	10 ms, V _{OUT} > 99.7 V _{DC}
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 _{PP}	
Protection	Overvoltage shutdown, short circuit proof, high temperature, hot plug-in inrush current limiting, OR-ing diode	
OTHER SPECIFICATIONS		
Efficiency	> 94%	> 94%
Isolation test voltage	4.2 kV _{DC} – input to output & CAN, output to CAN 2.5 kV _{DC} – input to chassis 2.5 kV _{DC} – output to chassis	5.0 kV _{DC} – input to output & CAN, output to CAN 2.5 kV _{DC} – input to chassis 2.5 kV _{DC} – output to chassis
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 _{AMBIENT} = 25°C)	>400 000h (@T _{AMBIENT} = 25°C)
Operating temperature (5 - 95% RH non-cond.)	-40 to +75°C [-40 to +167°F]	-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]	
DESIGN STANDARDS		
Electrical safety	EN IEC 62368-1:2020/A11:2020, IEC 62368-1:2018, UL 62368-1:2021 C22.2 No. 62368-1:2021, IEC 60950-1:2013	
EMC	EN IEC 61000-6-1:2019, -6-2:2019, -6-3:2021, -6-4:2019, IEC 61000-6-5:2015/AC:2018, ETSI EN 300 386 V.2.2.1, EN 60945:2002 + Cor.1 : 2008	
Mains Harmonics	EN 61000-3-2	
Environment	ETSI EN 300 019: 2-1 (Class 1.2) & 2-2 (Class 2.3), EN IEC 62474:2019 2011/65/EU incl. 2015/863/EU (RoHS), 2012/19/EU (WEEE), IEC 63000:2018 Normal operating conditions as per IEC 62040-5-3:2016 clause 4.2. Other operating conditions as per IEC 62040-5-3:2016 clause 4.3, must be advised	
Marine	DNVGL-CG-0339	-

1) Maximum power de-rated to 1000W @230Vac & 16 2/3Hz input

2) Output voltage will increase at light loads (< 1.6A)

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Specifications are subject to change without notice.