

## HE rectifier for 380VDC in data centers

The Flatpack2 380/3000 HE UI rectifier has high efficiency, ORing protection on output and high output power.

Distribute pure battery backup DC voltage with a minimum of loss. Remove the low reliable DC-AC step in the central backup power system and maximize its reliability and efficiency.

Stack cabinets with up to 72 rectifiers to build large power systems monitored by the Smartpack2 controller.

The rectifiers Universal Input also allows it being powered from the 380Vdc bus. Static voltage outputs (300-400Vdc) can be realized for 400Vdc remote powering and other applications.



# Flatpack2 380V Rectifier

## 380/3000 HE UI

Doc PEDM0000873175 -v00

### APPLICATIONS

#### DATA CENTER

- Centralized battery back-up systems

#### TELECOM

- Central office / large switch sites
- Remote feed

#### OTHER INDUSTRIES

- HVDC UPS



Smartpack2 system controller

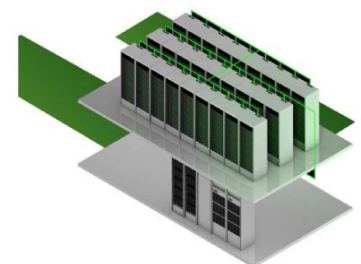


72 rectifiers power cabinet

### KEY FEATURES

- POWER DENSITY - 33 W/INCH<sup>3</sup>
- HIGH EFFICIENCY - 96.2%
- OR-ING PROTECTION ON OUTPUT
- HOT PLUGGABLE - MTTR < 5 MIN
- UNIVERSAL INPUT - AC OR DC

### RELIABLE POWER FOR DATA CENTERS



Uninterruptable power solutions based on 380VDC have many advantages and provide an extreme power reliability and power availability while opening new possibilities to further improve PUE.

# Flatpack2 380V Rectifier

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Model	Flatpack2 380/3000 HE (UI)
Part number	241119.825
<b>INPUT DATA</b>	
Voltage (nominal)	176 - 277 V <sub>AC</sub> / 260 - 400 V <sub>DC</sub> <sup>1)</sup>
Voltage (range)	85 - 305 V <sub>AC</sub> / 260 - 410 V <sub>DC</sub> <sup>1)</sup>
Frequency	45 - 66 Hz / 15 - 18.5 Hz <sup>2)</sup> / DC <sup>1)</sup>
Current (maximum) @ nominal input, full load	18.2 A <sub>RMS</sub>
Power Factor	> 0.99 at 50% load or more
Protection	Fuse in L & N Varistor Disconnect when V <sub>IN</sub> is out of range
<b>OUTPUT DATA</b>	
Voltage (default)	381 V <sub>DC</sub>
Voltage (adjustable range)	300 - 400 V <sub>DC</sub>
# Pb cell supported	156 - 168 <sup>3)</sup>
Power continuous (maximum)	3000 W
Power @ 85 V <sub>AC</sub> / 85 V <sub>DC</sub>	1200 W
Current continuous (maximum)	9 A (@V <sub>OUT</sub> < 336 V <sub>DC</sub> ) / 7.9 A (@ V <sub>OUT</sub> = 381 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	±2.0% for 10-90% or 90-10% load variation, regulation time < 10 ms <sup>5)</sup>
Hold up time	> 20 ms; output voltage > 300 V <sub>DC</sub> at 1500 W load
Ripple	< 1000 mV <sub>P-P</sub> , 30 MHz bandwidth
Protection	Overvoltage shutdown, Hot plug-in - Inrush current limiting, ORing diode, Fuse <sup>5)</sup> , Short circuit proof, High temperature protection, Overload shutdown <sup>4)</sup>
<b>OTHER SPECIFICATIONS</b>	
Efficiency @ 230 V <sub>AC</sub> / 380V <sub>DC</sub> input	96.2% / 96.6%
Isolation test voltage	5.0 kV <sub>DC</sub> – input to output, 2.5 kV <sub>DC</sub> – input to chassis, 2.5 kV <sub>DC</sub> – output to chassis, 5.0 kV <sub>DC</sub> – CAN to primary, 5.0 kV <sub>DC</sub> – CAN to secondary
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
Acoustic noise, at nominal input and full load	< 40dBA @T <sub>ambient</sub> < 25°C / <58dBA @ T <sub>ambient</sub> > 40°C
MTBF (Telcordia SR-232 Iss.3 Meth. II Case L1)	2 291 210h (@ T <sub>ambient</sub> = 25 °C)
Operating temperature	-40 to +75°C (-40 to +167°F), humidity 5 - 95% RH non-condensing Output power de-rates linear from 3000W @ 50°C (122°F) to 980W @ 75°C(167°F)
Storage temperature	-40 to +85°C (-40 to +185°F), humidity 0 - 99% RH non-condensing
Dimensions[WxHxD] / Weight	109 x 41.5 x 327 mm (4.25 x 1.69 x 13") / < 1.95 kg (4.3 lbs)
<b>DESIGN STANDARDS</b>	
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, EN 300 386:v2.2.1, FCC CFR 47 Part 15:2020
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

1) DC input support from revision 7.. Support for lower DC voltages on request  
 2) 16 2/3 Hz frequency range only supported for 230 V<sub>AC</sub> +/-15%. Max available power de-rated to 1000 W  
 3) for 156 cells minimum test voltage is 1.923 V/cell. For 168 cell maximum boost voltage is 2.38 V/cell  
 4) if overloaded or load fault not cleared after 10s (defined as V<sub>out</sub> < 200 V<sub>DC</sub>) it will permanently shut down (power cycle to reset)  
 5) from revision 9

Specifications are subject to change without notice