

## HE rectifier for HVDC in data centers

The Flatpack2 380/3000 HE 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.



# Flatpack2 380V Rectifier

## 380/3000 HE

Doc 241119.825.DS3 – v3.1

### APPLICATIONS

#### DATA CENTER

- Centralized battery back-up systems

#### TELECOM

- Central office / large switch sites

#### OTHER INDUSTRIES

- HVDC UPS



Smartpack2 system controller

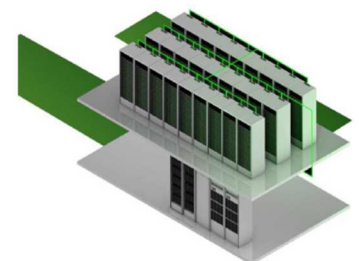


72 rectifiers power cabinet

### KEY FEATURES

- POWER DENSITY - 33 W/INCH<sup>3</sup>
- HIGH EFFICIENCY – 96.2%
- OR-ING PROTECTION ON OUTPUT
- HOT PLUGGABLE – MTTR < 5 MIN
- VOLTAGE KEYING

### 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

Doc 241119.825.DS3 – v3.1



Model	Flatpack2 380/3000 HE
Part number	241119.825
<b>INPUT DATA</b>	
Voltage (nominal)	176 - 277 V <sub>AC</sub>
Voltage (range)	85 - 305 V <sub>AC</sub>
Frequency	45 - 66 Hz
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>1)</sup>
Power (maximum)	3000 W
Power @ 85 V <sub>AC</sub>	1200 W
Current (maximum) @ nominal input, full load	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	±5.0% for 10-50% or 50-10% load variation, regulation time < 25 ms
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 Short circuit proof High temperature protection
<b>OTHER SPECIFICATIONS</b>	
Efficiency @ 230 V <sub>AC</sub> input	> 96.2%
Isolation	3.0 kV <sub>AC</sub> – input to output, 1.5 kV <sub>AC</sub> – input to earth, 1.5 kV <sub>DC</sub> – output to earth, 3.0 kV <sub>AC</sub> – CAN to primary, 3.0 kV <sub>AC</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-332 Issue I method III (a))	> 400 000 (@ 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 60950-1:2006+A11:2009+A1:2010+A12:2011, IEC 60950-1:2005+A1:2009, UL 60950-1:2011, CSA C22.2 No. 60950-1-07
EMC	EN 61000-6-1:2007, -6-2:2005, -6-3:2007 + A1:2011, -6-4:2007 + A1:2011, 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) for 156 cells minimum test voltage is 1.923 V/cell. For 168 cell maximum boost voltage is 2.38 V/cell

Specifications are subject to change without notice

Advice Electronics Ltd