

High efficiency rectifier for data centers

With the enormous amount of energy being consumed by the global ICT infrastructure, there is a strong focus on efficiency in all energy conversions.

The Flatpack2 48/3000 HE DC1 now sets the standard for data center rectifiers with an industry leading peak efficiency of 97.2%.

It provides uninterrupted 48V, either in combination with a battery on the output, or in a battery-less application with redundant mains feeds.



Flatpack2 48V Rectifier

48/3000 HE DC1

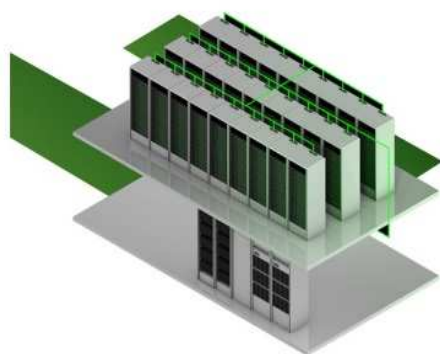
Doc 241119.906.DS3 – v2

APPLICATIONS

DATA CENTERS

- Front-end with battery
- Front-end without battery

RELIABLE POWER FOR DATA CENTERS



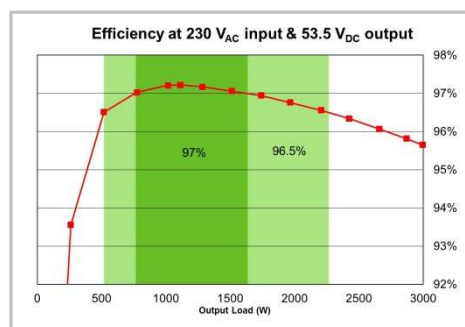
6U 500A system



Flatpack2 universal power shelf with 19" fixing

KEY FEATURES

- POWER DENSITY - 33 W/INCH3
- EFFICIENCY UP TO 97.2%
- APPLICATION FLEXIBILITY: FROM 3KW TO MULTI-MW INSTALLATIONS
- PATENTED HE TECHNOLOGY
- OR-ING PROTECTION ON OUTPUT



Efficiency vs load plot

Flatpack2 48V Rectifier

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Model	48 / 3000 HE DC1
Part number	241119.906
INPUT DATA	
Voltage range	85 - 305 V _{AC} ¹⁾
Voltage range (nominal)	200 - 277 V _{AC} ¹⁾
Frequency	45 - 66 Hz
Maximum current	16.5 A _{RMS}
Power Factor	0.98 (@ 50-100% load)
Protection	Varistor for transient protection, fuse in Live, shutdown when V _{IN} is out of range
OUTPUT DATA	
Default voltage	54.5 V _{DC}
Voltage range	43.5 - 57.6 V _{DC}
Max power, nominal input	3000 W
Max power, 85V input	1300 W
Hold-up time, default voltage and 90% load	15 ms
Ripple and noise, 30 MHz bandwidth	< 500 mV _{RMS}
Max current, @V _{OUT} = 48 V _{DC}	62.5 A
Current boost @V _{OUT} < 48 V _{DC} (Maximum 3000W)	up to 71.5A for 5minutes, 15 minutes recovery
Current sharing	±5% of maximum current from 10 to 100% load
Static voltage regulation	±2% from 0 - 100% load and nominal input
Dynamic voltage regulation	±2V for 4-50% or 50-4% load variation, regulation time < 2ms
Protection	Overvoltage shutdown, short circuit proof, high temperature, hot plug-in inrush current limiting, OR-ing FET
OTHER SPECIFICATIONS	
Efficiency @ nominal input	Up to 97.2 %
Isolation	3.0 kV _{AC} – input and output, 1.5 kV _{AC} – input earth, 0.5 kV _{DC} – output 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 de-rate mode, Remote battery current limit activated, Input voltage out of range, flashing at overvoltage
Normal operation: Green LED	
MTBF (Telcordia SR-332 Issue I method III (a))	>750 000 h (@T _{AMBIENT} = 25°C exc. fan)
Operating temperature (5 - 95% RH non-cond.)	-40 ²⁾ to +75°C [-40 ²⁾ to +167°F]
Output power de-rates above temp / to	+55°C / 1800W @ +75°C
Storage temperature	-40 to +85°C (-40 to +185°F), humidity 0 - 99% RH non-condensing
Dimensions[WxHxD] / Weight	109 x 41.0 x 327mm (WxHxD) [4.25 x 1.61 x 13"] / 1.8 kg [4.0 lbs]
DESIGN STANDARDS	
Electrical safety	UL 60950-1:2014, EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013 IEC 60950-1:2013
EMC	ETSI EN 300 386 V.1.6.1 ³⁾ EN 61000-6-1:2007 / -2:2005 / -4:2007 + A1:2011
Mains Harmonics / flicker	EN 61000-3-2, EN 61000-3-3
Environment	ETSI EN 300 019: 2-1 (Class 1.2), 2-2 (Class 2.3) & 2-3 (Class 3.2) 2011/65/EU (RoHS) & 2012/19/EU (WEEE)
1) From HW revision 2. For HW revision < 2 range / nominal is up to - 300 V _{AC} / - 264 V _{AC} 2) Reduced performance -40 - -10°C [-40 - 14°F] 3) For load cables up to 3m	

Specifications are subject to change without notice