Compact and reliable rectifier for rail and power utilities applications

Applications in these markets demand state of the art, reliable and safe DC power systems. Flatpack S delivers an industry leading power density in its segment, many safety functions, wide operating temperature range and superb reliability in its small 217mm deep housing.

Used in the 3U rack with Smartpack S controller, the Flatpack S rectifiers cover 2 to 8kW applications using a minimum of space, less than 18 liters, and low heat dissipation.

Flatpack S rectifier

36/1000 HE UI

Doc 241122.235.DS3 – v1

APPLICATIONS

RAIL AND METRO

- FST-modem (Fail Safe Transmission)
- Line block systems
- Track circuits
- Signalling relays

POWER UTILITIES

- Secondary Substations

Flatpack S 3U system

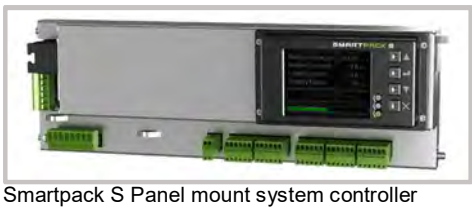
Flatpack S 2-pos standalone shelf

2U 3kW power core with 2-pole distribution

1U 3kW bulk feed power shelf

KEY FEATURES

- SMALL
- SHORT
- POWER DENSE, 26 W / CU IN
- HIGH EFFICIENCY
- ORING PROTECTION ON OUTPUT
- WIDE AC AND DC INPUT RANGE
- HOT PLUG-ABLE
- VOLTAGE KEYING
- RAIL EMC CERTIFICATION
- GLOBAL COMPLIANCE (CE, UL)



Smartpack S Panel mount system controller

Flatpack S rectifier

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Model	36/1000 HE UI
Part number	241122.235
INPUT DATA	
Voltage (nominal)	185 - 400 V_{DC} / 185 - 275 V_{AC}
Voltage (operating range)	85 - 400 V_{DC} / 85 - 305 V_{AC}
Frequency	DC, 16 2/3 Hz, 45 - 66 Hz
Current (maximum)	5.9 A_{DC} / 5.9 A_{RMS}
Protection	Fuse in Positive & Negative, Reversed polarity insensitive, Shutdown above 420 V_{DC} / 305 V_{AC}
OUTPUT DATA	
Voltage	40 V_{DC}
Voltage (adjustable range)	33[1] - 45 V_{DC}
Power (maximum) @ nominal input	1000 W / 450 W @16 2/3 Hz input
Power (maximum) @ 85 V_{DC} / 85 V_{AC} input	440 W / 440 W
Current (max cont.) @ nominal input	27.8 A (@V_{OUT} < 36 V_{DC})
Hold up time, maximum output power	>10ms; output voltage > 33 V_{DC}
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 10-90% or 90-10% load variation, regulation time < 50ms
Ripple	< 150 mV_{PP} , 30 MHz bandwidth
Protection	ORing FET Short circuit proof High temperature protection Over voltage Shutdown
OTHER SPECIFICATIONS	
Efficiency	> 95 %
Isolation	4.2 kV_{DC} - input to output 2.25 kV_{DC} - input to earth 710 V_{DC} - output to earth
Alarms: Red LED	Low and high input voltage, High and low temperature shutdown, Rectifier Failure, Overvoltage shutdown on output, Fan failure when fan stops, Low output voltage alarm, CAN bus failure
Warnings: Yellow LED	Rectifier in power de-rate mode, Remote output current limit activated, Input voltage out of range, flashing at overvoltage, Loss of CAN communication with controller
Normal operation: Green LED	
Alarm relay (NO - opens when de-energized)	Opens on Alarms and missing input voltage.
MTBF (Telcordia Issue 3 & Method II Case L1)	>2 700 000 (@ $T_{ambient}$: 25 °C)
Operating temperature (5-95% RH n.cond. hum.) Maximum output power de-rates above temp / to	-40 to + 85°C [-40 to +185°F] 45°C [140°F] / 400W @ 85°C [185°F]
Storage temperature	-40 to +85°C (-40 to +185°F), humidity 0 - 99% RH non-condensing
Dimensions[WxHxD] / Weight	72 x 40 x 217mm[2] (2.84 x 1.57 x 8.54")[2] / < 850 g (1.9 lbs)
DESIGN STANDARDS	
Electrical safety	EN 60950-1:2006+A11:2009+A1:2010+A12:2011
EMC	EN 61000-6-1:2007, -6-2:2005, - 6-3:2007 + A1:2010, - 6-4:2007 + A1:2010 EN 50121-1:2015, -2:2015, -4:2015, -5:2015
Environment	ETSI EN 300 019: 2-1 (Class 1.2), 2-2 (Class 2.3) & 2-3 (Class 3.2) RoHS (2011/65/EU) and WEEE (2012/19/EU) compliant

1) limited standby operation / needs some load to get to min set voltage
2) including handle depth is 234mm [9.21"] and height 42mm [1.65"]

Specifications are subject to change without notice.