

## Rectifier & Inverter in one box

Built on HE technology from the Flatpack2 HE rectifier family the Rectiverter 230/1500 110/1200 provides backed up power for 230 V<sub>AC</sub> loads with minimum losses and footprint.

It is a 3 port device capable of charging the 110V battery and simultaneously provides power for the AC and DC loads. During mains outage the Rectiverter feeds AC loads using energy stored in the battery.



# Rectiverter 110V

230/1500 110/1200 & 115/750 110/600

Doc 241123.130.DS3 – v2

### APPLICATIONS

#### POWER UTILITIES

- Low & High voltage switchgear
- Transformer & SUB stations
- Power Generation & Distribution
- Control & protection

#### RAIL & METRO

- Control & protection
- Signaling



115 V<sub>AC</sub> 750 VA version



Rectiverter 6kVA single phase power core



Rectiverter 18kVA 3-phase power core

### KEY FEATURES

- UNIQUE 3-IN-1 OPERATION....
  - INVERTER
  - RECTIFIER
  - POWER SOURCE TRANSFER
- ...IN ONE BOX
- MODULAR DESIGN
- HIGH EFFICIENCY
- GLOBAL COMPLIANCE
- PATENTED TECHNOLOGY
- HOT PLUG-ABLE
- VOLTAGE KEYING

# Rectifier 110V

Doc 241123.130.DS3 – v2



Models / ordering information	230/1500 110/1200	230/1500 110/150	230/1500 110/0	115/750 110/600	115/750 110/75	115/750 110/0
Part number	241123.130	241123.131	241123.132	241123.130L	241123.131L	241123.132L
<b>AC OUTPUT DATA</b>						
Voltage (default) / (adjustable range)	230 V <sub>AC</sub> / 200 - 240 V <sub>AC</sub>			115 V <sub>AC</sub> / 100 - 127 V <sub>AC</sub>		
Frequency (default inverter mode)	50 Hz (adaptive)			60 Hz (adaptive)		
Frequency (set-able inverter mode)	50Hz, 60Hz or last synced 50/60Hz (adaptive), 94-106Hz <sup>6)</sup>					
Power maximum (continuous / overload (<15s))	1200 W (1500 VA) / 2000 VA			600 W (750 VA) / 1000 VA		
Load sharing	±5% of active power from 10 to 100% load					
Current maximum (continuous / overload (<15s))	6.5 A <sub>RMS</sub> / 8.7 A <sub>RMS</sub>					
Current (maximum) Quick trip (20ms)	32 A (6 x nominal)					
THD	< 1.5 % at resistive load					
Protection	Fuse in L, Hot pluggable, Varistor					
<b>DC OUTPUT DATA</b>						
Voltage (default) / (adjustable range)	122.5 V <sub>DC</sub> / 97 - 145 V <sub>DC</sub>					
Power (maximum @nominal input)	1200 W <sup>1)</sup>	150 W	0 W <sup>2)</sup>	600 W <sup>1)</sup>	75 W	0 W <sup>2)</sup>
Current (maximum @V <sub>OUT</sub> ≤ 108 V <sub>DC</sub> )	11.11 A <sup>1)</sup>	1.38 A	-	5.55 A <sup>1)</sup>	0.69 A	-
Hold up time, maximum output power	>10ms; V <sub>OUT</sub> > 95 V <sub>DC</sub> (only in rectifier mode)					
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	< 500 mV <sub>PP</sub> , 30 MHz bandwidth					
Protection	Short circuit proof, Over voltage shutdown, Reversed polarity, ORing FET and Fuse					
<b>INPUT DATA</b>						
AC Mains Input Voltage (range / LV disconnect)	185 - 275 V <sub>AC</sub> / 170 V <sub>AC</sub>			95 - 140 V <sub>AC</sub> / 85 V <sub>AC</sub>		
AC Current (maximum)	11.5 A <sub>RMS</sub>	9.1 A <sub>RMS</sub> <sup>3)</sup>	8.2 A <sub>RMS</sub> <sup>3)</sup>	11.3 A <sub>RMS</sub>	10.1 A <sub>RMS</sub> <sup>3)</sup>	9.2 A <sub>RMS</sub> <sup>3)</sup>
Frequency (default: sync range)	47-53 & 57-63 Hz			47-53 & 57-63 Hz		
Frequency (set-able: sync range)	47-53 Hz, 57-63 Hz or both (adaptive)					
Power Factor / THD	> 0.99 at 70% load or more / < 3.5%					
AC Input Protection	Fuse in L and N, Hot pluggable, Varistor					
DC Voltage nominal / extended range <sup>4)</sup>	102 - 145 V <sub>DC</sub> / 90 - 102 V <sub>DC</sub>					
DC Current (maximum)	12.5 A / 18 A during overload (15s)			6.3 A / 9 A during overload (15s)		
<b>OTHER SPECIFICATION</b>						
Efficiency	>96% (mains mode), >95% (inverter mode)		>93% (mains mode), >92% (inverter mode)			
Isolation	3.85 kV <sub>DC</sub> - AC <sub>IN/OUT</sub> to PE, 3.55 kV <sub>DC</sub> - AC <sub>IN/OUT</sub> to DC, 4.25 kV <sub>DC</sub> - AC <sub>IN/OUT</sub> to CAN/SYNC, 1.75 kV <sub>DC</sub> - DC to PE, 3.5 kV <sub>DC</sub> - DC to CAN/SYNC					
Alarms: Red LED Alarm relay [NO max 75 V <sub>DC</sub> / 100 mA] (AC output OR DC output alarms)	Low and high mains input voltage shutdown, High and low temperature shutdown, Rectifier Failure, Overvoltage shutdown on output, Fan failure, Low output voltage alarm, CAN bus failure, Sync bus lost and Sync fail					
Warnings: Yellow LED	Rectifier in power de-rate mode or in power or current limit mode on DC or AC port, Remote output current limit activated, Loss of CAN communication with controller					
Normal operation: Green LED	AC output and/or DC output on and ok					
MTBF (Telcordia SR-332 Iss.I method III (a))	260 000 hours (@ Tambient : 25 °C)					
Operating temperature	-40 to +75°C (-40 to +167°F), humidity 5 - 95% RH non-condensing					
Temperature de-rating above 55°C (131°F)	1200W to 480W @ 75°C (167°F) for each, AC and DC, outputs (total power 2000W to 800W)					
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 (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+A2:2013, IEC/EN 62040-1:2008+A1:2013 UL 60950-1:2014, UL1778:2014, CSA C22.2 No. 107.3-14					
EMC	EN 61000-6-1:2019, -6-2:2019, -6-3:2007 + A1:2011, -6-4:2019, IEC 61000-6-5:2015 EN 62040-2:2006 (C1 emissions, C2/C3 immunity), FCC CFR 47 Part 15 EN50121 -2:2017+A1:2019, -4:2016+A1:2019, -5:2017+A1:2019 <sup>5)</sup>					
Environment	EU 2015/863 (RoHS) & 2012/19/EU (WEEE) / ETSI EN 300 019: 2-1 (Class 1.2) & 2-2 (Class 2.3) 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) AC load has priority. Maximum available DC output power and current is dependent on instant AC load and AC input voltage; i.e maximum 800W/7.4A at full AC power and nominal input for 230VAC.			3) If DC port is overloaded pulling the voltage below 97V the input current may increase above this level.			
2) DC port must still be considered bi-directional port; voltage will present if mains powered			4) Reduced performance - no over load support, and for 200 - 240 VAC output THD will increase and maximum output power de-rates (to 970W for 230 VAC @ 90 VDC) 5) to meet surge requirement of 4kV external surge protection is needed on AC ports 6) required FW version ≥ 1.20/1.20			

Specifications are subject to change without notice