

## Rectifier & Inverter in one box

Built on HE technology from the Flatpack2 HE rectifier family the Rectiverter 230/1500 48/1200 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 48V 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 48V

230/1500 48/1200 & 115/750 48/600

Doc 241123.100.DS3 – v4

### APPLICATIONS

#### TELECOM

- LTE/4G/WiMAX
- Distributed antenna system
- Broadband

#### POWER UTILITIES

- Switch tripping and SCADA
- Low & High voltage switchgear
- Transformer & SUB stations
- Power Generation & Distribution
- Control & protection
- SCADA system

#### RAILWAY & METRO INFRASTRUCTURE

- Signaling and communications
- Control centers

#### MARINE

- Communication onboard ships

#### OTHER

- Rural electrification



Rectiverter Scalable A+B input 120kW

### 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
- AC & DC PORT VOLTAGE KEYING



Rectiverter 6kVA single phase power core

# Rectifier 48V

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Models / ordering information	230/1500 48/1200	230/1500 48/150	230/1500 48/0	115/750 48/600	115/750 48/75	115/750 48/0
Part number	241123.100	241123.101	241123.102	241123.100L	241123.101L	241123.102L
<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>5)</sup> , 74-76Hz <sup>5)</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)	53.5 V <sub>DC</sub> / 43 - 58 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> ≤ 48 V <sub>DC</sub> )	25 A <sup>1)</sup>	3.13 A	- <sup>2)</sup>	12.5 A <sup>1)</sup>	1.56 A	- <sup>2)</sup>
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	< 200 mV <sub>PP</sub> , 30 MHz bandwidth					
Protection	Short circuit proof, Over voltage shutdown, Reversed polarity, Reversed polarity 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	> 0.985 at 50% load or more / < 3.5%					
AC Input Protection	Fuse in L and N, Hot pluggable, Varistor					
DC Voltage nominal / extended range <sup>4)</sup>	45 - 58 V <sub>DC</sub> / 40 - 45 V <sub>DC</sub>					
DC Current (maximum)	32 A / 45A during overload (15s)			16 A / 22.5A during overload (15s)		
<b>OTHER SPECIFICATION</b>						
Efficiency	>96% (mains mode), >94% (inverter mode)		>92% (mains mode), >91% (inverter mode)			
Isolation	3.6 kV <sub>DC</sub> - AC <sub>Ports</sub> to PE, 3 kV <sub>AC</sub> - AC <sub>Ports</sub> to DC <sub>Port</sub> /CAN, 710 V <sub>DC</sub> - DC <sub>Port</sub> to PE, 60 V <sub>DC</sub> - DC <sub>Port</sub> to CAN					
Alarms: Red LED Alarm relay [NO max 75 V <sub>DC</sub> / 100 mA] (AC output <b>OR</b> 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, 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, EN50121-4:2016+A1:2019, -5:2017+A1:2019 ETSI EN 300 386 V.2.1.1, FCC CFR 47 Part 15					
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					
<sup>1)</sup> 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/16.6A at full AC power and nominal input for 230V <sub>AC</sub> . <sup>2)</sup> DC port must still be considered a bi-directional port; voltage will present if mains powered <sup>3)</sup> If DC port is overloaded pulling the voltage below 43V the input current may increase above this level. <sup>4)</sup> Reduced performance - no over load support, and for 200 - 240 V <sub>AC</sub> output THD will increase and maximum output power de-rates (to 970W for 230 V <sub>AC</sub> @ 40 V <sub>DC</sub> ) <sup>5)</sup> Implemented since product release, please check with Sales Support for required HW/FW revisions						

Specifications are subject to change without notice