Rectiverter 2U, 6kVA Integrated System

The Rectiverter 2U 19” Integrated System can be used as a standalone system with bulk AC & DC outputs in telecom applications where a 230/115 V_{AC} and 48 V_{DC} backup is needed.

The total output power for both AC and DC is limited to a total 8 kW. AC and DC output limits can be set according to the connected load, where the limitation for AC load is set to max 6 kVA and for DC load to max 4,8 kW.

As additional options, the measuring and signaling can be widely extended with the I/O Monitor CAN node.

Rectiverter 2U, 6kVA Integrated System

48 V_{DC} Systems with Smartpack2 Touch & Basic

DOC. NO: CIOR040248.DS3, rev1

MODULAR ARCHITECTURE

RECTIVERTER MODULE

The 3 port converter simultaneously provides power for AC and DC loads. During mains outage the Rectiverter feeds AC loads using energy stored in the battery.

The modular architecture, industry-leading efficiency, compact size, innovative design and comprehensive monitoring and control features provide significant benefits over the current industry standard.

Rectiverter Module

APPLICATIONS

POWER UTILITIES

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

OFFSHORE AND PROCESS INDUSTRY

- Safety and Automation Systems (SAS)

MARINE

- Communication onboard ships

RAILWAY & METRO INFRASTRUCTURE

- Control & protection
- Signaling

TELECOM-MOBILE/WIRELESS

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

KEY FEATURES

- COMPACT DESIGN AND SIMPLE INSTALLATION
- SINGLE PHASE 230 OR 115 V_{AC} INPUT/OUTPUT
- 48 V_{DC} INPUT/OUTPUT
- HOUSE UP TO 4 RECTIVERTER MODULES
- 8 KW TOTAL AC + DC OUTPUT
- MAX 6 kVA AC OUTPUT
- MAX 4,8 kW DC OUTPUT
- BULK FEED OUTPUTS AC + DC
- BUILT IN TRANSFER TECHNOLOGY
- 150 % OVERLOAD CAPABILITY, 15 s
- 600 % QUICK TRIP CURRENT, 20 ms
- HOT PLUGGABLE
- SMARTPACK2 TOUCH CONTROLLER
- PROGRAMMABLE MULTIPURPOSE INPUTS AND OUTPUTS

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Rectiverter Integrated 2U 19”

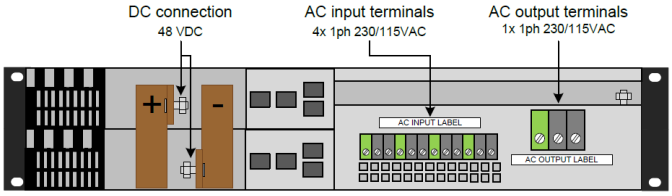
Doc CIOR040248.DS3 – rev1

MODEL 48 V_{DC}	8 kW / 4 kW
Product family	CIOR0402.1xxx
INPUT DATA	
Voltage range AC	185-275 / 95-140 V_{AC}
Voltage range DC	45-58 V_{DC}
Maximum current AC	32,8-46 A
Frequency	47-53 / 57-63 Hz
Power factor	> 0,99
OUTPUT DATA	
Adjustable range AC	200-240 / 100-127 V_{AC}
Adjustable range DC	43-58 V_{DC}
Max output power AC	6,0 / 3,0 kVA
Max output power DC	4,8 / 2,4 kW
Power factor	0,8
Frequency	50 Hz, 60 Hz
OTHER SPECIFICATIONS	
Control unit (master)	SP2 Touch
Control unit (basic)	SP2 Basic
CAN node	I/O Type 2

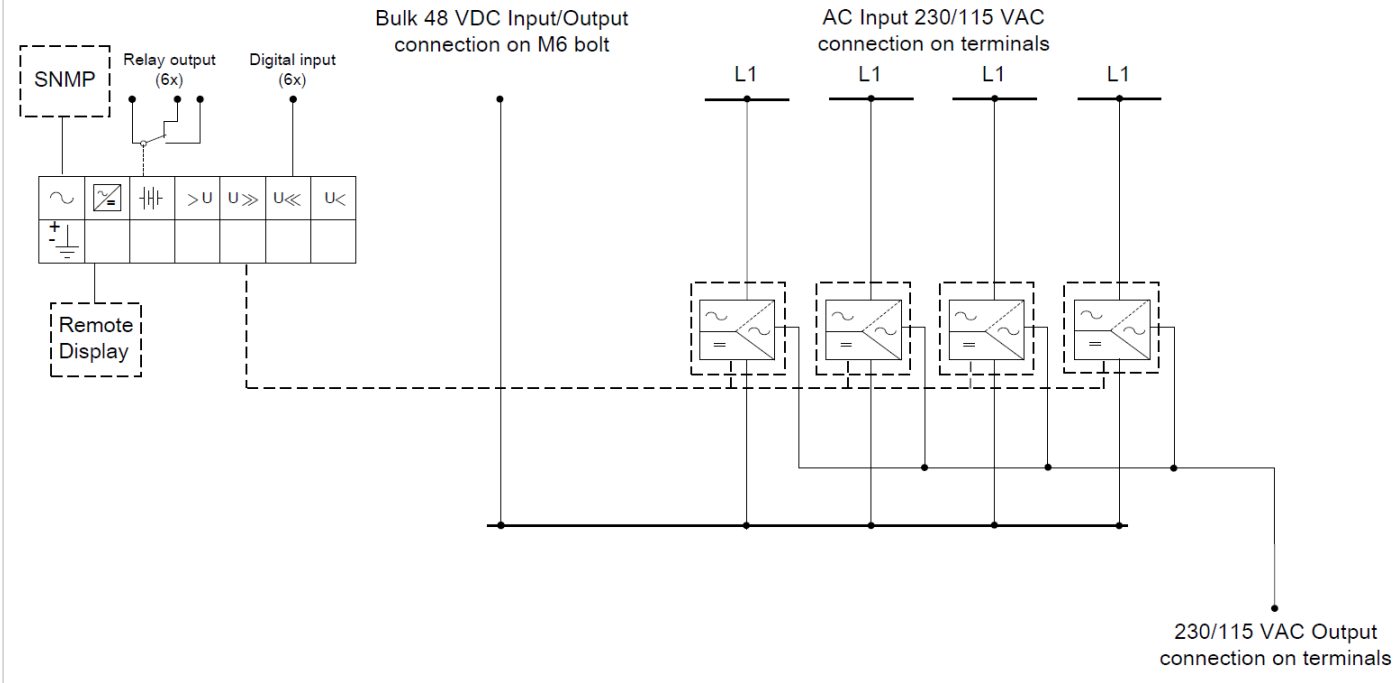
Specifications are subject to change without notice

FRONT VIEW – RECTIVERTER INTEGRATED 2U

REAR VIEW – RECTIVERTER INTEGRATED 2U



SINGLE LINE FOR 48 V_{DC} WITH SMARTPACK2 TOUCH & BASIC



Rectiverter Integrated 2U 19”

Doc CIOR040248.DS3 – rev1

Models	8 kW, 230 V_{AC}	4 kW, 115 V_{AC}
Product family	CIOR0402.1xxx	CIOR0402.1xxx
AC OUTPUT DATA		
Voltage (default) / (adjustable range) [1]	230 V_{AC} / 200-240 V_{AC}	115 V_{AC} / 100-127 V_{AC}
Frequency (inverter mode – default)	50 Hz (adaptive)	60 Hz (adaptive)
Frequency (inverter mode – settable)	50 Hz, 60 Hz or last synced 50 / 60 Hz (adaptive)	
Power maximum (continuous / overload <15s)	4800 W (6000 VA) / 8000 VA	2400 W (3000 VA) / 4000 VA
Current maximum (continuous / overload <15s)	26 A_{RMS} / 34,8 A_{RMS}	
Current (maximum) quick trip (20ms)	128 A (6 x nominal)	
Hold up (Voltage dips) (before switching to battery)	5 ms	5 ms
THD	< 1,5 % at resistive load	
Protection	Fuse in L, Hot pluggable, Varistor	
DC OUTPUT DATA		
Voltage (default) / (adjustable range)	53,5 V_{DC} / 43-58 V_{DC}	
Power (maximum @nominal input)	4800 W [2]	2400 W [2]
Current (maximum @V_{OUT} ≤ 48 V_{DC})	100 A [2]	50 A [2]
Current sharing (10 - 100% load)	±5 % of maximum current from 10 to 100 % load	
Protection	Short circuit proof, Over voltage shutdown, Reversed polarity and Fuse	
INPUT DATA		
AC Mains Input Voltage (range / LV disconnect)	185-275 V_{AC} / 170 V_{AC}	95-140 V_{AC} / 85 V_{AC}
AC Current (maximum - depends on module type)	32,8-46 A_{RMS} [3]	36,8-45,2 A_{RMS} [3]
Frequency (default: sync range)	47-53 & 57-63 Hz	57-63 & 47-53 Hz
Frequency (settable: sync range)	47-53 Hz, 57-63 Hz or both (adaptive)	
Power Factor / THD	> 0,99 at 70% load or more / < 3,5 %	
DC Voltage nominal / extended range [4]	45-58 V_{DC} / 40-45 V_{DC}	
DC Current (maximum)	128 A / 180 A during overload (15 s)	64 A / 90 A during overload (15 s)
Input features	Fuse in L and N, Hot pluggable, Varistor AC input individual screw terminals 4 mm^2 for L, N & PE (4x single phase)	
OPTIONS		
Control and Monitoring (master unit)	Smartpack2 Touch	
Control and Monitoring (basic unit)	Smartpack2 Basic	
Controller CAN node	I/O Monitor T2	
AC distribution	AC output individual screw terminals 10 mm^2 for L, N & PE (1x single phase)	
DC distribution	DC bulk connection on 2x M6 bolt	
OTHER SPECIFICATION		
Efficiency	> 96 % (mains mode), > 94 % (inverter mode)	> 92 % (mains mode), > 91 % (inverter mode)
Operating temperature	-40 to +55 °C (-40 to +131 °F), humidity 5-95 % RH non-condensing	
Storage temperature	-40 to +85 °C (-40 to +185 °F), humidity 0-99 % RH non-condensing	
Dimensions [W x D x H]	482 x 400 x 89 mm (2U) (19 x 15,7 x 3,5 inch)	
Weight	9,4 kg (20,7 lbs)	
DESIGN STANDARDS		
Electrical safety	EN 60950-1, EN 62040-1 UPS safety	
EMC	ETSI EN 300 386 V2.1.1, FCC CFR 47 Part 15 EN 62040-2 EN 61000-6-1/-2/-3/-4/-5	
Environment	ETSI EN 300 019: 2-1 (Class 1.2), 2-2 (Class 2.3) & 2-3 (Class 3.2) Normal operating conditions as per IEC 62040-3:2011 clause 4.2. Other operating conditions as per IEC 62040-3:2011 clause 4.3, must be advised RoHS 3 (2015/863/EU) and WEEE (2008/98/EC) compliant	

1) Output voltage ranges configured in factory and have individual keying in top chassis

2) AC load has priority. Maximum **available** DC output power and current is dependent on instant AC load and AC input voltage; i.e. maximum 3200 W / 66,4 A at full AC power and nominal input for 230 V_{AC}.

3) If DC port is overloaded pulling the voltage below 43 V the input current may increase above this level.

4) Reduced performance - no over load support, and for 200-240 V_{AC} output THD will increased and maximum output power de-rates (to 970 W for 230 V_{AC} @ 40 V_{DC})

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