

REC-E-3200-230-48-K21

RECTIFIER SYSTEM



POSITIVE PROBLEM SOLVING **+ =**

The REC-E-3200-230-48-K21 rectifier system is ideal for telecoms applications that require a rugged and reliable power source with active load sharing.

The unit incorporates up to four modules and provides eight separate output terminals. The system can be retrospectively expanded with additional modules to achieve a higher performance or even provide a redundant system to grow with the requirements of your application. The optional controller module provides users with monitoring and remote control functions. A 230VAC output is also available when the inverter module is selected.

- + Op temp. -25°C to +60°C Without Derating
- + 600W to 3200W Power Output
- + Overvoltage Protection
- + Hot Plug in Capability
- + Redundant DC Output
- + 24 Month Warranty

REC-E-3200-230-48-K21

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SELECTION TABLE

Part Number	Max. Power	Voltage [per Module]	Max System Current	Number of Modules	Dimensions [W × H × D]
REC-E-3200-600-230-48-1	600W	48VDC [40-60V]	15A	1	19" × 3U × 240mm
REC-E-3200-600-230-48-2	1200W	48VDC [40-60V]	30A	2	19" × 3U × 240mm
REC-E-3200-600-230-48-3	1800W	48VDC [40-60V]	45A	3	19" × 3U × 240mm
REC-E-3200-600-230-48-4	2400W	48VDC [40-60V]	60A	4	19" × 3U × 240mm
REC-E-3200-800-230-48-1	800W	48VDC [40-60V]	16A	1	19" × 3U × 240mm
REC-E-3200-800-230-48-2	1600W	48VDC [40-60V]	32A	2	19" × 3U × 240mm
REC-E-3200-800-230-48-3	2400W	48VDC [40-60V]	48A	3	19" × 3U × 240mm
REC-E-3200-800-230-48-4	3200W	48VDC [40-60V]	64A	4	19" × 3U × 240mm

Different output ranges and application/user specific options are possible. Please contact ETPS Ltd to discuss your requirements.

OPTIONS

CODE	DESCRIPTION
/MCON	Control module
/VX-ZME10	Mounting kit for ETSI
/VX-ZME13	3U cover plate
/MBATT	Battery connection module
/MINV500	Inverter module providing a 230VAC, 50Hz sine-wave output signal
/MBGTE3200	19" rack with electrical distribution



OPTION INFORMATION

INVERTER MODULE

The inverter module for the REC-E-3200 system offers a secure and uninterrupted supply of AC for critical loads. The MINV500 plug-in module provides a 230VAC, 50Hz sine-wave output signal supplied by the DC bus system. The connection to the power supply is set up via the front of the module. The MINV500 module for REC-E-3200 subbracks is hot pluggable. PCBs are protected against humidity and short-circuit protection is provided as standard.

Output Voltage	230VAC
Output Frequency	50 Hz, sine-wave processor-controlled
Output Power	500VA / 400W
Power Factor	0.8
Crest Factor	>2.5%
Harmonic Factor	<2.5%
Load Range	0 to 100%
Overload Range	101-150% at 30 sec. to 3 sec.
Efficiency	>88% at nominal load
Output Connector Terminals	Phoenix MC 1.5/3-6 F-5.08
Signalling: LED Green	Output OK
Signalling: LED Yellow	Over-temperature warning
Signalling: LED Red	Output switched off (overload or overtemperature)

CONTROLLER MODULE

The Controller Module is used for controlling and monitoring the REC-E-3200 system via the internal CAN bus. The Local Craft Terminal (LCT) LAN interface permits the connection of a local PC or network. A clear and easy-to-operate user interface facilities control, programming and linkage of all controller parameters depending on user requirement. Output voltage is controlled via the temperature dependent charging characteristic.

Connector	D-SUB HD 44, Mini Combicon 2 x 6 poles	<ul style="list-style-type: none"> + No AC/DC power supply interruption in case of a controller failure + RS-232 interface: for external sensors (12V auxiliary voltage) + Temperature measurements with PT1000 (2x) + Switching outputs for external components + Hot plug in capability + Free programmable alarm relays + PCBs protected against humidity + MBUS/RS-232 for electric meter
LCT Protocol	TCP/IP	
LCT Connector	RJ45	
LAN Protocol	SNMP and WEBinterface	
LAN Connector	RJ45	
Signalling LED Green	Ok	
Signalling LED Red	Alarm (general alarm)	
Alarm Inputs	8	
Alarm Outputs	x2: free programmable, floating (potential free)	

BATTERY CONNECTION MODULE

The battery connection module is required for connecting a battery to the REC-E-3200 system. It includes the battery connector, battery fuse and LVD as well as the control logic for the battery management. Functions such as symmetry monitoring, current measurement and temperature characteristic are integrated.

Temperature Sensor	PT1000	<ul style="list-style-type: none"> + CAN bus controlled + Programmable charging characteristic + Programmable LVD relay + Battery temperature detection + Automatic battery test + HDFK10 battery connector
Max. Output Current	50A	
Symmetry Measurement	via battery connecting cable, with 10k Ohm in the line	
Deep Discharge Protection	Via LVD	
Power Reserve for Battery Charging	500W (recommended)	
Alarms	Adjustable and analysable via controller operating software	

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TECHNICAL DATA

INPUT

Mains Voltage	$V_{IN} = 230VAC, 50 \text{ to } 60Hz$
Voltage Range	$\pm 20\%$ (184 - 276VAC)
Frequency Range	45 - 66Hz, sine wave
Mains Connection	1-3 Phase
Commercial Power Line	TT & TN-Net according to EN60950

OUTPUT

Output Voltage	48VDC, potential free
Output Voltage Tolerance	Temperature controlled battery loading characteristic
Output Power	From 600 - 3200 W, without derating up to 60°C ambient temperature
Output Characteristic	VI Characteristic
Output Ripple	<100ms Vpp
Efficiency	>90%, 50% at nominal load
Parallel Operation	Built in redundant de-coupling of the 600W/800W modules with diode function
Load Sharing	Active, accuracy $\pm 10\%$

SIGNALS

Controller	LED red = alarm, LED green = ok
Rectifier	LED green = AC ok, LED green = DC ok
Alarm Contacts	2 x programmable potential free alarm contacts, contact load max. 60VDC, 500 mA via signal connector

PROTECTIVE FUNCTIONS

AC Input	Overvoltage according to EN 61000-4-1 (VDE 0160): 750VAC 0.1 to 1.3ms
DC Output	Overvoltage, repetitive trace function, tripping value $\leq 60VDC$
Leakage Current	A fixed protective earth (PE) connection must be setup



TECHNICAL DATA

CONNECTION TERMINALS

AC Input	2.5m connecting cable
DC Input	Battery connector: Phoenix HDFK10
DC Output	OUT 1, 2 and 3: Phoenix HDFK16
Alarm/Signals	D-SUB, 44-pole, female
Remote Control + LCT	2 × RJ45

DISTRIBUTION/ FUSE PANEL

DC OUT 1	25A maximum, 1-pole, electrical fuse
DC OUT 2	16A maximum, 1-pole, electrical fuse
DC OUT 3	16A maximum, 1-pole, electrical fuse
DC OUT 4	10A maximum, 1-pole, electrical fuse
DC OUT 5	10A maximum, 1-pole, electrical fuse
DC OUT 6	6A maximum, 1-pole, electrical fuse
DC OUT 7	6A maximum, 1-pole, electrical fuse
DC OUT 8	6A maximum, 1-pole, electrical fuse

ENVIRONMENTAL CONDITIONS

Isolation Group	EN 60950 pollution degree 2
Ambient Temp. During Operation	-25°C to +60°C
Max. Ambient Temperature	+70°C from +60°C derating = 2.5% /°C
Relative Humidity	0 to 100%, start-up after drying
Protection	IP 20

MECHANICAL DATA

Construction	For mounting in ETSI and 19" racks (flanges can be changed)
Weight [Single Rectifier]	Approximately 1.5 kg
Weight [Module Rack]	Approximately 12 kg

SIGNALS

EMC: Emission	EN 55022 class B
EMC: Immunity	EN 55024, EN 61000-6-2 (industrial areas)
Cooling [Rectifier Module]	Horizontally forced ventilation with fan failure detection
Warranty	24 months

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