

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**

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RECTIFIER SYSTEM



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 |
| /MKUSV900 | Short time UPS module |
| /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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WE ARE
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ETPS engineer electronic power supply and testing systems. Our problem solving skills provide the spark of innovation to some of the world's leading technology brands.



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