

# AC-DC Converter RECE3200-230-48-K21

## Modular Battery Charger / Inverter System

### General description

Thanks to the variety of modules available, the RECE3200-230-48-K21 system offers the perfect solution for all areas of applications requiring a power output of up to 3,2kW.

Starting up from a minimum equipment for 800Watt, the system can be expanded with additional modules to a higher-performance or even redundant system to grow with the requirements of your application. With the controller monitoring and remote control functions which can be easily integrated, the RECE3200 system permits the design and setup of system solutions appropriate – for example – for outdoor telecommunication systems.



- 19", 3HE basic module, also appropriate for installation in ETSI racks or cabinets
- Redundant rectifier modules, 600W/800W
- Inverter module for AC Out
- Battery module for UPS function
- Short-term UPS based on Super-Cap's
- Integrated electronically distribution with adjustable shutdown-function
- Comprehensive Controller functions covering alarm contacts, LAN access, SNMP and WEB-interface

### Electronic data – Input

Mains voltage	$U_N = 230V_{AC}, 50/60Hz$
Voltage range	+/-20% (184 – 276V <sub>AC</sub> )
Frequency range	45-66Hz, sine wave-form
Mains connection	1-3-phase
Commercial power line	TT and TN-Netz acc. to EN60950

### Electronic data – Output

Output voltage	48V <sub>DC</sub> , potential free
Output power	600W - 3200W, depending on degree of expansion without derating up to ambient temperatures of 60°C
Output voltage tolerance	Temperature controlled battery loading characteristic
Output characteristic	UI characteristic
Output ripple	<100mV <sub>pp</sub>
Efficiency	>90%, 50% at nom. load
Parallel operating	Redundant decoupling of the 600W/800W modules with diode funtions
Load sharing	Activ, accuracy ±10%

### Mechanical data

Version	Appropriate for installation in ETSI- and 19"racks (flanges can be changed)
Dimensions	19" x 240mm x 3HE (W x D x H)
Weight:	
Subrack	
Controller	
Distribution panel	approx. 12kg
Single rectifier	approx. 1,5kg

### Cooling

Rectifier module	Horizontal forced ventilation with fan failure detection
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# AC-DC Converter RECE3200-230-48-K21

## Modular Battery Charger / Inverter System

### Protection functions

AC Input	Overvoltage acc. to EN61000-4-1 (VDE 0160): 750V <sub>AC</sub> 0,1/1,3ms
DC Output	Overvoltage protection, repetitive trace function, tripping value ≤60V <sub>DC</sub>
Leakage current	Fixed protection earth (PE) connection is obligatory. At AC connection via contact plug an additional PE connection is not necessary.

### Connection terminals

AC Input	Connecting cable 3m
DC Input	Battery connector: Phoenix HDFK10
DC Output, OUT 1-3	Phoenix HDFK16
Alarms/Signals	D-SUB, 44-pole, female
Remote control + LCT	2 x RJ 45

### Distribution panel

DC OUT 1	max. 25A, 1-pole, electr. fuse
DC OUT 2	max. 16A, 1-pole, electr. fuse
DC OUT 3	max. 16A, 1-pole, electr. fuse
DC OUT 4	max. 10A, 1-pole, electr. fuse
DC OUT 5	max. 10A, 1-pole, electr. fuse
DC OUT 6	max. 6A, 1-pole, electr. fuse
DC OUT 7	max. 6A, 1-pole, electr. fuse
DC OUT 8	max. 6A, 1-pole, electr. fuse

### EMV, safety

Emission	EN55022, class B
Immunity to interference	EN55024, EN61000-6-2 (industrial area)

### Signals

Optical signals:	
Controller	LED red: Alarm LED green: OK
Rectifier	LED green: AC OK LED green: DC OK
Alarm contacts	2 programmable, potential free alarm contacts, contact load max. 60V <sub>DC</sub> , 500mA via signal connector

### Environmental conditions

Isolation group	Acc. to EN60950, pollution degree 2
Ambient temperature during operation	-25°C to +60°C
Maximum ambient temperature	+70°C, beginning from +60°C derating with 2,5% per 1°C
Relative air humidity	0% to 100%, operation after drying
Protection	IP 20

**Warranty**

**24 months**

**Order code**

**RECE3200-230-48-K21**

# AC-DC Converter RECE3200-230-48-K21

## Power Rectifier module for RECE3200

### General description

MREC600 modules for installation in the RECE3200 sub rack are hot pluggable, i.e. they can be mounted in the sub rack or extracted during operation.

The decoupling of the DC bus system and the active load sharing of individual modules with the resulting module redundancy provides a system with a very high availability



### Electrical data – Output

Nominal voltage	40V <sub>DC</sub> - 60V <sub>DC</sub> , CAN bus controlled
Output voltage	Max. 600W
Constant power range	40V - 60V
Output current	Max. 15A
Efficiency	>92% at nominal load
Output characteristic	UPI characteristic, transit from P to I at $\leq 33V_{DC}$
Output ripple	<100mVpp
Parallel operation	Redundant decoupling of 600W modules with diode function
Load sharing	Active, accuracy +/-10%

### Signaling

LED green	DC o.k.
LED green	AC o.k.

### Warning:

**The MREC600 and the MREC800 cannot be mixed in one System.**

**Order code**

**MREC600-230-48-K9**

# AC-DC Konverter RECE3200-230-48-K21

## Power Rectifier module for RECE3200

### Allgemeine Beschreibung

MREC600 modules for installation in the RECE3200 sub rack are hot pluggable, i.e. they can be mounted in the sub rack or extracted during operation.

The decoupling of the DC bus system and the active load sharing of individual modules with the resulting module redundancy provides a system with a very high availability



### Elektrische Daten – Ausgang

Nominal voltage	40V <sub>DC</sub> - 60V <sub>DC</sub> , CAN bus controlled
Output voltage	Max. 800W
Constant power range	40V - 60V
Output current	Max. 15A
Efficiency	>92% at nominal load
Output characteristic	UPI characteristic, transit from P to I at $\leq 33V_{DC}$
Output ripple	<100mVpp
Parallel operation	Redundant decoupling of 600W modules with diode function
Load sharing	Active, accuracy +/-10%

### Signalisierung

LED green	DC o.k.
LED green	AC o.k.

### Warning:

**The MREC600 and the MREC800 cannot be mixed in one System.**

**Order code**

**MREC800-230-48-K9**

# AC-DC Converter RECE3200-230-48-K21

## Controller module for RECE3200

### General description

The Controller module is used for controlling and monitoring the RECE3200 modules 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 facilitates control, programming and linkage of all controller parameters depending on user requirements.

### Further features:

- Hot plug-in capability
- No AC/DC power supply interruption in case of a controller failure
- Output voltage control via temperature dependent charging characteristic
- External alarm inputs
- RS232 for external modules
- Freely programmable alarm relays
- PCBs protected against humidity
- MBUS / RS232 for electric meter
- Integrated SNMP function and Web-interface



### Signals

- Interface RS232: for external sensors (12V auxiliary voltage) e.g. RFID card reader e.g. smoke or gas sensors
- Temperature measurements with PT1000 (2x)
- Switching outputs for external components
- 8 alarm inputs e.g. door contacts e.g. Temperature alarms
- Alarm outputs
  - Freely programmable
  - Floating (potential free)
- Battery measuring input for downward compatibility to MCON2400-230-48

### Signaling

LED green	o.k.
LED red	Alarm (general alarm)

### Local Craft Terminal (LCT)

Connector	RJ45
Protocol	TCP/IP

### LAN

Connector	RJ45
Protocol	SNMP and Webinterface

### Connector

D-Sub HD 44  
Mini Combicon 2x6pol

### Order code

**MCON2400-24-85-K20/K21**

# AC-DC Converter RECE3200-230-48-K21

## Battery connection module for RECE3200

### General description

The battery connection module is required for connecting a battery to the RECE3200 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.

### Further features:

- CAN-Bus controlled
- Programmable charging characteristic
- Programmable LVD relay
- Battery temperature detection
- Automatic battery test



### Battery connection

Nominal voltage	48V <sub>DC</sub>
Temperature sensor	PT1000
Fuse	2-pole, Magneto-hydraulic
Max. output current	50A
Symmetry measurement	Mini Combicon 6-pole Phoenix MC1,5/6-GF-3,81 10k in the line
Deep-discharge protection	Via LVD
Battery connector	HDFK 10
Recommended power reserve for battery charging	500W

### Signals

Alarms	Adjustable and analyzable by means of the controller operating software
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Order code

**MBATT2400-48/60-K20**



# AC-DC Converter RECE3200-230-48-K21

## Inverter module for RECE3200

### General description

Inverter module for the RECE3200 System for a secure and uninterrupted supply of AC units. The MINV500 plug-in module provides a 230V<sub>AC</sub>, 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.



### Further features:

- CAN bus controlled
- Hot plug-in capability
- Temperature range -25°C to +70°C
- Controlled and monitored fans
- PCBs protected against humidity
- Real SINE output
- Short-circuit protected

### Electrical data – Output

Output voltage	230V <sub>AC</sub>
Frequency	50Hz, sine-wave processor controlled
Output power	500VA / 400W
Power factor	0,8
Crest factor	>2,5%
Harmonic factor	<2,5%
Load range	0% - 100%
Overload range	101% - 150% at 30sec. to 3sec.
Efficiency	>88% at nominal load

### Connector terminals

Output	Phoenix MC1,5/3-6F-5,08
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### Signals

LED green	Output o.k.
LED yellow	Warning over- temperature
LED red	Output switched off (Overload or over- temperature)

Order code

**MINV500-48-230-K1**