Power Innovation
Stromversorgungstechnik GmbH

let's talk!

AC-DC Converter REC2400-230-24-K21

Modular Battery Charger / Inverter System

General description

Thanks to the variety of modules available, the REC2400 system offers the perfect solution for all areas of applications requiring a power output of up to 2,4kW.

Starting up from a minimum power of 600 Watt, 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 REC2400 system permits the design and setup of system solutions appropriate – for example – for outdoor telecommunication systems.

- 19“, 3U basic module, also appropriate for installation in ETSI racks or cabinets
- Redundant rectifier modules, 600W
- Electronic distribution with shutdown-function
- Comprehensive Controller functions covering alarm contacts, LAN access, SNMP and WEB-interface
- DC connection at the front
- Battery-powered operation recommended up to a maximum of 1.2 kW
- Power reserve for battery charging and redundancy must be observed!

Electronic data – Input

Mains voltage	U_N = 230V_{AC}, 50/60Hz
Voltage range	+/-20% (184 – 276V_{AC})
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	24$_{DC}$, potential free
Output power	600W - 2400W, 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	<100mVpp
Efficiency	>92%, at nominal load
Parallel operating	Redundant decoupling of the 600W modules with diode funtions
Load sharing	Activ, accuracy ±10%

Mechanical data

Version	Appropriate for installation in 19“racks
Dimensions	19“ x 240mm x 3U (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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Protection functions

AC Input	Overvoltage acc. to EN61000-4-1 (VDE 0160): 750V_{AC} 0,1/1,3ms
DC Output	Overvoltage protection, repetitive trace function, tripping value <=30V_{DC}
Leakage current	Fixed protection earth (PE) connection is obligatory. At AC connection via contact plug an additional PE connection is necessary.

EMV, safety

Emission	EN55022, class B
Immunity to interference	EN55024, EN61000-6-2 (industrial area)
Isolation group	Acc. to EN60950, pollution degree 2

Connection terminals

AC Input	Mains cable
DC Input	Battery connector: Phoenix HDFK10
DC Output, OUT 1-5	DSUB 3W3, female
DC Output, OUT 6-8	Mini Combi Con RM 3,81
Alarms/Signals	D-SUB, 44-pole, female
LAN + LCT	2 x RJ 45

Environmental conditions

Ambient temperature durig operation	-25°C to +60°C
Maximum ambient temperature	+70°C, beginning from +60°C derating with 2,5% per 1K
Relative air humidity	0% to 100%, operation after drying
Protection	IP 20

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. 60VDC, 500mA via signal connector

Accessories	**ETSI flanges (VX-ZME10)**
Warranty	**24 months**
Order code	**REC2400-230-24-K21**

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600W Power Rectifier module for REC2400

General description

MREC600 modules for installation in the REC2400 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	$20V_{DC}$ - $30V_{DC}$, CAN bus controlled
Output voltage	Max. 600W
Output current	Max. 25A
Efficiency	>93% at nominal load
Output characteristic	UI characteristic
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.

Order code **MREC600-230-24-HE**

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Controller module for REC2400

General description

The Controller module is used for controlling and monitoring the REC2400 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**
- **Electric meter for MBUS / RS232**
- **Integrated SNMP function and Web-interface**

Signals

- Interface RS232:
  for external sensoren (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)

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-K20**

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Battery connection module for REC2400

General description

The battery connection module is required for connecting a battery to the REC3200 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 symmetry measurement**

Battery connection

Nominal voltage	$24V_{DC}$
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 10kΩ in the line
Deep-discharge protection	Via LVD
Battery connector	HDFK 10
Recommended power reserve for battery charging	600W

Signals

Alarms	Adjustable and analyzable by means of the controller operating software

Order code **MBATT2400-24-K20**

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