

AC-DC Converter REC8400-Series

Rectifier System for Telecom-, Industry- and Railway Applications

General description

REC8400 is a high performance battery charging system with particular flexibility. By paralleling the modules on the DC bus, an output range from 4kW up to 60kW can be carried out. The integrated controller which is operable via Ethernet provides monitoring and control signals. It facilitates a battery management with load control, capacity test, charging characteristic, short battery test and low-voltage-disconnect.



Figure may differ from actual device

General information

Electrical safety	EN 60950, UL 94
Protection class	1
Pollution degree	2
Hot plug-in	Modules can be replaced during operation
Ventilation	Forced ventilation, electronically monitored fans

Electrical data – Input

Input voltage	400V _{AC} 3~ ± 20%
Frequency range	45 Hz – 66 Hz
Mains connection	3-phase, without N

Electrical data – Output

Output voltage	24V _{DC} , 48V _{DC} and 60V _{DC} , potential-free
Output voltage tolerance	Temperature-controlled battery charging characteristic, adjustable
Output power	Depending on configuration 4,2kW – 67kW
Output characteristic	UPI characteristic, transition from P to I at ≤24V _{DC} , 48V _{DC} or 60V _{DC}

Output ripple	<100mV _{pp}
Efficiency	24V _{DC} : ≥ 92% at nominal rating 48V _{DC} and 60V _{DC} : ≥ 95% at nominal rating
Parallel operating	Redundant de-coupling of the 4,2kW modules with diode function
Load sharing	Active, accuracy ± 10%

Environmental conditions

Isolation group	According to EN 60950, Pollution degree 2
Ambient temperature: During operation	-25°C to +70°C
Cold start	-40°C, adherence of tolerance from -25°C
Max. ambient temperature	+70°C, from +60°C with derating = 2,5% per K
Rel. humidity	0% – 100%, start-up after drying
Max. operation altitude	2000 meters
Protection class	IP 20

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EMC

Emission	acc. to EN 61000-6-3
Immunity	acc. to EN 61000-6-2

Signals

Visual Controller	LED red = Alarm LED green = ok
Rectifier	LED green = AC ok LED green = DC ok
Alarm inputs (8)	For potential-free alarm contacts
Alarm contacts	3 potential-free alarm contacts, max. 80V _{DC} , 500mA
Temperature sensor	PT 1000 inputs
LCT (TCP/IP)	PC interface for data retrieval and parameter adjustment via monitoring software; IEEE 802.3™ compatible Ethernet Controller, 10Base-T Port, data rate: 10 Mbit/s, supported network protocols: IPv4, UDP, TCP

Protective functions

DC output	24V _{DC}	48V _{DC}	60V _{DC}
Overvoltage protection	≤ 32V	≤ 66V	≤ 75V
Short circuit current, per module (short-circuit proof)	175A	88A	70A
Leakage current	A fixed protective earth connection must be carried out		

Mechanical data (for mounting into 19"-racks)

Dimensions	84HP x 530mm x 4U (W x D x H)
Weight:	
Module rack	approx. 5kg
Single rectifier	approx. 15kg

Connection terminals

AC Input	2 x Phoenix GMSTBV2,5/4-GF-7,62
DC Output	Screw M10 (+) Screw M12 (-)
Inputs for battery symmetry monitoring	Phoenix MCV1,5/4-GF-3,81
CAN bus (IN/OUT)	2 x RJ45
Alarm/signal contact	D-SUB, 44-pole, female (programmable)
LCT	RJ 45 (Ethernet)

Battery management (optional)

Symmetry monitoring	4 sense inputs
LVD	Contact for external LVD
Battery test	Adjustable via LCT
Temperature monitoring	PT1000 sensor input

Cooling

Rectifier Module	Horizontal forced ventilation, fan failure detection
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Warranty

24 months

Order code:

System rack

MBGT8400-K1

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Controller Module for the REC8400

General description

The controller module is used for controlling and monitoring the REC8400 system via 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:

- 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

Signals

- Interface RS232
- 24V auxiliary voltage for external current sensor
- Temperature measurements with PT1000 (2x)
- 8 alarm inputs
e.g. door contacts
e.g. temperature alarms
- 3 alarm outputs, freely programmable, floating

Connector

D-Sub HD 44

Signaling

LED green	OK
LED red	Alarm (general alarm)

Local Craft Terminal (LCT)

Connector	RJ45
Protocol	TCP/IP

Order code	MCON8400-400-24
	MCON8400-400-48
	MCON8400-400-60

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Rectifier Module for REC8400

General description

The MREC4200 modules for installation in the REC8400 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 active load sharing between the individual modules with the resulting module redundancy provides a system with a very high availability.



Electrical data – Output

Nominal voltage	20 – 30V _{DC} 40 – 60V _{DC} 50 – 75V _{DC} , CAN-bus controlled
Output power	Max. 4,2kW
Constant power range	24 – 28V (24V _{DC}) 48 – 60V (48V _{DC}) 60 – 75V (60V _{DC})
Output current	Max. 175 A (24V _{DC}) Max. 88 A (48V _{DC}) Max. 70 A (60V _{DC})
Efficiency	>92% (24V _{DC}) >95% (48 V _{DC} and 60V _{DC}) at nominal load
Output characteristic	UPI characteristic, transit from I to P at 24V _{DC} , 48V _{DC} and 60V _{DC}

Output ripple	<100mVpp
Parallel operation	Redundant decoupling of the 4,2kW modules with diode function
Load sharing	active, accuracy ± 10%

Signaling

LED green	AC ok
LED green	DC ok

Order code	MREC4200-400-24-K1
	MREC4200-400-48-K1
	MREC4200-400-60-K1