ELECTRONIC TEST & POWER SYSTEMS

REC-8400

MODULAR AC-DC CONVERTERS

POSITIVE PROBLEM SOLVING

The REC-8400 is a high performance flexible AC-DC rectifier system. By parallelling the modules on the DC bus, an output range from 4.2kW up to 67kW can be achieved.

The integrated controller which is operable via Ethernet provides both monitoring and control. This controller facilitates battery management with load control, capacity test, charging characteristic, short battery test and low-voltage-disconnect. Only one controller per system is required.

- Soft Control of Battery Charge Curves
- Control and Monitoring via Ethernet
- N+1 or Redundant Configurations
- Hot Swappable Capability
- 4.2kW to 67kW

REC-8400
AC-DC CONVERTER

SELECTION TABLE

Part Number	Max. Power	Output Voltage	Current	Weight	Dimensions (W × H × D)
REC-4200 400-24	4.2kW	24VDC (20 - 30VDC)	175A at 24VDC	15kgs	19" × 4U × 500mm
REC-4200 400-48	4.2kW	48VDC (40 - 60 VDC)	88A at 48VDC	15kgs	19" × 4U × 500mm
REC-4200 400-60	4.2kW	60VDC (50 - 75 VDC)	70A at 60VDC	15kgs	19" × 4U × 500mm
REC-8400 400-24	8.4kW	24VDC (20 - 30VDC)	350A at 24VDC	25kgs	19" × 4U × 500mm
REC-8400 400-48	8.4kW	48VDC (40 - 60 VDC)	176A at 48VDC	25kgs	19" × 4U × 500mm
REC-8400 400-60	8.4kW	60VDC (50 - 75 VDC)	140A at 60VDC	25kgs	19" × 4U × 500mm

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

OPTIONS

CODE	DESCRIPTION
/MCON8400 400-XX	Controller Module
/MBGT8400	19" module rack and connectors

OPTION INFORMATION

RACK AND CONTROLLER MODULE		
The Controller Module is used for controlling and monitoring the REC-8400 system via the CAN bus. It can control up to 16 REC modules. The Local Craft Terminal (LC) 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. The Controller Module also provides output voltage control via temperature dependent charging characteristics. There is also no AC/DC power supply interruption in the case of a Controller failure. External alarm inputs and freely programmable alarm relays are also provided.		
Local Craft Terminal Connector	RJ45	Signals: + Temperature measurement with Pt1000 (2×) + For external sensors (12V auxiliary voltage) + Switching outputs for external components + 3 outputs, freely programmable floating + Interface RS-232 for external module + PWM output to external fan control + 8 alarm inputs
Local Craft Terminal Protocol	TCP/IP	
Connector	D-Sub HD 44	
Controller Weight	0.5kg	
Module Rack Weight	4.5kg	
Signalling: LED Green	Ok	
Signalling: LED Red	Alarm (general alarm)	

REC-8400
AC-DC CONVERTER

TECHNICAL DATA

	REC-4200 400-24 / REC-8400 400-24	REC-4200 400-48 / REC-8400 400-48	REC-4200 400-60 / REC-8400 400-60
Electrical Safety	EN 60950, UL 94		
Protection Class	1 to EN 60950		
MTBF / Life	140,000hrs / >15 years		
Hot Plug-in	Modules can be replaced during operation		
Ventilation	Forced ventilation, electronically monitored fans		
Fan Replacement	Possible during operation		
INPUT			
Input Voltage	400VAC 3P± 20%		
Frequency Range	45-66 Hz		
Mains Connection	3-phase, without N		
OUTPUT			
Output Voltage	24V, 48, 60V (potential free)		
Output Voltage Tolerance	Temperature controlled battery loading characteristic, adjustable		
Output Power	Depending on the configuration 4.2kW to 67kW		
Output Characteristic	VPI characteristic transition from P to I at ≤ 24 VDC, 48VDC or 60VDC		
Output Ripple	<100mVpp		
Efficiency	≥ 92% at nominal rating	≥ 95% at nominal rating	≥ 95% at nominal rating
Parallel Operation	Redundant de-coupling of the 4.2kW modules with diode function included		
Load Sharing	Active accuracy ±10%		
SIGNALS			
Controller	LED red = Alarm, LED green = ok		
Rectifier	LED green = DC ok, LED green = AC ok		
Alarm Inputs x 8	For potential free alarm contacts		
Alarm Contacts	3 potential free alarm contacts maximum 70VDC, 500mA		
Temperature Sensor	PT 1000 Sensor × 2		
LCT (TCP/IP)	PC interface for data reading and parameter adjustment via monitoring software		
PROTECTIVE FUNCTIONS			
AC Input	Overvoltage according to EN 61000-4-1 (VDE 0160): 750VAC 0.1 to 1.3ms		
DC Output	24VDC	48VDC	60VDC
Leakage Current	≤33V	≤66V	≤82V
AC Input	175A (per 4.2kW module)	88A (per 4.2kW module)	70A (per 4.2kW module)
DC Output	A fixed protective earth connection must be connected		
Leakage Current	If module fitted with controller fails charge voltage on all modules reduces to minimum control voltage		

TECHNICAL DATA

CONNECTION TERMINALS	
AC Input	H15
DC Output	Screw M10 (+), screw M12 (-)
Alarm/Signal Contact	D-SUB, 44 pole, female (programmable)
LCT (TCP/IP)	RJ 45 ethernet

BATTERY MANAGEMENT (OPTIONAL)	
Symmetry Control	4 monitoring inputs
LVD	Contact for external LVD
Battery Test	Adjustable via LCT
Temperature Compensation	Pt1000 sensor input

ENVIRONMENTAL CONDITIONS	
Isolation Group	According to EN 60950, pollution degree 2
Ambient Temp. During Operation	-25°C to +70°C (during operation)
Cold Start	-40°C, meets specification from -25°C
Max. Ambient Temperature	+70°C from +60°C with derating = 2.5% /°C
Relative Humidity Operation/Storage	0% to 100% start-up after drying / 0% to 99%
Max Operation Altitude	2000 metres
Protection Class	IP 20

OTHER	
EMC: Emission	Class A EN50081-1 curve 55022A
EMC: Immunity	EN 55024, EN 6100-6-2 (industrial areas)
Cooling	Horizontal forced ventilation, fan failure detection
Warranty	24 Months

“WE ARE POSITIVE PEOPLE”

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.

ETPS
ELECTRONIC TEST & POWER SYSTEMS

Tel: +44 (0) 1246 452909
Sales: 0800 612 95 75
sales@etps.co.uk
www.etps.co.uk

ETPS Ltd
Unit 14, The Bridge
Beresford Way, Chesterfield
S41 9FG

POSITIVE PROBLEM SOLVING