

Power Safety

Protect MIP

Modular switch-mode rectifier
designed for industrial applications

Output rating from single rectifier:

50 A (at 24 Vdc)

40 A (at 48 Vdc)

15 A (at 120 Vdc)

9 A (at 220 Vdc)

Applications

For all industrial applications. Provides secured DC power in combination with a parallel battery, for supply of all types of DC consumers including constant voltage and current sources.

The rectifier module is suitable for charging many types of batteries including: vented lead acid, valve regulated lead-acid (VRLA) or nickel-cadmium batteries (NiCd). It can also be used as a direct power supply without batteries.

Operating principle

After an EMI filter, the single phase mains AC voltage is boosted with a Power Factor Corrector to smoothed 400 V DC voltage.

This allows it to achieve a power factor of > 0.99.

From this, MOSFETs generate an AC voltage of 100 kHz. Through a transformer, the galvanic insulation and the voltage adjustment take place at the secondary side.

The high frequency AC voltage is then rectified by means of fast-acting diodes. An output filter is installed to reduce the voltage ripple. The output voltage and current are controlled by pulse width modulation of the transistor switch on the primary side.



Key features

- Compact 19 inch design
- Sinusoidal input current and low harmonics to reduce installations and operating costs
- High efficiency to reduce operating costs
- Low voltage ripple to prolong battery life time
- Robust due to its very wide operating input voltage (80 to 280 Vac)
- Reliable operation due to advance protection (input, output, temperature, current, power) and high MTBF
- Adjustable output voltage
- Automatic stop on high and low mains voltage with automatic re-start
- Self-protection against high temperature conditions via automatic output power de-rating
- Easy to operate: compact, light, LCD display, clear indications by LED, adjustment free, ready to use
- Control and alarm functions for remote management
- ROHS compliant
- Easy maintenance



Protect MIP: Specification

TYPE	24 V / 50 A	48 V / 40 A	120 V / 15 A	220 V / 9 A
Part number	8000029681	8000029682	8000029683	8000029684
INPUT				
Nominal input voltage	230 Vac ±20% (+20% -60% functional)			
Frequency	50 Hz or 60 Hz, ±5 %			
Current consumption	7,5 Aac	10 Aac	10 Aac	10 Aac
Inrush current	1,5 nominal peak current			
Power factor	0,99			
OUTPUT				
Output voltage	24 Vdc	48 Vdc	120 Vdc	220 Vdc
Setting range	16,5-33 Vdc	33-66 Vdc	83-166 Vdc	151-302 Vdc
Output current	50 Adc	40 Adc	15 Adc	9 Adc
Voltage ripple	< 200 mV peak to peak (30 MHz Bandwidth)			
Efficiency (%)	88	90	91	91
Line and load regulation	<1%			
Dynamic response	≤ 5 % for 10 % - 90 % - 10 % -90 %, recovery to normal regulation limites <5 ms			
Short circuit response	Permanently short circuit proof, 1 x rated output current			
Characteristic line	Constant current/constant voltage (I/U as per IEC 478 1) during float charge			
MANAGEMENT				
Common Alarm Connection	1 Form C relay contact – Rating 60 VAC @ 2 A, 24 VDC @ 2 A & 60 VDC @ 0-1 A			
Control Panel	Multi-functional LCD with 2 LEDs indicate the system status			
PROTECTION				
Input/Battery/Load	Circuit Breaker			
Soft Start	Yes			
Output Power Limit	Yes			
Over Current & Short-Circuit	Yes			
Power De-rating	Yes – automatic with temperature			
Thermal Overload	Yes – protection with automatic restart			
MECHANICAL				
Design	Horizontal or vertical 1U, plug-in module for installation in Protect MIP sub-rack 19"			
Degree of protection	IP 21			
Mechanical strength and vibration resistance	to EN 60721-3-2			
Equipment colour	RAL 7035			
Dimensions H x W x D (mm)	176 x 482 x 380 mm			
Weight (kg)	19 kg			
Connections	Rear cable entry to terminals			
ENVIRONMENTAL				
Type of cooling	Forced air cooling with electronic speed control			
Operating temperature	0 °C to 45 °C			
Storage temperature	-40 °C to 80 °C (in original packing)			
Installation height	up to 1000 m above sea level at nominal load			
STANDARDS				
Safety	EN 60950-1			
EMC	EN 55022 Level B, EN 61000.6-1,2,3,4, EN 61000.3-2, EN 61000.3-3, EN21000, IEC 60146-1-1 Class B 2kV			
Environment	EN 60721-3-1,2,3, ROHS			
Approvals	CE			
Certification	ISO9001			
OPTIONS				
Relay board – 8 contacts	included			
Batteries: Lead Acid, VRLA, NiCd	Yes			
Service Option	Yes			

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AEG Power Solutions
 Emil-Siepmann-Str. 32
 59581 Warstein-Belecke
 Germany
 Tel.: +49 2902 763 140
 Fax: +49 2902 763 1239
 www.aegps.com

PERFECT IN FORM AND FUNCTION

