PROTECT MIP

MODULAR SWITCH-MODE INDUSTRIAL APPLICATIONS RECTIFIER

Input: 220/230/240 VAC 1 phase 380/400/415 VAC 3 phase

Output: 24 VDC; 50 – 900 A

48 VDC; 40 – 720 A 110 VDC; 15 – 270 A

220 VDC; 8 - 144 A



AEG Power Solutions rectifiers assure permanent availability of all your global industrial applications including oil, gas & petrochemical, power generation, transportation and other infrastructures.

State of the art switch mode technology, N+1 redundant Protect MIP rectifier system is designed to be scalable, simple to use and via hot swappable rectifier modules easy to maintain. It allows you to benefit from low electromagnetic pollution and high efficiency, resulting in a cost effective system with reduced operating costs, short delivery time and prepared for possible future power expansion.

Application and operating principle

Provides permanent DC power availability in combination with a parallel battery. Supplying a full range of DC consumers including constant voltage and current sources. The Protect MIP rectifier module can charge a wide variety of batteries, including: vented lead acid, valve regulated lead-acid (VRLA) or nickel-cadmium batteries (NiCd). The Protect MIP rectifier can furthermore be used as a direct power supply without batteries.

Features & Benefits

- » Compact design and light weight
- >> High power density
- »Sinusoidal input current and low harmonics to reduce installations and operating costs
- » High efficiency to reduce operating costs
- >> High availability with N+1 internal redundancy
- »Low MTTR due to modular design
- »Low voltage ripple to prolong battery life time
- » Reliable operation due to advance protection (input, output, temperature, current, power) and high MTBF
- >> Flexibility of scalable power
- »Control and alarm functions for remote management
- >> Simplicity of use
- » Easy maintenance





Nominal input voltage	INPUT									
Frequency	Nominal input voltage		1 phase 400 VAC ±10 % 3 phase							
Current consumption Inrush current 1.5 nominal peak current 3.5 % Power factor 0.99 OUTPUT Output voltage 24 V 24 V 30 V 48 V 120 V Maximum output current 50 A 100 A 90 A 80 A 45 A Voltage range 17-29 V 17-29 V 19-32 V 34-58 V 84-145 V Commissioning voltage 33 V 33 V 37 V 66 V 166 V System earth Floating Internal redundancy Redundancy in rectifier modules N+1 possible 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 Built-in mains input switch Protection The rectifier has built-in protection functions against short circuit, over and under AC input voltage, over and under DC output voltage as well as high temperature MECHANICAL Degree of protection IP21 according to IEC 60529 Equipment colour RAL 7035, powder coated, textured paint Dimensions & weight 932 x 432 x 425 mm (H x W x D), approx. 60 kg without batteries Acoustic noise @ 1 m 455 dBA Battery compartment Yes, include battery tray Prepared for external battery connection Connections Bottom or top ENVIRONMENTAL Type of cooling Rectifiers are forced air cooling with electronic speed control Operating temperature 0 °C to +40 °C with a de-rating of 1.25 % / °C between 40 °C and 55 °C Storage temperature 2.55 °C to +70 °C Operating humidity 10 % to 95 % R H non-condensing Installation height O to 1000 m – de-rating @ 1 % per 100 m above 1000 m up to 3000 m STANDARDS Safety EN 5002 Level B, EN 61000.6-1, 2,34, EN 61000.3-3, EN 21000, IEC 60045		1 phase								
Inrush current			50 Hz or 60 Hz, ±5 %							
THDI	·	7.5 A		Depends on	configuration					
Power factor	Inrush current		1.5 nominal peak current							
OUTPUT Output voltage	THDI			<5 %						
Output voltage 24 V 24 V 30 V 48 V 120 V Maximum output current 50 A 100 A 90 A 80 A 45 A Voltage range 17-29 V 17-29 V 19-32 V 34-58 V 84-145 V Commissioning voltage 33 V 33 V 37 V 66 V 166 V System earth Floating Internal redundancy Redundancy in rectifier modules N+1 possible 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 Built-in mains input switch Protection The rectifier has built-in protection functions against short circuit, over and under AC input voltage as well as high temperature MECHANICAL Degree of protection IP21 according to IEC 60529 Equipment colour RAL 7035, powder coated, textured paint Dimensions & weight 932 x 432 x 425 mm (H x W x D), approx. 60 kg without batteries Acoustic noise @ 1 m <55 dBA				0.99						
Maximum output current 50 A 100 A 90 A 80 A 45 A Voltage range 17-29 V 17-29 V 19-32 V 34-58 V 84-145 V Commissioning voltage 33 V 33 V 37 V 66 V 166 V System earth Floating Internal redundancy Redundancy in rectifier modules N+1 possible 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 Built-in mains input switch Protection The rectifier has built-in protection functions against short circuit, over and under AC input voltage, over and under DC output voltage as well as high temperature MECHANICAL Degree of protection IP21 according to IEC 60529 Equipment colour RAL 7035, powder coated, textured paint Dimensions & weight 932 x 432 x 425 mm (H x W x D), approx. 60 kg without batteries Acoustic noise @ 1 m S55 dBA Battery compartment Yes, include battery tray Prepared for external battery connection Connections Bottom or top ENVIRONMENTAL Type of cooling Rectifiers are forced air cooling with electronic speed control Operating temperature 0 °C to +40 °C with a de-rating of 1.25 % / °C between 40 °C and 55 °C Storage temperature 0 °C to +40 °C with a de-rating of 1.25 % / °C between 40 °C and 55 °C Storage temperature 0 °C to +40 °C with a de-rating @ 1 % per 100 m above 1000 m up to 3000 m STANDARDS Safety EN 60950-1 EN 60950-1 EN 60HS	OUTPUT									
Voltage range 17–29 V 17–29 V 19–32 V 34–58 V 84–145 V Commissioning voltage 33 V 33 V 37 V 66 V 166 V System earth Floating Internal redundancy Redundancy in rectifier modules N+1 possible 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 Built-in mains input switch Protection The rectifier has built-in protection functions against short circuit, over and under AC input voltage, over and under DC output voltage as well as high temperature MECHANICAL Degree of protection IP21 according to IEC 60529 Equipment colour RAL 7035, powder coated, textured paint Dimensions & weight 932 x 432 x 425 mm (H x W x D), approx. 60 kg without batteries Acoustic noise @ 1 m < 55 dBA Battery compartment Yes, include battery tray Prepared for external battery connection Connections Bottom or top ENVIRONMENTAL Type of cooling Rectifiers are forced air cooling with electronic speed control Operating temperature 0 °C to +40 °C with a de-rating of 1.25 % / °C between 40 °C and 55 °C Storage temperature 2.25 °C to +70 °C Operating humidity 10 % to 95 % R H non-condensing Installation height 0 to 1000 m – de-rating @ 1 % per 100 m above 1000 m up to 3000 m STANDARDS Safety EN 60950-1 EN 60HS EN 60HS	Output voltage	24 V	24 V	30 V	48 V	120 V				
Commissioning voltage 33 V 33 V 37 V 66 V 166 V System earth Floating Redundancy in rectifier modules N+1 possible 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 PROTECTION The rectifier has built-in mains input switch Protection The rectifier has built-in protection functions against short circuit, over and under AC input voltage, over and under DC output voltage as well as high temperature MECHANICAL Degree of protection FRAL 7035, powder coated, textured paint Dimensions & weight 932 x 432 x 425 mm (H x W x D), approx. 60 kg without batteries Acoustic noise @ 1 m < 55 dBA Battery compartment Yes, include battery tray Prepared for external battery connection Connections Bottom or top ENVIRONMENTAL Type of cooling Rectifiers are forced air cooling with electronic speed control Operating temperature 0 °C to +40 °C with a de-rating of 1.25 % / °C between 40 °C and 55 °C Storage temperature 0 °C to +40 °C with a de-rating @ 1 % per 100 m above 1000 m up to 3000 m 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 ROHS	Maximum output current	50 A	100 A	90 A	80 A	45 A				
System earth Internal redundancy Redundancy in rectifier modules N+1 possible 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 Built-in mains input switch Protection The rectifier has built-in protection functions against short circuit, over and under AC input voltage, over and under DC output voltage as well as high temperature MECHANICAL Degree of protection IP21 according to IEC 60529 Equipment colour RAL 7035, powder coated, textured paint Dimensions & weight 932 x 432 x 425 mm (H x W x D), approx. 60 kg without batteries Acoustic noise @ 1 m <	Voltage range	17 – 29 V	17 – 29 V	19 – 32 V	34 – 58 V	84 – 145 V				
Internal redundancy Redundancy in rectifier modules N+1 possible 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 Built-in mains input switch Protection The rectifier has built-in protection functions against short circuit, over and under AC input voltage, over and under DC output voltage as well as high temperature MECHANICAL Degree of protection IP21 according to IEC 60529 Equipment colour RAL 7035, powder coated, textured paint Dimensions & weight 932 x 432 x 425 mm (H x W x D), approx. 60 kg without batteries Acoustic noise @ 1 m S55 dBA Battery compartment Yes, include battery tray Prepared for external battery connection Connections Bottom or top ENVIRONMENTAL Type of cooling Rectifiers are forced air cooling with electronic speed control Operating temperature 0 °C to +40 °C with a de-rating of 1.25 % / °C between 40 °C and 55 °C Storage temperature 0 °C to +40 °C with a de-rating of 1.25 % / °C between 40 °C and 55 °C Storage temperature 0 °C to +40 °C with a de-rating of 1.25 % / °C between 40 °C and 55 °C Storage temperature 0 °C to +40 °C with a de-rating of 1.25 % / °C between 40 °C and 55 °C Storage temperature 0 °C to +40 °C with a de-rating of 1.25 % / °C between 40 °C and 55 °C Storage temperature 0 °C to +40 °C with a de-rating of 1.25 % / °C between 40 °C and 55 °C Storage temperature 0 °C to +40 °C with a de-rating of 1.25 % / °C between 40 °C and 55 °C Storage temperature 0 °C to +40 °C with a de-rating of 1.25 % / °C between 40 °C and 55 °C Storage temperature 0 °C to +40 °C with a de-rating of 1.25 % / °C between 40 °C and 55 °C Storage temperature 0 °C to +40 °C with a de-rating of 1.25 % / °C between 40 °C and 55 °C Storage temperature 0 °C to +40 °C with a de-rating of 1.25 % / °C between 40 °C and 55 °C Storage temperature 0 °C to +40 °C with a de-rating of 1.25 % / °C between 40 °C and 55 °C	Commissioning voltage	33 V	33 V	37 V	66 V	166 V				
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 Built-in mains input switch Protection The rectifier has built-in protection functions against short circuit, over and under AC input voltage, over and under DC output voltage as well as high temperature MECHANICAL Degree of protection IP21 according to IEC 60529 Equipment colour RAL 7035, powder coated, textured paint Dimensions & weight 932 x 432 x 425 mm (H x W x D), approx. 60 kg without batteries Acoustic noise @ 1 m 455 dBA Battery compartment Yes, include battery tray Prepared for external battery connection Connections Bottom or top ENVIRONMENTAL Type of cooling Rectifiers are forced air cooling with electronic speed control Operating temperature 0 °C to +40 °C with a de-rating of 1.25 % / °C between 40 °C and 55 °C Storage temperature 0 °C to +40 °C with a de-rating of 1.25 % / °C between 40 °C and 55 °C Storage temperature 0 °C to +40 °C with a de-rating @ 1 % per 100 m above 1000 m up to 3000 m 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 ROHS	System earth	Floating								
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 Built-in mains input switch Protection The rectifier has built-in protection functions against short circuit, over and under AC input voltage, over and under DC output voltage as well as high temperature MECHANICAL Degree of protection IP21 according to IEC 60529 Equipment colour RAL 7035, powder coated, textured paint Dimensions & weight 932 x 432 x 425 mm (H x W x D), approx. 60 kg without batteries Acoustic noise @ 1 m \$\text{S5 dBA}\$ Battery compartment Yes, include battery tray Prepared for external battery connection Connections Bottom or top ENVIRONMENTAL Type of cooling Rectifiers are forced air cooling with electronic speed control Operating temperature 0 °C to +40 °C with a de-rating of 1.25 % / °C between 40 °C and 55 °C Storage temperature 0 °C to +40 °C with a de-rating of 1.25 % / °C between 40 °C and 55 °C Storage temperature 0 °C to +40 °C with a de-rating @ 1 % per 100 m above 1000 m up to 3000 m 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 ROHS	Internal redundancy		Redundancy in rectifier modules N+1 possible							
Control panel Multi-functional LCD with 2 LEDs indicate the system status PROTECTION Input/Battery/Load Built-in mains input switch Protection The rectifier has built-in protection functions against short circuit, over and under AC input voltage, over and under DC output voltage as well as high temperature MECHANICAL Degree of protection IP21 according to IEC 60529 Equipment colour RAL 7035, powder coated, textured paint Dimensions & weight 932 x 432 x 425 mm (H x W x D), approx. 60 kg without batteries Acoustic noise @ 1 m Acoustic noise @ 1 m Yes, include battery tray Prepared for external battery connection Connections Bottom or top ENVIRONMENTAL Type of cooling Rectifiers are forced air cooling with electronic speed control Operating temperature 0 °C to +40 °C with a de-rating of 1.25 % / °C between 40 °C and 55 °C Storage temperature 0 °C to +50 °C Operating humidity 10 % to 95 % R H non-condensing Installation height 0 to 1000 m – de-rating @ 1 % per 100 m above 1000 m up to 3000 m 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	MANAGEMENT									
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Input/Battery/Load	Control panel	Mult	i-functional LCD	with 2 LEDs indi	cate the system st	atus				
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Degree of protection IP21 according to IEC 60529 Equipment colour RAL 7035, powder coated, textured paint Dimensions & weight 932 x 432 x 425 mm (H x W x D), approx. 60 kg without batteries Acoustic noise @ 1 m Ac	Protection	The rectifier has built-in protection functions against short circuit , over and under A input voltage, over and under DC output voltage as well as high temperature								
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Dimensions & weight 932 x 432 x 425 mm (H x W x D), approx. 60 kg without batteries Acoustic noise @ 1 m Storage temperature Operating humidity Installation height Oto 1000 m – de-rating @ 1 % per 100 m above 1000 m up to 3000 m STANDARDS 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 Recutifiers are forced air cooling with electronic speed control Operating temperature O °C to +40 °C with a de-rating of 1.25 % / °C between 40 °C and 55 °C Storage temperature -25 °C to +70 °C Operating humidity 10 % to 95 % R H non-condensing Installation height O to 1000 m – de-rating @ 1 % per 100 m above 1000 m up to 3000 m 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 ROHS	Degree of protection		IP21 according to IEC 60529							
Acoustic noise @ 1 m	Equipment colour		RAL 7035, powder coated, textured paint							
Battery compartment Yes, include battery tray Bottom or top ENVIRONMENTAL Type of cooling Rectifiers are forced air cooling with electronic speed control Operating temperature 0 °C to +40 °C with a de-rating of 1.25 % / °C between 40 °C and 55 °C Storage temperature -25 °C to +70 °C Operating humidity 10 % to 95 % R H non-condensing Installation height 0 to 1000 m – de-rating @ 1 % per 100 m above 1000 m up to 3000 m 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 ROHS	Dimensions & weight	932 x 4	932 x 432 x 425 mm (H x W x D), approx. 60 kg without batteries							
Connections Bottom or top ENVIRONMENTAL Type of cooling Rectifiers are forced air cooling with electronic speed control Operating temperature 0 °C to +40 °C with a de-rating of 1.25 % / °C between 40 °C and 55 °C Storage temperature -25 °C to +70 °C Operating humidity 10 % to 95 % R H non-condensing Installation height 0 to 1000 m – de-rating @ 1 % per 100 m above 1000 m up to 3000 m 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 ROHS	Acoustic noise @ 1 m		<55 dBA							
ENVIRONMENTAL Type of cooling Rectifiers are forced air cooling with electronic speed control Operating temperature 0 °C to +40 °C with a de-rating of 1.25 % / °C between 40 °C and 55 °C Storage temperature -25 °C to +70 °C Operating humidity 10 % to 95 % R H non-condensing Installation height 0 to 1000 m – de-rating @ 1 % per 100 m above 1000 m up to 3000 m 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 ROHS	Battery compartment									
Type of cooling Rectifiers are forced air cooling with electronic speed control Operating temperature 0 °C to +40 °C with a de-rating of 1.25 % / °C between 40 °C and 55 °C Storage temperature -25 °C to +70 °C Operating humidity 10 % to 95 % R H non-condensing Installation height 0 to 1000 m – de-rating @ 1 % per 100 m above 1000 m up to 3000 m 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 ROHS	Connections		Bottom or top							
Operating temperature 0 °C to +40 °C with a de-rating of 1.25 % / °C between 40 °C and 55 °C Storage temperature -25 °C to +70 °C Operating humidity 10 % to 95 % R H non-condensing Installation height 0 to 1000 m - de-rating @ 1 % per 100 m above 1000 m up to 3000 m STANDARDS 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 ROHS	ENVIRONMENTAL									
Storage temperature -25 °C to +70 °C Operating humidity 10 % to 95 % R H non-condensing Installation height 0 to 1000 m – de-rating @ 1 % per 100 m above 1000 m up to 3000 m STANDARDS 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 ROHS	Type of cooling	Rectifiers are forced air cooling with electronic speed control								
Operating humidity 10 % to 95 % R H non-condensing Installation height 0 to 1000 m - de-rating @ 1 % per 100 m above 1000 m up to 3000 m STANDARDS 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 ROHS	Operating temperature	0 °C to +4	0 °C to +40 °C with a de-rating of 1.25 % / °C between 40 °C and 55 °C							
Installation height 0 to 1000 m − de-rating @ 1 % per 100 m above 1000 m up to 3000 m STANDARDS 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 ROHS	Storage temperature	-25 °C to +70 °C								
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 ROHS	Operating humidity	10 % to 95 % R H non-condensing								
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 ROHS	Installation height	0 to 1000 m – de-rating @ 1 % per 100 m above 1000 m up to 3000 m								
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 ROHS	STANDARDS									
IEC 60146-1-1 Class B 2kV Environment ROHS	Safety	EN 60950-1								
	EMC									
Approvals & Certification CE	Environment	ROHS								
	Approvals & Certification		CE							

Standard system

The 3-rectifier system has been pre-configured with a number of the most commonly requested features built-in as standard.

- >> Single system
- »Internal mains rectifier input switch Q1
- » Rectifer modules PM2000
- Digital control cardLCD display
- Tropicalized control electronics boards
- »Common fault remote alarm

- Cabinet colour RAL 7035 with protection IP21
- » Power and control cable marking
- » Battery temperature sensor
- »Battery tray for NiCd SBLe 7.5/15/30, SBM 15/30,UP1M24/30 batteries – ONLY 24 V 50 A
- »Support for NiCd, lead acid batteries as well as prepared for external battery connection mBAT1 & 2
- >>> Bottom or top cable entry
- >> Input/battery/output terminals
- >> Standard labeling

Options

- » Option 10 Communication interface RS232 & RS485
- »Option 11 Max 4 load mcb's 10 A–B; without aux contacts, no terminals
- Option 12 –
 Relay card
 (8 contacts) wired to terminals
 with predefined alarms
- » Option 20 Matching battery cabinet mBAT1
- Option 21 Matching battery cabinet mBAT2



System	24 V	30 V	48 V	110 V	220 V			
INPUT								
Nominal input voltage	230 V ±20 %	(+20 % -60 % fun	ctional) or 400 V	±10 % (+15 % -20	% functional)			
Frequency	230 V ±20 % (+20 % -60 % functional) or 400 V ±10 % (+15 % -20 % functional) 50 Hz or 60 Hz, ±5 %							
Current consumption	Depends on configuration							
Inrush current		1.5	nominal peak cu	rrent				
THDI			<5 %					
Power factor			0.99					
OUTPUT								
Output voltage	24 V	30 V	48 V	110 V	220 V			
Maximum output current	900 A	810 A	720 A	270 A	144 A			
Voltage range	17 – 29 V	19-32 V	34 – 58 V	84 –145 V	155 – 260 V			
Commissioning voltage	33 V	37 V	66 V	166 V	302 V			
System earth	Floating / positive or negative output connected to earth							
Static voltage regulation	<1 %							
Dynamic voltage regulation	Load change 10 – 90 %, 90 % – 10 % – deviation 5 %							
Current regulation	0 to +6 %							
Ripple voltage	Max. 0.2 % i	rms of nom. DC v			city is 5 times			
	the charger nom. rating (battery connected) Max. 0.2 % rms typical (max. 5 %) on rectifier output, battery not conn							
MANAGEMENT			, , ,					
Common alarm connection	1 Form C rela	v contact – Ratino	a 60 VAC @ 2 A. 2	24 VDC @ 2 A & 6	0 VDC @ 0.1 A			
Control panel	1 Form C relay contact – Rating 60 VAC @ 2 A, 24 VDC @ 2 A & 60 VDC @ 0.1 A Multi-functional LCD with 2 LEDs indicate the system status							
PROTECTION								
Input/Battery/Load		Dep	ends on configui	ration				
Soft start	Yes							
Protection	The rectifier has built-in protection functions against short circuit , over and unde							
	AC input voltage, over and under DC output voltage as well as high temperature							
Decoupling fuse	Yes – within rectifier							
MECHANICAL								
Degree of protection	Standard IP21, optional IP42 (other protection as option)							
Equipment colour	RAL 7035, powder coated, textured paint (special colours as option)							
Dimensions & weight	1800 x 600 x 800 mm – (other cabinets as option), weight depends on configuration							
Acoustic noise @ 1 m	<55 dBA							
Connections	Bottom (top cable as option)							
ENVIRONMENTAL								
Type of cooling	Rectifiers are forced air cooling with electronic speed control							
Operating temperature	0 °C to +40 °C with a de-rating of 1.25 % / °C between 40 °C and 55 °C							
Storage temperature	-25 °C to +70 °C							
Operating humidity	10 % to 95 % R H non-condensing							
Installation height	0 to 1000 m – de-rating @ 1 % per 100 m above 1000 m up to 3000 m							
STANDARDS								
Safety	EN 60950-1							
Jaiety								
EMC	EN 55022 Le	evel B, EN 61000.6			3-3, EN21000,			
	EN 55022 Le		-1,2,3,4, EN 6100		3-3, EN21000,			

PROTECT MIP

Service options:

>> Pro Care Preventive

Maintenance

» Installation &

>>> Turnkey solutions

commissioning

>> E-Service/remote

» Maintenance services

(battery) monitoring

>> Power quality assessment

>> Load bank & site capacity

>> 24/7 hotline global

onsite contracts

>> Onsite training

Onsite battery replacement

MODULAR INDUSTRIAL POWER

Standard system

The Protect MIP configured system has been pre-configured with a number of the most commonly requested features built-in as standard.
These systems are available "off-the-shelf" with standard drawings and standard

Standard configuration

user documentation.

- >> Single system
- »Input voltage configuration 1 or 3 phase
- » Internal rectifier input switch Q1
- >> 19" sub-rack with up to 18 hot swappable rectifier modules
- » Digital control card GCAU
- » Multi-functional LCD display with 2 LEDs indicate the system status
- >>> Tropicalized control electronics boards
- »Common fault remote alarm
- » Floor mounted cabinet with protection IP21
- » Cabinet colour RAL 7035
- » Power and control cable marking
- » Detailed 3-D layout and component marking presented on rear door
- >> 180 degrees swing door with three key locks
- » Bottom cable entry
- » Input/battery/output terminals
- >> Standard labeling/nameplate

Options

The standard system can be enhanced by the addition options. The system specific drawing packages and user documentation will be automatically generated to reflect the actual options configuration.

To provide exact solutions for each application, we offer a wide range of options:

Protections

- »AC Input switch, fuses, breakers
- »Input contactor with external door switch
- »DC Load switch, fuses or breakers, including AC & DC distribution panels/cabinets
- Inverters and converters for alternative AC and DC outputs
- »AC and DC surge arrestors

Alarms/Signaling/ Measurement

- » Relay card, LED Box
- »Alarms on protection devices
- »Analog meters for AC and DC measurements
- » Remote commands via analog and digital inputs, eg. boost charge, battery room fan, remote shutdown

Communications

- » EIA232, EIA485 with Profibus
- >> SNMP/TCP IP
- »IEC61850

Battery options

- » Battery protection switch, fuses, breakers,
- » Low Voltage Disconnect (LVD)
- » Battery shunt for battery measurement
- » Matching battery cabinets
- » Battery temperature probe

Mechanical options

- » IP42 protection cabinet
- »Anti-condensation heater
- >> Interior light
- Special wiring eg. low smoke, halogen free
- >> Special colour
- >> Special markings

Additional options are available on request.



AEG Power Solutions

Approach your local AEG Power Solutions representative for further support.
Contact details can be found on:

