PROTECT 8

INDUSTRIAL UPS

Protect 8.31 Single Phase output
10 kVA – 80 kVA

Protect 8.33 Three Phase output
10 kVA – 120 kVA

400 VAC input
216 VDC link
384 VDC link

Engineering is our business

UPS systems from AEG Power Solutions ensure the continuous availability of all global industrial requirements in oil & gas, petrochemical, power generation, transportation and other heavy industries.

Robust, efficient, reliable & flexible

The state-of-the-art, double-conversion topology and design of the Protect 8 is flexible, meets practically all conceivable customer requirements and is suitable for use in harsh environments.

With the Protect 8 you will benefit from a robust and easy to operate UPS meeting the relevant EMC and other international standards. It can be custom-designed for use in harsh industrial environments. With an expected lifetime of at least 20 years, the Protect 8 is a robust and cost-effective solution optimized for minimal operating costs. Designed for highly demanding applications, the Protect 8 will ensure safe operation of your critical loads, delivering total control wherever reliability, availability and maintainability are required.

Designed for all industrial applications

- Oil & Gas, Petrochemicals (offshore, onshore, pipelines)
- Energy and Power (generation, transmission, distribution)
- Transportation (rail, airports, shipping, highways, tunnels)
- Water (desalination, treatment)
- Instrumentation & Process Control (chemicals, mining, steel, paper, emergency lightning)
- All industrial production processes

AEG
POWER SOLUTIONS

KEY FEATURES

Full digital control

- High reliability (no potentiometers)
- High flexibility (software controlled parameters)
- Fast dynamic response

Ergonomic control unit with high resolution graphical display.

High efficiency even at low output power

- Reduced operating costs
- Reduced air conditioning requirements
- Reduced battery AH requirements

Oversized components

- Higher reliability and MTBF
- High overload capacity
- Input isolation transformer (216 VDC version)
- Output isolation transformer
- Standardized modules
- Low maintenance
- Short circuit resistant

Redundant controls

- Separate microprocessors for rectifier, inverter and static bypass switch
- Separate and redundant power supplies for control cards
- Redundant and monitored fans
- Compatible with vented Lead Acid, Valve Regulated Lead Acid (VRLA) and Nickel Cadmium batteries
- Intelligent battery management, test and status diagnostics
- Designed to operate with diesel generators

High protection degree

- Ready for harsh environment
- IP rating possible up to IP43
- Strong mechanical design
- Seismic proof (optional)

Capable of communications with computer and control systems (SCADA, ESD, DCS, BMS)

- Modbus / J-bus
- Profibus
- Monitoring software
- Ethernet, SNMP…
- Remote monitoring and control capabilities (programmable)
- System and alarm status via potential free contacts

Complete system

Protect 8 is a true on-line double conversion UPS classified as VFI SS 111 according to IEC 62040-3

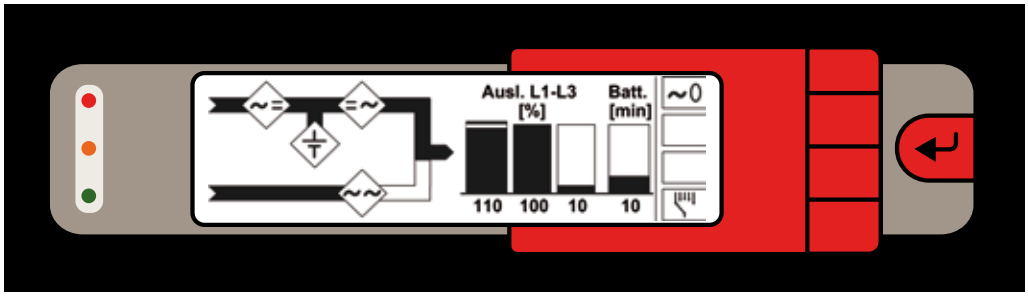
The outstanding UPS range features

- On-line operation ensuring permanent service
- Microprocessor-driven control and command system to provide reliable power supply
- A battery management system that ensures life time and cuts operating costs
- A broad range of output power ratings, battery autonomy times and options to meet the need of complex applications

The UPS offers a very high level of protection for users and connected equipment

- High intermittent overload capability
- High level short circuit strength
- N-conductor with full loading capacity (3 phase systems)
- Excellent dynamic response can easily handle high loads

UNIQUE DESIGN



Parallel operation for capacity and performance

Protect 8 protects your processes even in cases of significantly greater power requirements or particularly exacting reliability requirements. This is ensured by a unique Flexible Multi-Master Technology (FMMT) in parallel mode. This technology is realized by high-speed, robust and redundant communication via the CAN bus which is now in widespread use in safety systems employed, for example, in the automotive industry. Two individual units continuously undertake master functions. Each individual unit can take over this master function instantaneously, if required, by a defined strategy on the basis of the situation in the overall system.

AEG PS parallel systems are characterized by their high levels of availability, robustness and reliability in industrial applications. Flexible Multi-Master Technology and CAN bus communication enables up to 8 UPS' to be connected in parallel for increased power, redundancy or system upgrade.

Parallel UPS' can be operated with a central battery.

Three microprocessor control system

These microprocessors simultaneously monitor and control the rectifier, inverter and static switch units.

This control has been specially designed to provide a high reliable power supply.

Display and Operating Unit

Intelligent Display and Operation Unit (DOU) with automatic system recognition, general status via colored LEDs, acoustic signals, multilingual menu display in 18 languages, simple operation by display buttons, display icons for the power flow, digital display values, unit status with text display, real-time clock, menu-driven system start-up and data logger for malfunction history with time stamp (750 events).

Battery test and system test can be activated by the menu.

End to end solutions

Exact solutions engineered for each application.

Possible UPS configurations

- Single systems
- Parallel systems
- Inverter system

Additional system equipment

- Bypass transformer
- Voltage stabilizers
- Maintenance Bypass Switch
- AC distribution panels
- Battery cubicles
- Explosion proof battery circuit breaker enclosures

Project management

- Quality plan
- Project planning
- Progress reviews
- Manufacturing reviews
- Factory acceptance tests
- Site acceptance test

Customized documentation

- Text translations to any language
- Document numbering

PROTECT 8.31

SPECIFICATION
SIINGLE PHASE OUTPUT
216 VDC

MODEL	P8.31-10	P8.31-20	P8.31-30	P8.31-40	P8.31-60	P8.31-80
Nominal rating (at cos φ 0.8 lag) in kVA	10	20	30	40	60	80
RECTIFIER UNIT						
Input nominal voltage	3 x 400 V (3 x 380 V, 3 x 415 V)					
Input operating range (min. / max.)	340 V – 460 V					
Frequency	50 / 60 Hz ±10 %					
Input current in A at nominal load	16	35	56	68	100	134
Charging characteristic to IEC 478-10	IU					
Nominal DC voltage	220 V					
Rectifier type **- Standard** **- Optional**	6 pulse Filter	6 pulse Filter	6 pulse 12 pulse	6 pulse 12 pulse	12 pulse	12 pulse
INVERTER UNIT						
DC input	216 V ± 20 %					
Nominal AC voltage	230 V (220 V, 240 V)					
Output voltage static response	< ±1 %					
Output voltage dynamic response	< ±2 %					
Recovery time	1 ms					
Frequency	50 / 60 Hz					
Frequency tolerance without mains	± 0.1 %					
Frequency synchronization range	±1 % (±2 %, ±3 %)					
Power factor range	capacitive to inductive over entire cos φ-range					
Unbalanced-load response	at 100 % unbalanced load: voltage deviation <2 %; angle deviation <2 degrees el.					
Output phase current in A	43	87	130	174	261	348
Voltage wave form	sinusoidal					
Voltage distortion	≤3 %					
Crest factor	max. 3					
Overload response 1 min.	150 %					
Overload response 10 min.	125 %					
Short circuit response	short circuit proof, short circuit current 2.7 x I_{nom}					
STATIC BYPASS SWITCH						
AC voltage	230 V (220 V, 240 V)					
Frequency	50 / 60 Hz					
Nominal power in kVA	10	20	30	40	60	80
GENERAL DATA						
Efficiency (AC to AC) – typical	up to 90 %					
Noise level depending on rating	<55 – 70 dB (A)					
EMC compatibility	EN 62040-2					
Air cooling with redundant and monitored fans	Yes					
Operating temperature range min. / max. (without de-rating)	– 5 °C / +40 °C					
Storage temperature range min. / max.	– 30 °C / +75 °C					
Maximum altitude without de-rating	1000 m					
Protection degree IEC 529/EN 60529 standard system	IP40 / optional IP43					
Equipment color	RAL 7035 (other colors on request)					
WEIGHTS AND DIMENSIONS						
Height standard UPS (mm)	1810	1810	1810	1810	1810	1810
Height with max. options (mm)	1915	1915	1915	1915	2015	2015
Width (mm)	600	600	900	900	1500	1500
Depth (mm)	860	860	860	860	860	860
Weight (kg) ~	350	500	700	700	1000	1200

PROTECT 8.33

SPECIFICATION
THREE PHASE OUTPUT
216 VDC

MODEL	P8.33-10	P8.33-20	P8.33-30	P8.33-40	P8.33-60	P8.33-80	P8.33-100	P8.33-120
Nominal rating (at cos φ 0.8 lag) in kVA	10	20	30	40	60	80	100	120
RECTIFIER UNIT								
Input nominal voltage	3 x 400 V (3 x 380 V, 3 x 415 V)							
Input operating range (min. / max.)	340 V – 460 V							
Frequency	50 / 60 Hz ±10 %							
Input current in A at nominal load	16	35	56	68	100	134	166	200
Charging characteristic to IEC 478-10	IU							
Nominal DC voltage	220 V							
Rectifier type **- Standard** **- Optional**	6 pulse Filter	6 pulse Filter	6 pulse 12 pulse	6 pulse 12 pulse	12 pulse	12 pulse	12 pulse	12 pulse
INVERTER UNIT								
DC input	216 V ±20 %							
Nominal AC voltage	3 x 400 V (3 x 380 V, 3 x 415 V)							
Output voltage static response	< ±1 %							
Output voltage dynamic response	< ±2 %							
Recovery time	1 ms							
Frequency	50 / 60 Hz							
Frequency tolerance without mains	±0.1 %							
Frequency synchronization range	±1 % (±2 %, ±3 %)							
Power factor range	capacitive to inductive over entire cos φ-range							
Unbalanced-load response	at 100 % unbalanced load: voltage deviation <2 %; angle deviation <2 degrees el.							
Output phase current in A	14	29	43	58	87	116	145	173
Voltage wave form	sinusoidal							
Voltage distortion	≤3 %							
Crest factor	max. 3							
Overload response 1 min.	150 %							
Overload response 10 min.	125 %							
Short circuit response	short circuit proof, short circuit current 2.7 x I_{nom}							
STATIC BYPASS SWITCH								
AC voltage	3 x 400 V (3 x 380 V, 3 x 415 V)							
Frequency	50 / 60 Hz							
Nominal power in kVA	10	20	30	40	60	80	100	120
GENERAL DATA								
Efficiency (AC to AC) – typical	up to 90 %							
Noise level depending on rating	<55 – 70 dB (A)							
EMC compatibility	EN 62040-2							
Air cooling with redundant and monitored fans	Yes							
Operating temperature range min. / max. (without de-rating)	–5 °C / +40 °C							
Storage temperature range min. / max.	–30 °C / +75 °C							
Maximum altitude without de-rating	1000 m							
Protection degree IEC 529/EN 60529 standard system	IP40 / optional IP43							
Equipment color	RAL 7035 (other colors on request)							
WEIGHTS AND DIMENSIONS								
Height standard UPS (mm)	1810	1810	1810	1810	1810	1810	1810	1810
Height with max. options (mm)	1915	1915	1915	1915	2015	2015	2015	2015
Width (mm)	600	600	900	900	1500	1500	1500	1500
Depth (mm)	860	860	860	860	860	860	860	860
Weight (kg) ~	600	600	700	700	1100	1100	1700	1700

PROTECT 8.31

SPECIFICATION
SIINGLE PHASE OUTPUT
384 VDC

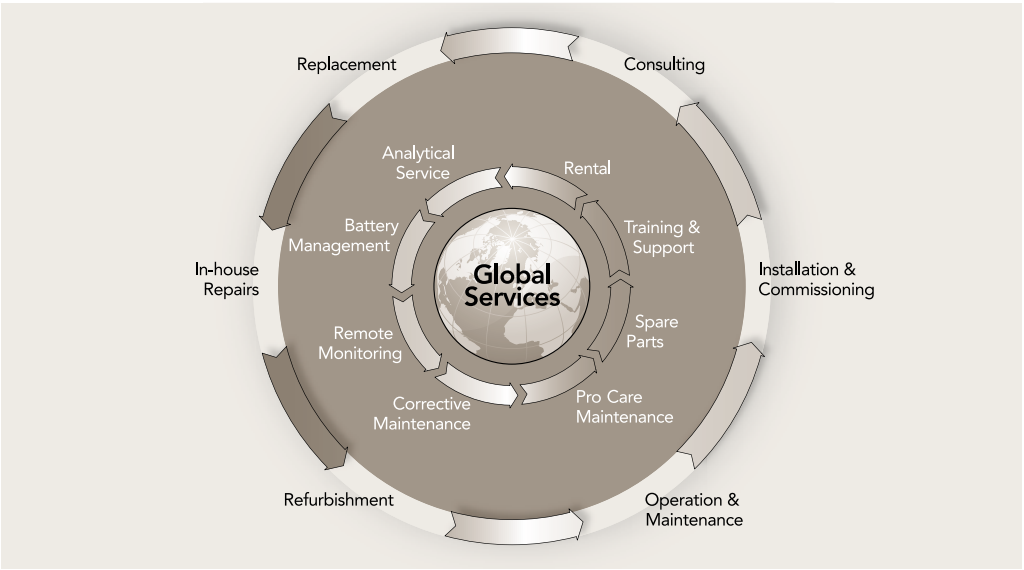
MODEL	P8.31-10	P8.31-20	P8.31-30	P8.31-40
Nominal rating (at cos φ 0.8 lag) in kVA	10	20	30	40
RECTIFIER UNIT				
Input nominal voltage	3 x 400 V (3 x 380 V, 3 x 415 V)			
Input operating range (min. / max.)	340 V – 460 V			
Frequency	50 / 60 Hz ±10 %			
Input current in A at nominal load	17	33	50	66
Charging characteristic to IEC 478-10	IU			
Nominal DC voltage	384 V			
Rectifier type **- Standard** **- Optional 12 pulse**	6 pulse Mains filter	6 pulse Mains filter	6 pulse 12 pulse	6 pulse 12 pulse
INVERTER UNIT				
DC input	384 V ±20 %			
Nominal AC voltage	230 V (220 V, 240 V)			
Output voltage static response	< ±1 %			
Output voltage dynamic response	< ±2 %			
Recovery time	1 ms			
Frequency	50 / 60 Hz			
Frequency tolerance without mains	±0.1 %			
Frequency synchronization range	±1 % (±2 %, ±3 %)			
Power factor range	capacitive to inductive over entire cos φ-range			
Unbalanced-load response	at 100 % unbalanced load: voltage deviation <2 %; angle deviation <2 degrees el.			
Output phase current in A	43	87	130	174
Voltage wave form	sinusoidal			
Voltage distortion	≤3 %			
Crest factor	max. 3			
Overload response 1 min.	150 %			
Overload response 10 min.	125 %			
Short circuit response	short circuit proof, short circuit current 2.7 x I_{nom}			
STATIC BYPASS SWITCH				
AC voltage	230 V (220 V, 240 V)			
Frequency	50 / 60 Hz			
Nominal power in kVA	10	20	30	40
GENERAL DATA				
Efficiency (AC to AC) – typical	up to 92 %			
Noise level depending on rating	<55 – 70 dB (A)			
EMC compatibility	EN 62040-2			
Air cooling with redundant and monitored fans	Yes			
Operating temperature range min. / max. (without de-rating)	–5 °C / +40 °C			
Storage temperature range min. / max.	–30 °C / +75 °C			
Maximum altitude without de-rating	1000 m			
Protection degree IEC 529/EN 60529 standard system	IP40 / optional IP43			
Equipment color	RAL 7035 (other colors on request)			
WEIGHTS AND DIMENSIONS				
Height standard UPS (mm)	1810	1810	1810	1810
Height with max. options (mm)	1915	1915	1915	1915
Width (mm)	600	600	900	900
Depth (mm)	860	860	860	860
Weight (kg) ~	275	325	375	550

PROTECT 8.33

SPECIFICATION
THREE PHASE OUTPUT
384 VDC

MODEL	P8.33-10	P8.33-20	P8.33-30	P8.33-40	P8.33-60	P8.33-80	P8.33-100	P8.33-120
Nominal rating (at cos φ 0.8 lag) in kVA	10	20	30	40	60	80	100	120
RECTIFIER UNIT								
Input nominal voltage	3 x 400 V (3 x 380 V, 3 x 415 V)							
Input operating range (min. / max.)	340 V – 460 V							
Frequency	50 / 60 Hz ±10 %							
Input current in A at nominal load	17	33	50	66	98	130	163	195
Charging characteristic to IEC 478-10	IU							
Nominal DC voltage	384 V							
Rectifier type **- Standard** **- Optional 12 pulse**	6 pulse Mains filter	6 pulse Mains filter	6 pulse 12 pulse	6 pulse 12 pulse	12 pulse	12 pulse	12 pulse	12 pulse
INVERTER UNIT								
DC input	384 V ±20 %							
Nominal AC voltage	3 x 400 V (3 x 380 V, 3 x 415 V)							
Output voltage static response	< ±1 %							
Output voltage dynamic response	< ±2 %							
Recovery time	1 ms							
Frequency	50 / 60 Hz							
Frequency tolerance without mains	±0.1 %							
Frequency synchronization range	±1 % (±2 %, ±3 %)							
Power factor range	capacitive to inductive over entire cos -range							
Unbalanced-load response	at 100 % unbalanced load: voltage deviation <2 %; angle deviation <2 degrees el.							
Output phase current in A	14	29	43	58	87	116	145	173
Voltage wave form	sinusoidal							
Voltage distortion	≤3 %							
Crest factor	max. 3							
Overload response 1 min.	150 %							
Overload response 10 min.	125 %							
Short circuit response	short circuit proof, short circuit current 2.7 x I_{nom}							
STATIC BYPASS SWITCH								
AC voltage	400 V (380 V, 415 V)							
Frequency	50 / 60 Hz							
Nominal power in kVA	10	20	30	40	60	80	100	120
GENERAL DATA								
Efficiency (AC to AC) – typical	up to 94 %							
Noise level depending on rating	<55 – 70 dB (A)							
EMC compatibility	EN 62040-2							
Air cooling with redundant and monitored fans	Yes							
Operating temperature range min. / max. (without de-rating)	–5 °C / +40 °C							
Storage temperature range min. / max.	–30 °C / +75 °C							
Maximum altitude without de-rating	1000 m							
Protection degree IEC 529/EN 60529 standard system	IP40 / optional IP43							
Equipment color	RAL 7035 (other colors on request)							
WEIGHTS AND DIMENSIONS								
Height standard UPS (mm)	1810	1810	1810	1810	1810	1810	1810	1810
Height with max. options (mm)	1915	1915	1915	1915	2015	2015	2015	2015
Width (mm)	600	600	900	900	1200	1200	1200	1200
Depth (mm)	860	860	860	860	860	860	860	860
Weight (kg) ~	350	370	450	470	550	800	900	900

YOUR POWER SERVICE PARTNER



Rely on the experts to reduce failure costs and increase system availability

Global network of 20 Service Centers supported by over 150 field engineers and more than 100 certified service partners around the world. From power solution selection to process installation and commissioning, our certified experts exceed your expectations. Their excellent service helps you achieve the lowest operating cost for your mission-critical power solution.

A Global Service Team renowned for its short response times and trouble shooting efficiency ensures the reliability of your installed power solution.

Pro Care™ Start Commissioning

Ramp-up by the most experienced service experts and benefit from the manufacturer warranty. Commissioned in compliance with the latest local and international electronic norms, your system is carefully checked and optimized to meet specific on-site power needs, full operating training and hands-on advice.

Pro Care™ Preventive Maintenance

It is well known that scheduled, recurring preventive maintenance performed by accredited service experts is the most cost effective way to secure the full performance of your Protect Power Solution at all times ensuring complete cost control, security and uninterrupted power supply for your most critical processes.

Pro Care™ Safe

Annual scheduled on-site preventive maintenance program, to secure your system operations at all times. Over 50 functionality assessments and on-site numerical diagnostics to keep your system operating at peak performance.

Pro Care™ Excel

Replacement and on-site installation of all defective parts at no additional cost (in addition to Pro CareTM Safe.)

Pro Care™ Premium

Long-term piece of mind at a set price. Our service engineering team performs annual maintenance of your system and replaces all necessary parts and battery units at no additional cost.

AEG Power Solutions

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

www.aegps.com

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