

Power Safety

Protect 5

Industrial UPS

Protect 5.31

Single Phase output 10 kVA – 120 kVA

Protect 5.33

Three Phase output 25 kVA – 120 kVA

400 V AC input

220 V DC

Uninterruptible Power Supplies



Designed for all Industrial Applications

- **Oil & Gas, Petrochemicals**
Offshore, Onshore, Pipelines
- **Energy and Power**
Generation, Transmission, Distribution
- **Transportation**
Rail, Airports, Shipping
- **Water**
Desalination, Treatment
- **Instrumentation & Process Control**
Chemicals, Mining, Steel, Paper
- **All Industrial Applications**

Engineering is our Business

UPS solutions engineered by AEG Power Supply Systems (a company of Saft Power Systems) have been protecting oil & gas infrastructure, power stations and other industrial installations for more than 50 years.

Protect 5 is just part of our protector product range of UPS suitable for all industrial applications. See also our Protect 3 and Protect 4 ranges.

Robust and Reliable

Protect 5 is extremely robust, both electrically and mechanically. It is custom-designed for use in harsh industrial environments.

PERFECT IN FORM AND FUNCTION

AEG

Power Safety

Protect 5

Industrial UPS

Key Features

Full digital control

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

Ergonomic control unit with 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

Standardized modules

Low maintenance

Short circuit resistant

More EMC robust than UPS Standard IEC 62040-2
by a factor of 2 to 3

Redundant controls

- Separate microprocessors for Rectifier, Inverter, Static Switch and Communication
- Separate and redundant power supplies for control cards

Redundant and individually monitored fans

Floating 220 V battery voltage for linking to existing DC bus bars

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 (IP rating) possible

- Ready for harsh environment

Strong mechanical design

- Seismic proof (optional)

Remote monitoring and control capabilities (programmable)

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

- Modbus
- Profibus
- Monitoring software
- Ethernet, SNMP...

System and alarm status via volt-free contacts

Complete system

Protect 5 is a true on-line double conversion UPS classified as VFI SS 111 according to IEC 62040-3.

This 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 boosts life time and cuts operating costs
- A broad range of output power ratings, battery autonomies and options to meet the needs of complex industrial applications

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

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

Unique Design

Parallel operation for capacity and performance

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 problem-free power supply.

End to End Solutions

Exact solutions engineered for each application.

Possible UPS configurations

- Single systems
- Inverter only
- Parallel systems
- Other input/output voltages
- Other battery voltages
- ...

Additional system equipment

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

Compatible with all other Saft power systems solutions: industrial DC systems, telecom systems, ...

Project Management

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

Customized documentation

- Text translations to any language
- Document numbering
- ...

Single Phase Output

MODEL	P5.31-10	P5.31-20	P5.31-30	P5.31-40	P5.31-60	P5.31-80	P5.31-100	P5.31-120
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 \pm 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	6 pulse	6 pulse	12 pulse	12 pulse	12 pulse	12 pulse	12 pulse	12 pulse
- Optional	Filter	Filter						
INVERTER UNIT								
DC input	220 V \pm 20 %							
Nominal AC voltage	230 V (220 V, 240 V)							
Output voltage static response	< \pm 1 %							
Output voltage dynamic response	< \pm 2 %							
Recovery time	1 ms							
Frequency	50/60Hz							
Frequency tolerance without mains	\pm 0.1 %							
Frequency synchronisation range	\pm 1 % (\pm 2 %, \pm 3 %)							
Allowable load power factor	0.0 lag to 0.0 lead							
Output phase current in A	43	87	130	174	261	348	435	522
Voltage wave form	sinusoidal							
Voltage distortion	\leq 3 %							
Crest factor	max. 3							
Overload response 1 min.	150 %							
Overload response 10 min.	125 %							
Max short circuit current	> 3 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	100	120
GENERAL DATA								
Efficiency (AC to AC) – typical	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 to IEC 529/EN 60529 (standard system)	IP20							
Equipment colour	RAL 7032							
WEIGHTS AND DIMENSIONS								
Height standard UPS (mm)	1810	1810	1810	1810	1810	1810	1810	1810
Height with max. options (mm)	2015	2015	2015	2015	2015	2015	2015	2015
Width (mm)	600	900	1200	1200	1200	2100	2100	2100
Depth (mm)	860	860	860	860	860	860	860	860
Weight (kg)	350	500	750	750	1100	1400	1700	1700

Protect 5: Specification

Three Phase Output

MODEL	P5.33-25	P5.33-40	P5.33-60	P5.33-80	P5.33-100	P5.33-120
Nominal rating (at cos φ 0.8 lag) in kVA	25	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	43	68	102	134	166	200
Charging characteristic to IEC 478-10	IU					
Nominal DC voltage	220 V					
Rectifier type						
- Standard	6 pulse Filter	6 pulse Filter	12 pulse	12 pulse	12 pulse	12 pulse
- Optional						
INVERTER UNIT						
DC input	220 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 synchronisation range	±1 % (±2 %, ±3 %)					
Allowable load power factor	0.0 lag to 0.0 lead					
Output phase current in A	36	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 %					
Max short circuit current	> 3 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	25	40	60	80	100	120
GENERAL DATA						
Efficiency (AC to AC) – typical	90 %					
Noise level depending on rating	< 55–65 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 to IEC 529/ EN 60529 (standard system)	IP20					
Equipment colour	RAL 7032					
WEIGHTS AND DIMENSIONS						
Height standard UPS (mm)	1810	1810	1810	1810	1810	1810
Height with max. options (mm)	2015	2015	2015	2015	2015	2015
Width (mm)	900	900	1200	1200	2100	2100
Depth (mm)	860	860	860	860	860	860
Weight (kg)	600	700	1100	1100	1700	1700

Batteries

Saft power systems has considerable in-house knowledge in battery technology and is able to offer expert advice on the specifying, selection, operation and testing of batteries. Our total system solutions include a wide range of products using lead acid and nickel-cadmium batteries in vented and gas recombination technologies. Replacement batteries can be supplied and installed by our global service team.

Service

Saft Power Systems Global Services offer the following services to support all industrial power supply products:

Product Services

- Installation & Commissioning
- Preventative Maintenance
- Spare Part Kits
- Refurbishments
- Service Contracts – 24/7 Global Service Cover Training

Site Services

- Battery Replacement
- Load Bank & Site Capacity Tests
- Power Quality Services
- Standby generators and other essential equipment hire and supply
- E-service/remote Monitoring
- Battery Monitoring
- Facility & Equipment Management
- Design & Build – Turnkey Solutions

AEG is a registered trademark used under license from AB Electrolux • AEG Power Supply Systems is a company of Saft Power Systems Group

AEG Power Supply Systems GmbH
Emil-Siepmann-Str. 32
59581 Warstein-Belecke
Germany
Tel.: +49 2902 763 141
Fax: +49 2902 763 1239
www.powersuppliesystems.com

PERFECT IN FORM AND FUNCTION

AEG