

AEG

Power supply systems

PROTECT 5 INDUSTRIAL INVERTERS

Protect 5.INV1 Single Phase output 120V 10kVA-60kVA

Protect 5.INV3 Three Phase output 208V 10kVA-60kVA



Inverters



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

Inverter and UPS solutions engineered by
AEG Power Supply Systems (a branch of Saft

Power Systems) have been protecting Oil &
Gas infrastructure, Power Stations and other
industrial installations for more than 50 years.

Protect 5 INV is just part of the Protector Product
Range of Inverters and UPS suitable for Industrial
applications. See also our Protect 3, Protect 4 and
Protect 5 range of UPS.

Robust and reliable

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



www.powersupplysystems.com


Saft power systems

>> PROTECT 5 INDUSTRIAL INVERTERS

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

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

Redundant and individually monitored fans

Floating 220V input voltage for linking to existing DC bus bars or batteries

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 INV is an industrial Inverter classified as VFI SS 111 according to IEC 62040-3.

This outstanding Inverter range features

- highly reliable operation ensuring permanent service
- microprocessor-driven control and command system to provide reliable power supply
- a broad range of output power ratings, battery autonomies and options to meet the needs of complex industrial applications.

The Inverter 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.



SPECIFICATION

SINGLE PHASE OUTPUT

MODEL	P5.INV1-10	P5.INV1-20	P5.INV1-30	P5.INV1-40	P5.INV1-60
Nominal rating (at $\cos \varphi$ 0.8 lag) in kVA	10	20	30	40	60

INVERTER UNIT

DC input	220V \pm 20%				
Nominal AC voltage	230V (220V, 240V)				
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
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	230V (220V, 240V)				
Frequency	50 / 60Hz				
Nominal power in kVA	10	20	30	40	60

GENERAL DATA

Efficiency - typical	>90%				
Noise level depending on rating	<55 – 70dB(A)				
EMC compatibility	EN60040-2				
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	1000m				
Protection degree per IEC 529 / EN 60529 (standard system)	IP20				
Equipment colour	RAL 7032				

WEIGHTS AND DIMENSIONS (approx)

Height standard Inverter (mm)	1810	1810	1810	1810	1810
Height with max. options (mm)	2015	2015	2015	2015	2015
Width (mm)	600	900	1200	1200	1200
Depth (mm)	860	860	860	860	860
Weight (Kg)	270	400	580	580	900

SPECIFICATION

THREE PHASE OUTPUT

MODEL	P5.INV3-25	P5.INV3-40	P5.INV3-60	P5.INV3-80	P5.INV3-100	P5.INV3-120
Nominal rating (at $\cos \varphi$ 0.8 lag) in kVA	25	40	60	80	100	120

INVERTER UNIT

DC input	220V \pm 20%					
Nominal AC voltage	3 x 400V (3 x 380, 3 x 415V)					
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	36	58	87	116	145	173
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	3 x 400V (3 x 380, 3 x 415V)					
Frequency	50 / 60Hz					
Nominal power in kVA	25	40	60	80	100	120

GENERAL DATA

Efficiency - typical	>90%					
Noise level depending on rating	<55 – 70dB(A)					
EMC compatibility	EN60040-2					
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	1000m					
Protection degree per IEC 529 / EN 60529 (standard system)	IP20					
Equipment colour	RAL 7032					

WEIGHTS AND DIMENSIONS (approx)

Height standard Inverter (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)	450	600	800	800	1350	1350

>> PROTECT 5 INDUSTRIAL INVERTERS

Unique Design

Parallel operation for capacity and performance

Flexible Multi Master Technology and CAN bus communication enables up to 8 Inverters to be connected in parallel for increased power, redundancy or system upgrade.

Parallel Inverters can be operated with separate or central battery.

Two microprocessor control system

These microprocessors simultaneously monitor and control the 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 Inverter configurations

- Parallel systems
- Other battery voltage (110V)
- ...

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
- ...

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
- Training
- Service Contracts – 24/7 Global Service Cover

Site Services:

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

Power Systems
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For more information please refer to our website:
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