

Fluxpower HPS / Protect Blue BROCHURE

JUNHO 2013

Tel: (+351) 21 843 64 00
Fax: (+351) 21 843 64 09
geral@bhb.pt www.bhb.pt

FLUXPOWER HPS

400-500-600-800 KVA

3-phase UPS

High power solution for large,
mission-critical systems



Flexible and smart

The innovation and design of the Fluxpower HPS high power UPS has resulted in the unit being the most technologically advanced in its class.

It delivers an incredible combination of low input current distortion, unity input power factor and high overall efficiency. These advances in design offer numerous benefits, including lower running costs and substantially increased reliability.

Low THDi and power factor performance

The Fluxpower HPS model UPS uses a completely new IGBT input rectifier design, encompassing an advanced PFC (Power Factor Control) which is capable of keeping input current THDi (Total Harmonic Distortion) at a level of less than 3 % and input power factor within 1 % of unity, even when only small loads are applied.

The key benefits are that the UPS is compatible with the upstream source, the mains or any kind of generator and the transfer of power between source and load is more efficient. This results in a saving in terms of scale of sources, cables and protective devices.

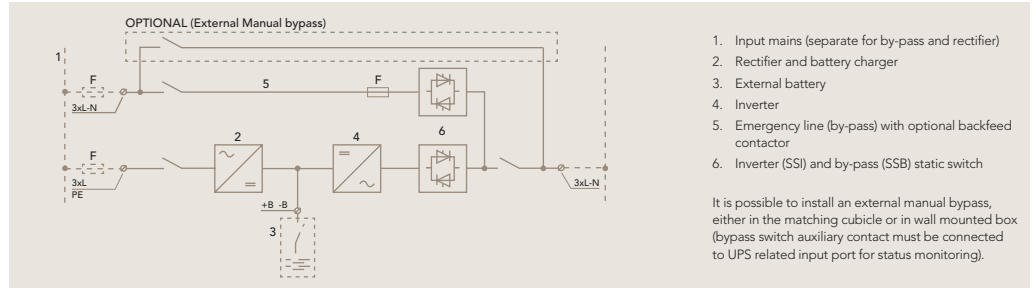
High efficiency reduces overall cost of ownership

Fluxpower HPS has a new Wise ECO function which enables a total operating efficiency of between 95 % and 98 %. This mode, referred to as "Intelligent ECO mode", significantly reduces the utility costs associated with operating a device of this type. Moreover, this increase in efficiency results in the production of less waste heat, minimizing cooling / air-conditioning costs. This represents a double saving to the energy conscious user.

The Wise ECO function uses continual monitoring techniques to review the input characteristics of the supply. This means that if the supply line drops or fluctuates outside of acceptable conditions the UPS uses the internal inverter to support the load. This is achieved through a fast, fully static transition from VFD to VFI mode.

FLUXPOWER HPS

3-PHASE UPS



"Green" double protection for every application

VFI online double conversion topology in this equipment offers built-in inverter galvanic protection completely isolating the output power from all input power anomalies, delivering fully conditioned pure sine-wave output.

In pure on-line mode the unit delivers an excellent certified 96 % efficiency. Because of the technology and topology used, no additional losses are generated to achieve low input harmonics or input / output galvanic isolation.

The Fluxpower HPS unit is designed to provide excellent output voltages suited to very demanding applications with either 100 % step load, unbalanced, non-linear or modern IT loads. It also provides exceptional performance: with a power factor of up to 0.9 (lagging or leading), there is no requirement to de-rate the unit.

Triple Intelligence

If the application requires extremely flexible and reliable UPS protection, the Fluxpower HPS is ideal. It delivers advanced features based on state-of-the-art total digital control. This control incorporates dual DSP (Digital Signal Processing) and μ C (Micro controller) technologies.

The system design ensures that auxiliary power supplies and processors are no longer single points of failure which could compromise the availability of clean power to the load.

The Fluxpower HPS is designed to overcome the limitations imposed by other older, designs. With its distributed control architecture, Fluxpower HPS will always have a UPS circuit protecting the load; furthermore, the status of most critical components is constantly monitored, allowing predictive maintenance and avoiding unexpected breakdowns.

Fluxpower HPS' working state can be easily monitored by any Building Management System and via LAN / WAN.

Life-prolonging Battery Management

Batteries are electro-chemical devices, which store charge chemically; as such their performance degrades with time. The Fluxpower HPS owns a Battery Anti-Aging Control (BAAC) according to battery manufacturers' requirements.

Following a UI characteristic curve, the charger charges at a constant current appropriate for the battery type used, preventing detrimental excess charging. In addition to the float voltage level, boost charge can be set, optimizing the recharge time when there is the possibility of consecutive power outages within a short period.

BAAC also reduces the residual ripple current (one of the causes of premature battery wear), as well as protecting the battery from damaging deep discharges.

Automatic battery temperature compensation charge voltage may be implemented, charging the battery more appropriately and increasing battery life. By means of DCM (Dynamic Charging Mode) very long battery autonomies can be achieved without increasing total charge time. This is achieved through the implementation of an intelligent increase in maximum battery charge current when the maximum inverter power is not being drawn by the load.

An integrated periodical battery testing function tests and monitors battery health, providing advanced warning to guide the application of preventive maintenance.

Parallel systems with "hot swap" modularity

Fluxpower HPS UPS offers parallel options in both redundancy and capacity modes, providing the possibility for both extra system resilience and increased capacity.

The parallel control circuitry associated with these units is fully digital and acts on both active and reactive power on each of the three output phases. This allows accurate load current sharing among the UPS units even during transient conditions.

FLUXPOWER HPS

FEATURE RICH INTELLIGENCE



Parallel control is distributed between all units and communication is achieved through the use of a CAN bus connection loop. This has the effect of producing a highly reliable system with "no single points of failure".

Intelligent design of the system connections allow for easy installation and easy future upgrades, this allows for upgrading in the field without difficulty.

In modular arrangement, units can be added or removed "hot" without load disturbances or the need to switch to bypass.

Smart Parallel functions facilitate the automatic switching off of units where the total power requirements of the load is provided by fewer than the total number of UPS units attached. This is commonly known as "load based shutdown" and maximizes the efficiency of the complete system by keeping the load on each module at an optimum level.

Two independent paralleled systems can be synchronized (Sync Control) in order to feed downstream STS' for seamless transfers.

Easy installation, operation and maintenance

Fluxpower HPS can easily be sited within areas no wider than 1200 mm, and can be installed close to walls or other cabinets as cooling air is expelled through vents on the top of the unit. This new design also gives the user significant savings in floor utilization and is an ideal solution where space is at a premium.

Despite the modern, compact design, all critical components, are accessible from the front of the unit; this improves accessibility to allow regular maintenance and reduced Mean Time to Repair (MTTR).

Fluxpower HPS also incorporates a unique back-feed power protection system. If the output of the UPS is fed back into the mains, the unit will immediately isolate itself. This removes the need for additional MCBs or other similar safety devices.

User interface and accessories

- » User-friendly interface
- » Monitoring, managing and shutdown software
- » Bypass and switchgear section
- » Power conversion section
- » Removable blowers
- » Front access

Communication

- » RS232 serial port
- » USB port
- » Remote EPO
- » External manual bypass status
- » Battery Switch status
- » Diesel Mode

Optional

- » Web / SNMP
- » Modbus
- » Relays
- » Modem
- » Remote panel

Options

- » Parallel capacity / redundancy
- » Sync control for dual feed systems
- » Isolation transformer
- » External bypass
- » External battery cabinets
- » Battery switch box
- » Battery thermal probe
- » Transformers / autotransformers for voltage adaption
- » Top cable entry

Information and communication technology

- » Large data centers
- » Server farms
- » Telecommunication installations
- » Broadcasting and entertainment
- » Internet Service Providers (ISP)

Critical electrical engineering

- » Industrial systems
- » Financial and banking
- » Security operations
- » Transportation systems
- » Medical / Healthcare

FLUXPOWER HPS

SPECIFICATION

Model (kVA)	400	500	600	800
Capacity rating (kVA)	400	500	600	800
Dimensions W x H x D (mm)	1990 x 1920 x 990	2440 x 2020 x 990	2440 x 2020 x 990	3640 x 1920 x 990
Weight (kg)	1820	2220	2400	3600
Input / output connection	Hard wired (dual input)			
Battery	External, 300-312 cells			
INPUT				
Nominal voltage	220 / 380, 230 / 400, 240 / 415 VAC single / 3-phase			
Voltage range	-20 %, +15 % at 400 V nominal			
Frequency	50 / 60 Hz (45 – 65 Hz)			
Power factor	0.99			
Current distortion (THDi)	<3.5 %			
OUTPUT				
Nominal voltage	220 / 380, 230 / 400, 240 / 415 V AC three phase			
Frequency	50 / 60 Hz			
Voltage regulation	±1 % static; ±5 % dynamic 100 % load change			
PF acceptable without de-rating	Lagging to leading 0.9			
Overload capacity	101 – 125 % for 10 min (on-line), 126 – 150 % for 1 min (on-line), 1000 % for 1 cycle (bypass)			
Efficiency; VFI, double-conversion	≤94.8 %			
Efficiency; Wise ECO mode	95 – 98 % (>98 %)			
OPTIONS				
General	8 x parallel capacity/redundancy, sync control, isolation transformer, external bypass, external battery cabinets, battery switch box, battery thermal probe, transformers / autotransformers for voltage adaption, top cable entry			
USER INTERFACE				
Front panel	Graphical LCD display, mimic with LED's and keyboard			
Standard communication ports	RS232 serial, USB, Remote Emergency Power Off input, Battery Switch status monitoring, External Manual Bypass status monitoring, Diesel Mode			
Optional communication	Web / SNMP, ModBus, Relay, Modem cards; Remote panel; Monitoring, Managing and shutdown software			
ENVIRONMENTAL				
Operating temperature	0 °C – +40 °C			
Storage temperature	-10 °C – +70 °C			
Altitude	<1000 m; 1 % power derating each 100 m above, max. 2000 m			
Audible noise at 1 meter dB(A)	<60			
STANDARDS AND CERTIFICATION				
Marking and certification	CE, GOST, ECA ETL			
Safety	IEC EN 62040-1			
EMC	IEC EN 62040-2			
Test and Performance	IEC EN 62040-3			
Quality, environment, health and safety	ISO9001:2008, ISO 14001:2004, BS OHSAS 18001:2007			

AEGPS - Fluxpower HPS - EN - 08/2013 V1 - Technical data in this document does not contain any binding guarantees or warranties. Content only serves for information purposes and can be modified at any time. We will make binding commitments only upon receipt of concrete enquiries and customer notification of the relevant conditions. Due to the non-binding nature of these terms, we assume liability neither for the accuracy nor completeness of the data provided here. AEG is a registered trademark used under license from AB Electrolux.



PROTECT
BLUE

UPS SOLUTIONS
FOR LARGE
DATA CENTERS

AEG
POWER SOLUTIONS

AEG POWER SOLUTIONS

LEADING THROUGH INNOVATIVE POWER MANAGEMENT



© Deutsches Technikmuseum, Berlin

At the peak of the industrial revolution, founded in 1887 by Emil Rathenau (1838 – 1915), AEG began working on large scale industrial electrification projects. Always leading from the fore, AEG soon developed a globally respected name leading the world in the fields of AC and DC generation and switching technology.

Always leading through innovation, our mission is to continually deliver improvements to power solutions across the globe.

Our customers range from traditional power generation, oil, gas and petrochemical companies through to cutting edge renewable energy plants and polysilicon manufacturers.

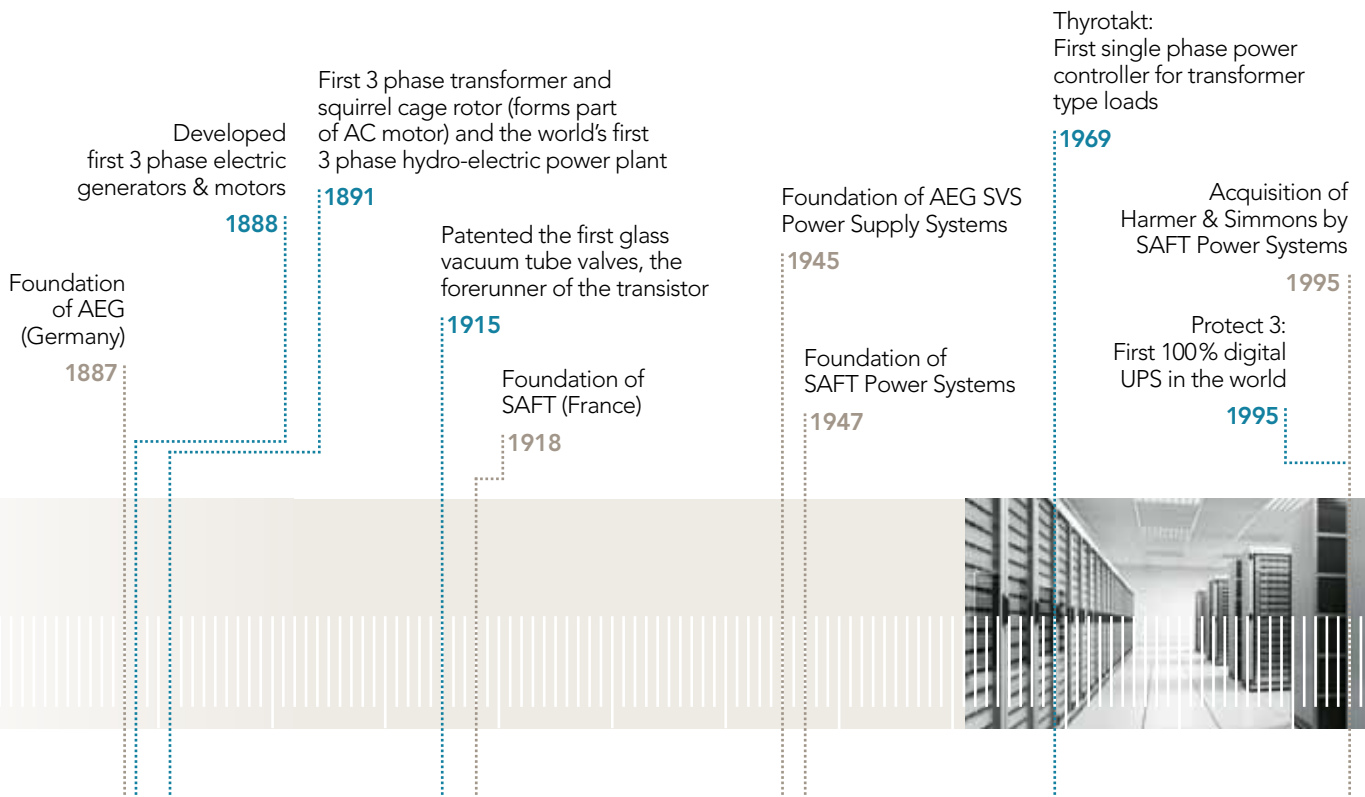
Our extensive products and services portfolio bridges both AC and DC power technologies and delivers comprehensive solutions for both conventional and renewable energy sources as well as for a broad range

of demanding and specialist industrial applications where reliability and efficiency are of crucial importance.

AEG Power Solutions activities consist of two complementary operating segments:

- Renewable Energy Solutions
- Energy Efficiency Solutions

“Never ending technological progress in the service of mankind”





Our vision is to maintain our position as the world's leading power solutions company and to continue in the delivery of outstanding service, innovative products and customizable, robust and reliable solutions that meet the demands of today's energy provision and to prepare for tomorrow's challenges.

AEG Power Solutions is uniquely positioned to benefit long-term from emerging demand for intelligent micro-energy grids and the increasing demand for reliable renewable energy sources that will grow over the coming years.

Innovation:

Innovation has been at the core of AEG Power Solutions values since it was founded. We constantly conduct research and development using innovative ideas, approaches, methods and solutions.

Respect:

We respect all of our internal and external stakeholders as well as our professional partners and industry peers. Both internally and externally, we respect each individual's professional needs and aspirations. We always take into account such diverse considerations as culture, gender, job status and professional responsibilities as well as each stakeholder's health, safety and well-being.

Accountability:

We take responsibility for our actions and behavior. We are each accountable to all of our internal and external stakeholders, including co-workers, management, customers and business partners.

Reliability:

Beyond the reliability of our products, reliability permeates all of our business encounters, both inside and outside the company. As reliable professionals, we always respect and deliver on our commitments.

Acquisition of AEG SVS
Power Supply Systems by
SAFT Power Systems

1998

Thyro A:
First power controller with
complete digital 16/24 bit scope

2002

Merger of
SAFT Power Systems
with Alcatel Converters

2002

Acquisition of
SAFT Power Systems by
Ripplewood from Alcatel

2005

Thyrobox MV-I:
First ultra small medium
voltage ignition system
for polysilicon reactors
and processes

2007

Protect MIP:
Highly efficient
and easily scalable
rectifier system for the
industrial market

2008

Rebranding:
SAFT Power Systems to
AEG Power Solutions

2008

Protect PV.250:
Ultra efficient inverter for photovoltaic
power plants (eff. >98.7%)

2009

eco^{px}

Pioneering hybrid power
systems for telecom

2010

Protect Blue:
New world beating UPS for
large data centers launched

2012



UNRIVALLED SECURITY FOR YOUR LARGE DATA CENTER

HIGHEST POWER EFFICIENCY

Protect Blue, the new high power flagship UPS model from AEG Power Solutions has been designed especially for use in large data centers. The full three level IGBT technology for both rectifier and inverter and in both directions offers up an unrivalled 96 % double conversion efficiency.

Fulfilling your global ecological responsibilities

With Protect Blue, fulfilling your environmental responsibilities couldn't be easier. Meeting the EU's 20-20-20 carbon reduction goals is high on the social responsibility agenda of many leading companies. The clearly defined targets are set up to minimize wasteful energy loss, to ensure that UPS's are used in their most efficient mode and to determine increases in overall efficiency.

Improve the eco-credentials of your data center

Improving the emissions of your data center could not be easier. The current industry standard of double conversion mode has been increased by AEG Power Solutions to reach levels of 99 % in VI mode and 96 % efficiency in VFI mode.

Key applications

- Large data centers
- Server farms
- Telecommunications installations
- ISP's
- Financial systems
- Credit card operations



AEG PS is amongst the first to market with its leading edge three power protection.

German innovation at its best

AEG Power Solutions have achieved a genuine technological breakthrough in establishing new industry performance standards for a range of "best in class" products and solutions delivering efficiency, reliability and high capacity UPS systems to our customers.

Using a modular building block approach, the Protect Blue 250 kVA single unit can be combined to achieve up to 4 MVA enabling our customers to grow as the demands of their businesses grow. Protect Blue is AEG PS's flagship UPS with full rectifier and inverter three level technology which guarantees significant reductions in switching losses. Each power conversion module (both rectifier and inverter) is able to achieve an unrivalled 98 % efficiency as standard.

Protect Blue delivers premium power performance and true reliability:

- Double-conversion design and lower THDi enhances power protection
- Distributed or centralized static bypass switch for parallel systems build options
- Distributed or centralized battery options to build parallel systems
- Higher efficiency due to longer battery runtimes

Lower TCO through sustainable design

- Reduction in energy consumption during manufacturing, testing and use
- Electrical and cooling cost savings due to higher efficiency
- Flexible, upgradeable architecture for future expansion needs
- Longer component life due to robust internal design – 15 years expected lifetime

PROTECT BLUE



UPS system for large data centers

The new UPS series Protect Blue by AEG Power Solutions offers a highly efficient UPS solution for large data centers and IT applications in power ranges up to 4 MVA.

Created for the future of power supply

In times of constantly increasing energy prices, Protect Blue helps reduce the costs for operation and cooling to a great extent through high efficiency.

Protect Blue is able to feed energy back into the circuit and to communicate with intelligent power supply systems. This allows for future energy demands and price oriented management with regard to alternative energy sources.

Modular architecture, flexible performance and maximum redundancy

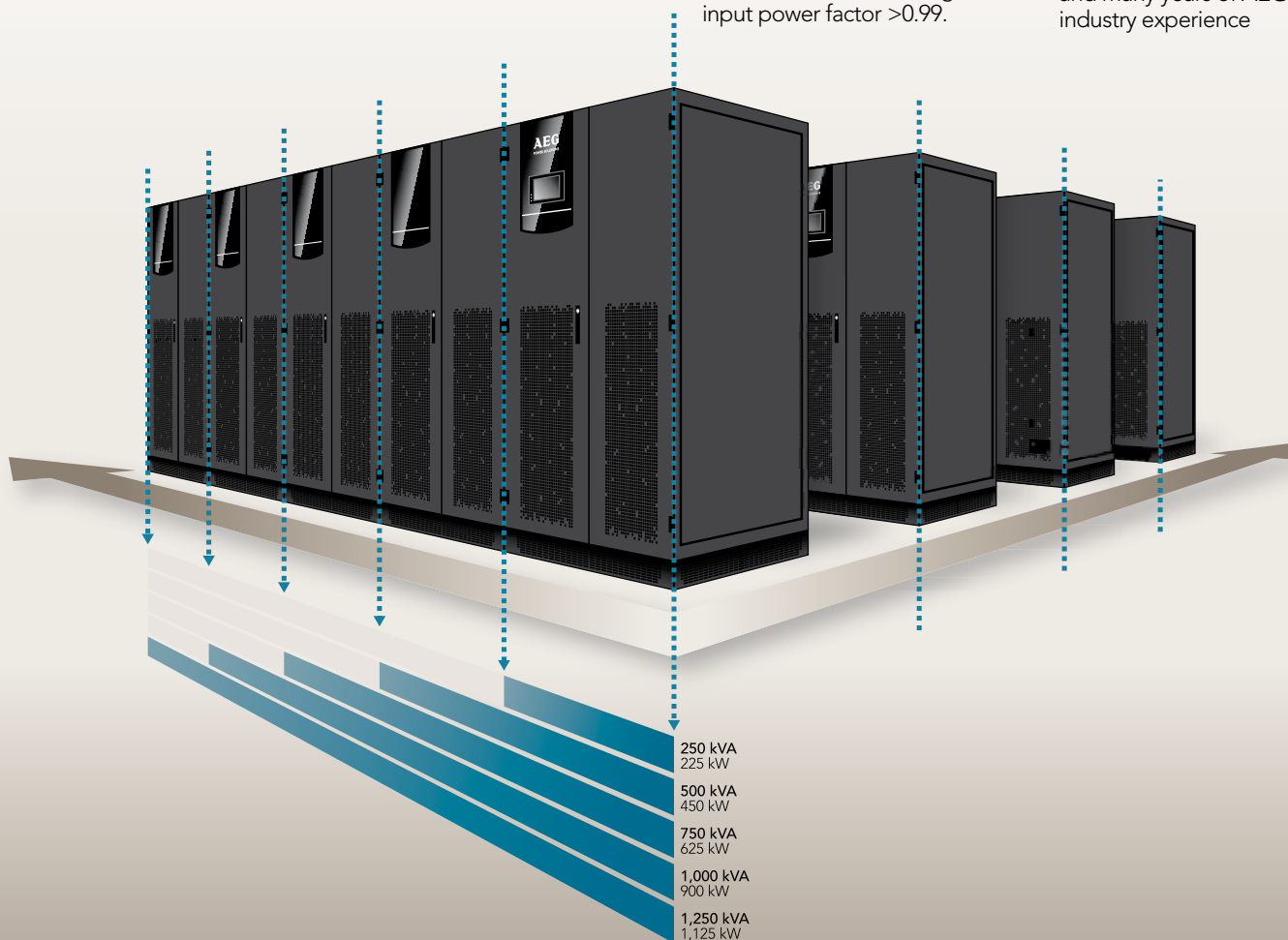
Protect Blue is based on a 250 kVA power block architecture. With this, power levels of 250 – 1,250 kVA can be achieved per UPS. N+1 redundancy operation is possible. All "Power Blocks" are equipped with decentralized control mechanisms to increase operational safety. When used in parallel operation with up to 4 UPS devices, a total power of up to 4 MVA can be achieved.

Highest efficiency during online operation

Protect Blue is transformer-less, works with the latest IGBT technology and therefore reaches an efficiency level of up to 96 % at a load of at least 40 %. Protect Blue combines all further advantages of this technology such as low circuit feedbacks <3 % and a high input power factor >0.99.

Main characteristics

- Flexible power configuration from 250 up to 1,250 kVA
- Parallel switching of up to 4 UPS with a total power of up to 4 MVA
- Developed for tomorrow's power supply system: need- and price-oriented energy management
- High operating security through a flexible redundancy concept
- Highest possible efficiency of up to 96 % during genuine "online" operation
- Low circuit feedback <3 %
- Intuitive 7" touch screen
- Front access to all important components
- Wall assembly possible
- Extensive communication options
- Highest reliability based on quality components and many years of AEG industry experience



MINIMIZING THE TOTAL COST OF OWNERSHIP

OUTSTANDING PERFORMANCE

Maximum savings

With its outstanding efficiency of >96 % in VFI mode and 99 % in ECO mode, Protect Blue's design greatly reduces the total cost of ownership from installation to end of operational life.

- Optimized power/ footprint ratio
- Reduced footprint
- Reduced air conditioning requirements
- Fast and safe maintenance

Delivering savings

- Minimized cost of installation
- Minimized cost of operation
- Minimized air conditioning requirement
- Highly efficient
- Reduced generator set size and operating costs

Lifetime savings

- Highest quality components limit thermal stress and increase overall lifetime
- Typical operational lifetime of 15 years
- High quality components ensure reliability and performance
- Up to 40 °C ambient temperature operating mode without de-rating

Extraordinary savings

The modular architecture of AEG PS' Protect Blue UPS allows for great advantages in terms of installation:

- Reduce the size of electrical infrastructure
- Reduce the size of circuit protection devices
- Reduce the amount of cabling

AEG PS' Protect Blue features an almost unitary input power factor. Together with its low harmonics, which provide full compatibility with generator sets, Protect Blue greatly contributes to reduced installation and running costs.

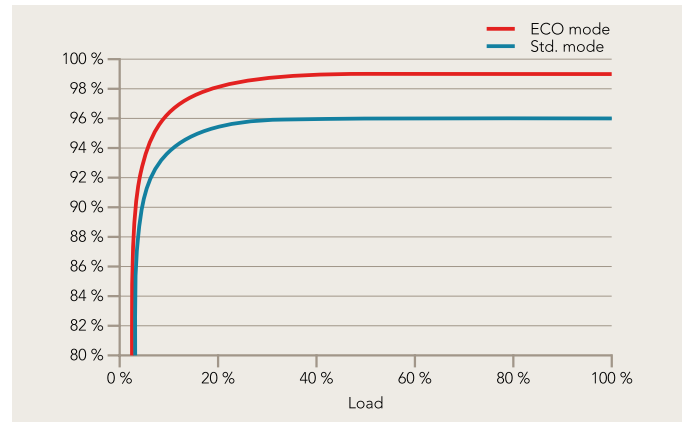
AEG PS' Protect Blue delivers 0.9 output power factor which for a given kVA will deliver 12 % additional kW compared to the existing 0.8 inverter topology.

Double conversion efficiency of 2 – 3 % is achieved through transformerless topology which delivers improvement as copper heat losses are eliminated.

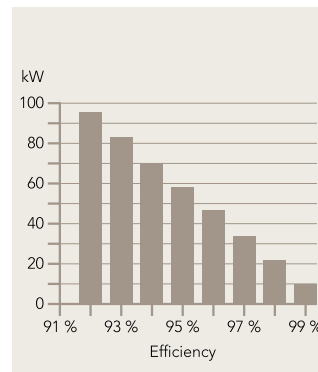
Running cost savings

Power module shedding

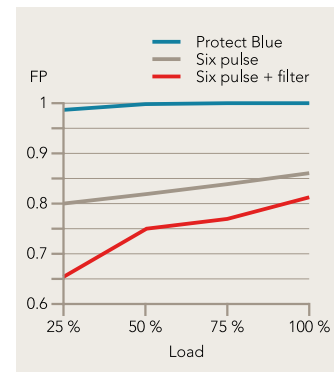
The multi-module configurable design of Protect Blue includes automatic adjustment of UPS capacity to meet immediate load demands by switching surplus module capacity to standby. This improves efficiency markedly at partial load and further reduces operating costs.



Maximum efficiency reached at 40 % of total load
95 % VFI/111 reached as low as 20 %
99 % efficiency in ECO mode



Air conditioning size and power reduced by 400 %



Input power factor vs load percentage

Reduction in air conditioning requirement

The extremely high efficiency achieved by AEG PS' Protect Blue reduces the energy dissipated by the UPS (kW). This has the effect of reducing the demand and power consumption of the air conditioning system. AEG PS' Protect Blue can deliver 100 % power at

40 °C operating ambient temperature without de-rating. UPS rooms equipped with Protect Blue do not require massive cooling to manage a constant 25 °C temperature, unlike some legacy UPS systems.

FEATURE RICH LARGE SCALE UPS SYSTEM



Protect Blue – standard features

- Three level IGBT rectifier
- Three level IGBT inverter
- Embedded static switch
- Embedded manual bypass switch
- Redundant cooling fans
- Input inrush current limitation
- DSP control
- Bottom cable entry

Battery management

- IU characteristic
- Automatic battery test
- Frequent testing without battery capacity reduction
- Autonomy time reduction
- Display remaining autonomy time
- Programmable alarm

Graphic display and alarms

- Touch screen display
- 800 x 480 pixel wide screen
- 3 status LEDs
- Audible alarm

Remote signaling card

- Standard configuration with options for customized configuration
- 1 x isolated input
- 5 x isolated relay outputs

Protect Blue – optional features

Remote signaling extension

- Up to 2 x cards, stackable, configurable
- 2 x optical isolated inputs
- 3 x isolated relay output

Remote signaling alarm terminal

- Separate terminals to connect to remote signaling card

BLU PRO

- Battery voltage monitoring for battery block aging detection

Battery compensated charging

- Battery charge/float charge voltage adapted to battery temperature

Communication

- Modem, ISDN or GSM
- Alarm management
- RS485 PROFIBUS DP interface, CCP
- RS485/RS232 MODBUS
- Ethernet interface bus connection IEC61850
- SNMP adapter
 - Embedded web server
 - Embedded email client
 - Embedded event manager
 - Direct multi server shutdown in heterogeneous networks
- Environmental manager
- "CompuWatch" monitoring software
- COM server

AEG POWER
SOLUTIONS

YOUR POWER PARTNER – ALSO FOR SERVICES

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

Global network of 20 Services 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 time 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 Care™ 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.

SERVICE PACKAGES



Service for data center solutions

Increasing system availability and reducing failure costs with the help of our experts.

As a globally recognized systems provider, AEG Power Solutions offers a worldwide network with 20 customer service centers and more than 150 field service technicians.

In addition, we can rely on more than 100 certified service partners all over the world. Thanks to our comprehensive service, you can reduce the operating costs of your business power supply solutions to a minimum.

Short reaction times and efficient troubleshooting by our global service team ensure maximum operating security for your installed power supply solution.

Especially for the data center solutions Protect Blue. AEG Power Solutions has developed special service packages.

Pro-Care Safe is a comprehensive, preventive maintenance program that is run on-site once a year. It includes more than 50 clearly designed functional tests and diagnoses.

Pro-Care Excel contains, in addition to the diagnosis, replacement of faulty parts and installation of spare parts. The spare parts themselves are included.

Pro-Care Premium ensures a service that covers replacement of used batteries.

Choose the suitable maintenance contract for your power supply solution.

	PRO-CARE SAFE	PRO-CARE EXCEL	PRO-CARE PREMIUM
Service description	Annual preventive maintenance on-site	Annual preventive maintenance on-site, including replacement of faulty parts	Annual preventive maintenance on-site, including replacement of faulty parts and batteries
Visual inspection	■	■	■
Functional tests	■	■	■
Elimination of organic and inorganic impurities	■	■	■
Battery function test	■	■	■
Computer-based fault diagnosis	■	■	■
Setting and optimization of parameters	■	■	■
Repair on the same day after customer agreement	■	■	■
Maintenance report	■	■	■
Functional test run	■	■	■
Software update	■	■	■
Hotline available 24/7	■	■	■
Additional phone support on workdays during regular working hours	■	■	■
Includes travel expenses and service technicians on-site	■	■	■
Includes replacement of faulty parts ¹		■	■
Includes replacement of batteries in accordance with the lifespan			■
3-year maintenance contract	■	■	■
Finalization after expiration of the warranty period		■	■

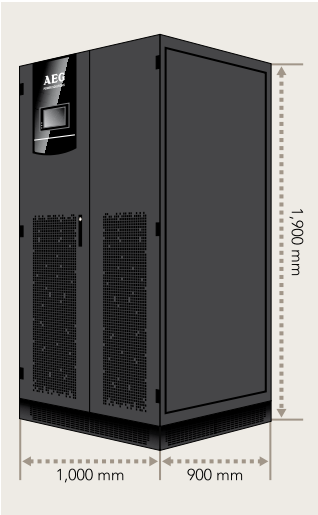
¹ Excludes unrelated failures or acts of God



SCALABLE
POWER

POWER BLOCKS
CONFIGURATION

Multi-module
configuration supplies

- Redundancy
- Scalability
- High availability
- High reliability
- N+1 configuration
- High power configuration



POWER BLOCKS	DISTRIBUTION CUBICLE	RATING	TOTAL WIDTH (MM)
		250 kVA	1,000
		500 kVA	3,000
		750 kVA	5,000
		1,000 kVA	6,000
		1,250 kVA	7,000

PROTECT BLUE

TECHNICAL DATA

Classification VFI SS 111 acc. to IEC 62040-3					
Power type rating	250 kVA	500 kVA	750 kVA	1,000 kVA	1,250 kVA
	225 kW	450 kW	675 kW	900 kW	1,125 kW
SYSTEM					
Nominal input current (A)	336	672	1,008	1,344	1,680
Rectifier efficiency	98 %				
AC/AC efficiency (VFI SS 111)	96 %				
Waste heat from power in normal use kW	9	19	28	37	47
Waste heat from power in normal use BTU/h	29,447	58,894	88,341	117,788	147,235
UPS INPUT					
Nominal voltage	3 x 400 V, 3 Phase				
Input voltage range	340 – 440 V				
Frequency	50 Hz / 60 Hz (adjustable)				
Total harmonic distortion (THDi)	≤3 %				
Power factor	>0.99				
INVERTER					
Nominal voltage	3 x 400 V (380 V, 415 V adjustable), 3 phase + neutral				
Frequency	50 Hz / 60 Hz (adjustable)				
Precision static/dynamic	±1 % / ±2 %				
Total harmonic distortion	<3 %				
Max. short circuit current	125 % for 10 min., 150 % for 60 s				
Crest factor	3 : 1				
Max. short circuit current	300 % of the rated current				
Admissible power factor	0.1 inductive to 0.1 capacitive				
BATTERY					
Rated voltage	480 V DC				
Max. charging power	54 A	108 A	162 A	216 A	270 A
Charging characteristics per IEC 478-11	IU				
STATIC BYPASS					
Nominal voltage	3 x 400 V (380, 415 V adjustable), 3 phase + neutral				
Frequency	50 Hz / 60 Hz (adjustable)				
Synchronization range	±10 % (adjustable)				
Transfer time at mains outage	0 ms (without interruption)				
Admissible overload	500 % for 10 ms				
GENERAL DATA					
Parallel mode	Up to 4 UPS (3 devices at 1250 kVA)				
Audible noise	62 – 69 dB(A) dependent on equipment installed and load state				
Operating temperature range/humidity	0 – 40 °C / <95 % (without condensation)				
Protection	IP20				
Color	RAL 9005				
Cable entry	Underside				
Environmental conditions	Free from corrosive air and conductive dust				
COMMUNICATION					
Display	480 x 800 pixel graphical LCD touch screen				
Alarm signals	Acoustic and visual				
Interfaces	Remote signal contact, RS232 / 485, SNMP, Modbus, Profibus, GSM modem, COM server				
DIMENSIONS					
Dimensions approx. H x W x D (mm)	1,900 x 1,000 x 900	1,900 x 2,000 x 900	1,900 x 3,000 x 900	1,900 x 4,000 x 900	1,900 x 5,000 x 900
Footprint (m²)	0.9	1.8	2.7	3.6	4.5
Weight approx.	897 kg	1794 kg	2,691 kg	3,588 kg	4,485 kg

Contactos/Contacts:

Comercial/Commercial:

Francisco Lopes

e-mail: flopes@bhb.pt

Tel: (+351) 21 843 64 00

Fax: (+351) 21 843 64 09

Assistência/Service:

Joaquim Picante

e-mail: jpicante@bhb.pt

Tel: (+351) 21 843 64 00

24 Horas: (+351) 96 523 73 93

