



PROTECT UNINTERRUPTABLE
POWER SUPPLY AND
SURGE PROTECTION

AEG
POWER SOLUTIONS

AEG POWER SOLUTIONS

THE RIGHT UPS FOR EVERY APPLICATION

04–05	Product overview
06	Surge protection
07–09	Surge protection for home/small office
10–11	UPS technology
12–27	Compact UPS for home/small office, small and medium sized IT
28	eco ^{px} Hybrid Architecture
29	SuperCaps [®]
30–35	UPS for data centers
36–41	Extensions and accessories
42–43	Services

AEG Power Solutions provides tailored solutions to customers' needs for protection against network faults and the problems caused by data loss and downtime costs. We assist our clients in all aspects of securing and controlling their electricity supply.

"Plug & Safe" – possibilities

Our product range extends from surge protection for home and office to UPS systems for industry.

We deliver UPS devices for home use, compact rack mounted UPS systems and equipment for small and medium IT concerns and "Plug & Safe" – parallel switching enabled modular UPS systems for data centers and for industry.

Product Support

AEG Power Solutions is a customer oriented, experienced company that is always there for you. The simple expansion of products, reliable delivery and business oriented service and support packages allows you to realize your individual protection requirements.

Founding of
"Allgemeine
Elektrizitäts
Gesellschaft (AEG)"
1883

Construction of
SAFT Power Systems
1947

Establishment of
the AEG plant in
Warstein-Belecke
1945

The first
performance Thyristors
are built in series
1952

DC supply for the
German Post Office
1951

Worlds first single-phase
Thyristor inverter
1961

First single-phase power
controller for resistive loads
1961

Worlds first three-phase
Thyristor inverter
1965

For the first time in Europe,
bi-directional Thyristors
(Triacs) are built
1968

Development of
power controllers
1969





Experience and continuity

For over 60 years, AEG Power Solutions has been a leading provider of reliable and efficient power systems for mission critical applications for customers involved in electricity supply, telecommunications, lighting, transportation, manufacturing, renewable energy and industry.

With over 250 engineers, technicians and project managers, AEG Power Solutions are carrying out pioneering work in research and development and in application engineering. As a result of this ingenuity, AEG Power Solutions currently has more than 70 active patents in the field of electricity supply.

Field service locations worldwide

With 20 branches and over 50 qualified partners, AEG Power Solutions deliver competent service and on-site support to our customers worldwide in 100 countries.

Our technical teams are able to perform complete turnkey projects for our customers.

On request, we can work on projects for electricity supply, from project management planning through to final installation, whether it is a new plant, an expansion or a retro fit out.

Talk to us!



5/25: First switching power supply

1972

Thyrosoft: First soft starter motor

1984

Profitec S: First rectifier with microprocessor

1985

First UPS with IGBT transistor (single and three phase)

1988

Protect 3.: Worldwide, the first UPS with 100 % digital control

1995

Thyro-P: Digital power controller

1999

Frost & Sullivan "UPS Product Line Leadership of the year" award

2006

Protect RCS: Rectifier, battery charge and DC power supply for all industrial applications

2007

eco^{px}: Hybrid emergency power supply with solar and wind energy

2009

Protect PV.250: Solar central inverters with operating efficiency of 98.7 %

2010

Thyrobox PI: Power supply system with 10–20 % higher output for polysilicon production

2010



PRODUCT OVERVIEW



SURGE PROTECTION FOR HOME AND SMALL OFFICE

page 7



PROTECT BASIC.

PROTECT TRAVEL.

Power strip for all standard applications

Security on the move for safe charging of your devices

Protected sockets

6 (GE6) / 7 (GE7)

1

Euro-sockets

2

Power switch



USB charger

2

Network protection

Sockets with child protection



Special features

Cable holder (Basic.GE7)

Flexible rotatable power supply



COMPACT UPS FOR HOME / SMALL OFFICE, SMALL AND MEDIUM SIZED IT

page 12



PROTECT HOME.

PROTECT A.

Complete protection for multimedia applications

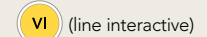
Protection for PC's, workstations and telephone equipment

Output power

0.6 kVA

0.5–1.4 kVA

Technology according to IEC 62040-3



Input/output

1 ph~ / 1 ph~

1 ph~ / 1 ph~

Parallel operation

Display

LED

LED/LCD

Battery system

Internal

Internal

Autonomy time (min.) at nominal load

3

3

UPS FOR DATA CENTERS

page 30



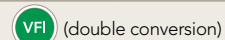
PROTECT 2.33 2.0

Protection for small to medium sized data centers

Output power

10–80 kVA

Technology according to IEC 62040-3



Input/output

3 ph~ / 3 ph~

Parallel operation

Yes

Display





LED & LCD (multilingual)






Battery system



Internal / External

Autonomy time (min.) at nominal load

8–57

 <p>8</p>	 <p>8</p>	 <p>9</p>	 <p>9</p>	
<p>PROTECT ENTERTAINMENT.</p>	<p>PROTECT TWINPOWER.</p>	<p>PROTECT BUSINESS.</p>	<p>PROTECT OFFICE.</p>	
<p>Intelligent protection for entertainment equipment with master-slave function</p>	<p>Security for flexible connectivity and safe power supply</p>	<p>Business solutions with surge protection and USB charger</p>	<p>Compact protection for PC and peripheral equipment</p>	
<p>6</p>	<p>4+1</p>	<p>6</p>	<p>3</p>	
<p></p>	<p>2</p>	<p></p>	<p></p>	
<p></p>	<p>2</p>	<p>2</p>	<p>2</p>	
<p>■</p>	<p>■</p>	<p>■</p>	<p>■</p>	
<p>■</p>	<p>■</p>	<p>■</p>	<p>■</p>	
<p>Antenna line protection</p>	<p>Two part construction</p>	<p>Foldable construction</p>	<p>Audio connection</p>	

 <p>16</p>	 <p>18</p>	 <p>20 22</p>	 <p>24</p>	 <p>26</p>
<p>PROTECT B. PRO</p>	<p>PROTECT C.</p>	<p>PROTECT D.</p>	<p>PROTECT 1.</p>	<p>PROTECT 1.M</p>
<p>Efficient rack / tower UPS for small server and network components with sinusoidal output</p>	<p>Tower UPS for sensitive networks, small computer centers, intranet and internet servers</p>	<p>Compact UPS for rack mounted protection of server, network and IT equipment</p>	<p>For small data centers, protection of cash till systems and building facilities</p>	<p>Scalable and modular high-performance UPS system for the IT sector</p>
<p>0.75–3 kVA</p>	<p>1–10 kVA</p>	<p>1–10 kVA</p>	<p>10–20 kVA</p>	<p>4–24 kVA</p>
<p>VI (line interactive)</p>	<p>VFI (double conversion)</p>	<p>VFI (double conversion)</p>	<p>VFI (double conversion)</p>	<p>VFI (double conversion)</p>
<p>1 ph~ / 1 ph~</p>	<p>1 ph~ / 1 ph~</p>	<p>1 ph~ / 1 ph~</p>	<p>3 ph~ / 1 ph~</p>	<p>1 ph~ or 3 ph~ / 1 ph~</p>
<p>LED & LCD</p>	<p>LED</p>	<p>LED & LCD (multilingual)</p>	<p>LED</p>	<p>LED & LCD</p>
<p>Internal/External</p>	<p>Internal/External</p>	<p>Internal/External</p>	<p>External</p>	<p>External</p>
<p>4–44</p>	<p>5–60</p>	<p>3–60</p>	<p>6–80</p>	<p>10–90</p>

 <p>32</p>	 <p>34</p>
<p>PROTECT 3.M 2.0</p>	<p>PROTECT BLUE.</p>
<p>Modular UPS with "hot-swappable" design as scalable solution for medium sized data centers</p>	<p>Powerful UPS for large data centers</p>
<p>20–120 kVA</p>	<p>250–1250 kVA</p>
<p>VFI (double conversion)</p>	<p>VFI (double conversion)</p>
<p>3 ph~ / 3 ph~</p>	<p>3 ph~ / 3 ph~</p>
<p>Yes (internal & external)</p>	<p>Yes</p>
<p>LED & LCD (multilingual)</p>	<p>LED & LCD (multilingual)</p>
<p>External</p>	<p>External</p>
<p>Freely selectable</p>	<p>Freely selectable</p>

SURGE PROTECTION

WHEN THE VOLTAGE RISES

High voltage surge – high damage

Over 1.7 million lightning flashes were counted in Germany in 2011. The flash frequency was 0.5 to 10 impacts per km² per annum. Under unfavorable conditions, electrical surge damage can still occur up to 3 km from the lightning strike.

Surge protection

Household appliances are becoming more valuable, especially as the number of computers and entertainment electronics continues to rise steadily. Devices are of increasing sophistication and quality and are, therefore, more expensive. When a lightning strike occurs, there is an enormous increase in voltage in power supply lines. This over-voltage or surge, may damage any connected devices, destroying or irreparably damaging them.

Even simple switching of a fluorescent lamp fitted with a conventional ballast starter within a household can generate an unwanted power surge.



A single power surge can cause a loss of several thousand Euros. Even if only small parts are damaged, the entire system often requires replacing. Even if a repair is possible, it is usually difficult and expensive.

Surge protection solutions from AEG Power Solutions, safeguards your valuable equipment cost effectively and protects you from problems and financial loss.

Particularly sensitive electronic equipment

- PBX's and routers
- Flat screen TV and LCD screens
- Computers and peripherals
- Satellite receivers

- Games consoles
- Home theater systems

All of our surge protectors are equipped with the latest metal oxide varistors. Connected loads are effectively protected up to 36000 A from impact and current spikes.

While traditional varistors always carried the risk of fire caused by over voltage, the new generation is characterized by the highest thermal stability, providing an even higher level of protection. This is back up by the KEMA KEUR certificate and the GS seal.

AREAS OF APPLICATION

	Protect Basic.	Protect Travel.	Protect Entertainment.	Protect TwinPower.	Protect Business.	Protect Office.
PBX/Router	■	■	■		■	■
Flat screen TV & receiver				■	■	
Games console		■	■		■	■
Computers & peripherals		■	■	■	■	■
HiFi equipment & speakers	■		■	■		
Mobile phones & MP3 players		■		■	■	■
Small household equipment	■		■		■	

PROTECT BASIC. PROTECT TRAVEL.



Protect Basic.GE6



Protect Basic.GE7



Protect Travel.

Protect Basic.

5 outputs provide room for additional standard safety plugs and remote sockets for the connection of larger plug power supplies. Additional filters serve to mitigate high frequency noise. Cable clutter is avoided with the built-in cable holder (GE7).

Operating status and active surge protection are displayed with two LED's. Via the power switch, the load is disconnected from the network in order to avoid standby power usage.

Main characteristics

- 5 sockets plus 1 or 2 remote outputs e.g. for larger power supplies
- Long power cable (1.8 m) with angled plug
- Resettable circuit breaker
- All outputs fitted with child safety protection
- Fixing options for wall mounting
- LED's indicate operating status and active surge protection
- Surge protection up to 36000 A
- Full triple protection
- 10 year warranty

Part numbers

- Protect Basic.GE6:
600 000 7194
- Protect Basic.GE7:
600 000 7196

Protect Travel.

Protect Travel. provides surge protection in the smallest places. This makes it ideal for trips or for use in confined spaces.

Often the quality of power in your destination country is not sufficient for your secure power requirements. Play it safe and protect laptops, mobile phones and digital cameras on the road against power surges. With the two integrated USB chargers you will save on the need to carry additional chargers with you.

Main characteristics

- 3 surge protected load terminals
- 2 remote, protected USB charging sockets
- Pilot light indicates active surge protection
- Compact size, ideal for travel
- 90° swivel cable
- All outputs fitted with child safety protection
- Surge protection up to 36000 A
- 10 year warranty

Part number

- Protect Travel.:
600 000 7747



Protect Basic.GE7
Integrated cable organizer



Protect Travel.
Compact dimensions
ideal for travel bag

PROTECT ENTERTAINMENT. PROTECT TWINPOWER.



Protect Entertainment.

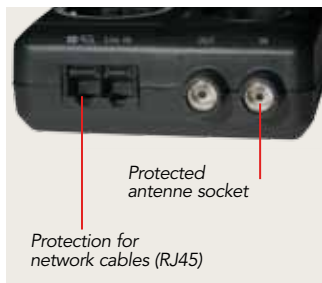
Protect Entertainment. Protection for home entertainment

Protect your valuable investment and save money on standby costs! With its master-slave function, the Protect Entertainment. is especially suitable for modern home theater and multi media equipment.

Once you turn off the main unit (master), Protect Entertainment. interrupts the power supply to the peripheral devices (slaves) automatically so that no electricity is wasted on standby. Two constant current carrying sockets provide power to



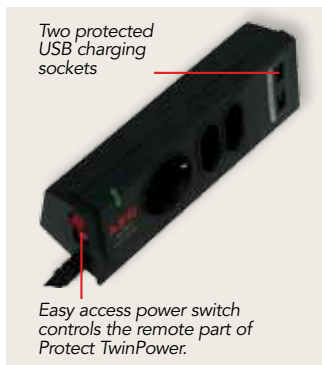
Protect Entertainment. Master-Slave-function switchable so that all outputs deliver power



Protected antennae socket

Protection for network cables (RJ45)

Protect Entertainment.



Two protected USB charging sockets

Easy access power switch controls the remote part of Protect TwinPower.

Protect TwinPower.



Protect TwinPower.

Protect TwinPower. Security for flexibility in your application

The Protect TwinPower. from AEG Power Solutions offers a flexible solution for desktop surge protection. With 7 power outputs, Protect TwinPower. offers enough ports for all peripherals connected to a computer. With its two-piece design, the leads are placed in the most flexible position, the first part with 4 sockets e.g. to supply power for computers, printers and monitors and a desk unit with 3 sockets. You can disconnect the remote part of the TwinPower. from the grid to avoid standby charges for your connected devices when they are not being used.

devices whose power supply should not be broken e.g. hard disk drives or satellite receivers.

In addition, Protect Entertainment. also provides surge protection for antenna and network cables so that all of your entertainment equipment is protected against over voltage.

Main characteristics

- 1 master and 3 slave sockets, adjustable trigger threshold of master, master-slave function disabled
- 2 permanent electrical outputs

- Over voltage protection for coaxial antenna cables
- Surge protection for network cables (RJ45)
- All outputs fitted with child safety protection
- Surge protection up to 36000 A
- Full triple protection
- 10 year warranty

Part number

- Protect Entertainment.: 600 000 7745

With the two protected USB charging sockets you can, for example, charge most mobile phones and MP3 players

Main characteristics

- Two part surge protector strip
- Power switch to turn off the remote gang
- A total of 4 + 3 protected outputs
- 2 protected USB charging sockets
- Easily accessible power switch
- All outputs fitted with child safety protection

- Surge protection up to 36000 A
- Full triple protection
- 10 year warranty

Part number

- Protect TwinPower.: 600 000 7749

PROTECT BUSINESS. PROTECT OFFICE.



Protect Business.

Protect Business. Space saving business solution

Protect laptops and projectors at conferences.

With its folding mechanism, Protect Business. is suitable for use at conferences and on desktops.

Additionally, it offers surge protection via the two integrated USB charging sockets and the data cable (RJ45) socket.

Main characteristics

- 6 protected sockets
- 2 protected USB charging sockets



Protect Business.



Protect Office.



Protect Office.

Protect Office. Compact protection for your PC

Protect Office. is the compact power distributor for the desktop. The three power outputs and network connections ensure all round protection for your computer.

During development, compact dimensions were always at the forefront. Additionally, you can connect microphones and speakers directly to the Protect Office. avoiding the clutter of cables behind and on your desk. With the central power switch, you can turn off peripheral devices and avoid standby power charges.

Main characteristics

- 3 protected outputs, one that is rotatable by 90°
- 2 protected USB charging sockets
- Surge protection for network cables (RJ45)
- Additional connection of microphone and speakers, audio extension cable included.
- Surge protection up to 36000 A
- Full triple protection
- 10 year warranty

Part number

- Protect Office.: 600 000 7746



Protect Business.
Foldable for space saving



Protect Office.

UPS TECHNOLOGY

PRECISE PROTECTION FOR EVERY APPLICATION

Mains voltage variations occur more often than expected. The consequences of this are crashes, loss of data and cost intensive downtime. The solution is an uninterruptable power supply (UPS) which offers a variety of levels of protection.

Uninterruptable power supply

There are three different UPS topologies offering different protection levels against all types of mains disruption and variation.

VFD technology

“Voltage and frequency dependent” in compliance with IEC 62040-3, also referred to as offline, protects against many problems in your network. Under normal conditions it conducts the input current to its outlet. When the power supply fails it switches over to a built in battery to compensate for any variations in the mains supply.

Benefits

- Smallest size
- Highest efficiency
- Lowest operating costs

VI technology

“Voltage independent” in compliance with IEC 62040-3, also known as line interactive, protects against the most common power problems experienced in a network. Here the UPS also monitors the voltage level and balances under and over voltages. The VI technology offers a good compromise between reasonable security and moderate operating costs.

Benefits

- Extremely wide input voltage window
- Rugged design
- High efficiency
- Low operating costs

VFI technology

“Voltage and frequency independent” in compliance with IEC 62040-3, as well as online or double conversion offers superior protection against problems in the power supply. Here, the input voltage is fed to a rectifier, with output being supplied by an inverter. Under normal operating conditions, the inverter receives its supply directly from the rectifier, when the power supply fails it is supplied directly from the batteries. Consumers have no direct connection to mains AC power supply; the UPS protects them from all power grid problems.

In critical situations and with sensitive equipment, protection by VFI technology is highly recommended.

Benefits

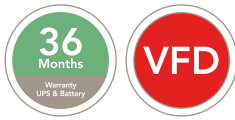
- Sinusoidal input current and output voltage
- No switching times, therefore no gaps in coverage
- Frequency converter operation possible
- Additional internal redundancy switch over
- Optimum protection against power disturbances

Outage-blackouts		VFD	VI	VFI	Offline
Sags/brownouts					
Dynamic overvoltage					
Undervoltage (continuous)					Line interactive
Overvoltage (continuous)					
Transients/surges					Online
Frequency variations					
Voltage distortions (bursts)					
Voltage harmonics					

Optimum protection for every application



PROTECT HOME.



Uninterruptible security for PCs and multimedia

Protect yourself with an uninterruptible power supply against data loss. With an output of 600 VA, Protect Home. protects. It measures and protects against the consequences of power outages, voltage fluctuations and dangerous power spikes.

Appropriate protection

Protect Home. is especially designed for domestic multimedia applications. It provides complete surge protection for telephone, fax and modem.

Consumers are connected directly to protected sockets directly through the UPS.

Protect Home. has all of the features that current technology can provide to protect your valuable equipment from short circuit and power overload.

Easy to use

The clear "one board" design and LED indicators let you know about the most important operating conditions. This ease of use is complemented by an audible alarm.

Easy to control

Protect Home. can be connected quickly and easily with a PC or Mac via the USB or RS232 interfaces.

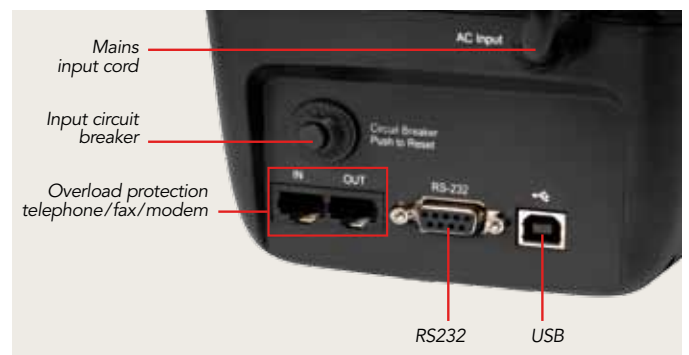
Through the included AEG shutdown software "Compuwatch", the unit allows you to control the most important operations as well as providing automatic shutdown during longer power outages.

Main characteristics

- Rugged UPS technology for power outages, voltage fluctuations and spikes
- USB and RS232 interface for control and management for PC and MAC

- Fully fledged "CompuWatch" "plug& play" software
- Data line protection (telephone, fax and modem)
- User friendly battery design
- Individual operation, wall mountable
- 1 output for connecting consumers with high power requirements such as laser printers
- 36 month warranty with advanced exchange service (free registration required)

Best features:
Comprehensive protection for telephone, fax or modem, USB and serial port for communication with your PC or MAC.



Classification VFD SY 322 acc. to IEC 62040-3	Protect Home.
Power type rating	600 VA 300 W
Part number	600.001.1844
UPS INPUT	
Input voltage	230 V AC
Voltage range without battery supply	+6 % / -10 %
Frequency	50 Hz / 60 Hz ±5 Hz
Current consumption	3 A
UPS OUTPUT	
Rated output voltage	230 V AC
Rated output voltage in battery mode	±10 %
Frequency in battery mode	50 Hz / 60 Hz ±1 Hz
Output current	2.6 A
Transfer time at mains outage	2 – 6 ms (typical)
Voltage waveform	Modified sine wave
Overload/short circuit protection	Yes
BATTERY	
Type	Sealed, maintenance free (proprietary brand)
Autonomy time for 1 PC with 17" TFT	~ 10 min.
Overload/deep discharge protection	Yes
Recharge time (to 90 % of rated capacity)	8 h
COMMUNICATION	
Interfaces	USB and RS232 for status and measurement levels
Shutdown software (on CD)	Included for all mainstream operating systems (e.g. Windows, Linux, MAC)
Failure indicators (acoustic/visual)	Mains failure, overload, battery low, fault
GENERAL DATA	
Audible noise (1 m distance)	<40 dB(A) (fanless)
Operating temperature range	0° – 40°C
Humidity	20 – 90 %
Operation altitude	Up to 1000 m at nominal load
EMC conformity	EN 62040-2 Class C2, EN 61000-3-2, EN 61000-3-3
Product safety	EN 62040-1
Data line protection	RJ11 (telephone, fax, modem)
Outputs	4 shock proof sockets (4 x surge protection, 3 x UPS protection)
Equipment color	Blackline, high gloss finish
Dimensions approx. W x H x D (mm)	137 x 96 x 310
Weight approx.	3.5 kg
Shipment	Mains input cord, Management software "CompuWatch" (CD), USB and RS232 communication cable, operating instructions
Conformity	CE

PROTECT A.



Uninterruptible security for PC's, workstations and communications

Provide yourself with optimum protection with an uninterruptible power supply against data loss.

Thanks to its wide performance spectrum from 500 VA to 1400 VA, Protect A. series protects your data effectively and inexpensively from the unwanted consequences of power outages, fluctuations and dangerous spikes.

Protect A. performs confidently in critical situations where high availability is required, thanks to modern line interactive (VI) technology delivering robust protection from overload and overvoltage and a very wide supply range.

Easy to use

The reliable "one-board" design and the clear LCD display A. 1000/A. 1400 on the front clearly informs you about the most important operating conditions.

All models feature simple controls, an audible alarm and automatic frequency detection (50/60 Hz).

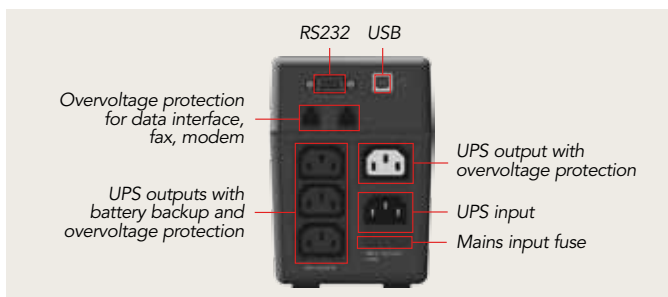
Ease of use is guaranteed by the inclusion of a cable set for a straightforward set up.

Easy to control

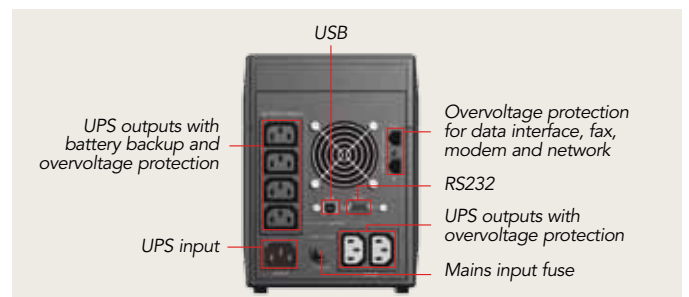
All functions are microprocessor controlled and monitored; measurement values and messages are always available because Protect A. communicates via an RS232 or a USB interface to your MAC or PC. Through the included AEG shutdown software "CompuWatch", the unit allows you to control the most important operations as well as providing automatic shutdown during longer power outages.

Main characteristics

- Modern VI (line interactive) technology for power outages and dangerous over voltages
- Automatic voltage regulation against line voltage deviations (AVR)
- Double mains filter against voltage spikes
- Easy installation ensured by cables supplied for optimum operation
- Sealed, maintenance free lead-acid batteries with exhaustive charge protection
- USB port and RS232 interface for control and data acquisition – PC or MAC
- Data line protection
- 36 month warranty with advanced exchange service available (free registration required)

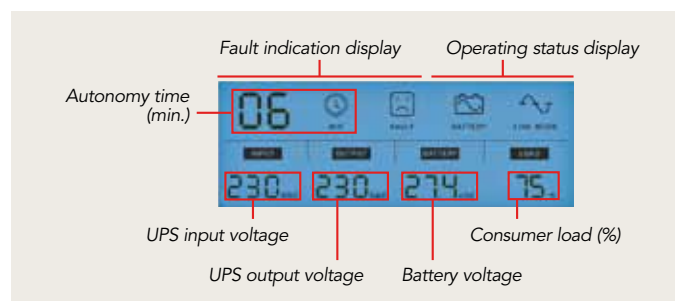


Protect A. 500/A. 700 – rear view



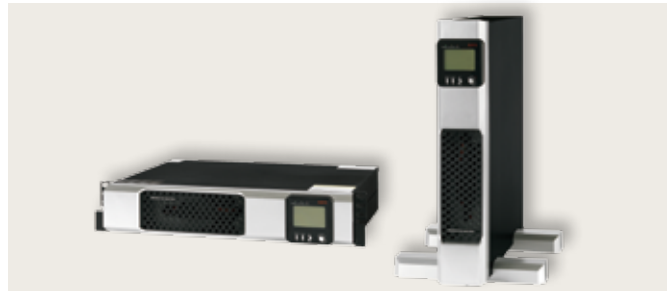
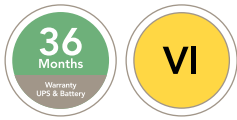
Protect A. 1000/A. 1400 – rear view

Classification VI SY 322 acc. to IEC 62040-3	A. 500	A. 700	A. 1000	A. 1400
Power type rating	500 VA	700 VA	1000 VA	1400 VA
	300 W	420 W	600 W	840 W
Part number	600 000 6435	600 000 6436	600 000 6437	600 000 6438
UPS INPUT				
Input voltage	220 V AC / 230 V AC / 240 V AC			
Voltage range without battery mode	170 – 280 V AC			
Frequency (automatic selection)	50 Hz / 60 Hz \pm 5 Hz			
UPS OUTPUT				
Rated output voltage / AVR technology	230 V AC			
Rated output in battery mode	\pm 10 %			
Frequency in battery mode	50 Hz / 60 Hz \pm 1 Hz			
Nominal output current (at 230 V AC)	2.2 A	3 A	4.3 A	6.1 A
Transfer time at mains outage	2 – 6 ms (typical)			
Voltage waveform	Approximated sinusoidal			
Overload protection	Yes			
BATTERY				
Type	Sealed, maintenance free (proprietary brand)			
Autonomy time for 1 PC with 17" TFT	~15 min.	~20 min.	~30 min.	~40 min.
Exhaustive discharge protection / protection against excess load	Yes			
Charging time (to 90 % of rated capacity)	8 h			
COMMUNICATION				
Interfaces	USB and RS232 (with status messages measured values)			
Shutdown software (on CD)	Included in delivery for all major operating systems (e.g. Windows, Linux, Mac)			
Alarm messages (acoustic/visual)	Mains failure, overload, battery discharged, replace battery, fault			
	LCD display for input and output voltage [V] / efficiency [%] / autonomy time [min.]			
GENERAL DATA				
Audible noise (1 m distance)	<40 dB(A)		<45 dB(A) (AC-operation <40 dB(A))	
	Fanless		Speed controlled fan	
Operating temperature range	0° – 40°C			
Humidity	0 – 90 % (without condensation)			
Operation altitude	Up to 1000 m at nominal load			
EMC conformity	EN 62040-2 Class C2, EN 61000-3-2, EN 61000-3-3			
Product safety	EN 62040-1			
Data line protection	RJ11 (telephone, fax, modem)		RJ11 / RJ45 (add. network), Ethernet 10 and 100 Mbit/s	
Outputs	3 + 1 x IEC 320 C13		4 + 2 x IEC 320 C13	
Equipment color	Blackline			
Dimensions approx. W x H x D (mm)	100 x 140 x 330		145 x 205 x 405	
Weight approx.	6 kg	6.5 kg	9.5 kg	10 kg
Shipment	Mains input cord (1 x EU, 1 x UK), 2 device connecting cables, management software "CompuWatch" (CD) incl. 1 network license USB and RS232 communication cable, operating instructions			
Conformity	CE			



Protect A. 1000/A. 1400 – display screen

PROTECT B. PRO



Efficient and innovative UPS solutions for servers and networks

With its high power factor of 0.9lag, Protect B. PRO is one of the most efficient systems with VI protection technology.

Many ways of communication are possible, thanks to parallel operation of the RS232 or USB interfaces and the extension slot.

Also, the adaptation of the UPS to the requirements of modern IT environments is reflected by the design. The UPS can be configured directly with the control panel. Batteries can be easily replaced by means of the innovative flap mechanism at the front.

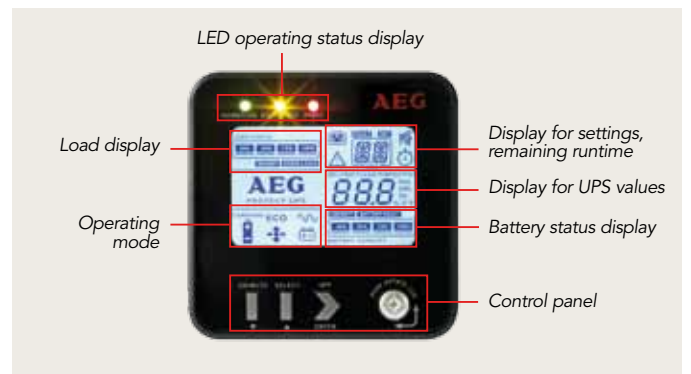
By means of the included accessories and the rotary screen, the UPS can be operated in the rack as well as in the tower mode.



Easy battery replacement through front flap

Main characteristics

- Modern VI (line interactive) protection technology with sinus-shaped output voltage
- Low operating costs through high efficiency, power factor 0.9lag
- Compact shape, flexible use through combined design tower / rack, rotary screen
- Surge protection (RJ11 / RJ45) for telephone, fax, modem and network
- Configuration directly on the LCD
- Full display of the essential parameters on the screen, e.g. the remaining runtime in minutes
- Intelligent monitoring system with USB and RS232 interface; parallel operation of USB / RS232 and extension slot is possible
- 36-month warranty with replacement service in advance (free registration required)



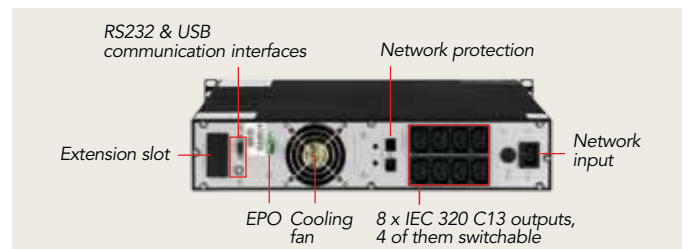
Protect B. PRO – LCD control panel



Rotary screen



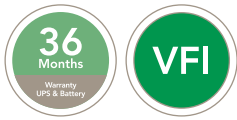
Included pedestals



Protect B. 1000 PRO – rear view

Classification VI SS 211 acc. to IEC 62040-3	B. 750 PRO	B. 1000 PRO	B. 1400 PRO	B. 1800 PRO	B. 2300 PRO	B. 3000 PRO
Power type rating	750 VA	1000 VA	1400 VA	1800 VA	2300 VA	3000 VA
	675 W	900 W	1260 W	1620 W	2070 W	2700 W
Part number	600 000 8422	600 000 8424	600 000 8426	600 000 8428	600 000 8431	600 000 8432
Part number (battery pack)				600 000 8429		
UPS INPUT						
Input voltage	220 V AC / 230 V AC / 240 V AC					
Voltage range without battery mode	±20 %					
Frequency (auto selection)	50 Hz / 60 Hz ±5 Hz					
Current consumption at nominal load (max.)	4 A	5.3 A	7.3 A	11.2 A	11.8 A	15.2 A
UPS OUTPUT						
Rated output voltage/AVR technology	208 V AC / 220 V AC / 230 V AC (default) / 240 V AC ±10 % (±3 % free running)					
Frequency in battery mode	50 Hz / 60 Hz ±1 Hz					
Output current (at 230 V AC)	3.2 A	4.3 A	6.1 A	7.8 A	10 A	13 A
Transfer time at mains outage	2 – 6 ms (typical), 8 ms max.					
Voltage waveform	sinusoidal					
Overload response (VI operation)	<120 % for 5 min. / 120 – 150 % for 10 s / >150 % for 1 s					
Overload response (battery operation)	<110 % for 1 min. / 110 – 150 % for 10 s / 150 – 200 % for 500 ms					
BATTERY						
Type	Sealed, maintenance free (proprietary brand), hot swappable					
Integrated	Yes	Yes	Yes	No (external)	Yes	Yes
Rated voltage	24 V DC		48 V DC		72 V DC	
Battery management	Temperature compensated with overload and deep discharge protection; automatic battery test; battery pack detection					
Autonomy time in min. (full/half-load, $\cos \varphi = 0.9$ lag)	3.5/10	3.5/9.5	5/13	10/28 (1 x BP) 26/62 (2 x BP) 44/100 (3 x BP)	3.5/14	4/11
Charging time (to 90 % rated capacity)	6 h (also with battery extension)					
COMMUNICATION						
User interface	LCD display with digital indication of relevant UPS values					
Interface (dual monitoring)	RS232 and USB (with status notification and UPS data), additional communication slot in parallel mode (SNMP / relay card); input contact for emergency power off					
Shutdown software (on CD)	5 network licenses for all common OS (e.g. Windows, Linux, Mac)					
Failure indicators (acoustic/visual)	3 LED indicators show UPS status, detailed indication via LCD display (mains failure, overload, battery discharge, battery replace, fan failure)					
GENERAL DATA						
Efficiency (in ECO mode)	>97 %					
Efficiency (at whole AVR range)	>90 %					
Audible noise (1 m distance)	≤45 dB(A)			≤55 dB(A)		
Ditto in ECO mode and max. 70 % load	≤40 dB(A)			≤45 dB(A)		
Operating temperature range	0° – 40°C					
Humidity	0 – 90 % (without condensation)					
Operation altitude	Up to 1000 m at nominal load					
EMC conformity	EN 62040-2 Class C2, EN 61000-3-2, EN 61000-3-3					
Product safety	EN 62040-1					
Data line protection	RJ11 (telephone, fax, modem) / RJ45 (Ethernet 10 Mbit/s / 100 Mbit/s)					
Mains input	IEC 320 C14			IEC 320 C20		
Number of outputs/controllable via connectors	8/4 8 x IEC 320 C13			7/3 6 x IEC 320 C13, 1 x IEC 320 C19		
Equipment color	Black metal case / silver front					
Dimensions approx. W x H x D (mm)	482.6 (19") x 88 (2 U) x 420		482.6 (19") x 88 (2 U) x 520		482.6 (19") x 88 (2 U) x 640	
Weight approx.	14.5 kg	15 kg	22 kg	14.5 kg/ 29.5 kg (BP)	29 kg	29.5 kg
Shipment	Mains input cord (1 x EU, 1 x UK), 2 x device connection cables (10 A), additional cable (16 A) for Protect B. 2300 PRO and Protect B. 3000 PRO, 2 x mounting brackets, 2 x base feet, 1 x management software "CompuWatch" (CD), 5 network licenses, RS232 and USB cable, operating instructions					
Conformity	CE					

PROTECT C.



High-performance UPS system for IT applications

Thanks to genuine VFI technology (online/double conversion), Protect C. is suitable for all critical business applications.

The proven VFI topology of Protect C. protects against all network problems as a matter of principle. A sinus-shaped power feed is achieved under all load conditions at the input.

Highly integrated switches and a robust IGBT module reduce the number of electrical connections and components and therefore provide for increased reliability. An Static bypass switch (SBS) and/or an automated bypass ensure additional safety in case of overload.

Maximum control

The bar displays for UPS load and battery capacity, as well as the clear pictogram of the system components provide information on the essential operating conditions.

Data is transmitted through an RS232 interface. With an optional SNMP (PRO) adapter, remote monitoring via a web browser and multi-server shutdown are possible.

The special AEG shutdown software "CompuWatch" is of course included.

Switchable in parallel

Protect C. 6000 and C. 10000 offer the possibility of parallel operation. Both active redundancy and higher availability are achieved with higher power requirements being taken into account.

Also, the combination of power increase and active redundancy is possible, as up to 3 devices can be switched in parallel.

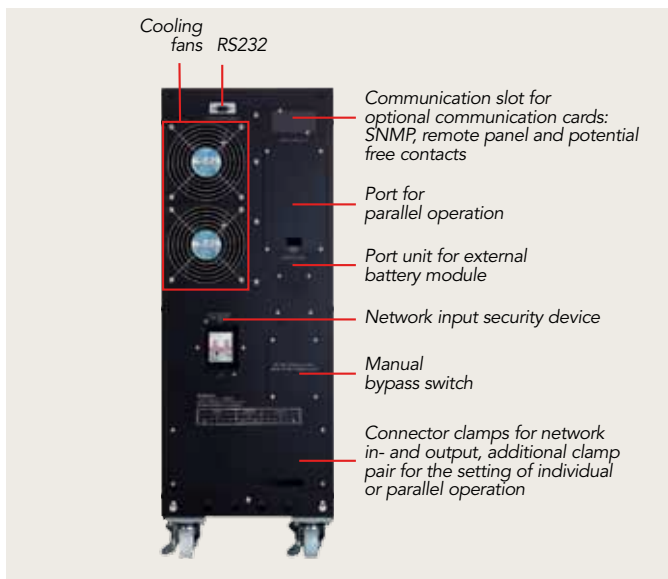
Protect C. meets the highest security and availability requirements and allows for an economical implementation.

Main characteristics

- VFI topology (online/double conversion) protects against all network problems
- Micro processor control/digital signal processors for maximum availability
- Sinus-shaped power feed (high-frequency pulse width modulation with IGBTs)
- Static bypass switches (SBS) for Protect C. 6000 and C. 10000, additionally integrated maintenance bypass
- n+x technology for Protect C. 6000 and C. 10000 for redundancy and performance increase
- Extension slot for SNMP, potential-free contacts, remote panel
- Also available as an S-version with reinforced charging rectifier
- 36-month warranty with replacement service in advance (free registration required)

PROTECT C.	Autonomy time (full/half-load) (min.)				
	1000 VA	2000 VA	3000 VA	6000 VA	10000 VA
Default autonomy time	6/21	10/30	5/16	8/26	5/16
1 additional battery module	38/97	55/130	30/85	26/67	16/42
2 additional battery modules	76/170	106/237	60/149	47/112	27/60
3 additional battery modules	-	-	-	67/157	42/97
4 additional battery modules	-	-	-	94/203	53/118

Autonomy time – battery units resemble UPS



Protect C. 10000 – rear view

Classification VFI SS 211 acc. to IEC 62040-3	C. 1000	C. 2000	C. 3000		
Classification VFI SS 111 acc. to IEC 62040-3				C. 6000	C. 10000
Power type rating	1000 VA	2000 VA	3000 VA	6000 VA	10000 VA
	700 W	1400 W	2100 W	4200 W	7000 W
				Parallel connection	Parallel connection
Part number (UPS including integrated battery system)	600 000 5735	600 000 5736	600 000 5738	600 000 5877	600 000 5878
Part number (battery pack)	600 000 5739	600 000 5740	600 000 5740	600 000 5879	600 000 5880
Part number (UPS S-version)	600 000 4337	600 000 4338	600 000 4339	600 000 4340	600 000 4341
UPS INPUT					
Input voltage	220 V AC / 230 V AC / 240 V AC				
Voltage range without battery mode	160 – 300 V AC			176 – 276 V AC	
Frequency (auto selection)	50 Hz / 60 Hz ±4 Hz				
Mains current (system reaction)	$\lambda \geq 0.96$			$\lambda \geq 0.98$	
Current consumption at nominal load (max.)	7 A	10 A	16 A	31 A	50 A
UPS OUTPUT					
Rated output voltage (adjustable)	220 V AC / 230 V AC / 240 V AC ±2 %			220 V AC / 230 V AC / 240 V AC ±1 %	
Frequency in battery mode	50 Hz / 60 Hz ±0.2 %			50 Hz / 60 Hz ±0.1 %	
Output current (at 230 V AC)	4.3 A	8.7 A	13 A	26 A	43.4 A
Transfer time at mains outage	0 ms (without interruption)				
Voltage waveform	Sinusoidal, distortion THD <4 %				
Overload response (online operation)	<150 % for 30 s / 150 % for 300 ms			<130 % for 10 min. / 130 % for 1 s	
	Subsequent, transfer to bypass mode				
Crest factor	3 : 1				
Short circuit response	Short circuit proof (3 x I _N for 140 ms)				
BATTERY					
Type	Sealed, maintenance free, integrated (proprietary brand)				
Rated voltage (linked)	36 V DC	96 V DC		240 V DC	
Overload/deep discharge protection	Yes				
Charging time (to 90 % rated capacity)	5 h			7 h	
COMMUNICATION					
Interfaces	RS232 (with status display and data), communications slot for SNMP, potential free relay contact				
Shutdown software (on CD)	5 network licenses for all common OS (e.g. Windows, Linux, Mac)				
Failure indicators (acoustic/visual)	LED display for UPS summary / battery capacity display, status display Indicators for mains failure, overload, battery charging, battery replacement, failure				
GENERAL DATA					
Efficiency AC – AC (at nominal load)	≥85%		≥88%	≥90%	
Audible noise (1 m distance)	<45 dB(A)		<50 dB(A)	<55 dB(A)	
Operating temperature range	0° – 40°C				
Humidity	0 – 90 % (without condensation)				
Operation altitude	Up to 1000 m at nominal load				
EMC conformity	EN 62040-2 Class C1, EN 61000-3-2, EN 61000-3-3			EN 62040-2 Class C3	
Product safety	EN 62040-1				
Data line protection	RJ11 (telephone, fax, modem) / RJ45 (Ethernet 10 Mbit/s / 100 Mbit/s)				
Number of outputs	4 x IEC 320 C13	6 x IEC 320 C13	4 x IEC 320 C13	Secured terminal block	
			+ 1 x IEC 320 C19		
Equipment color	Blackline				
Dimensions approx. W x H x D (mm) UPS	145 x 220 x 400	192 x 340 x 460		260 x 720 x 570	
Dimensions approx. W x H x D (mm) battery	Integrated (not S-version battery pack same dimensions as UPS)				
Weight approx. UPS	15 kg	34 kg	35 kg	90 kg	93 kg
Weight approx. battery	19 kg	52 kg	52 kg	65 kg	68 kg
Shipment	Mains input cord, 3 device cords (Type C. 1000, C. 2000, C. 3000), parallel management cable (C. 6000 / C. 10000), management software "CompuWatch" (CD), communications cable, operating instructions				
Conformity	CE				

PROTECT D.



Extension slot

Locking outputs

Easy battery replacement

Efficient high-performance UPS for rack use

With a high power factor of 0.9lag the Protect D. series exceeds the power of conventional UPS systems by 20 %. Efficiency is significantly increased during normal operation as well as in the energy-efficient ECO and ECO+ operating modes.

Compact and flexible

The height of the UPS electronics and battery together is only 2 U. With the flap front cover, battery replacement is very easy.

The autonomy times can be increased with additional battery packs; connected battery packs are automatically detected.

All batteries can be replaced during operation (hot-swappable). Our advanced battery charging technology allows for short charging times and battery-preserving charging characteristics at the same time.

Many interfaces (RS232/USB/Slot/EPO) as well as a potential-free contact within the series ensure an outstanding communication capacity.

Secure and easy to use

An innovative locking mechanism at the UPS outputs prevents accidental separation of the loads.

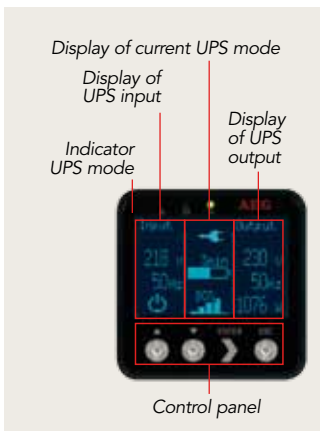
The multilingual graphic screen is very easy to read, even from a longer distance, thanks to its large format. Together with three LEDs at the top, it displays the essential operating conditions. The UPS can be directly administered with the control panel.

A real-time event logger ensures careful observation and analysis of events as they occur. In addition, a regular automated battery test can be planned.

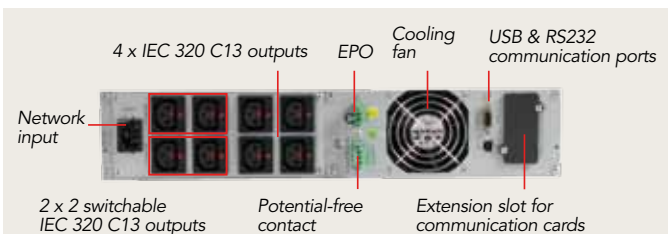
Main characteristics

- VFI topology (online/double conversion) protects against all network problems
- An increase of the available performance by approx. 20 % through a 0.9lag power factor
- Increased efficiency through the ECO and ECO+ mode

- Advanced battery charging technology for maximum durability of the battery
- Hot-swappable batteries, easy replacement through hinged front
- Additional battery packs for easy scaling of the autonomy times
- Extension slot for communication cards, communication in parallel is possible through the RS232/USB interface and SNMP
- Low height (2 U) including integrated batteries
- Switchable UPS outputs with innovative locking mechanism
- Display of the UPS parameters on a graphic LCD, direct configuration is possible with the control panel
- Freely programmable potential-free contact plus emergency shutdown contact
- May also be used as a frequency converter
- 36-month warranty with replacement service in advance (free registration required)



Protect D. – LCD & control panel



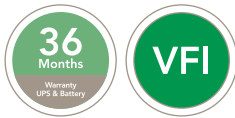
Protect D. 2000 – rear view

PROTECT D.	Autonomy time (full/half-load) (min.)			
(cos φ = 0.9lag)	1000 VA	1500 VA	2000 VA	3000 VA
Default autonomy time	6/19	5.5/14	6/16.5	3.5/9
1 additional battery module	31/68	25/61	33/71	18/45
2 additional battery modules	51/110	46/112	59/129	34/84
3 additional battery modules	82/192	69/172	88/183	53/122
4 additional battery modules	100/246	90/221	119/260	69/165

Autonomy time – battery units resemble UPS

Classification VFI SS 211 acc. to IEC 62040-3	D. 1000	D. 1500	D. 2000	D. 3000
Power type rating	1000 VA	1500 VA	2000 VA	3000 VA
	900 W	1350 W	1800 W	2700 W
Part number (UPS including integrated battery system)	600 000 8434	600 000 8436	600 000 8437	600 000 8438
Part number (additional battery pack)	600 000 8441	600 000 8442	600 000 8443	
UPS INPUT				
Input voltage	220 V AC / 230 V AC / 240 V AC			
Voltage range without battery mode (load dependent)	120 – 276 V AC		140 – 276 V AC	
Frequency (auto selection)	50 Hz / 60 Hz ± 5 Hz			
Mains current (system reaction)	$\lambda \geq 0.99$ (THDi ≤ 8 %)			
Current consumption at nominal load (max.)	4.8 A	7.2 A	9.6 A	13.7 A
UPS OUTPUT				
Rated output voltage (adjustable)	200 V AC / 208 V AC / 220 V AC / 230 V AC (default) / 240 V AC ± 2%			
Frequency in battery- / frequency converter mode	50 Hz / 60 Hz ± 0.25 Hz			
Output current (at 230 V AC)	4.3 A	6.5 A	8.7 A	13 A
Transfer time at mains outage	0 ms (without interruption)			
Voltage waveform	Sinusoidal, distortion THD < 3 %			
Overload response (double conversion mode)	< 130 % for 5 min. / 130 % – 150 % for 15 s			
Overload response (battery mode)	< 130 % for 12 s / 130 % – 150 % for 2 s			
Crest factor	3 : 1			
Short circuit response	Short circuit proof (4 x I _N for 100 ms)			
BATTERY				
Type	Sealed, maintenance free (proprietary brand), integrated, hot swappable			
Rated voltage (linked)	36 V DC	48 V DC	72 V DC	
Battery management	Temperature compensated with discharge protection, automatic battery test (programmable) and battery pack detection			
Charging time (to 90 % rated capacity)	3 h			
COMMUNICATION				
Interfaces (dual monitoring)	RS232, USB, communication slot (can be used parallel with RS232 / USB), input contact for emergency shutdown, programmable potential free contact			
Shutdown software (on CD)	5 network licenses for all common OS (e.g. Windows, Linux, Mac, Unix, Sun etc.)			
Failure indicators (acoustic/visual)	3 LED's with traffic light display, detailed indication via LCD display (alarms: at mains failure, overload, battery charging, battery replacement, fan fault, data logger – with clear text display incl. date and time history)			
GENERAL DATA				
Efficiency (ECO+ mode)	> 95 %		> 98 %	
Efficiency at nominal load (double conversion mode)	≥ 88 %	> 88 %	> 89 %	≥ 90 %
Audible noise (1 m distance)	< 44 dB(A)	< 45 dB(A)	< 52 dB(A)	
Operating temperature range	0° – 40 °C			
Humidity	0 – 95 % (without condensation)			
Operation altitude	Up to 3000 m at nominal load			
EMC conformity	EN 62040-2 Class C1, EN 61000-3-2, EN 61000-3-3			
Product safety	EN 62040-1			
Number of outputs (switchable) automatically locked	6 x IEC 320 C13 (2+2)		8 x IEC 320 C13 (2+2)	6 x IEC 320 C13 (3+3) + 1 x IEC 320 C19
Housing	Blackline metal case with aluminum front			
Dimensions approx. W x H x D (mm) UPS	482.6 (19") x 88 (2 U) x 430		482.6 (19") x 88 (2 U) x 600	
Dimensions approx. W x H x D (mm) battery	482.6 (19") x 88 (2 U) x 430		482.6 (19") x 88 (2 U) x 430	
Weight approx. UPS incl. integrated battery	16 kg	19.5 kg	19 kg	29.5 kg
Weight approx. battery extension unit	23 kg	28 kg	41 kg	41 kg
Shipment	Mains input cord (1 x EU, 1 x UK), UPS management software "CompuWatch" (CD), communications cables (RS232 & USB), operating instructions, rack rails, device cables: 3 x IEC 320 C13 (D. 1000 – D. 2000), 3 x IEC 320 C13 + 1 x IEC 320 C19 (D. 3000)			
Conformity	CE			

PROTECT D. 6000/10000



Top performance in rack format

Protect D. 6000 and D. 10000 compliment the range of the successful Protect D. series. With Protect D. 10000, a power level of 10 kVA in rack design is available for the first time.

Protect D. 6000 and Protect D. 10000 have the same advantages and characteristics as the smaller models, including the high power factor of 0.9lag.

Compact housing dimensions

Thanks to their compact design, the devices can also be used in IT cabinets with a depth of only 800 mm.

Protect D. 6000 including battery, connection unit and manual bypass unit fits within 3 standard height units. The 10 kVA version, with a complete battery system, connection unit and integrated manual maintenance bypass fits within 5 standard height units.

The sophisticated design with removable connection unit and battery systems with plug-in technology make the assembly in the rack and the electrical installation as easy as possible.

The weight is unimportant as the batteries can be mounted at the end of the installation.

Flexible and maintenance friendly

The equipment offers separate feed for the rectifiers and bypass, Protect D. 6000 and 10000 can also be operated with only one feed. Both options are provided to deliver highest flexibility and security.

To increase power or to be able to serve the demand for active redundancy, Protect D. 6000 and Protect D. 10000 are prepared for parallel operation.

In order to ease maintenance work, a manual bypass is already integrated into the removable connection unit.

Special characteristics

- Suitable for IT cabinets with a depth of 800 mm
- High power density in a compact housing
- Very easy assembly through removable connection unit and batteries with plug-in technology
- Dual or single input
- Prepared for parallel operation
- Integrated manual maintenance bypass (foolproof operation)
- 36-month warranty with replacement service in advance (free registration required)



Protect D. 10000 – rear view: flexible, removable connection unit with manual bypass and integrated IEC output distribution with automated locking mechanism



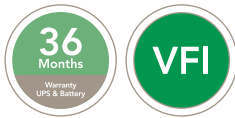
Protect D. 6000 with open battery compartment

PROTECT D. ($\cos \varphi = 0.9\text{lag}$)	Autonomy time (full/half-load) (min.)	
	6000 VA	10000 VA
Default autonomy time	3/9.5	4/7.5
1 additional battery module	11/27	9/18
2 additional battery modules	20/46	15/30
3 additional battery modules	30/68	21/43
4 additional battery modules	40/91	27/57

Autonomy time – battery units resemble UPS

Classification VFI SS 111 acc. to IEC 62040-3	D. 6000	D. 10000
Power type rating (Ready for redundant or increased performance parallel operation)	6000 VA	10000 VA
	5400 W	9000 W
Part number (UPS incl. internal battery system)	600 000 8439	600 000 8440
Part number (additional battery pack)	600 001 1042	600 001 1044
UPS INPUT		
Input voltage	220 V AC / 230 V AC / 240 V AC	
Voltage range without battery mode	176 V AC (120 V AC to 50 % utilization) – 276 V AC	
Voltage range bypass input	184 – 264 V AC	
Frequency (auto selection)	50 Hz / 60 Hz ± 10 %	
Mains current (system reaction)	$\lambda \geq 0.99$ (THDi < 5 %)	
Current consumption at nominal load (max.)	29 A	47 A
UPS OUTPUT		
Rated output voltage (adjustable)	200 V AC / 208 V AC / 220 V AC / 230 V AC (default) / 240 V AC ± 1 %	
Frequency in battery / frequency converter mode	50 Hz / 60 Hz ± 0.5 %	
Output current (at 230 V AC)	26 A	43.4 A
Transfer time at mains outage	0 ms (without interruption)	
Voltage waveform	Sinusoidal, distortion THD < 2 %	
Overload response (double conversion mode)	< 130 % for 2 min. / 130 – 150 % for 30 s, then automatically switches over to electronic bypass: 0 ms	
Crest factor	3 : 1	
Short circuit response	Short circuit proof ($3 \times I_N$ for 100 ms)	
BATTERY		
Type	Sealed, maintenance free (proprietary brand), integrated, hot swappable	
Rated voltage (linked)	180 V DC	240 V DC
Battery management	Temperature compensated with discharge protection, automatic battery test (programmable) and battery pack detection	
Charging time (to 90 % rated capacity)	3 h	
COMMUNICATION		
Interfaces (dual monitoring)	RS232, USB, communication slot (can be used parallel with RS232 / USB), input contact for emergency shutdown, programmable potential free contact	
Shutdown software (on CD)	5 network licenses for all common OS (e.g. Windows, Linux, Mac, Unix, Sun etc.)	
Failure indicators (acoustic/visual)	3 LED's with traffic light display, detailed indication via LCD display (alarms: at mains failure, overload, battery charging, battery replacement, fan fault, data logger – with clear text display incl. date and time history)	
GENERAL DATA		
Efficiency (ECO mode)	> 96 %	> 97 %
Efficiency at nominal load (double conversion mode)	> 92 %	> 93 %
Audible noise (1 m distance)	< 55 dB(A)	
Operating temperature range	0° – 40°C	
Humidity	0 – 95 % (without condensation)	
Operation altitude	Up to 1000 m at nominal load	
EMC conformity	EN 62010-2 Class C2	
Product safety	EN 62040-1	
AC input	Permanent connection via terminals, separate power option from rectifier and bypass connector unit with removable integrated manual bypass (for installation or subsequent maintenance of UPS) with optional cable entry from top or rear	
Number of outputs automatically locked	1 x fixed connection on terminal block plus 2 x IEC 320 C13, 1 x IEC 320 C19	1 x fixed connection on terminal block plus 4 x IEC 320 C19
Housing	Metal casing, blackline with aluminum cabinet front	
Dimensions approx. W x H x D (mm) without front panel	48.6 (19") x 132 (3 U) x 715 depth with front panel plus 35 mm	48.6 (19") x 220 (5 U) x 715 depth with front panel plus 35 mm
Dimensions approx. W x H x D (mm) battery extension unit incl. front panel	482.6 (19") x 132 (3 U) x 595	
Weight approx. without batteries	20 kg	32.5 kg
Weight approx. with batteries	46 kg	82.5 kg
Weight approx. battery extension unit	44.5 kg	63 kg
Shipment	Rack rails kit, 16 A IEC device cable, UPS management software "CompuWatch" (CD) incl. 5 network licenses, RS232 and USB cable, operating instructions	
Conformity	CE	

PROTECT 1.



Online UPS systems for networks and data centers

Protect 1. offers you a high-power UPS system for all critical business applications. Among other fields of use, Protect 1. is suitable for networks, data centers, cash desk systems or building technology.

The VFI topology of Protect 1. protects reliably against all network problems.

Switchable in parallel

A compact parallel switch panel ensures the flexible and easy development of a parallel system.

Up to 3 devices can be switched in parallel. Hence, a power increase up to 60 kVA is possible in addition to the combination of power improvement and redundancy.

Control and monitoring

The clearly structured screen provides detailed information on all important operating conditions and events.

Data is transmitted through an RS232 interface.

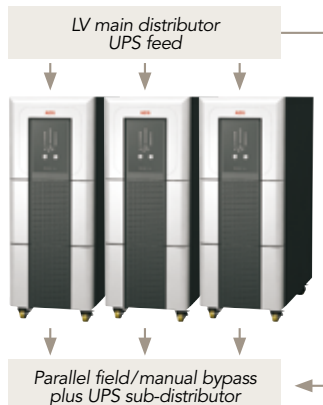
With the extension slot, devices such as SNMP (PRO) adapter cards or potential-free contacts can be retrofitted. This supports remote monitoring via web browser and multi-server shutdown.

The special AEG shutdown software "CompuWatch" is included.

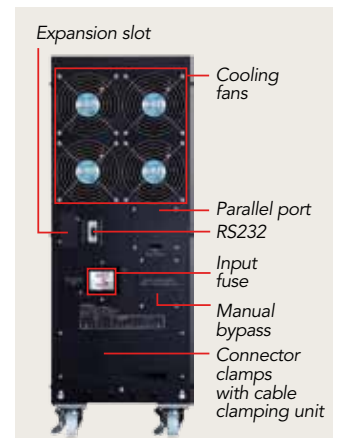
Main characteristics

- VFI topology (online/double conversion) protects against all network problems
- Static bypass switch (SBS) and foolproof maintenance bypass
- 10, 15 or 20 kVA with space-efficient, modern design
- n+x technology for active redundancy and/or performance increase
- Performance increase up to 60 kVA through parallel operation of up to 3 devices
- RS232 interface, extension slot e.g. for SNMP adapter card

- Battery systems with an expected lifespan of 10–12 years, according to EUROBAT, are available
- State-of-the-art technology for maximum reliability (DSP, CAN-Bus) and maximum efficiency (high-frequency IGBT)
- 36-month warranty with replacement service in advance (free registration required)



Protect 1. during parallel operation



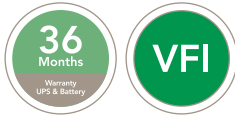
Protect 1.200 – rear view

PROTECT 1.	Autonomy time (full/half-load) (min.)			
Coupled battery cabinets	Protect 1.100	Protect 1.150	Protect 1.200	
1 x Protect 1.100 BP	16/42	-	-	Port "plug & play" with battery connection wire protected against polarity reversal
2 x Protect 1.100 BP	42/97	-	-	
3 x Protect 1.100 BP	60/134	-	-	
1 x Protect 1. BP 20	19/47	10/29	6/19	Battery cabinets, pre-assembled and ready to be connected
2 x Protect 1. BP 20	47/103	29/68	19/47	
3 x Protect 1. BP 20	78/177	47/103	34/62	
4 x Protect 1. BP 20	103/243	68/153	47/103	Protect 1. BP20 Period of use of the integrated rechargeable batteries: 10 – 12 years according to EUROBAT
5 x Protect 1. BP 20	138/312	85/202	63/138	

Autonomy times – battery cabinets resemble UPS

Classification VFI SS 111 acc. to IEC 62040-3	Protect. 1.100	Protect. 1.150	Protect. 1.200
n+x - technology scalable (parallel switching capacity up to 3 units)			
Power type rating	10 kVA	15 kVA	20 kVA
	7 kW	10.5 kW	14 kW
Part number (UPS without battery)	600 000 4434	600 000 4435	600 000 4436
Part number (battery pack 1.100BP)	600 000 5097		
Part number (battery pack 1.BP20)	100 000 1991	100 000 1991	100 000 1991
UPS INPUT			
Input voltage	400 / 230 V AC (3 ph~/N/PE)		
Voltage range without battery mode	304 – 478 V AC (Bypass: 176 – 261 V AC)		
Frequency (automatic selection)	50 Hz / 60 Hz \pm 4 Hz		
Mains current (system reaction)	$\lambda \geq 0.95$		
Current consumption at nominal load (max.)	13 A / 46 A (bypass)	19 A / 68 A (bypass)	25 A / 91 A (bypass)
UPS OUTPUT			
Rated output voltage (adjustable)	220 V AC / 230 V AC (default) / 240 V AC \pm 1 %		
Frequency in battery mode	50 Hz / 60 Hz \pm 0.1 %		
Output current (at 230 V AC)	43.4 A	65.2 A	86.9 A
Transfer time at mains outage	0 ms (without interruption)		
Voltage waveform	Sinusoidal, distortion THD <2 %		
Overload response	<130 % for 10 min. / 130 % for 1 s, then automatic transfer to bypass mode: 0 ms (without interruption)		
Crest factor	3 : 1		
Short circuit response	Short circuit proof (2.5 x I _n for 100 ms)		
BATTERY			
Rated voltage (linked)	240 V DC		
Charging characteristics	IU – characteristic curve (charging voltage 274 V DC / charging current max. 4.2 A)		
Autonomy time	Expandable with external battery modules		
Overload/deep discharge protection	Yes		
COMMUNICATION			
Interfaces	RS232 (with status display and data values) Communication slot (for potential free contact, SNMP)		
Shutdown software (on CD)	5 network licenses for all common OS (e.g. Windows, Linux, Mac, Unix, Sun etc.)		
Failure indicators (acoustic/visual)	Mains failure, overload, battery charging, battery replacement, failure LED bar graph for summary / battery capacity		
GENERAL DATA			
Efficiency AC – AC (at nominal load)	>90 %		
Audible noise (1 m distance)	<55 dB(A)		<60 dB(A)
Operating temperature range	0° – 40°C		
Humidity	0 – 95 % (without condensation)		
Operation altitude	Up to 1000 m at nominal load		
EMC conformity	EN 62040-2 Class C3		
Product safety	EN 62040-1		
Equipment color	Blackline		
Dimensions approx. W x H x D (mm) UPS	260 x 720 x 670 plus interception unit (90)		
Dimensions approx. W x H x D (mm) battery extension unit	260 x 720 x 670 (Protect 1.100 BP)		
	260 x 720 x 810 (Protect 1. BP 20)	260 x 720 x 810 (Protect 1. BP 20)	260 x 720 x 810 (Protect 1. BP 20)
Weight approx. UPS	39 kg	55 kg	55 kg
Weight approx. battery extension unit	135 kg (Protect 1.100 BP)		
	170 kg (Protect 1. BP20)	170 kg (Protect 1. BP20)	170 kg (Protect 1. BP20)
Shipment	Parallel connection cable, communication cable, UPS management software "CompuWatch" (CD), operating instructions		
Conformity	CE		

PROTECT 1.M



Front view with swappable module unit technology

Modular high-performance UPS for the IT sector

Protect 1.M is a UPS system with maximum reliability and power.

The VFI topology of Protect 1.M protects its systems reliably against all network problems.

Modular structure

The compact module structure of Protect 1.M allows you to flexibly upgrade the UPS power up to 24 kVA. The individual 4 kVA modules are hot-swappable, connected modules are automatically detected.

In this way, you can perform system extensions during runtime.

Each individual module is a separate UPS and works independently of a central control mechanism.

Intelligent control and monitoring

The powerful communication module of Protect 1.M collects the information of the self-sufficient UPS modules. The clearly designed screen informs you about all important operating conditions.

You can also retrieve and control all technical parameters with the included AEG software "CompuWatch".

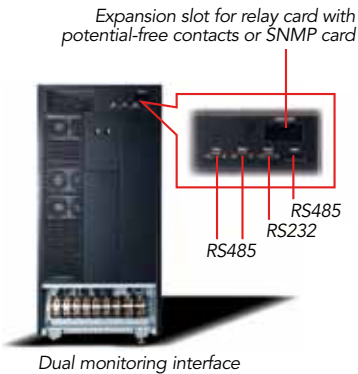
Main characteristics

- High power reserves through a total performance of max. 24 kVA
- Wide security margins through n+x technology
- Static bypass switch (SBS) and foolproof maintenance bypass
- 3- or 1-phase connection of the entire installation with an automated detector, 1-phase output
- Long autonomy periods available in case of power failure
- Battery cabinets in the Protect 1.M range supplied with 10- to 12-year battery life according to EUROBAT
- Intelligent battery management
- Hot-swappable module for easy replacement during operation
- Module structure to be plugged into a compact tower, assembly in 19" rack possible

- Communication module with LCD, "Dual Monitoring" interface with expansion slot
- 36-month warranty with replacement service in advance (free registration required)

N+X TECHNOLOGY – LEVEL OF REDUNDANCY

Load	Number of UPS modules					
	1 module	2 modules	3 modules	4 modules	5 modules	6 modules
4 kVA	no redundancy	n+1 (4 kVA)	n+2 (8 kVA)	n+3 (12 kVA)	n+4 (16 kVA)	n+5 (20 kVA)
8 kVA		no redundancy	n+1 (4 kVA)	n+2 (8 kVA)	n+3 (12 kVA)	n+4 (16 kVA)
12 kVA			no redundancy	n+1 (4 kVA)	n+2 (8 kVA)	n+3 (12 kVA)
16 kVA				no redundancy	n+1 (4 kVA)	n+2 (8 kVA)
20 kVA					no redundancy	n+1 (4 kVA)
24 kVA						no redundancy



CLASSIFICATION OF THE BATTERY CABINETS AVAILABLE EX WAREHOUSE – IN THE PROTECT 1.M RANGE

	15 min.	20 min.	30 min.	40 min.	60 min.	75 min.	90 min.
4 kVA	-	-	-	1 x 1.M BP28	1 x 1.M BP42	-	1 x 1.M BP56
8 kVA	1 x 1.M BP28	-	1 x 1.M BP42	1 x 1.M BP56	1 x 1.M BP84	2 x 1.M BP65	1 x 1.M BP84 1 x 1.M BP42
12 kVA	1 x 1.M BP42	1 x 1.M BP65	-	1 x 1.M BP84	2 x 1.M BP65	-	3 x 1.M BP65
16 kVA	1 x 1.M BP56	-	1 x 1.M BP84	1 x 1.M BP84 1 x 1.M BP42	2 x 1.M BP84	3 x 1.M BP65	4 x 1.M BP65
20 kVA	-	1 x 1.M BP84	1 x 1.M BP84 1 x 1.M BP42	3 x 1.M BP65	2 x 1.M BP84 1 x 1.M BP42	4 x 1.M BP65	5 x 1.M BP65
24 kVA	1 x 1.M BP84	2 x 1.M BP65	1 x 1.M BP84 1 x 1.M BP42	2 x 1.M BP84	4 x 1.M BP65	5 x 1.M BP65	6 x 1.M BP65

Further versions available upon request

Classification VFI SS 111 acc. to IEC 62040-3	Protect 1.040	Protect 1.M
	UPS Module	System cabinet (max. 6 x 4 kVA)
Power type rating	4 kVA	24 kVA
	2.8 kW	16.8 kW
	n+x technology	
Part number	600 000 3928	600 000 3930
UPS INPUT		
Input voltage (auto. detection)	230 V AC (1 ph~/N/PE) or 400 / 230 V AC (3 ph~/N/PE)	
Voltage range without battery mode	160 – 300 V AC (1 ph~) or 277 – 520 V AC (3 ph~)	
Frequency	50 Hz / 60 Hz \pm 4 Hz	
Current consumption (max.)	22 A (1 ph~) or 7.3 A (3 ph~)	132 A (1 ph~) or 44 A (3 ph~)
Power factor	$\lambda \geq 0.98$	
UPS OUTPUT		
Rated output voltage (adjustable)	220 V AC / 230 V AC / 240 V AC \pm 2 %	
Frequency in battery mode	50 Hz / 60 Hz \pm 0.2 Hz	
Output current	17.4 A	104.4 A
Transfer time at mains outage	0 ms (without interruption)	
Voltage waveform	Sinusoidal, distortion THD <3 %	
Overload response (online mode)	125 % for 30 s / 130 % for 2 s, then automatic transfer to bypass mode: 0 ms (without interruption)	
Crest factor	3 : 1	
Short circuit response	Short circuit proof ($3 \times I_N$ for 100 ms)	
BATTERY		
Rated voltage (linked)	120 V DC	
Charging characteristics	IU – characteristic curve (charging voltage 137 V DC / charging current max. 3.5 A/ module)	
Autonomy time	Freely selectable and expandable with external battery modules (available modules with 28, 42 or 65 Ah) Service life: 10 – 12 years acc. to EUROBAT	
Overload/deep discharge protection	Yes	
COMMUNICATION		
Interfaces (dual monitoring)	RS232 / RS485 (with status display and data values) communication slot (for potential free contacts, SNMP)	
Shutdown software (on CD)	5 network licenses for all common OS (e.g. Windows, Linux, Mac, Unix, Sun etc.)	
Failure indicators (acoustic/visual)	Graphical LCD display with digital display of the input and output parameters (voltage, frequency, capacity etc.), battery parameters incl. password protected detailed failure diagnostics, LED display for status notification / central failure display	
GENERAL DATA		
Efficiency AC – AC (at nominal load)	>89 %	>88 %
Audible noise (1 m distance)	<55 dB (A)	<62 dB(A)
Operating temperature range	0° – 40°C	
Humidity	20 % – 90 %	
Operation altitude	Up to 1000 m at nominal load	
EMC conformity	EN 62040-2 Class C3	
Product safety	EN 62040-1	
Equipment color	Blackline	
Dimensions approx. W x H x D (mm) UPS	442 x 965 x 700 (chassis) / module each: 405 x 87 x 530	
Dimensions approx. W x H x D (mm) battery extension unit	442 x 965 x 700	
Weight approx. UPS	75 kg (chassis) + 15 kg per module	
Weight approx. battery cabinet	1.M BP28: 160 kg, 1.M BP42: 200 kg, 1.M BP56: 255 kg, 1.M BP65: 270 kg, 1.M BP84: 335 kg	
Shipment	Communications cable, UPS management- software "CompuWatch" (CD), operating instructions	
Conformity	CE	

eco^{px} HYBRID
ARCHITECTURE

UPS FOR A BETTER CO₂ BALANCE

The beginning of the 21st century is the starting point of a new industrial revolution towards low CO₂ emissions. Reducing the ecological and economic consequences of climate change is extremely important. Renewable and sustainable sources of energy should help reduce dependence on fossil fuels.

New concepts such as intelligent power networks (Smart Grids and Micro Grids) offer ways of moving power generation closer to the place of consumption.

As a leading provider of innovative power supply solutions, AEG Power Solutions with eco^{px} Hybrid Architecture offers integrated hard- and software to integrate sustainable power generation and storage in the power supply system, in Micro Grids and Smart Grids.

eco^{px} Hybrid Architecture and uninterrupted power supply

The need for more and enhanced computer performance is continuously



increasing. At the same time, regulations concerning carbon dioxide emissions are getting stricter.

Covering the need under such circumstances while keeping power costs within reasonable levels is a substantial challenge for decision-makers in data centers, trade, industry and residential construction.

As UPS systems account for a considerable part of the energy consumption of business installations and data centers, the optimization of efficiency is an important step in tackling these challenges.

Accordingly, our next-generation UPS systems make use of renewable and alternative sources of energy.

The new solutions use environmentally friendly and cost-efficient technologies for power generation and storage, such as

- SuperCaps[®] (ultra-capacitors)
- Fuel cells
- Solar cells
- Wind turbines

Our unique eco^{px} Hybrid Architecture systems offer what is most needed by our customers: a possibility to reduce their infrastructure operating costs, to increase their computing power and to improve their CO₂ balance all at the same time, in order to contribute to a cleaner and a more environmentally friendly world.



SUPER CAPS®



The advantage of SuperCaps®

eco^{px} Hybrid Architecture systems by AEG Power Solutions offer you the SuperCaps® advantage to achieve an extremely effective energy storage solution for data centers and critical business power applications. SuperCaps® (or ultra-capacitors) are an ecological option for businesses seeking to reduce their energy consumption, to lower their overall operating costs and to achieve a better CO₂ balance.

SuperCaps® offer functionality, life cycle costs and reliability parameters necessary for the use in power supply systems whose precondition is permanent availability. Their high power density is extremely suitable for the provision of bridging power during a short time period of approx. 30 to 100 seconds while secondary power generation systems start running. On the other hand, battery banks are normally designed to supply power during a longer period of time. If their size reflects the actually required period, batteries may have trouble to provide the required power. This often leads to systems that are physically much bigger than necessary.

The functional logic of SuperCaps® is different from the one of batteries and they are able to maintain a charge during longer periods of time without any losses of capacity. Batteries, however, require extensive maintenance works due to their electrochemical composition and cells also need to be frequently replaced. In addition, they risk not having enough capacity when required.

SuperCaps® supply high power for unlimited cycles, fast and flexibly. They can be charged and/or discharged several times, re-loaded extremely quickly and have a high lifespan of up to 20 years. During discharge, they do not produce heat and have an efficiency of 95 % – exceeding the level of conventional batteries – during operation.

In addition, SuperCaps® do not require any particular storage conditions and maintenance works for secure operation. Due to their scalable and modular structure, they are perfectly suitable for use in data centers. Compared to batteries, they are compact and can be combined – in conjunction with 3-D Flexibility® by AEG Power Solutions – with other technologies such as fuel cells, i.e. extremely effective energy storage solutions.

Try 3-D Flexibility® and improve the CO₂ balance of your power infrastructure

Emergency power supplies from AEG Power Solutions amplify your power storage options by 3-D Flexibility®. Whether you choose our standard and modular UPS systems for your data center or if you ask us to create a tailor-made solution to meet defined requirements, with 3-D Flexibility® you can decide how power is stored so that power fluctuations have no impact. You can, for instance, choose a super capacitor to replace or upgrade a battery bank.

Just ask us to develop a solution with a fuel cell, SuperCaps® or with a battery storage system to improve the environmental friendliness of your installation and to reduce your operating costs.

PROTECT 2.33 2.0



Protection for small to medium sized data centers

Protect 2.33 2.0 is a UPS solution for small to medium sized data centers in the fields of IT and telecommunication as well as for any other critical business applications.

Up to a power output of 40 kVA, the battery blocks can be directly installed in the UPS. Depending on UPS power output and battery type, this space-saving solution supports autonomy times of up to 30 minutes. Higher power outputs - and accordingly longer autonomy times - can be achieved with the external battery cabinets adapted to Protect 2.33 2.0.

Protect 2.33 2.0 is a highly efficient online/double conversion UPS. It is in line with classification VFI SS 111 according to the IEC 62040-3 norm.

State-of-the-art technology

Protect 2.33 2.0 works without a transformer and offers all performance characteristics of modern technology: IGBT rectifier and inverter, active power factor correction at the input and low circuit feedbacks without additional passive filters. An intelligent battery charging management ensures maximum durability of the battery.

Easy handling, maximum control

The large, color LCD touchscreen enables intuitive use and easy configuration. Navigation is done with buttons or by simply touching the screen. Remaining battery runtime and error messages are displayed in plain text.

Protect 2.33 2.0 is equipped with an integrated RS 232/485 interface (supports Modbus protocol), an extension slot for the installation of an SNMP adapter card, a remote emergency shutdown port and potential-free contacts to signal operating conditions and error messages.

Main characteristics

- IGBT rectifier with active power factor correction, low circuit feedbacks without passive filters
- Adjustable battery charging power up to 70 A
- Power range 10 – 40kVA with integrated batteries
- Parallel operation possible
- Large, color LCD touchscreen
- Space-saving design

Classification VFI SS 111 acc. to IEC 62040-3

Protect 2.33 2.0

Power	10 kVA	15 kVA	20 kVA	30 kVA	40 kVA	60 kVA	80 kVA
		8 kW	12 kW	16 kW	24 kW	32 kW	48 kW

EXTERNAL BATTERY CABINET

	External battery cabinet 1				External battery cabinet 3		
	Dimensions approx. D x W x H (mm)	700 x 450 x 1100				805 x 590 x 1320	
Integrated battery type (2 x 31)	12 V 12 Ah				12 V 26 Ah		
Back up time (min.)	32	20	14	20	14	8	-
Weight approx.	250 kg				710 kg		
	External battery cabinet 2				External battery cabinet 4		
	Dimensions approx. D x W x H (mm)	700 x 450 x 1100				980 x 650 x 1322	
Integrated battery type (2 x 31)	12 V 18 Ah				12 V 40 Ah		
Back up time (min.)	57	34	24	40	25	15	10
Weight approx.	410 kg				1020 kg		

Classification VFI SS 111 acc. to IEC 62040-3			Protect 2.33 2.0				
Power type rating	10 kVA	15 kVA	20 kVA	30 kVA	40 kVA	60 kVA	80 kVA
	8 kW	12 kW	16 kW	24 kW	32 kW	48 kW	64 kW
UPS INPUT							
Input voltage	3 x 400 V (3Ph + N)						
Voltage range without battery mode	+15 % or -20 %						
Frequency	50 Hz / 60 Hz \pm 5 %						
Current consumption	13 A	20 A	26 A	39 A	52 A	78 A	103 A
Harmonic distortion (THDi)	<1.5 % by 100 % load <2.5 % by 50 % load <6.0 % by 10 % load			<1.0 % by 100 % load <2.0 % by 50 % load <5.0 % by 10 % load			
Power factor	1.0						
INVERTER							
Nominal voltage	3 x 400 V (3 Ph + N)						
Precision	Static: \pm 1 %, dynamic: \pm 2 % (load variations 100-0-100 %)						
Frequency	50 Hz / 60 Hz \pm 0.05 % with mains absent						
Max. synchronization speed	\pm 1 Hz/s						
Voltage waveform	Pure sinewave						
Total harmonic distortion	<0.5 % (linear load), <1.5 % (non-linear load)						
Phase displacement	\pm 1 % (balanced load), \pm 2 % (50 % unbalanced load)						
Settling time	10 ms (to 98 % of the static value)						
Admissible overload	125 % for 10 min., 150 % for 60 s						
Crest factor	3.4 : 1			3.2 : 1			
Admissible power factor	0.1 inductive to 0.1 capacitive						
Imbalance output voltage at 100 % unbalanced load	<1 %						
Current limitation	$3 \times I_{nom}$ (short circuit)						
Inverter efficiency	94.5 %	95 %	95.3 %	95.9 %	96.2 %	96.4 %	96.9 %
STATIC BYPASS							
Type	Thyristor contactor						
Voltage	3 x 400 V (3 Ph +N)						
Frequency	50 Hz / 60 Hz						
Activation criterion	Microprocessor control						
Transfer time at mains outage	0 ms (without interruption)						
Admissible overload	400 % for 10 s						
Bypass transfer	Immediate (for overloads >150 %)						
Bypass retransfer	Automatic after alarm clear						
MANUAL MAINTENANCE BYPASS							
Type	Without interruption						
Voltage	3 x 400 V (3 Ph +N)						
Frequency	50 Hz / 60 Hz						
GENERAL DATA							
Maximum charging current	23.5 A			47 A		70.5 A	
Overall efficiency (online mode)	91 %	91.3 %	92 %	92.4 %	93.1 %	93.6 %	94.3 %
DIMENSIONS/WEIGHT/AUTONOMY TIME							
Dimensions approx. D x W x H (mm)	700 x 450 x 1100			805 x 590 x 1320			
Footprint (m ²)	0.315			0.475			
Weight approx. without batteries	110 kg			180 kg		210 kg	230 kg
Integrated battery (2 x 31)	12 V 7 Ah	12 V 7 Ah	12 V 9 Ah	12 V 12 Ah	12 V 18 Ah	-	
Autonomy time (min.)	15	10	9	8	9	-	
Weight approx. with built in batteries	250 kg		270 kg	397 kg	542 kg	-	

Subject to change without notice

PROTECT 3.M 2.0



Modular UPS system for medium sized data centers

Protect 3.M 2.0 is a modular UPS solution for output power of up to 80 and/or 120 kVA per individual device. The redundant structure of all important components ensures highest performance and reliability.

The VFI technology of Protect 3.M 2.0 reliably protects your systems against all mains power problems.

Modular structure

The modular concept enables you to flexibly adapt the UPS power to your personal power needs. The individual 20 kVA modules are hot-swappable, connected modules are automatically detected. You can upgrade your system within just a few minutes while the system is running.

The automated load distribution among all modules within a system enables a modular n+x redundancy that can also be used for load increase.

Parallel operation

With the possibility of parallel operation of up to 4 devices, a system power of up to 480 kVA can be achieved.

High efficiency

The highly efficient IGBT technology enables an efficiency of up to 95 % during double conversion operation. In the partial load range, Protect 3.M 2.0 already achieves an exceptional efficiency of 94 % at load levels of at least 30 %.

Intelligent control and monitoring

The multilingual graphic screen is clearly structured and easy to use.

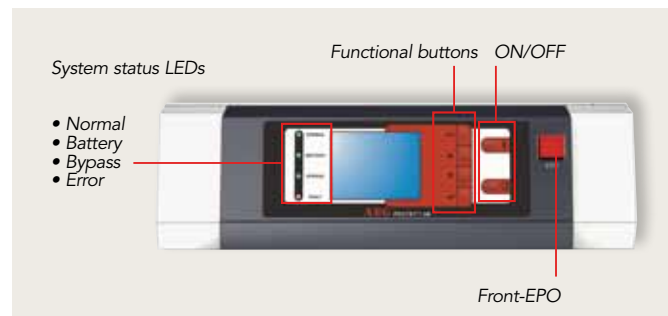
Protect 3.M 2.0 is equipped with 6 integrated remote signal contacts and an RS232 interface. Two extension slots allow you to install further remote signal contacts, Modbus or SNMP adapter cards.

Main characteristics

- Flexible power adjustment thanks to a modular architecture
- Up to 95 % efficiency during double conversion operation, up to 98 % in the ECO mode
- Low operating costs through highly efficient IGBT technology; input power factor >0.99
- Circuit feedback <3 %
- Parallel operation of up to 4 devices possible, power up to 480 kVA
- Hot-swappable modules for easy replacement during runtime
- Large graphic LCD
- Integrated manual bypass, separate feed for converter and bypass
- Load-dependent cooling fan speed
- Space-saving shape



Protect 3.M 2.0 – display



Classification VFI SS 111 acc. to IEC 62040-3		Protect 3.M 2.0				
Power type rating	20 kVA	40 kVA	60 kVA	80 kVA	100 kVA	120 kVA
	16 kW	32 kW	48 kW	64 kW	80 kW	96 kW
SYSTEM						
Nominal input current	29 A	59 A	88 A	117 A	145 A	172 A
AC/AC efficiency (VFI SS 111)	95 %					
Efficiency in ECO mode	98 %					
Waste heat from power	1.3 kW	2.6 kW	3.9 kW	5.2 kW	6.5 kW	7.8 kW
	4436 BTU/h	8872 BTU/h	13308 BTU/h	17744 BTU/h	22180 BTU/h	26616 BTU/h
Airflow (max.) m ³ /h	309	617	926	1234	1543	1852
INPUT						
Nominal voltage	3 x 400 V (380 V, 415 V adjustable), 3 phase + neutral					
Input voltage range	305 – 477 V					
Frequency	50 Hz / 60 Hz (adjustable)					
Total harmonic distortion (THDv)	≤3 % ¹⁾					
Power factor	>0.99					
INVERTER						
Nominal voltage	3 x 400 V (380 V, 415 V adjustable), 3 phase + neutral					
Frequency	50 / 60 Hz (adjustable)					
Precision static/dynamic	±1 % / ±7 %					
Total harmonic distortion (THDv)	<3 % (linear load), <5 % (non-linear load)					
Max. phase displacement	±1.5 % (balanced load), ±2 % (100 % unbalanced load)					
Admissible overload	125 % for 10 min., 150 % for 60 s					
Crest factor	2.7 : 1					
Max. short circuit current	>270 % of the rated current					
Admissible power factor	0.1 inductive to 0.1 capacitive					
BATTERY						
Rated voltage	±240 V DC					
Max. battery power (Udc _{nom} -20 %)	42 A	83 A	125 A	164 A	208 A	250 A
Max. charging power	5 A	10 A	15 A	20 A	25 A	30 A
Charging principle	Load switching per power module					
Autonomy time	Selectable over external battery cabinet					
STATIC BYPASS						
Nominal voltage	3 x 400 V (380, 415 V adjustable), 3 phase + neutral					
Frequency	50 Hz / 60 Hz (adjustable)					
Synchronization range	±0.1 – ±5 % (adjustable)					
Transfer time at mains outage	0 ms (without interruption)					
Admissible overload	175 % for 10 ms					
GENERAL DATA						
Parallel mode	Up to 4 UPS (central battery possible)					
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 7035					
Cable entry	Underside					
Environmental conditions	Free from corrosive air and conductive dust					
COMMUNICATION						
Display	320 x 240 graphical LCD display					
Alarm signals	Acoustic and visual					
Interfaces	Remote signal contact, RS232, 2 x communication slots for SNMP / Modbus / additional relay cards					
DIMENSIONS						
Dimensions approx. D x W x H (mm)	910 x 520 x 1165			975 x 520 x 1655		
Footprint (m ²)	0.47			0.51		
Weight approx.	139 kg			204 kg		
Weight approx. (incl. module)	169 kg	199 kg	229 kg	259 kg	354 kg	384 kg

1) by THDv ≤2 %

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 –1250 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. During parallel operation of up to 4 UPS devices, a total power of up to 4 MVA can be achieved.

Highest efficiency during online operation

Protect Blue. is transformerless, 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 1250 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



Modular scalability of up to 5 Power Blocks per individual UPS



High-resolution 7" touch screen

Classification VFI SS 111 acc. to IEC 62040-3			Protect Blue.		
Power type rating	250 kVA	500 kVA	750 kVA	1000 kVA	1250 kVA
	225 kW	450 kW	675 kW	900 kW	1125 kW
SYSTEM					
Nominal input current (A)	336	672	1008	1344	1680
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	29447	58894	88341	117788	147235
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	576 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)	1900 x 1000 x 900	1900 x 2000 x 900	1900 x 3000 x 900	1900 x 4000 x 900	1900 x 5000 x 900
Footprint (m²)	0.9	1.8	2.7	3.6	4.5
Weight approx.	897 kg	1794 kg	2691 kg	3588 kg	4485 kg

Available from Q3/2012

REMOTE PANEL, DISTRIBUTION UNITS

EXTENSIONS AND ACCESSORIES

Remote Panel remote monitoring unit for professional data center management

The remote signal table displays the UPS operating status in real time at a remote monitoring site.

In addition, a bar display informs about the current UPS capacity utilization and/ or in the emergency power operating mode about the remaining available capacity.



Remote Panel

An acoustic alarm, which can be deactivated, completes the optical display.

The remote monitoring unit can be installed at a distance of up to 500 m from the UPS being monitored.

Data transmission and voltage supply of the remote signal panel are ensured with a conventional patch cable.

The Remote Panel is available for Protect C. (from 6 kVA), Protect D., Protect 1. and Protect 1.M

Part number

- Remote Panel: 600 000 5881

Distribution bars for professional data centers

The distribution bar enables you to distribute the UPS outputs among several loads. Different versions support the load connection via Schuko or non-heating sockets (IEC 320 C13 & C19).

Depending on the connection type, the ports are protected against overload – centrally or in pairs. This ensures an extremely effective fulfillment of selected criteria in accordance with specific shutdown conditions.

LEDs display the current operating status of the distribution bar. With the pluggable fastening brackets,

the distribution bars are flexibly installed in default rack systems. The fastening brackets can be removed for on-table operation and therefore enable a flexible use.

Thanks to the robust aluminum housing, the PDU distribution bars are torsion-resistant and extremely durable.

Part numbers

- IEC Distribution Bar: 600 000 9254
- PDU 10-1: 600 000 6829
- PDU 10-2: 600 000 6831
- PDU 16-1: 600 000 6830
- PDU 16-2: 600 000 6832



Sub-distributions

MANUAL BYPASS SWITCH, POWER DISTRIBUTION BOX



Manual Bypass Switch



Power Distribution Box

Manual Bypass Switch unit for maintenance works and tests

The external manual bypass switch for the series Protect A., B. PRO, C., D., 1. and 1.M is used to disconnect the UPS for maintenance works allowing uninterrupted, continuous feed of the connected loads.

Besides the sheer bypass operation, the manual bypass switch also enables a UPS test run. Non-heat device sockets in the output of the smaller devices enable direct feeding of the loads. Space

for a separate, complete sub-distributor is provided by MBS 24000. The external manual bypass unit supports 3 operating modes:

1. UPS mode: the loads are fed through the UPS
2. Service mode: the loads are directly fed by the power supply system. A UPS test can be run at the same time.

3. Bypass operation: the loads are directly fed by the power supply system. The connected UPS is completely separated from the circuit and can be removed for maintenance and replacement works.

Part numbers

- MBS 2000: 600 000 3039
- MBS 3000: 600 000 3040
- MBS 6000: 600 000 5205
- MBS 10000: 600 000 7684
- MBS 24000: 100 000 2021

Power Distribution Box, parallel switch panel, manual bypass and distributor panel

The compact parallel switch panel enables the development of a parallel system without modifying the existing low voltage distribution system. Through the output distribution with up to 24 separately protected and pre-configured circuits, which can be partially integrated in the parallel switch panel, modification of the sub-distribution circuit is no longer required.

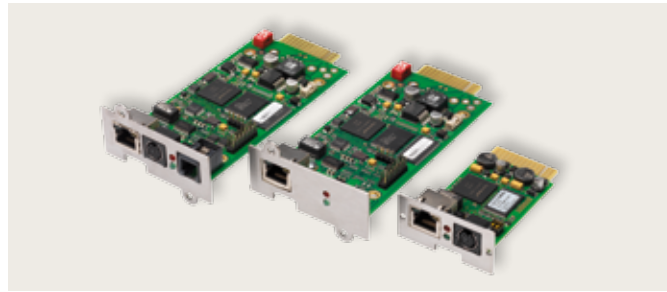
The panel enables parallel switching of the devices to increase power and/or to achieve redundancy. Each UPS device can be disconnected from the power supply system and also from the safe bar facing the output without interrupting the voltage supply of the loads.

With the integrated manual bypass switch, the complete UPS parallel system can be disconnected, e.g. for maintenance works. In this case, the loads are fed without interruption.

Part numbers

- PDB Protect C.: 100 000 1852
- PDB Protect D.: 600 001 2436
- PDB Protect 1.: 100 000 1853

SNMP (PRO / MINI) CARD, ENVIRONMENT MANAGER



SNMP (PRO/mini) card

SNMP (PRO/mini) card Network-based UPS management

SNMP adapters are communication extensions for the UPS series starting from Protect B. PRO. All versions support monitoring of UPS devices via the web.

If needed, a phased shutdown of all relevant servers in the network is possible. Via Wake-up-on-LAN, the servers can be re-activated. This enables an automated shutdown and reboot of the system. The UPS can also be configured and monitored by network management software with the integrated SNMP agent according to RFC1628.

The PRO and mini version of the SNMP adapter further enables the integration of features such as area access control, air condition or smoke and/or fire detectors. In addition, temperature and humidity can be measured and administered by means of optical sensors.

The SNMP PRO adapter enables, among other features, the connection of an intelligent load management distributor.

Part numbers

- SNMP adapter: 600 000 4036
- SNMP-PRO adapter: 600 000 1271
- SNMP-mini adapter: 600 000 8668
- Digital temperature sensor: 800 002 0878
- Digital combi sensor for temperature and humidity: 800 002 2493
- External relay board: 800 002 5994
- Load management distributor: 800 000 6684



Environment Manager

Environment Manager Management unit for several environmental sensors

The Environment Manager is designed as a system extension for the SNMP-PRO and SNMP-mini adapter. It is a universally applicable device for the administration of sensors. A total of 8 analog sensor units, 4 digital inputs and 4 digital outputs can be managed.

Each type of sensor unit can be connected, e.g. for temperature, humidity, pressure, tank level, chemical concentration or similar features. The incoming signal voltages only need to be within the specified parameter range: 0 – 10 V for analog inputs, 30 V 500 mA for digital in- and outputs. The digital inputs can, under normal circumstances, be configured optionally as N/O or N/C contacts.

Part number

- Environment Manager: 800 002 2488

BUILDING MANAGEMENT, RELAY CARD



Building management



Relay card

Building management sensors for environmental data

With monitoring sensors for environmental data, you can upgrade the UPS management to a complete building management system for your data center. All devices are compact and equipped with a 5 m RJ12 connection cable.

Temperature sensor
Measurement range: 0°C – +100°C, ±1%

Combi sensor
Measurement range: temperature 0°C – +100°C, ±1% relative humidity 0 – 100%, ±5%

Motion sensor
Coverage: 14m x 14m, 90°

Smoke sensor
Smoke detector with photocell

Acoustic alarm
Signaling through Piezo buzzer, approx. 85 dB(A)

Optical alarm
Signaling through stroboscope light

Part numbers

- Temperature sensor: 800 002 2489
- Combi sensor for temperature and humidity: 800 002 2492
- Motion sensor: 800 002 2494
- Smoke sensor: 800 002 2495
- Piezo alarm: 600 000 7361
- Stroboscope alarm: 600 000 7362

Relay card Communication through potential-free contacts

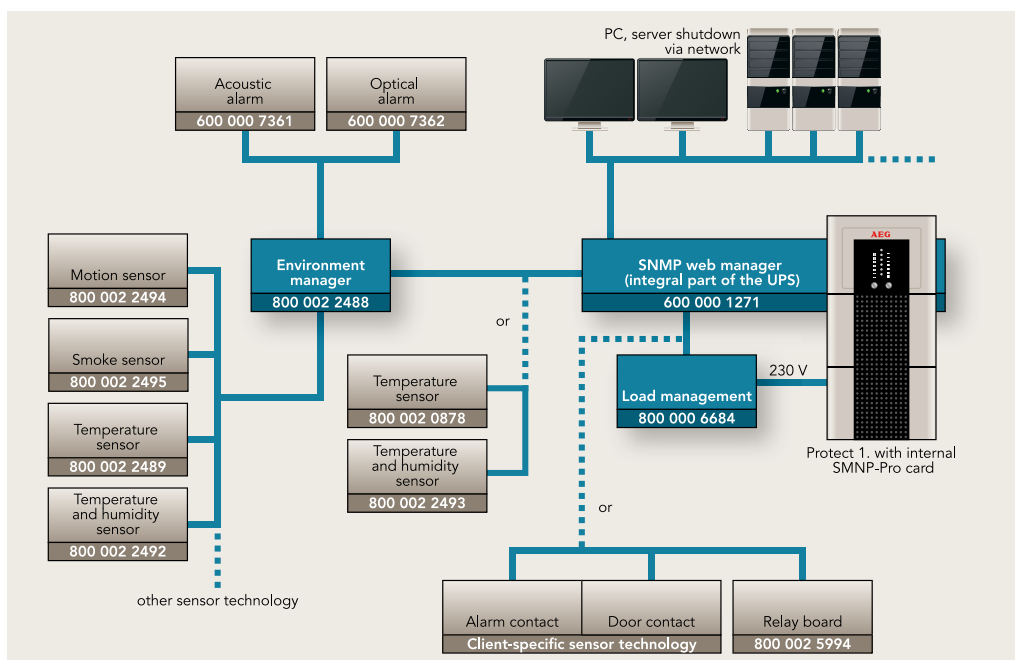
The relay card is an option for the UPS series starting from Protect B. PRO.

It provides potential-free contacts at the outputs, which can be configured optionally as N/O or N/C contacts and which can be used as binary input for the SPS or building control systems.

Tapping occurs via a sub-D-slot and, in case of the programmable PRO design, via a clamping block designed for supply voltage potential.

Part numbers

- Relay card mini: 600 000 9252
- Relay card standard: 600 000 3932
- Relay card PRO: 600 000 9253



COMPUWATCH



"CompuWatch" – shutdown and UPS management software

"CompuWatch" is based on the TCP/IP network protocol and can therefore be used in non-standard networks. "CompuWatch" allows you to shut down server and computer systems with diverse operating systems safely and automatically when needed.

Through the intelligent communication link between the UPS, the server and the existing network topology, information is forwarded by means of security mechanisms to all server and computer systems powered by the UPS. This is where the information is processed in the software modules. Phased shutdowns are possible if the software modules on the respective servers are configured accordingly.

All "CompuWatch" modules work as a service and/or backend process. Individual procedures can be launched through shellsript and/or batch programming.

With the "CompuWatch" client, a graphical front end for Microsoft Windows operating systems, you can monitor and control all UPS installations connected to the network. It is also possible to control the network using the scheduler.

AEG Power Solutions products provide you with a complete, one-stop-shop security solution for networks:

Main characteristics

- Software in client/server technology
- Integration in the operating system as a back end process or service

- Supports RS232, USB and network interface in the UPS devices
- User-friendly, easy installation and configuration
- Multi-server-shutdown in standard and non-standard networks
- Programmable activities thanks to a scheduling mechanism
- Password-protected control functions
- User-friendly front end to monitor UPS devices, locally and through the network
- Selectable bar displays for measured values
- Automated shutdown of server and computer systems
- Supports the Wake-up-on-LAN function for sequential reboots
- Adaptable shutdown procedure through shell script and batch files
- Notification of events by network message, e-mail and text message
- Freely configurable event manager
- Logging of all UPS and computing events based on date and time
- Supports the most important operating systems on different platforms. The recent overview can be found on www.aegps.com



SOFTWARE UNMS



“UNMS” – network management software for UPS devices

With the network management software for UPS devices “UNMS”, you can easily monitor and control higher numbers of UPS systems in different networks.

The software gives the administrator an overview over all installed UPS systems and informs about the operating conditions at the individual sites. This enhances security and availability. Centralized administration of the installation is possible.

If there is a problem in one of the UPS units, the “UNMS” software informs the administrator, optionally and on request, by network message, e-mail or text message.

The administrator can immediately take appropriate counter-measures.

The network management software supports all common web browsers and gives administrators the necessary flexibility to manage larger networks. UPS status information, log history and reports can be viewed anywhere in the web browser.

Main characteristics

- Web-based remote monitoring of power supply systems in the network
- Easy administration of complex power supply infrastructures

- Notification about events by means of network messages, e-mails or text messages

- Logging of all events in a logbook

- Graphics for statistical evaluation

- Customer-specific adaptations with background graphics possible

Complete solutions

With the “UNMS” software for remote administration in connection with “CompuWatch”, you can create a standardized management system to run several data centers. The optional sensors enable you to also monitor environmental data and hence to create a comprehensive solution.

Main characteristics

- Environmental control with sensors, e.g. for temperature, humidity, smoke and motion detectors

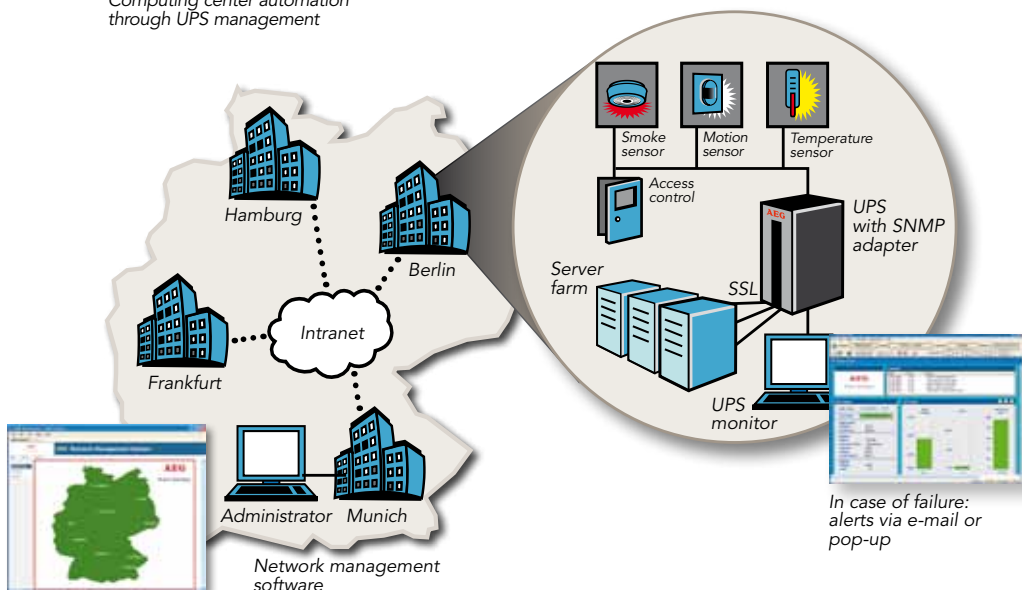
- Secure communication between UPS and server through SSL encryption

- Local alarm through actuators such as alarm lights or acoustic signaling devices

- Alerts via network messages, e-mail or text messages

- Completely automated server management by means of programmable events

Computing center automation
through UPS management



AEG POWER
SOLUTIONS

YOUR POWER PARTNER – ALSO FOR SERVICES

Service for the compact UPS series

On the basis of our high standards and decades of experience, we also provide affordable, efficient and fast services.

During the first 24 months after the purchase of new equipment, we offer a nationwide replacement

service in advance for devices and batteries of the compact UPS series (Protect Home. / A. / B. PRO / C. / D. / 1. / 1.M).

Additional service packages adapted to the users' needs are directly available at the UPS point of sale. They offer

optimal cost control during a period of up to 60 months.

The following service packages are available:

Pro-Care Garant

Register your UPS within the first two months after purchase and you will receive the warranty extension Pro-Care Garant for free.

Pro care Garant provides a 36-month warranty for UPS and battery.

Available for Protect Home. / A. / B. PRO / C. / D. / 1. / 1.M.

The registration form can be found on www.aegpartner.net



Pro-Care Garant PLUS

With Pro-Care Garant PLUS, the warranty is extended to 60 months starting from the date of purchase.

The option can be acquired within the first year after purchase of the equipment and includes up-front replacement of the UPS during the entire warranty period.

Pro-Care Garant PLUS is available for the series Protect C., Protect D., Protect 1. und Protect 1.M.



Pro-Care Start Commissioning

AEG Power Solutions provides you with a professional commissioning services to ensure that your system is ready for use.

Our experts commission your system in accordance with the relevant norms and conduct rigorous functional tests. Thanks to Pro-Care Start Commissioning, you will also benefit from comprehensive protection covered by the manufacturer's warranty.





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 2.33/3.M and 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



AEGPS - Compact UPS:EN/01/2012 V1 - Due to our policy of continuous development, the data in this document is subject to change without notice.
AEG is a registered trademark used under licence from AB Electrolux.

AEG Power Solutions

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

www.aegps.com

AEG
POWER SOLUTIONS