Power Safety

Protect 3.M

Modular UPS System, Parallel Redundant, Rack-Mount
15 kVA–120 kVA

You expect a technically convincing solution, which can be adapted flexibly to increasing requirements. With sufficient power and safety reserves. Easy to operate and convincingly easy to maintain. At an optimal price/performance ratio.

Power failure as well as excess and under voltages mean, in the worst case, loss of data. Denied access to company critical applications almost always leads to operational disturbances even to loss of production.
Networks, workstations, Intra and Internet servers, telecommunications applications and all other company applications must therefore be permanently available as well as being protected against all kinds of disturbances to the power supply.

Implementation of the VFI (double converter) technology of AEG Protect 3.M reliably protects your system against all power supply problems e.g. power failure, excess voltage, under voltage, voltage fluctuations, non-linear distortions, frequency fluctuations etc.
Each power module provides an independent UPS with complete functionality managed from a central control unit.

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Intelligent monitoring

Protect 3.M uses an efficient pre-installed communication module to collect information from the individually monitored power modules, via the network within the unit. All information is clearly shown on a LCD display, which simplifies operation of the UPS.

Modularity provides safety reserves

Protect 3.M is an uninterruptible power supply which is highly reliable and efficient. The modular design of Protect 3.M permits flexible increase of the UPS power up to 120 kVA maximum with 15 kVA automatic contact hot-swap modules. This technology allows the system to be extended during operation.

Modules are hot-swappable. Additional cabling is not necessary.

Parallel operation

N+x technology allows a flexible adjustment of the power capacity of your UPS at any time. At the same time the modular construction provides active parallel redundancy and thereby a high safety reservoir.
As far as operation and service are concerned, intelligent monitoring via the display or system software, as well as the possibility of using standard batteries, independent of the manufacturer, make Protect 3.M, your preferred choice system.

- **High power reserves with 120 kVA maximum total power output**
  Up to 8 UPS modules each with 15 kVA power can be installed.
- **High safety reserves with n+x technology**
  Flexible capacity adjustment by increasing or decreasing the number of modules; active multi parallel redundancy as a result of individual module autonomy (no central control unit).
- **Integrated static bypass switch**
  - Passive redundancy as a result of the integrated static bypass switch again increases the availability of the total system and provides security during overload.
  - An additional integrated manual bypass switch, secured against operational error, allows bypassing of the UPS for service.
- **Manufacturer independent standard batteries**
  For initial equipment or later replacement.
- **Intelligent battery management**
  Several algorithms to select for automatic monitoring of the batteries as well as protective, fast re-charging, intelligent battery charger.

- **Hot-swappable – easy to exchange modules**
  - Simple plug & play principle for replacing modules.
  - Module removal/addition during operation.
  - Automatic connection, no additional cable connections necessary.

- **High MTBF ability**
  Each power module in the Protect 3.M is a fully functioning UPS. There is no additional controlling module for the parallel application and load sharing. Regarding calculation of the system MTBF, with two more UPS modules for parallel redundancy, the system ability is above 99.999 % and the MTBF will be close to 15 million hours.

- **MTTR**
  If the system has one extra UPS module for parallel redundancy, it will still keep working even if one of the UPS modules fails. The module replacement procedure only takes 5 minutes and redundancy will be restored.

- **Communication module with LCD display,**
  Dual monitoring interface with expansion slot AS400 or SNMP adapter (with connector for additional sensor measurements), also RS232/RS485 interfaces.

- **"CompuWatch" Software on CD**
  Available for Windows (MS Windows 98 or higher), MAC (OS 10.1 or higher), Linux, Free BSD, Sun, Novell etc.

Manual bypass section of the 1.6 m cabinet.

Protect 3.M: Specification

Classification VFI SS 111 acc. to IEC 62040-3	Protect 3.M 1.6 m rack	Protect 3.M 2.0 m rack
Type power	90 kVA 72 kW	120 kVA 96 kW
Max. modules per rack	6	8
UPS-input		
Input voltage	400/230 Vac (3/N/PE~)	
Input voltage range without battery mode	277–520 Vac (3 ph~)	
Frequency	50 Hz/60 Hz	
Current consumption (max.)	120 A with 6 modules	160 A with 8 modules
Power factor	> 0,99 at 100 % load	
THD (i)	<= 5 %	
UPS-output		
Rated output voltage	400 V ± 2 %	
Frequency in battery mode	50 Hz ± 0.5 %	
Output current	21 A/per module 126 A with 6 modules	21 A/per module 168 A with 8 modules
Transfer time at mains outage	0 ms (zero transfer)	
Voltage waveform	sinusoidal	
Overload response (online mode)	< 115 % for 5 min./< 125 % for 1 min.	
Crest factor	3	
BATTERY		
Nominal voltage	± 240 Vdc	
Autonomy time	Free to choose runtime extension with scalable external battery	
Overload/deep discharge protection	yes	
COMMUNICATION		
Interfaces	RS232/RS485 for status and measurement values, communication slot (for pot.-free contacts or SNMP adapter)	
Shutdown-software (on CD)	Included for all typical operating systems (e. g. MS-Windows, Novel Netware, Mac OS, Linux, Unix derivates etc.)	
Failure indicators (acoustic/optical)	LCD with digital information of input and output parameters (voltage, frequency, power etc.) battery parameter incl. failure diagnosis in password protected level, LED for status and main failures	
GENERAL DATA		
Efficiency (total)	> 90 %	
Audible noise (1 m distance)	< 62 dB	
Operating temperature range	0°–40° C	
Humidity	20 %–90 %	
Installation height	up to 1000 m, at nominal load	
Equipment colour	RAL 7035	
Size approx. W x H x D (mm)	600 x 1600 x 1000	600 x 2000 x 1000
Weight appr. (kg)	250 kg rack + 35 kg per module	300 kg rack + 35 kg per module
Certification	CE	

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