

PROTECT^{PLUS} M600

THE POWER OF MODULARITY

TO PROTECT CRITICAL APPLICATIONS



PROTECT^{PLUS}
M600

FLEXIBLE, SCALABLE AND SMART

**It's our business to make
your power security easy**

UPS systems from AEG Power Solutions ensure the continuous availability of power and safe operations for critical applications in all environments. AEG PS has a proven track record for developing solutions for highly demanding applications in all types of infrastructures. Since its creation more than a century ago, the AEG name has stood for rugged reliability and world-class engineering, including 60 years' experience in UPS. Our customers know that they can rely fully on us for innovative power solutions that protect their people, their investments, their data, and their business.

The modular UPS Protect^{PLUS} M600 ensures a reliable, secure, clean and continuous power supply to all critical applications. It acts as an interface between the mains power supply and the critical load, in the event of poor quality input waveform (such as an under-voltage, over-voltage, input frequency fluctuations, harmonics, spike or power surges) or a complete and potentially damaging power failure.



Protect^{PLUS} M600 is the Modular UPS system that combines high AC/AC efficiency values with a compact footprint and a flexible and scalable architecture, able to reach up to 900kVA. It is designed specifically for data centers, transportation, retail and light industrial applications as well as all other critical applications where power reliability is essential and power consumption is an important variable.

Minimize your costs and grow your system along with your business

Thanks to its modular and scalable design as well as its hot-swappable functionality, Protect^{PLUS} M600 can start with a basic configuration of just 30kVA and then grow gradually as required, up to 900kVA.

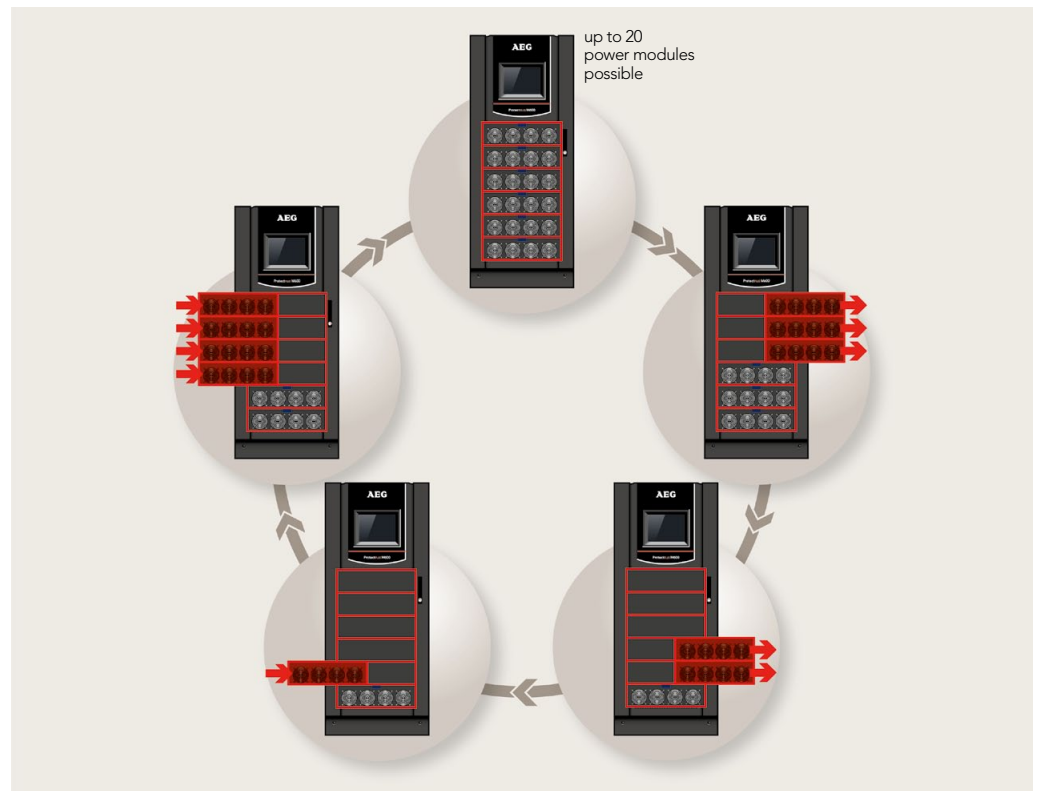
For the 180 and the 300kVA models, it is possible to connect in parallel up to 3 cabinets, ultimately providing up to 900kVA. The Protect^{PLUS} M600 models offer input PF >0.99 and input THDi <3%, even when a low percentage of load is applied. This scalability optimizes your CAPEX and limits your OPEX.

Highest efficiency leads to lowest total cost of ownership

The Protect^{PLUS} M600 from AEG Power Solutions can reach the highest AC/AC efficiency levels available, of up to 98.5% in ECO mode. The flat efficiency curve from 35% of load will ensure maximum energy savings at every percentage of load.



PROTECT^{PLUS} M600 3-PHASE MODULAR UPS



Hot swappable power modules for predictive power management and lowest Mean Time To Repair (MTTR) rate

A 30 kVA Power Module

- Isolated airflow with redundant fans
- Independent LCD display for each module
- Autonomous Start-up (independent from the central display)
- Dismountable front panel
- High power density
- Cold start

Modularity: Evolve with your needs at optimized cost

Your business is constantly evolving and so is your data center infrastructure or production line. The Protect^{PLUS} M600 is the right answer to this. It offers a scalable solution by providing the ability to add or remove power modules in the event of growth or decrease of the protected load, complete flexibility, n+x inbuilt redundancy as well as automatic and predictive management of power. Protect^{PLUS} M600 combines the best transformer-less IGBT technology with a modular architecture to improve the performance of the whole system. It reduces power losses, energy consumption and operating costs.

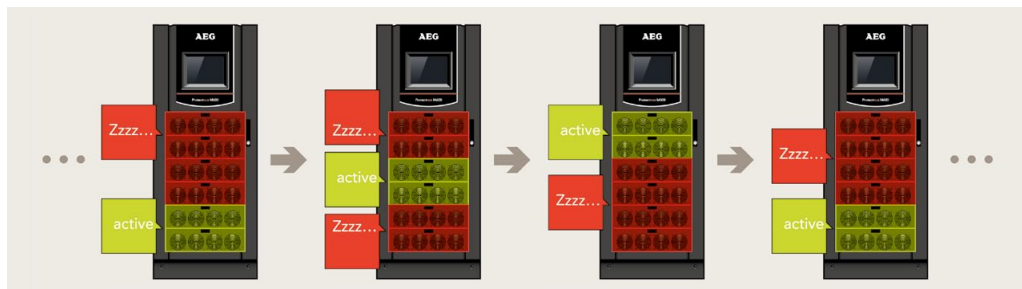
Scalable architecture for optimum performance and flexibility

The modular and scalable architecture of Protect^{PLUS} M600 is designed to maximize savings in terms of foot print (m²), power installed (kVA), electrical system (cabling and protection devices), security (MTTR and MTBF) and most importantly, energy management (kWh and costs). Moreover, it allows for an increase or decrease in power installed depending upon the needs of the load.

Each power module has independent hardware and controllability, able to operate and coordinate with other modules within the system. The control of power modules connected in parallel is decentralized in the single 30kVA device (no centralized control system). The omission of the master/slave architecture, eliminates any possibility of a problem due to the failure of a single power module.

The common frames are available in three different dimensions: able to connect up to 6, 10 or 20 power modules (including redundancy). The frames allow for input/output connections to the electrical system and to the protected load, with centralized static and manual bypass lines. This infrastructure provides a unique platform for viewing and managing all parameters, as well as historical events as the UPS frame, the single module, the electrical system and the supplied load are all connected. Information about preventive or corrective maintenance is then easily accessible through the LCD touch screen display.

MODULAR POWER MANAGEMENT FOR HIGHEST EFFICIENCY AND LOWEST OPERATING COSTS



The placement of power modules into Idle Mode in a rotating fashion as needed.

The predictive management of installed power

When using redundant systems (n+1 configuration), it is quite common that a UPS protects light loads, thus decreasing the overall system's efficiency; in this case the ideal solution is that the UPS may maintain "active" only the power modules that are strictly necessary for the actual critical load (plus the "+1" redundant power module).

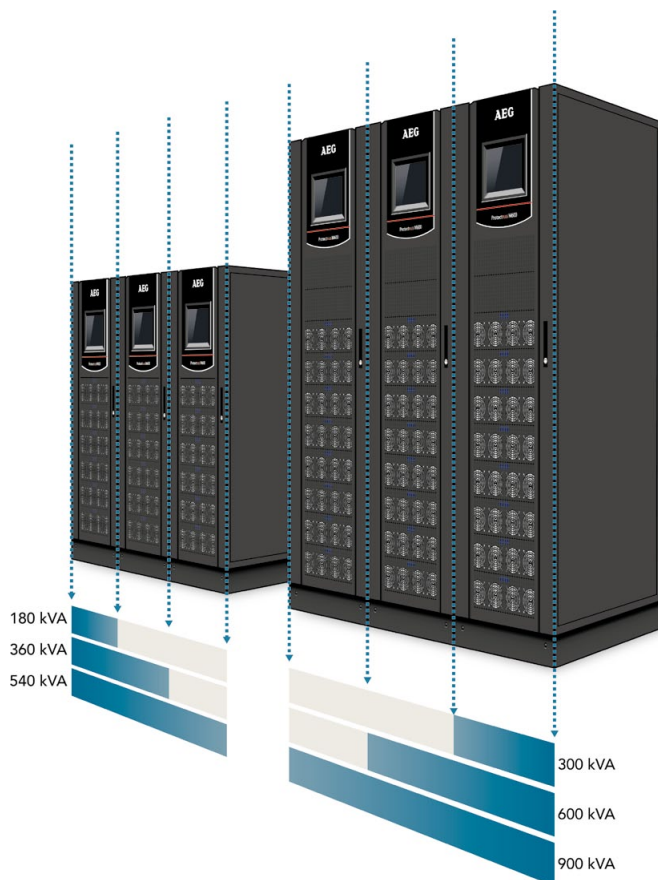
The modular Protect^{PLUS} M600, with its Idle Mode, allows for the ability to "freeze" automatically, and in rotation, the power modules that are not normally used to protect the critical load. Therefore, even with "light" loads, the overall AC/AC efficiency of the UPS system is increased, and at the same time, its level of reliability optimized.

Intelligent management for greater energy savings

The modular Protect^{PLUS} M600 from AEG PS has the best IGBT technology and scalable architecture available. The intelligent management of power modules allows the system to reach high AC/AC efficiency values, typically up to 95.5% in double conversion (VFI) and up to 98.5% in ECO mode (VFD), thus ensuring the system's optimization and reduction of energy waste.

Features

- Double Conversion (VFI-SS-111)
- Transformer-less architecture: lower space and weight
- Excellent power capability, up to 900kVA without additional tools
- 30kVA hot-swappable power modules for predictive power management and lowest MTTR
- AC/AC Efficiency in double conversion up to 95.5%
- ECO mode, up to 98.5% efficiency
- Idle Mode
- Output PF = 0.9
- 10.4" color Touch Screen
- Double doors for back access and easy maintenance
- Intelligent and innovative Self Aging Test
- MoniUPS compatible

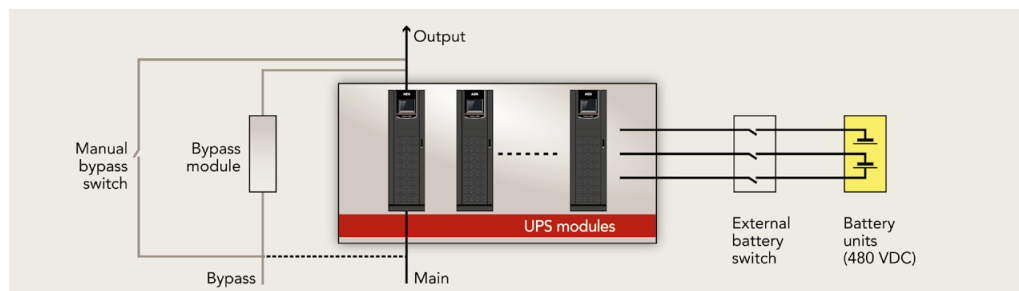


PROTECT^{PLUS} M600

TECHNICAL DATA

| MODEL | Protect PLUS M600 | Protect PLUS M600 | Protect PLUS M600 |
|---|--|--------------------------|--------------------------|
| Frame model | Frame 180 | Frame 300 | Frame 600 |
| Maximum capacity (kVA) | 180 | 300 | 540 (+ redundancy) |
| Maximum number of power modules connected | 6 | 10 | 20 |
| Parallel operation | Up to 3 frames | Up to 3 frames | No |
| Dimensions W x D x H (mm) | 600 x 1100 x 1600 | 600 x 1100 x 2000 | 2000 x 1050 x 2000 |
| Weight (kg) | 165 | 220 | 660 |
| Color of the frame | RAL 7021 | | |
| POWER MODULE | | | |
| Nominal power (kVA/kW) | 30/27 | | |
| Dimensions W x D x H (mm) | 460 x 790 x 134 | | |
| Weight (kg) | 34 | | |
| INPUT | | | |
| Phase | 3Ph + N + G | | |
| Nominal Voltage (V) | 380/400/415 | | |
| Voltage range (V) | 304 to 478V (at full load) 228 to 304V (with load decreasing linearly) | | |
| Frequency (Hz) | 50 / 60 | | |
| Frequency range (Hz) | 40 / 70 | | |
| Power Factor | 0.99 | | |
| Input THDi | <3% (with linear load) | | |
| OUTPUT | | | |
| Voltage (V) | 380/400/415 | | |
| Voltage regulation | 1.5% | | |
| Output THDv | <1 % (with linear load) <6% (with non linear load) | | |
| Output PF | 0.9 | | |
| Crest Factor | 3:1 | | |
| Frequency (Hz) | 50/60 | | |
| Overload capacity | 110 % for 60 min 125 % for 10 min 150 % for 1 min >150 % for 200 ms | | |
| AC/AC efficiency in double conversion (VFI) | Up to 95.5 % | | |
| AC/AC efficiency in ECO mode (VFD) | Up to 98.5 % | | |
| BATTERY LINE | | | |
| Nominal DC Voltage (VDC) | ±240 (with +/N/- connections) | | |
| Quantity of lead acid batteries (12V each) | 40 (settable from 36 to 44) | | |
| Recharge power | 10 % System Power (nominal value); Settable: from 0 to 20 % System power | | |
| Temperature compensation (mV/°C) | -3.0 (selectable: 0 to -5.0) | | |
| USER INTERFACE | | | |
| Display | 10.4" LCD + LED, Color touch screen + Keyboard | | |
| IP protection degree | IP20 | | |
| Standard communication ports | RS232; RS485, Dry contacts, USB | | |
| Optional communication ports | SNMP, Expansion Dry contact card | | |
| ENVIRONMENTAL | | | |
| Operating temperature (°C) | 0 to 40 | | |
| Storage temperature (°C) | -40 to 70 | | |
| Relative humidity | 0 to 95% | | |
| Noise at 1 m distance (dB) | 65 (with nominal load); 62 (with 45% of load) | | |
| STANDARDS AND CERTIFICATIONS | | | |
| Safety | IEC EN 62040-1 | | |
| EMC | IEC EN 62040-2 | | |
| Test and Performance | IEC EN 62040-3 | | |

PAY AS YOU GROW ARCHITECTURE



High performance and minimized energy consumption

The Protect^{PLUS} M600 is designed to provide superior output voltages suited to highly demanding applications with either 100 % step load, unbalanced, non-linear or modern IT loads. It provides exceptional performance with a power factor of up to 0.9 (lagging or leading) with no requirement to de-rate the unit. Its modular rack configuration can connect up to 20 power modules in a single unique cabinet (including redundancy), and up to 30 power modules (900 kVA) in its maximum extension, thereby optimizing the installed power every time in line with the actual demand of the load.

The Protect^{PLUS} M600 is therefore the ideal solution for all critical applications when space is a premium and where power consumption is an important variable. The modular design (or "pay as you grow architecture") provides immediate cost savings in terms of your initial investment (CAPEX). The unique design combines high AC/AC efficiency values, with a compact footprint and flexible scalability.

Easy installation, operation and maintenance

All power modules as well as other critical components can be removed from the front of the cabinet thereby affording easy accessibility and smooth maintenance and operation of the ventilation system.

In addition to perfectly matching a solution to your requirements, our service network will guarantee you full assistance from commissioning to maintenance, to make your power supply as easy and as reliable as possible.

User interface and accessories

- User-friendly interface
- Monitoring, managing and shutdown software
- RS232 serial port
- USB port
- EPO contact (for remote emergency push button)
- Diesel Mode contact
- Modbus port available as standard
- SNMP card as option
- Remote Panel (optional)
- Bottom cable entry (for 300 kVA Frame)



MoniUPS Remote

A Service Expert at your fingertips 24/7

For customers who have acquired a UPS to protect their critical loads, this innovative tool combined with the Protect^{PLUS} M600, will constantly monitor your entire installation.

Due to the remote monitoring system, the UPS can communicate a warning message to our AEG Power Solutions' experts, who will in turn make a remote diagnosis, reach the site installation and restore the UPS before failure can occur.

The immediate resolution of potential faults are vital for all critical applications.



AEG Power Solutions

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

www.aegps.com

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