MODULAR THREE-PHASE UPS SYSTEMS

DPA 60 and 120

208V UL • Modular UPS (20–120kW)

The DPA 60 and 120 are 208V modular UPSs based on 20kW modules and are available in two cabinet configurations:

- DPA 60 cabinet is 20–60kW with internal batteries.
- DPA 120 cabinet is 20–120kW with external battery cabinets.

DPA 60 and 120

The modular UPS for small and medium-sized data centers

DPA 60

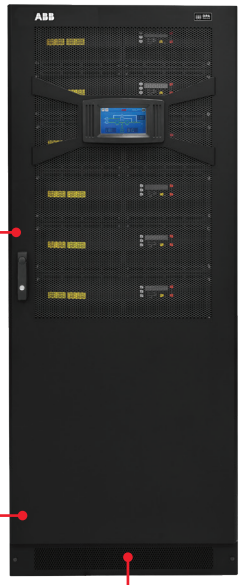
60kW or 40kW N+1 redundant power.
In one UPS cabinet.

120kW or 100kW N+1 redundant power.
In one UPS cabinet.

300kW power in one system.
By paralleling up to five cabinets.

600kW power in one system.
By paralleling up to five cabinets.

DPA 120



20kW power in one UPS module.
Truly scalable power – featuring DPA.

94% double conversion efficiency, 99% eco-mode efficiency reduced power losses.

< 10min service time. Low MTTR to exchange one UPS module.

Today's data centers require continuous uptime, especially the smaller but rapidly growing edge data centers. That high reliability target is why ABB's DPA 60 and 120 are based on Decentralized Parallel Architecture (DPA). Only a truly redundant architecture like DPA with no single point of failure allows modules to be swapped out while the system is running in double conversion.

Each high-reliability, standardized module is self-contained and can be swapped at any time, so nothing will ever need to be switched off – making routine maintenance safe, fast and easy. The DPA 60 and 120 are designed to secure continuity of critical operations for small to mid-sized data centers, server rooms and other IT applications. It also protects industrial automation processes, healthcare facilities and many other vertical markets where operations are of a critical nature.

Key benefits

Maximized availability
- 99.9999% availability
- Decentralized parallel architecture
  – Eliminates single points of failure
  – N+1 internal redundancy
- Replace or add modules with no downtime
- Short mean-time-to repair

Cost effective "right-sizing"
- Vertical and horizontal scalability
- Pay as you grow

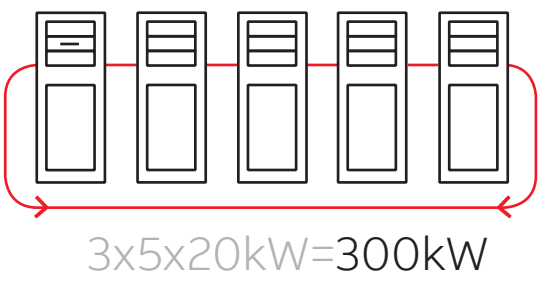
Low total cost of ownership
- True online efficiency: Up to 94% at nominal load
- Small footprint/high power density
- Unity power factor (kW = kVA)
- Low input harmonic distortion (THDi < 4%)

Efficient service concept
- Simple scalable power upgrade in 20kW increments
- Fast service – low MTTR
- Reduced spare parts needed
- Online-swap modularity (OSM)
- Online serviceability

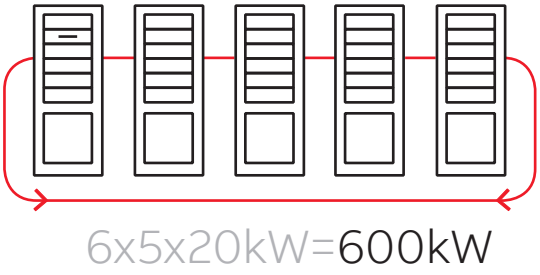
Total vertical and horizontal scalability

The DPA 60 delivers power protection from 20kW–60kW at 208V (one to three 20kW modules) with internal batteries in a single cabinet and the DPA 120 delivers power protection from 20kW–120kW at 208V (one to six 20kW modules) with two cabinets – one cabinet for the power modules and the other cabinet for the external batteries. Horizontal scalability is also available, with up to five cabinets in parallel, to increase total power up to 300kW with the DPA 60 and up to 600kW with the DPA 120. This scalability means that there is no need to over-specify the original configuration as power modules can simply be added, as needed, in the future.

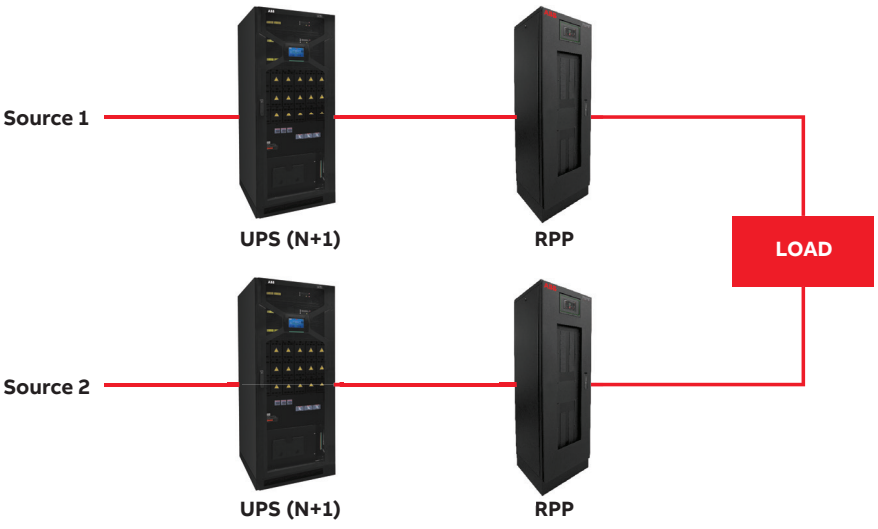
DPA 60



DPA 120



Designed with maximum flexibility and redundancy at its core for the standardization of power protection.
In a data center, power distribution systems have historically been oversized to meet the redundancy requirements. The DPA 60 and 120 UPS systems are designed for datacenters and other high availability applications that require redundant configurations (for example N+1, N+2), etc.). Adding redundancy for increased availability comes easy with the advanced scalability within the DPA UPS family. These systems complement and complete the datacenter power distribution system for ABB, providing customers with a centralized power protection solution.



Centralized power protection solutions
Sample reference scenario of ABB's centralized power protection solution, Tier 4 data center 2 (N+1) UPS configuration

N = DPA 60 or 120 UPS @ 208V

DPA 60 and 120

Modular UPS systems that suit applications requiring N+1 redundancy and flexibility

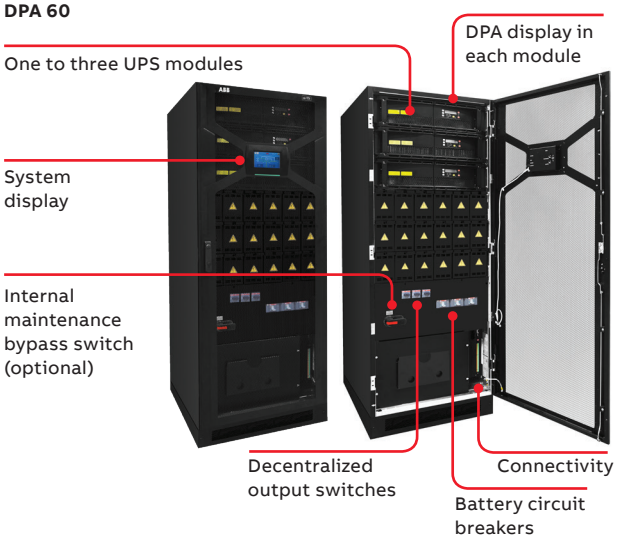
True parallel architecture
This advanced UPS design provides the highest degree of protection in critical applications where the load must be fed with quality power. These DPA systems utilize decentralized parallel architecture and ensures the highest level of reliability and availability with true redundancy across modules.

Each module operates independently, containing all hardware and software required for full system operation, creating complete redundancy within the unit. Each UPS module has its own independent static bypass, rectifier, inverter, logic control, control panel and battery charger. With all the critical components duplicated and distributed between individual units, potential single points of failure are eliminated.

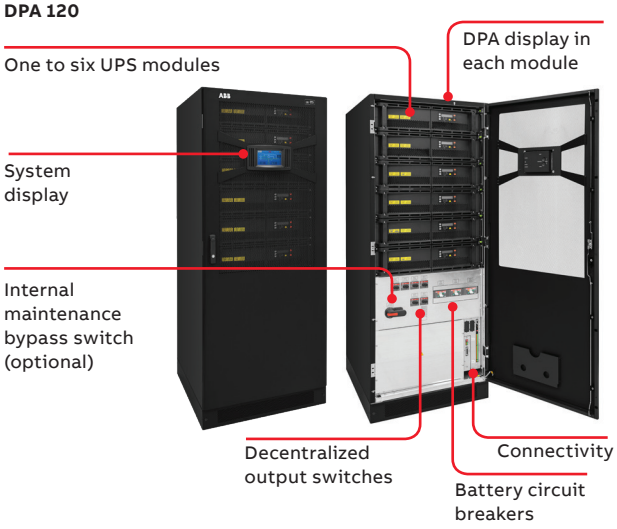
Basic system configuration
The module includes:
- 20kW rectifier and inverters
- Decentralized static bypass switch
- True online double conversion UPS
- Built-in modular isolation
- Built-in backfeed protection
- Individual module display
- HMI interface with mimic diagram and LCD providing information in five languages

The cabinet includes:
- Optimized cabinets, with either 60kW or 120kW of rated power
- Bottom cable entry (standard) and top cable entry (optional)
- Rectifier, bypass terminals (single or dual-input mains connection available) and UPS output terminals
- Battery breakers and output switches for each module set. DPA 60 (standard); DPA 120 (optional)
- Graphical color touch screen system display
- Communication interfaces: RS-232 and USB ports, I/O dry contacts (e.g. EPO, GEN On) and external bypass interlock

DPA 60



DPA 120



Options
- Internal battery options for optimized 60kW cabinet
- Matching external battery cabinets
- Maintenance bypass cabinet (matching or wall mount)
- Control and monitoring (Modbus RS-485, Modbus TCP/IP, SNMP, Bacnet and others)
- Battery monitoring
- Seismic bracing

The lowest total cost of ownership

The DPA 60 and 120 boast a low cost of ownership compared to other UPS systems at 208V by offering energy efficiency, scalability and modular design to enable easy serviceability. The unique and modular UPS DPA belongs to the newest generation of midrange 3-phase UPS-Systems. High reliability, low operating cost and excellent electrical performance are only some of the highlights of this innovative UPS solution.

It can be sized to align closely with prevailing IT requirements, but can be added to incrementally as IT needs grow. This means that you only power and cool what you need. The resulting savings in power usage over the service life of the UPS are substantial.

Rack-mounted configurations can be right-sized by inserting or removing 'online-swappable' modules while the systems remain online, enabling power to be added as requirements grow without any footprint penalty. This makes servicing simple as modules can be replaced without powering down. Together with the excellent efficiency rating of up to 94% of the product, all these factors gives the DPA 60 and 120 the lowest total cost of ownership of any similar UPS system.

Online swap of DPA module.

Sized to fit your needs
Designers often over-specify UPS systems to take account of future demand growth. With the DPA 60 and 120, modules can simply be added in parallel in 20 kW power increments to increase the system's total capacity. The DPA 60 and 120's vertical and horizontal scalability allow:

- Flexible power upgrades and downgrades
- Easy maintenance
- Pay as you grow

Protecting power has never been easier
True, online-swap modularity enables the safer removal, replacement and addition of DPA modules without risk to the critical load and without the need to power down or transfer to raw mains supply. This unique feature directly addresses today's requirement for continuous uptime. The ability to online-swap modules in a DPA system significantly reduces its mean time to repair (MTTR) and simplifies system upgrades. The modular approach pays off too when it comes to serviceability and availability – online-swapping of modules means you don't have to switch off or switch to bypass during replacements, so there is no downtime in a redundant configuration.

Installation and service is easy
The straightforward concept of the DPA simplifies every step of the deployment process, from planning, through installation and commissioning to full use. Flexible set-up and fast maintenance means lower operating and maintenance costs. The UPS is serviceable by front access only.

DPA INSIDE

Technical specifications

Specific technical data	DPA 60 UL cabinet	DPA 120 UL cabinet
Power ratings		
Cabinet power range	20–60kW	20–120kW
Nominal power/module	20kW	20kW
Max number of power modules/cabinet	3	6
Maxiumum loading/cabinet (non-redundant)	60kW	120kW
Maximum loading/cabinet (N+1 redundant)	40kW	100kW
Battery configurations		
Internal battery	Yes (2–6 strings)	No
External battery cabinets	Yes	Yes
Minimum battery runtimes	5–10 minutes	5–10 minutes
Maximum battery runtimes	10 min. @ 60kW; 17 min. @ 40kW; 40 min. @ 20kW	>120 min. at 120kW
Types	VRLA (NiCd and Lithium ion available for external option)	VRLA, NiCd, Lithium ion
Battery charger	Decentralized charger in each module set	Decentralized charger in each module set
Battery configuration and options	(See technical data sheet for specific battery options and runtimes)	(See technical data sheet for specific battery options and runtimes)
Cabinet dimensions and weights (DPA 60 UL and DPA 120 UL)		
Dimensions (W x H x D)	31.0" x 77.8" x 36.4" (787mm x 1976mm x 925mm)	
Weight	(See technical data sheets for weights by kW rating and battery runtime)	
Common technical data (DPA 60 UL and DPA 120 UL)		
General information		
Output power factor	1.0 unity	
Topology	Online, double conversion, transformerless, modular, Decentralized parallel architecture	
Parallel configuration	Up to 5 cabinets in parallel (Up to 300kW for DPA 60, Up to 600kW for DPA 120)	
Cable entry	Bottom (standard), top (optional)	
Serviceability	Front access only	
Back-feed protection	Built-in (standard)	
Connection	5-wires, 3-phase + neutral + ground	
Input		
Nominal input voltage	3 x 208/120V + neutral + ground	
Voltage tolerance	< 100% load (-15%, +10%), < 80% load (-20%, +10%), < 60% load (-30%, +10%)	
Input distortion THDi	< 4% at 100% load	
Frequency range	50/60Hz ± 5%	
Power factor	0.99 @ 100% load	
Walk in/soft start	Yes	
Output		
Rated output voltage	3 x 208/120V + neutral + ground	
Voltage tolerance	± 2.5%	
Voltage distortion	< 2% in linear mode	
Frequency	50/60Hz	
Efficiency		
Double Conversion (VFI)	Up to 94% at nominal load	
Eco Mode (VFD)	Up to 99% at nominal load	
Environment		
Protection rating	IP 20	
Storage temperature	–25° to +70°C	
Operating temperature	0° to +40°C	
Altitude (above sea level)	1000 m without de-rating	
Communications		
User interface	Graphical touch screen (one per cabinet standard) Decentralized LCD + mimic diagram (one per module standard)	
Communication ports	USB, RS-232, voltage-free contacts, SNMP (optional)	
Customer interface	Remote shutdown, gen-set interface, external bypass contact	
Standard compliance		
Safety	UL 1778 5th edition, CSA C22.2 No. 107.3-14, Third Edition	
EMC	IEC/EN 62040-2 C3	
Manufacturing	ISO 9001:2008	

Note: Please refer to ABB DPA 60 and 120 technical documents for configurations, features, recommendations and guidelines.

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