PRODUCT CATALOG

ABB UPS products and solutions

Power protection for critical infrastructures

Welcome to ABB's Power Protection catalog

The number of critical applications that simply cannot be allowed to go off line grows daily. These applications must be guaranteed a constant supply of high-quality power.

For customers who need full availability and fuss-free operation, ABB offers a comprehensive portfolio of UPS solutions. ABB's solutions are based on strong and stable architectures that make sure your important application is supported by the very best power protection system, ready to step in and take over at the first sign of trouble.

This product catalogue provides details of ABB's Power Protection solutions and will guide you in choosing which ones are suitable for your needs.

Our uninterruptible power supplies (UPS) and ancillary products cover a wide range of applications and power – from small offices to large data centers. And for each and every user ABB's mission is to provide power protection that ensures the highest availability and the lowest cost of ownership.

Sustainably manufactured in Switzerland to the highest of standards, ABB's Power Protection products employ a variety of technologies – from traditional designs to our leading range of modular products that allow a power protection system to be added to module by module, as and when required. This reduces initial capital outlay and simplifies maintenance.

ABB is always there to provide consultancy so that you can choose the product that is exactly right for you. And afterwards, our global, first-class service organization is at your disposal in more than 100 locations.

Please browse the catalogue to learn more about the ABB Power Protection group, our approach to power protection and details of our products. If you require guidance, we are always ready to assist you in person, or you can visit www.abb.com/ups.

Table of contents

About us

The ABB Power Protection product group was formed from the combination of the three ABB product lines UPS, Power Conditioning and Power Solutions. The three businesses have their roots in the formerly acquired companies Newave (UPS), Vectek and Cyberex.

Newave SA was founded in Ticino, Switzerland in 1993 to market innovative UPS technology. From the very start, the company was a UPS innovator and by 1994 had designed, manufactured and launched its first generation of three-phase, transformerless standalone UPS. Further innovation followed and the UPS product portfolio grew through several generations to cover three-phase applications and ever-higher powers.

In 1998, the first generation of modular UPSs was introduced. The modular approach delivers a low total cost of ownership and has proven to be a runaway success with customers. The company's innovation and accomplishments attracted the attention of the ABB Group, who acquired Newave in early 2012. This acquisition propelled ABB to the forefront of the power protection industry as the company's portfolio complements the rest of ABB's Power Protection offering to give a unique line-up of UPS, power conditioning and power switching products designed to solve power quality issues in all sorts of commercial and industrial applications.

Through an expanding team of local business units and channel partners – and an array of innovative products – ABB is well positioned for further growth in the global UPS and power protection market. And there are innovative products to match: For example, the unique Decentralized Parallel Architecture (DPA™) featured in UPSs like the Conceptpower DPA 500 is just one innovation from a pioneering company that has over 20 years of UPS design under its belt.

www.abb.com/ups

ABB's vision and values
– power and productivity for a better world

For a company to know its direction of travel and know what it stands for, it has to have visions and values.

"Power and productivity for a better world" describes what ABB stands for. In power we are a leader in addressing power infrastructure and control needs for utilities, industry, transport and infrastructure. In productivity – ABB is a leader in operational asset effectiveness – we support our customers in achieving high uptime and speed while reducing waste.

"… a better world" refers to our value proposition to decouple economic growth from environmental pollution. Based on our offering and technologies, we are well positioned to enable growth with less relative energy consumption and make the still-needed energy supply cleaner and more sustainable.

Our vision is clear: our daily actions need to be built on the right set of values – and not only for the world of today but also for the world of tomorrow.

Our values can be summarized as five value pairs that are both fundamental and inspirational:

Safety and integrity
This value pair is the bedrock of our organization. We do not accept business if it means putting people at risk or engaging in unethical practices. At ABB, we take care of ourselves and we look out for our colleagues.

Customer focus and quality
The customer has to be at the center of all our activities – and when we reach them we need to deliver with utmost quality in everything we do. Knowing our customers better, being perceived as having a clear focus on them and providing high-quality offerings and services will make us the partner of choice.

Innovation and speed
Innovation is at the core of our value proposition and will continue to be critical in strengthening and enhancing our competitive position – in daily business, and as we expand our offering towards engineering / consulting, software and value-added services. Speed is essential in everything we do – being efficient with a high quality and without haste is the art that we are committed to mastering.

Ownership and performance
Strengthening clear lines of responsibility and accountability across our organization is a key part of our Next Level strategy. Institutional and individual performance are key to continue to not only survive but succeed in a demanding world. Performance is what is expected from all of us every day – not only continuing what we are doing, but also taking a step forward.

Collaboration and trust
ABB's future, its enhanced competitive strength, must be built around better, more natural collaboration aimed at providing superior customer value. The organization, with undiluted business line responsibilities and empowerment closer to the customer, enables the business, regional / country and functional leaders to collaborate more and more efficiently.

ABB's UPS manufacturing principles

In ABB, quality is an integral part of our business ethos. Quality guides our actions to ensure we meet our responsibilities and obligations to our customers, our employees, our partners, our suppliers and to our shareholders.

ABB's commitment to deliver high quality

- Deliver on-time and on-quality products, systems and services that meet or exceed our customers' expectations.
- Identify and understand our customer's expectations, measure customer perceptions and implement improvements to increase customer satisfaction.
- Enable and engage our employees at all levels in a relentless drive to improve operational performance along the value chain from suppliers to customers.
- Increase the motivation and skills of our employees to add value to our customers and our businesses through continual training and development.
- Leverage our partners' and suppliers' strengths to improve our products and our businesses from product design through production, installation and operation.
- Embed social responsibility and company ethics policies in our business practices.
- Continually improve environmental, health and safety performance through all products, operations, systems and services.

Manufacturing

Quality in manufacturing begins with the order from the customer. We practice made-to-order manufacturing – a lean approach that exploits just-in-time supply and that treats each and every customer order as a single, valuable entity. Each product is individually tested before leaving the factory with a 100 percent pretest on modules individually and a 100 percent final test on modular and standalone UPSs.

Quality only becomes quality when it is measured and for this reason we employ key performance indicators (KPIs) some of which are:

- Safety
- Quality from the suppliers (part-per-million defect rates and on-time delivery)
- Quantity of products / items produced for new business and for service departments (after sales)
- Internal first-pass yield
- On-time delivery of the finished product

Product quality assurance
In ABB, we believe in getting it right the first time – and keeping it that way. For that reason, we engage in component homologation as well as the identification of critical components. Suppliers are fully vetted and qualified, on an ongoing basis, and our test verification plan and type testing assures our quality standards even further.

The ABB product development gate model is deployed all the way through to product launch – from initial conception through development to final full release, and after – right up to gate seven. The gate model involves every part of the organization and this ensures that every aspect of the new product is covered, guaranteeing the very best quality.

Should non-conformities arise, ABB has a comprehensive set of monitoring tools with which to examine the issue. This is backed up by a three-level support model:
- **Level 1:** solving problems in the field
- **Level 2:** statistical analysis and mitigation action definition
- **Level 3:** root cause analysis

Environmentally friendly
ABB has stated policies that drive the company to be as environmentally friendly as possible. One example of this is our product test bay used for all UPS final testing, which features an energy recovery system. This so-called GREEN (Generating Recycled Ecological Energy Network) test bay is a facility that recycles the greater part of the energy used during a UPS test. Only nine percent of the energy used is from the mains; 91 percent is recovered energy. This re-use is far more beneficial than having a traditional resistor load that merely turns the energy into heat, thus wasting it.

Further, the modern ABB building has an efficient heating / cooling system (energy management) as well as strict rules for recycling and managing discards.

Certification
Product certification
- Accredited third-party certification:

	UPS standards	Low-voltage devices standards
Safety	IEC / EN 62040-1	IEC / EN 60950-1
EMC	IEC / EN 62040-2	IEC / EN 61000-6-2 IEC / EN 61000-6-4 IEC / EN 61000-4-2 IEC / EN 61000-4-3 IEC / EN 61000-4-4 IEC / EN 61000-4-5 IEC / EN 61000-4-6
Performance	IEC / EN 62040-3	
Environmental aspects	IEC / EN 62040-4	

Factory certification
- ISO 9001 and 14001
- OHSAS18001

ABB’s UPS service offering

A truly global service organization. ABB is at your service worldwide. UPS service experts support customers around the world from more than 100 locations.

Our service network

Good customer service is the lifeblood of any business or organization. This fact is well understood by ABB and is the fundamental reason why good customer service is driven by ABB management and is of equal importance for all staff.

ABB’s service footprint for the UPS product line is global and is provided by ABB itself or by members of ABB’s partner network. All ABB and partner service engineers go through intense product-specific training before they are allowed to carry out service work at a customer site.

Customers can contact their local ABB representative or the nominated ABB partner for assistance. A local field service engineer will help the customer to solve the issue, either by phone or by going onsite. If the field service engineer is in need of assistance, they are able to contact the round-the-clock, 24 × 365 ABB support line in Switzerland. The support line expert assists the local field service engineer in solving the issue by phone and electronic ticketing system as well as local intervention when required. The support team experts are always on duty and will return any call at any time.

During this whole process, the support line expert will be the only point of contact for the local service engineers. This ensures consistency and constant improvement of service, and that the customer is kept fully informed. This level of customer care is a key aspect of ABB's service concept and ensures an increase of competence on all levels. ABB or partner service personnel will often be on-site – for regular maintenance management, on-site commissioning and start-up, product care and so on. They are also available to provide training, and to deliver technical information and documentation.

Factory acceptance tests (FATs) are also a key responsibility for ABB service – standard FATs, special FATs on customer request, FAT management and reports, and associated logistics coordination are all part of this activity. ABB is fully committed to providing top-quality service to ensure that the customer enjoys the very best performance from their ABB products and can use them with full integrity and safety.

ABB's modular UPS design

Ensuring high availability and low total cost of ownership

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01 In DPA, each UPS module has all the hardware and software it needs for autonomous operation.

ABB's approach to modular power protection
Despite all the precautions taken during the design and operation of data centers and related control processes, situations can arise in which external power is compromised – either in terms of quality or availability. Such events could result in data loss, nonavailability of essential services, risk to hardware and very high financial losses. This makes a highly dependable UPS mission-critical. Therefore, the most critical loads should be protected by the very best UPS design – Decentralized Parallel Architecture (DPA™).

ABB, a pioneer and leader in large, modular UPSs, provides a full range of modular DPA power protection products as well a standalone solutions. In the following four pages, we will focus on our approach to modular power protection and describe how these modular solutions can help ensure a supply of clean, reliable power to the customer's application.

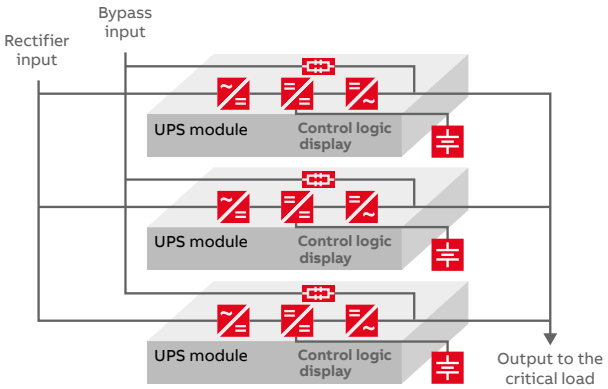
DPA architecture
Key benefits
- Distributed control and power
- No single point of failure
- Independent online swappable modules

In DPA, each UPS module contains all the hardware and software required for full UPS system operation. Modules share no common components and each module is a fully functional UPS, so a DPA parallel system offers extremely high system reliability and uptime is maximized. UPS modules can be paralleled to provide redundancy or to increase the system's total capacity.

Some modular UPS systems with a centralized parallel architecture (CPA) have centralized control or hardware. This renders them very vulnerable should a fault occur on one of these centralized components; one fault can bring down the entire UPS system.

With DPA, on the other hand, the UPS is modularized and each module has all the hardware and software needed for autonomous operation – rectifier, inverter, battery converter, static bypass switch, back-feed protection, control logic, display, and mimic diagram for monitoring and control. With all the critical components duplicated and distributed between individual units, potential single points of failure are eliminated. In the unlikely event of one UPS module failing, the failed module will be automatically isolated and the overall system will continue to operate normally.

Modular UPS with no common components (Decentralized Parallel Architecture)



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01 Vertical scalability: one to five modules in one single cabinet. Horizontal scalability: cabinets in parallel configuration up to 3 MW

Online swappable modules (OSM)
Key benefits
- Replace or add modules with no downtime
- Simple power upgrade
- No downtime during maintenance

True “online-swap” modularity enables the safe removal and insertion of UPS modules without risk to the critical load and without the need to either transfer it onto raw mains or remove power from it. Modules can therefore be replaced or added without any system downtime. It is simple to upgrade power capability as critical load power requirements grow. Additionally, modules can easily be removed for service or replaced if faulty, without compromising the availability of the system. Only a truly redundant architecture like DPA allows online modules to be swapped out while the system is running.

This unique aspect of modularity directly addresses continuous uptime requirements, significantly reduces mean time to repair (MTTR), reduces inventory levels of spare parts and simplifies system upgrades. This approach pays off too when it comes to serviceability and availability, as there is no downtime and the service personnel do not need special skills.

Scalability
Key benefits
- Vertical and horizontal scalability
- Cost-effective “rightsizing”
- Easy configuration and reconfiguration

The ability to scale the system means the UPS can be sized exactly to fit prevailing needs and modules can simply be added as requirements grow. This means that you only power, cable and cool what you need.

The Conceptpower DPA 500, for example, allows five 100 kW modules to be mounted in one cabinet and six cabinets to be configured in parallel to provide a top rating of 3 MW. Power consumption is the topic of greatest concern for data center operators and the energy savings made by this modular approach over the service life time of the UPS are substantial. Human error is reduced too: Because things are so simple, wiring errors are eliminated, and configuration and reconfiguration are child’s play.

Scalability up to 3 MW

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ABB’s modular UPS design

Ensuring high availability and low total cost of ownership

Availability
Key benefits
- 99.9999% (6 nines) availability

By combining the benefits of Decentralized Parallel Architecture, parallel redundancy and online swap modularity, ABB’s UPSs have a high mean time between failure (MTBF) and a low mean time to repair (MTTR). This delivers six nines availability – a highly desirable quality required by data centers in pursuit of zero downtime.

The surest way to increase availability of power is to introduce redundancy to the UPS system and to minimize its maintenance and repair time. MTBF and MTTR are common parameters in the UPS industry and both impact system availability. Availability is formally defined as:
MTBF / (MTBF +MTTR) ×100%

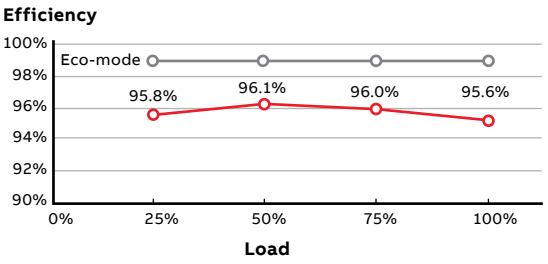
The modular DPA concept allows the modules to work as one system but without interdependence. Quick and simple repair by swapping modules, which can be held as spares on-site or at a nearby service center, minimizes the system’s MTTR.

Low total cost of ownership
Key benefits
- Over 96% true online efficiency
- Eco-mode efficiency ≥99%
- Cost-effective scalability to “right size” system
- Low service costs

The modularity and scalability described help minimize the cost of ownership, but costs are held down too by implementing designs that have best-in-class energy efficiency.

ABB’s Conceptpower DPA 500, for example, operates with an efficiency of over 96 percent. Its efficiency curve is very flat so there are significant savings in every working regime. Further energy savings can be made by operating the UPS in eco-mode, which increases the efficiency to ≥99 percent.

Online double conversion efficiency



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01 Example of a changing (increasing) load up to 120 kW in 4 years.
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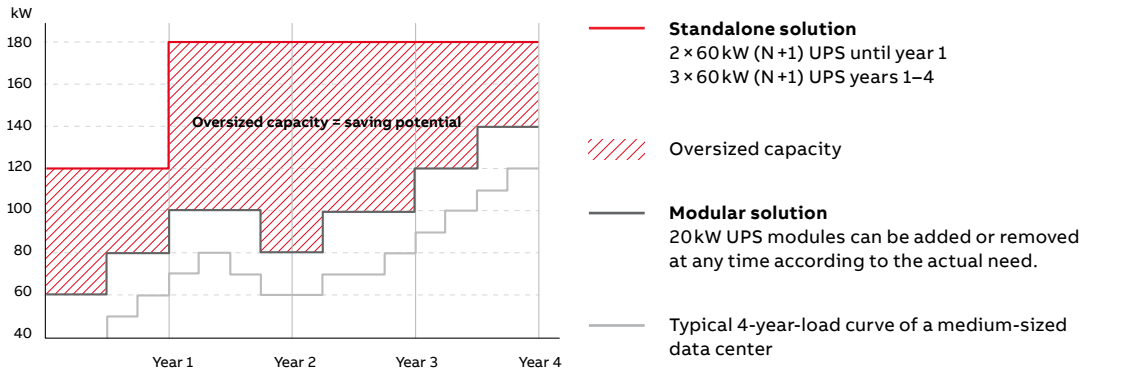
02 Vertical modularity minimizes space requirements and maximizes predictability of future space requirements. In the example shown, 2 m² is saved.

The UPS capacity can be changed with changing load, eliminating the need to oversize the UPS upfront.



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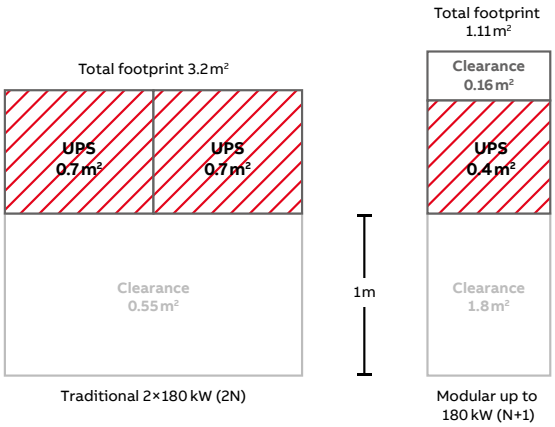
Modularity lends itself well to keeping UPS footprint small, too – ideal for data centers, where real estate can be restricted and expensive. A modular UPS rack has a small footprint and when extra modules are added, no extra floor space is taken up.

But the advantages of DPA modularity go further as installation and servicing costs are also kept low: A straightforward modular concept simplifies and speeds every step of the deployment process – from planning, through installation and commissioning to full use. DPA modularity also reduces costs as service engineers need less training and spend less time on-site, and any risks of data or production loss are minimized. Inventory levels of spare parts are reduced.

Highly dependable UPSs are mission-critical for many parts of industry. DPA delivers unmatched UPS availability and serviceability, scalability, flexibility and low energy usage.

There are no better UPS architectures available to those users whose critical electrical loads represent a valuable commercial asset that must be kept powered at all costs.



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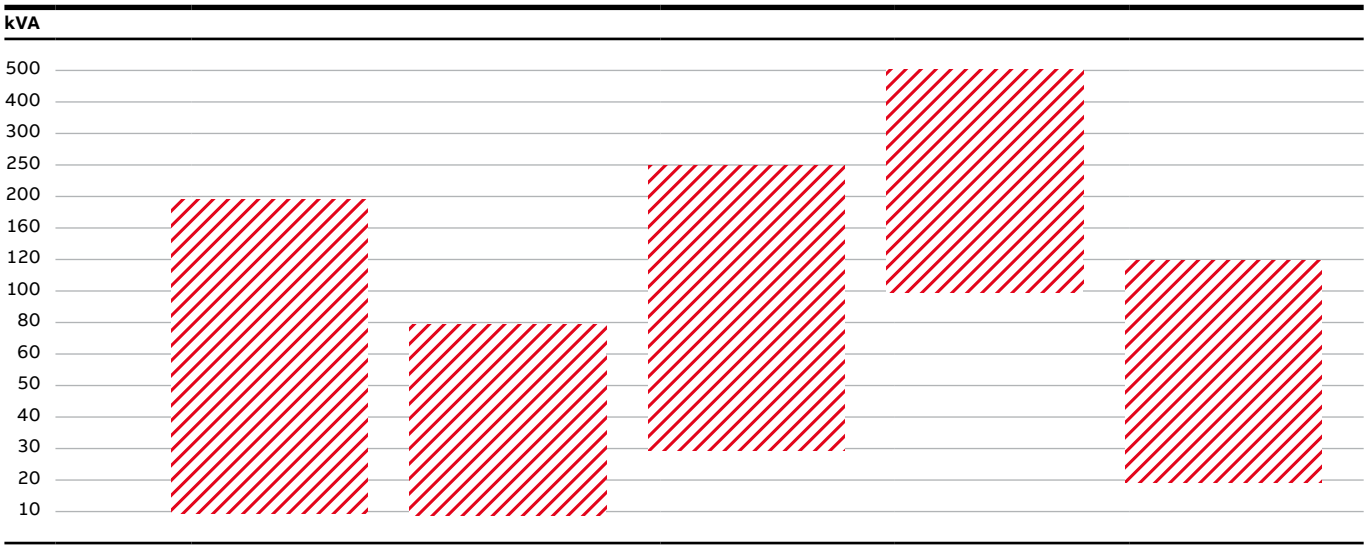
Choose the right power protection solution

At the core of our business is a technically advanced product portfolio of high-quality and reliable three-phase and single-phase transformerless uninterruptible power supplies. All our UPSs provide online double conversion topology and are designed for continuous power protection of critical equipment against all power problems: power failure, power sag, power surge, undervoltage, overvoltage, switching transient, line noise, frequency variation and harmonic distortion.

ABB's modular UPSs

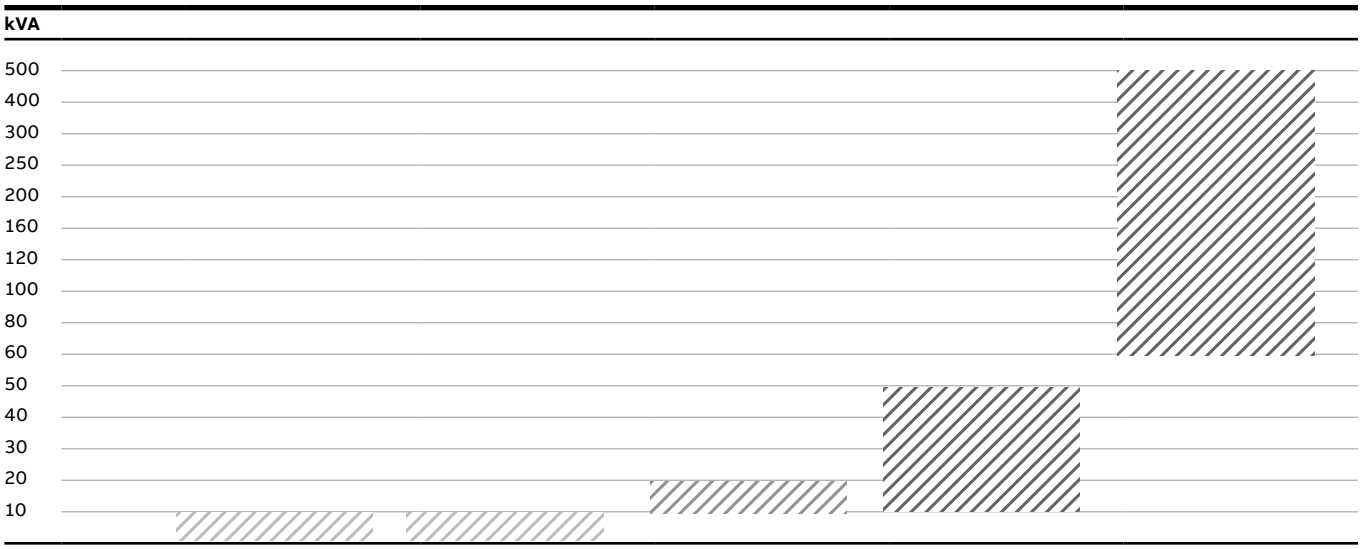
UPS cabinet rated power



Product	DPA UPScale ST	DPA UPScale RI	Conceptpower DPA	Conceptpower DPA 500	PowerLine DPA
					
Parallelable	Up to 20 modules	–	Up to 30 modules	Up to 30 modules	Up to 3 modules
System power	400 kW	80 kW	1500 kVA	3000 kW	120 kVA
Application	Network, server and storage	Network, server and storage	Data center and facility	Data center and facility	Industrial applications
UPS type	Three-phase modular UPS	Three-phase modular UPS (rack-independent)	Three-phase modular UPS	Three-phase modular UPS	Three-phase and single-phase modular UPS

ABB’s standalone UPSs

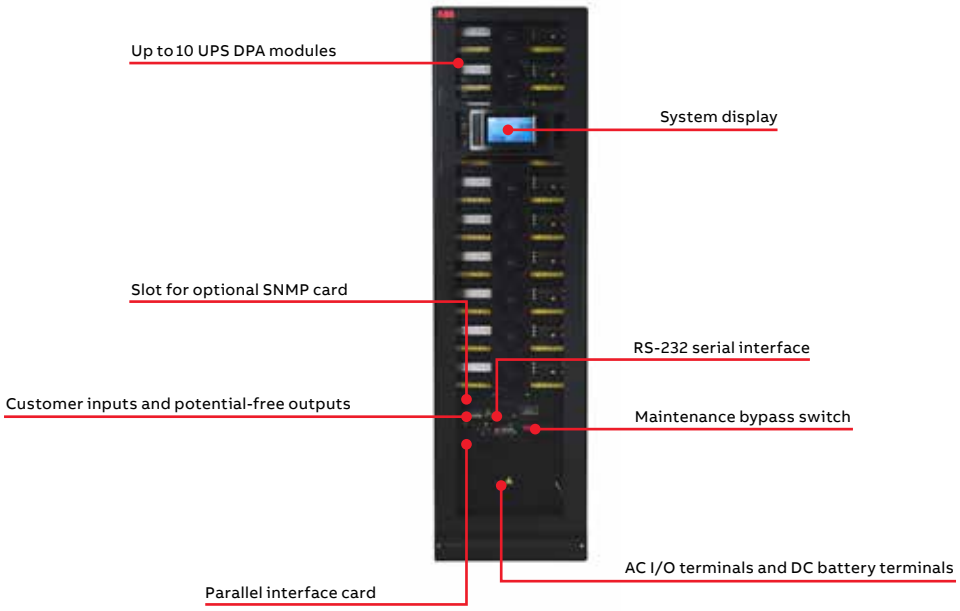
UPS cabinet rated power



Parallelable	Up to 3 units	Up to 3 units	Up to 4 units	Up to 20 units	Up to 10 units
System power	Up to 30 kW	Up to 30 kW	80 kVA	1000 kVA	5000 kW
Application	Workstation and home office	Workstation and home office	Workstation and home office	Network, server and storage	Data center and facility
UPS type	Single-phase standalone tower	Single-phase rack or tower convertible	Single-phase standalone tower	Three-phase standalone tower	Three-phase standalone tower

DPA UPScale ST

The modular UPS designed for low and medium power applications



ABB's DPA UPScale ST is available for high applications requiring an all-in-one power protection solution that includes frame, UPS, battery and communications. The solution delivers power protection from 10 kW to 200 kW in 10 kW or 20 kW modular steps. For a continuously growing mid-frastructure, DPA UPScale ST can be paralleled horizontally to increase the capacity up to 400 kW. This fully scalable and easily maintained UPS gives you unparalleled uptime and energy efficiency.

99.9999% (6 nines) availability
- Decentralized Parallel Architecture
- No single points of failure
- Redundant capacity (N+1) per frame
- Replace or add modules with no downtime
- Short mean time to repair

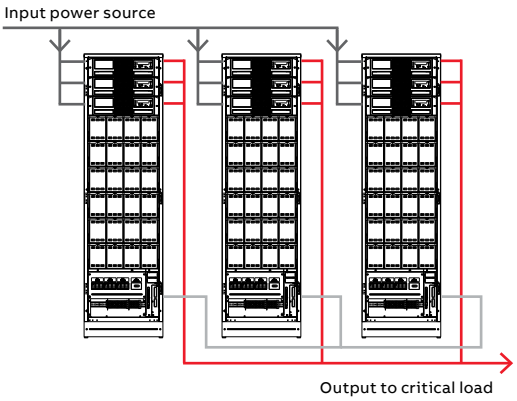
Low total cost of ownership
- Up to 96% true online efficiency
- Eco-mode efficiency ≥98%
- Unity power factor (kW = kVA)
- Low input harmonic distortion (THDi <3%)
- Small footprint / high power density (472 kW/m²)

All-in-one solution
- Power range from 10 kW to 200 kW in a single frame
- Internal batteries for short autonomies and external battery cabinets for long autonomies
- User-friendly interface per module and system level
- Remote control and monitoring options available

Efficient service concept
- Simple power upgrade
- Fast maintenance
- Full front access
- Reduced spare parts needed

DPA UPScale ST
Product features

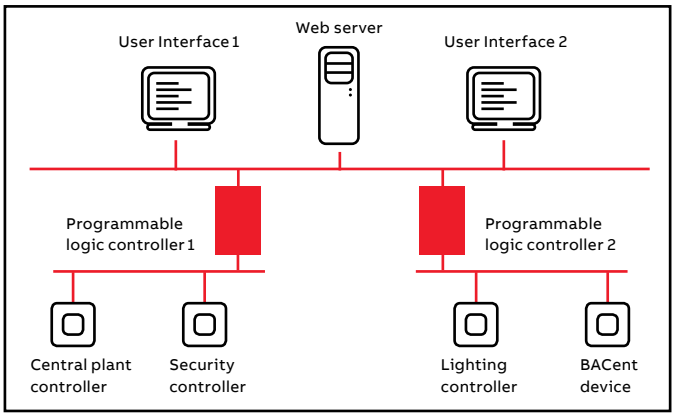
Full vertical and horizontal scalability
The DPA UPScale ST's modular design provides a vertical scalable power system from 10 kW up to 200 kW (180 kW N+1) in a single cabinet in 10 kW or 20 kW modular steps. For a continuously growing mid-size infrastructure, the DPA UPScale ST system can be paralleled horizontally to increase the capacity up to 400 kW. The ability to increment the power as the critical load grows optimizes the operating efficiency and reduce the initial cost for installations.

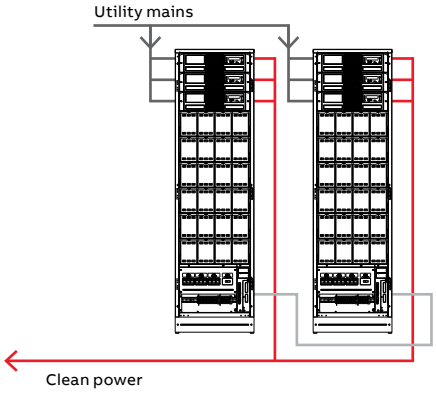


Cabinet type	ST40	ST60	ST80	ST120	ST200
Number of modules per cabinet	1 to 2	1 to 3	1 to 4	1 to 6	1 to 10
Parallel frames per system	4	4	4	3	2
Max. number of modules per system	8	12	16	18	20
Max. total system capacity w/o redundancy	160 kW	240 kW	320 kW	360 kW	400 kW

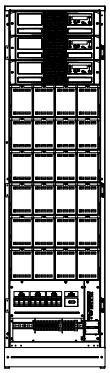
The ideal solution for small- to medium-sized critical power IT applications
The DPA UPScale ST can be deployed in a variety of small- to medium-sized system architectures. In addition to traditional server load applications, the DPA UPScale ST is ideal to protect critical applications such as building management systems (BMS). Large facilities are often provided with BMS to control and monitor the building's mechanical and electrical systems such as ventilation, lighting, fire alarms and security. The BMS is designed to create and maintain a safe, productive and comfortable environment, thus increasing operational efficiency, decreasing the energy consumption and ensuring the safety of personnel and equipment.

The DPA UPScale ST offers clean backup power for sensitive electronic devices (controllers, I/O devices and user interfaces) designed to monitor and control the infrastructure thus avoiding loss of data or damage to equipment.

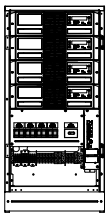


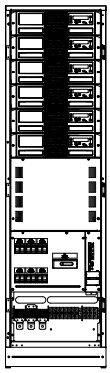


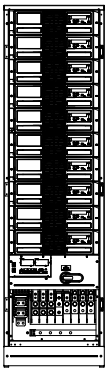
DPA UPScale ST
Available models



Cabinet type	ST40	ST60
Number of modules	1 to 2	1 to 3
Dimension w × h × d	550 × 1135 × 775 mm	550 × 1975 × 775 mm
Internal battery capacity	Up to 80 blocks 7 / 9 Ah	Up to 240 blocks 7 / 9 Ah







Cabinet type	ST80	ST120	ST200
Number of modules	1 to 4	1 to 6	1 to 10
Dimension w × h × d	550 × 1135 × 775 mm	550 × 1975 × 775 mm	550 × 1975 × 775 mm
Internal battery capacity	–	–	–

UPS cabinet configuration
- Up to ten online double conversion UPS modules
- LCD control panel per module
- Input, bypass and battery protection fuses
- Manual bypass switch
- Single- and dual-input feed available
- Free space to place internal batteries (only ST40 / ST60)

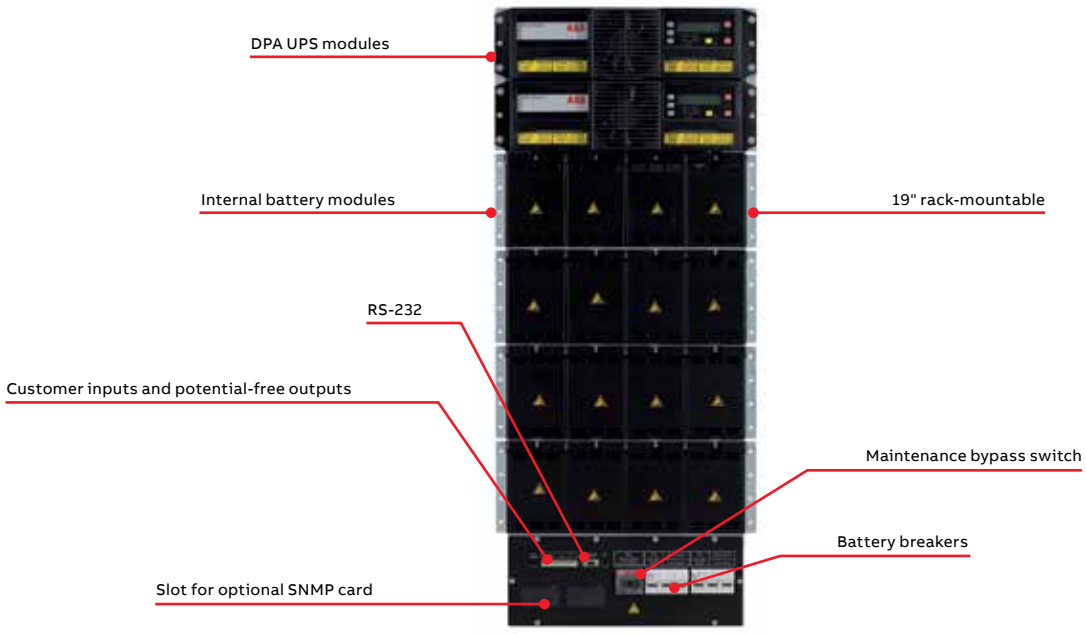
Options
- Parallel system configuration
- Integrated back-feed protection
- Cold start
- Halogen-free cabling
- Internal batteries (only ST40 / ST60)
- Battery temperature sensor
- Remote panel (graphical touch screen display)
- System display (graphical touch screen display)
- Control and monitoring (ModBus RS-485, ModBus TCP/IP, SNMP)
- External battery cabinets

DPA UPScale ST
Technical specification

General data	ST40	ST60	ST80	ST120	ST200
System power range	10–400 kW				
Nominal power per module	10 kW / 20 kW				
Nominal power / frame	40 kW	60 kW	80 kW	120 kW	200 kW
Number of UPS modules	1 to 2	1 to 3	1 to 4	1 to 6	1 to 10
Max. number of inbuilt batteries (7 / 9 Ah)	80	240	–	–	–
Output power factor	1.0				
Topology	Online double conversion				
Parallel configuration	Up to 20 modules (up to 4 frames)				
UPS type	Modular (Decentralized Parallel Architecture)				
Input					
Nominal input voltage	3 × 380 / 220 V + N, 3 × 400 / 230 V + N, 3 × 415 / 240 V + N				
Voltage tolerance (referred to 3 × 400 / 230 V)	For loads <100% (–20%, +15%), <80% (–25%, +15%), <60% (–35%, +15%)				
Input distortion THDi	≤3%				
Frequency	35–70 Hz				
Power factor	0.99				
Output					
Rated output voltage	3 × 380 / 220 V + N, 3 × 400 / 230 V + N, 3 × 415 / 240 V + N				
Voltage distortion (referred to 3 × 400 / 230 V)	<1.5%				
Frequency	50 Hz or 60 Hz				
Overload capability	1 min.: up to 150% / 10 min.: up to 125%				
Unbalanced load	100% (all three phases regulated independently)				
Crest factor	3:1 (load supported)				
Efficiency					
Overall efficiency	Up to 96%				
In eco-mode configuration	98%				
Environment					
Storage temperature	–25 °C to +70 °C				
Operating temperature	0 °C to +40 °C				
Altitude configuration	1000 m without derating				
Communications					
LCD	Yes (per module); system display optional (graphical touch screen display)				
LEDs	LED for notification and alarm				
Communication ports	USB, RS-232, SNMP slot, potential-free contacts				
Standards					
Safety	IEC / EN 62040-1				
Electromagnetic compatibility (EMC)	IEC / EN 62040-2				
Performance	IEC / EN 62040-3				
Product certification	CE				
Manufacturing	ISO 9001:2015, ISO 14001:2015, OHSAS18001				
Weight, dimensions					
Weight (with modules / without batteries)	Up to 135 kg	Up to 238 kg	Up to 168 kg	Up to 262 kg	Up to 389 kg
Dimensions w × h × d (mm)	550 × 1135 × 775	550 × 1975 × 775	550 × 1135 × 775	550 × 1975 × 775	550 × 1975 × 775

DPA UPScale RI (rack-independent)

The modular UPS for customized power protection solutions



The rack-independent DPA UPScale RI is one of the most compact UPS systems on the market that is suitable for custom-designed solutions. Being modular and rack-mountable, it provides an ideal system from the technical and commercial point of view for when a flexible solution is required. The DPA UPScale RI, including UPS, battery and communication, can be integrated into any 19" rack (independent of manufacturer) and provides up to 80 kW (60 kW N +1) making it ideal for integrated IT, telecom or other critical control processes.

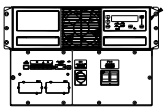
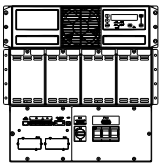
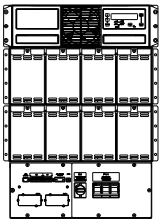
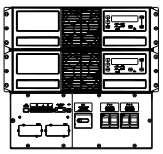
99.9999% (6 nines) availability
- Decentralized Parallel Architecture
- Replace or add modules with no downtime
- Short mean time to repair
- No single points of failure

Low total cost of ownership
- Up to 96% true online efficiency
- Eco-mode efficiency ≥98%
- No single points of failure
- Small footprint / high power density
- Unity power factor (kW = kVA)
- Low input harmonic distortion (THDi <3%)

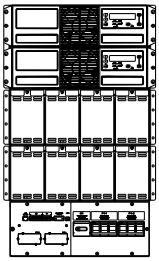
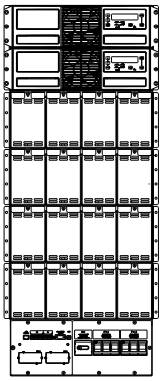
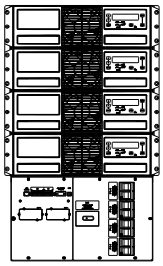
Easy customization
- Rack-independent
- Efficient manufacture of individual solutions with standard products
- High local added value for system integrators

Efficient service concept
- Simple power upgrade
- Fast maintenance
- Reduced spare parts needed

DPA UPScale RI
Available models

Subrack type	RI10	RI11	RI12	RI20
Number of modules	1	1	1	1 to 2
Dimension w × h × d	448 × 310 × 565 mm	448 × 487 × 735 mm	448 × 665 × 735 mm	448 × 440 × 565 mm
Internal battery capacity	–	Up to 40 blocks 7 / 9 Ah	Up to 80 blocks 7 / 9 Ah	–

Subrack type	RI22	RI24	RI40
Number of modules	1 to 2	1 to 2	1 to 4
Dimension w × h × d	448 × 798 × 735 mm	448 × 1153 × 735 mm	448 × 798 × 735 mm
Internal battery capacity	Up to 80 blocks 7 / 9 Ah	Up to 160 blocks 7 / 9 Ah	–

UPS subrack configuration
- Up to four online double conversion modules
- Individual module display
- Input, bypass and battery protection fuses
- Manual bypass switch
- Single- and dual-input feed available
- Free space to place internal battery modules (only for UPScale RI 11 / 12 / 22 / 24)
- Communication interfaces: RS-232 port, five input / output dry contacts (incl. EPO and GEN On)

Options
- Integrated back-feed protection
- Cold start
- Halogen-free cabling
- Conformal coating
- Internal battery modules
- Battery temperature sensor
- Remote panel (graphical touch screen display)
- Control and monitoring (ModBus RS-485, ModBus TCP/IP, SNMP)

DPA UPScale RI
Technical specification

General data	RI10	RI11	RI12	RI20	RI22	RI24	RI40
Nominal power per module	10 kW / 20 kW						
Nominal power / frame	20 kW	20 kW	20 kW	40 kW	40 kW	40 kW	80 kW
UPS modules	1	1	1	1 to 2	1 to 2	1 to 2	1 to 4
Maximum number of inbuilt batteries (7 / 9 Ah)	–	40	80	–	80	160	–
Output power factor	1.0						
Topology	Online double conversion						
UPS type	Modular (Decentralized Parallel Architecture)						
Input							
Nominal input voltage	3× 380 / 220 V + N, 3× 400 / 230 V + N, 3× 415 / 240 V + N						
Voltage tolerance (referred to 3× 400 / 230 V)	For loads <100% (–20%, +15%), <80% (–26%, +15%), <60% (–35%, +15%)						
Input distortion THDi	≤3%						
Frequency	35–70 Hz						
Power factor	0.99						
Output							
Rated output voltage	3× 380 / 220 V + N, 3× 400 / 230 V + N, 3× 415 / 240 V + N						
Voltage distortion	<1.5%						
Frequency	50 Hz or 60 Hz						
Overload capability	1 min.: 150% / 10 min.: 125%						
Unbalanced load	100% (all three phases regulated independently)						
Crest factor	3:1 (load supported)						
Efficiency							
Overall efficiency	Up to 96%						
In eco-mode configuration	98%						
Environment							
Storage temperature	–25 °C to +70 °C						
Operating temperature	0 °C to +40 °C						
Altitude configuration	1000 m without derating						
Communications							
LCD	Yes (per module)						
LEDs	LED for notification and alarm						
Communication ports	USB, RS-232, SNMP slot, potential-free contacts						
Standards							
Safety	IEC / EN 62040-1						
Electromagnetic compatibility (EMC)	IEC / EN 62040-2						
Performance	IEC / EN 62040-3						
Product certification	CE						
Manufacturing	ISO 9001:2015, ISO 14001:2015, OHSAS18001						
Weight, dimensions							
Weight (with modules / without batteries)	Up to 39 kg	Up to 62 kg	Up to 78 kg	Up to 68 kg	Up to 109 kg	Up to 136 kg	Up to 136 kg
Dimensions w × h × d (mm)	488 × 310 × 565 (7 HU)	488 × 487 × 735 (11 HU)	488 × 665 × 735 (15 HU)	488 × 440 × 565 (10 HU)	488 × 798 × 735 (18 HU)	488 × 1153 × 735 (26 HU)	488 × 798 × 735 (18 HU)

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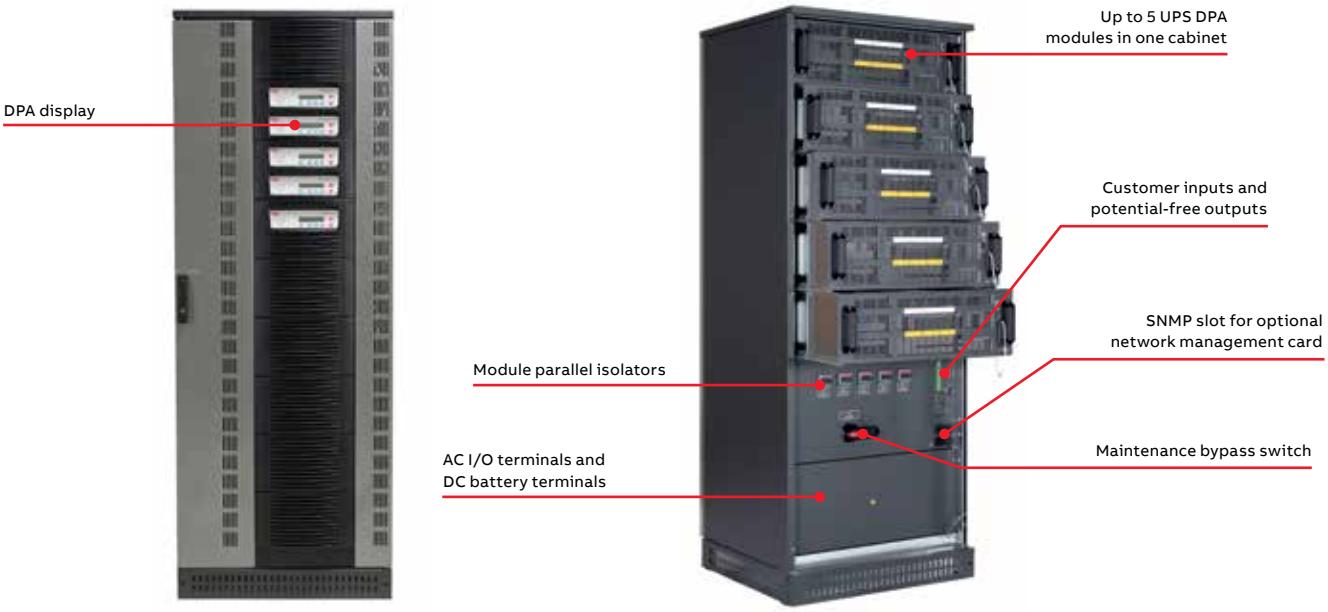
Only a truly redundant architecture like DPA allows online modules to be swapped out while the system is running.

Conceptpower DPA

The modular UPS for medium-sized critical applications



The Conceptpower DPA is a true double conversion modular UPS designed for medium-sized critical applications. The Conceptpower DPA's modular architecture provides very flexible power configuration based on 30 / 40 / 50 kVA modules that can be added as power requirements grow – thus eliminating oversizing and minimizing up-front capital investment. Each DPA module is self-contained and can be online-swapped at any time, so nothing has to be ever transferred to by-pass – making routine maintenance safe and easy.

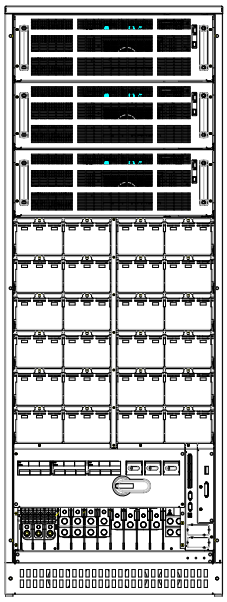
99.9999% (6 nines) availability
- Decentralized Parallel Architecture
- Replace or add modules with no downtime
- Short mean time to repair
- No single points of failure

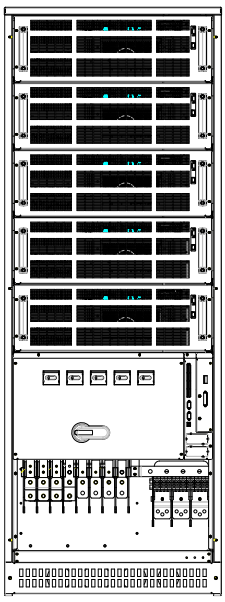
Cost effective "right-sizing"
- Scalable up to 1.5 MVA
- Vertical and horizontal scalability

Low total cost of ownership
- Up to 95.5% true online efficiency
- Eco-mode efficiency ≥98%
- Small footprint / high power density
- Low input harmonic distortion (THDi ≤3.0%)

Efficient service concept
- Simple power upgrade
- Fast maintenance
- Reduced spare parts needed
- Full front access

Conceptpower DPA
Available models





Cabinet type	Conceptpower DPA 150 kVA	Conceptpower DPA 250 kVA
Number of modules per cabinet	1 to 3	1 to 5
Dimension w × h × d	730 × 1975 × 800 mm	730 × 1975 × 800 mm
Internal battery capacity	Up to 240 blocks 7 / 9 Ah	–
Weight in kg	379 (with modules / without batteries)	439 (with modules / without batteries)

UPS cabinet configuration
- Online double conversion UPS
- Input, bypass and battery protection fuses
- Inbuilt back-feed protection
- Individual module display
- Inbuilt module isolator
- Free space to place internal battery modules (DPA – 150 kVA frame only)
- Single- and dual-input feed available
- Manual bypass switch
- Communication interfaces: RS-232 and USB ports, I/O dry contacts (EPO, GEN On, …)

Options
- Synchronization kit
- Cold start
- Control and monitoring (ModBus RS-485, ModBus TCP/IP, SNMP and others)
- Halogen-free cabling
- Battery temperature sensor
- External battery cabinets

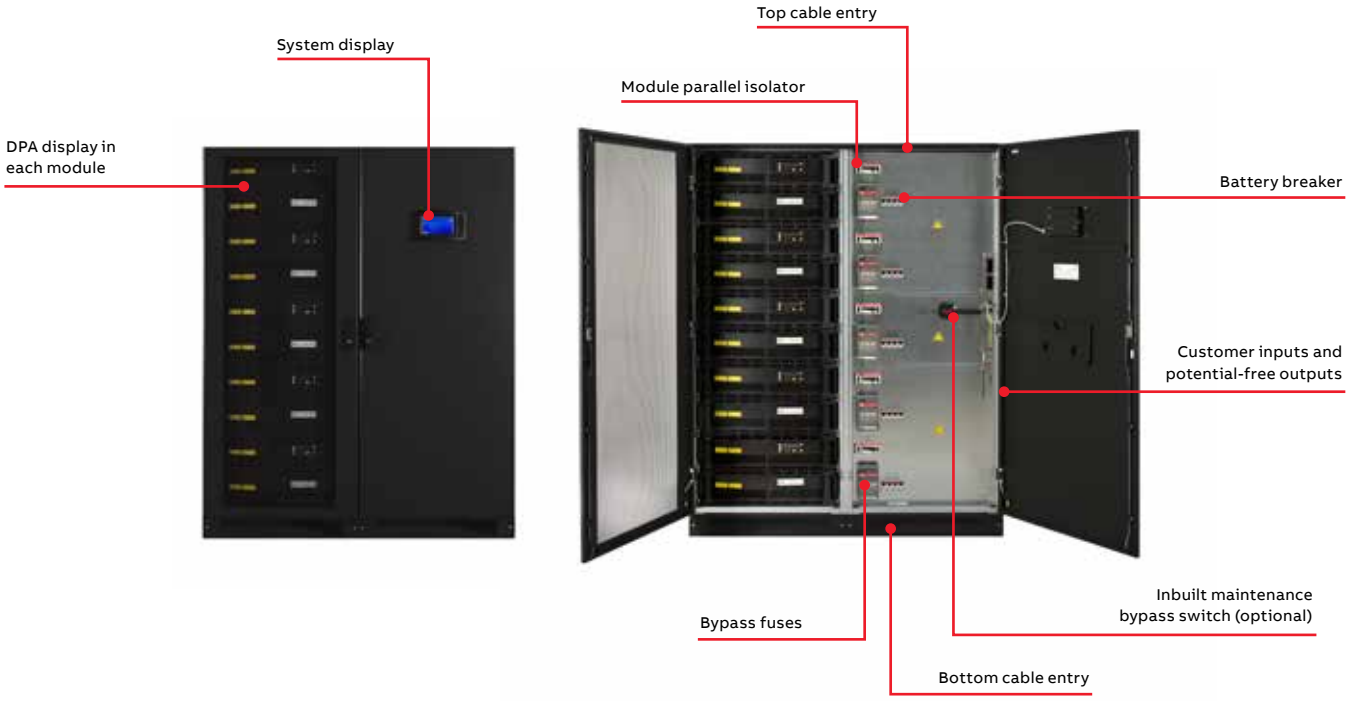
ABB’s innovative modular UPS design helps you keep Total Cost of Ownership (TCO) under control – while providing best-in-class UPS functionality. Just install the modules you need and add more later, as required – that way you just power and cool as much UPS as you need.

Conceptpower DPA
Technical specification

General data	Conceptpower DPA 150 kVA	Conceptpower DPA 250 kVA
System power range	30–1500 kVA	
Nominal power per module	30 kVA / 40 kVA / 50 kVA	
Nominal power / frame	150 kVA	250 kVA
Number of UPS modules	1 to 3	1 to 5
Weight (with modules / without batteries)	368–379 kg	421–439 kg
Dimensions w × h × d	730 × 1975 × 800 mm	730 × 1975 × 800 mm
Output power factor	0.8	
Topology	Online double conversion	
Parallel configuration	Up to 30 modules	
UPS type	Modular (Decentralized Parallel Architecture)	
Input		
Nominal input voltage	3 × 380 / 220 V + N, 3 × 400 / 230 V + N, 3 × 415 / 240 V + N	
Voltage tolerance (referred to 3 × 400 / 230 V)	For loads <100% (–20%, +15%), <80% (–26%, +15%), <60% (–35%, +15%)	
Input distortion THDi	≤3%	
Frequency	30–70 Hz	
Power factor	0.99	
Output		
Rated output voltage	3 × 380 / 220 V + N, 3 × 400 / 230 V + N, 3 × 415 / 240 V + N	
Voltage distortion (referred to 3 × 400 / 230 V)	<2%	
Frequency	50 Hz or 60 Hz	
Overload capability	1 min.: up to 150% / 10 min.: up to 125%	
Unbalanced load	100% (all three phases regulated independently)	
Crest factor	3:1 (load supported)	
Efficiency		
Overall efficiency	Up to 95.5%	
In eco-mode configuration	98%	
Environment		
Storage temperature	–25 °C to +70 °C	
Operating temperature	0 °C to +40 °C	
Altitude	1000 m without derating	
Battery		
Battery capacity	Configurable up to several hours	
Internal batteries	Yes	–
No. of internal batteries	Up to 240 blocks 7/9 Ah	–
Communications		
LCD	Yes (per module)	
LEDs	LED for notification and alarm	
Communication ports	USB, RS-232, SNMP slot, potential-free contacts	
Standards		
Safety	IEC / EN 62040-1	
Electromagnetic compatibility (EMC)	IEC / EN 62040-2	
Performance	IEC / EN 62040-3	
Manufacturing	ISO 9001:2015, ISO 14001:2015, OHSAS18001	
Product certification	CE	
IP rating	IP 20	

Conceptpower DPA 500

The modular UPS for medium-sized and large data centers



A data center with full uptime. That target is why ABB's Conceptpower DPA 500 is based on Decentralized Parallel Architecture (DPA). Only a truly redundant architecture like DPA allows online modules to be swapped out while the system is running. Each high-reliability, standardized module is self-contained and can be swapped at any time, so nothing has to be ever switched off – making routine maintenance safe and easy. And if you want to increase power, the UPS can be scaled vertically in 100 kW modular steps to provide up to 500 kW power in a single frame. Horizontal scalability is also given, with up to six frames in parallel, to increase total power up to 3 MW.

99.9999% (6 nines) availability
- Decentralized Parallel Architecture
- Replace or add modules with no downtime
- Short mean time to repair
- No single points of failure

Cost effective "right-sizing"
- Scalable up to 3 MW
- Vertical and horizontal scalability

Low total cost of ownership
- Up to 96% true online efficiency
- Eco-mode efficiency ≥99%
- Small footprint / high power density
- Unity power factor (kW = kVA)
- Low input harmonic distortion (THDi <3.5%)

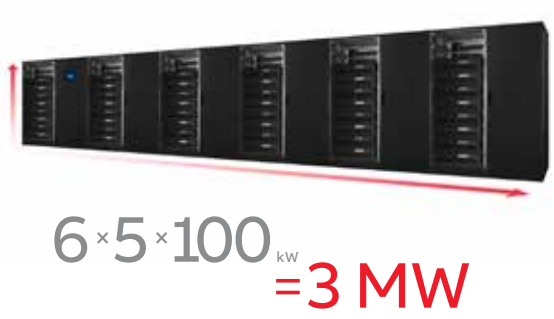
Efficient service concept
- Simple power upgrade
- Fast maintenance
- Reduced spare parts needed
- Full front access

Conceptpower DPA 500
Product features

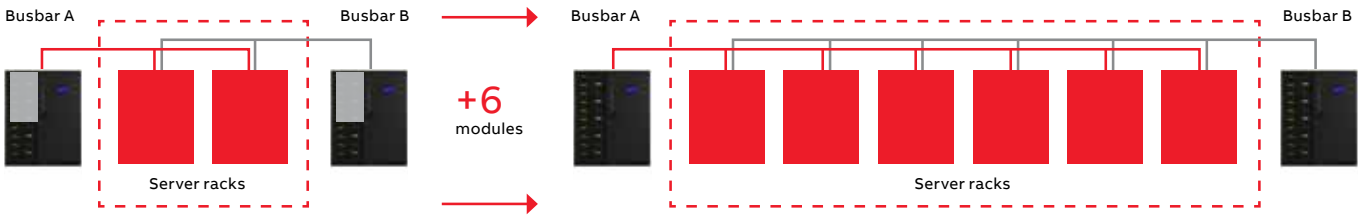
—
01 The power demand of one row of server racks can vary from 100 kW up to hundreds of kW. The building block concept of Conceptpower DPA 500 allows adaption to the changes in power demand in a growing infrastructure.
—
02 The sample reference scenario, 1200 kW Tier 4, illustrates one possible example of how the Conceptpower DPA 500 can be used to create a high-performance and flexible IT infrastructure. Extra modules can be added while the system is powered up to make it up to 3 MW.

Total vertical and horizontalscalability
The Conceptpower DPA 500 delivers power protection from 100 to 500 kW (one to five modules) in a single cabinet (vertical scalability). Cabinets can operate in a parallel configuration to build a system of up to 3 MW (horizontal scalabiltiy).

Designed with maximum flexibility at its core
The system flexibility allows upgrading or downgrading power capacity according to your needs.



End of rack raw applications



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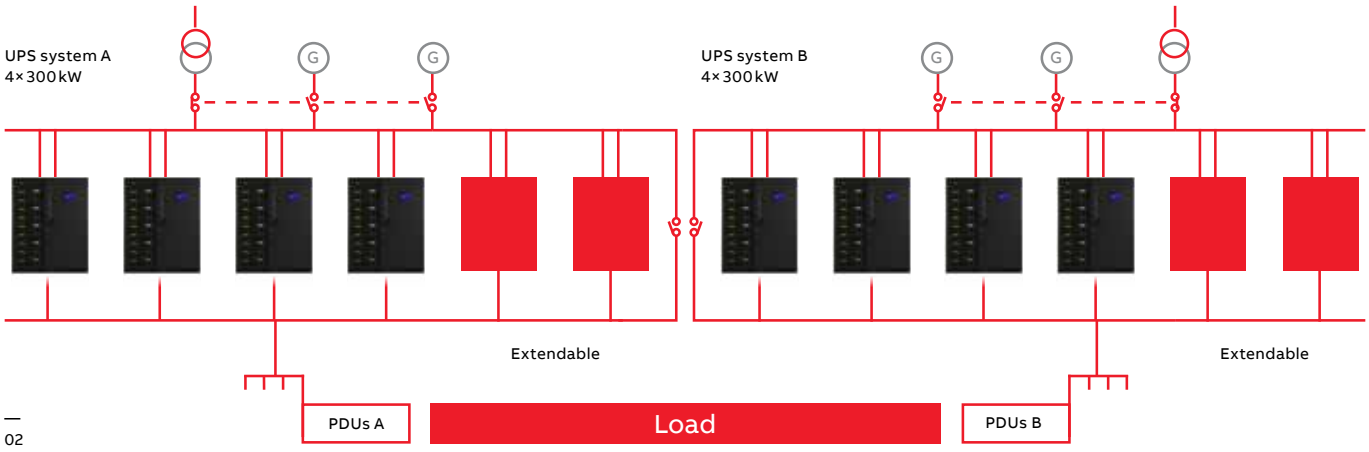
Dual-bus power protection solutions



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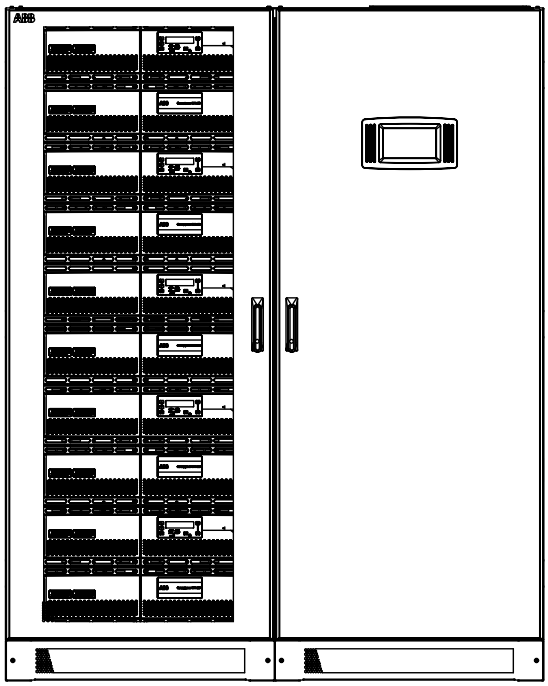
Conceptpower DPA 500
Available model



Cabinet type	DPA – 500 kW
Dimensions w × h × d	1580 × 1975 × 945 mm
Capacity	Up to five modules
Weight in kg	975 kg (500 kW system)

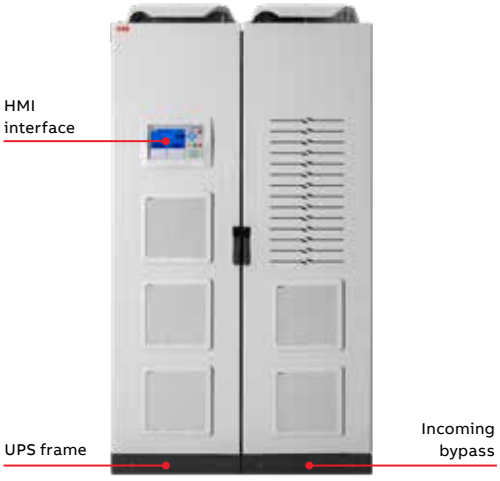
UPS cabinet configuration
- Online double conversion UPS
- Inbuilt module isolator
- Inbuilt back-feed protection
- Individual module display
- HMI interface with mimic diagram and LCD
- Top or bottom cable entry (standard)
- Single- and dual-input feed available
- Bypass fuses and battery circuit breaker for each module
- Graphical touch screen system display
- Communication interfaces: RS-232 and USB ports, I/O dry contacts (EPO, GEN On, …) and interface for external key interlock (bypass)

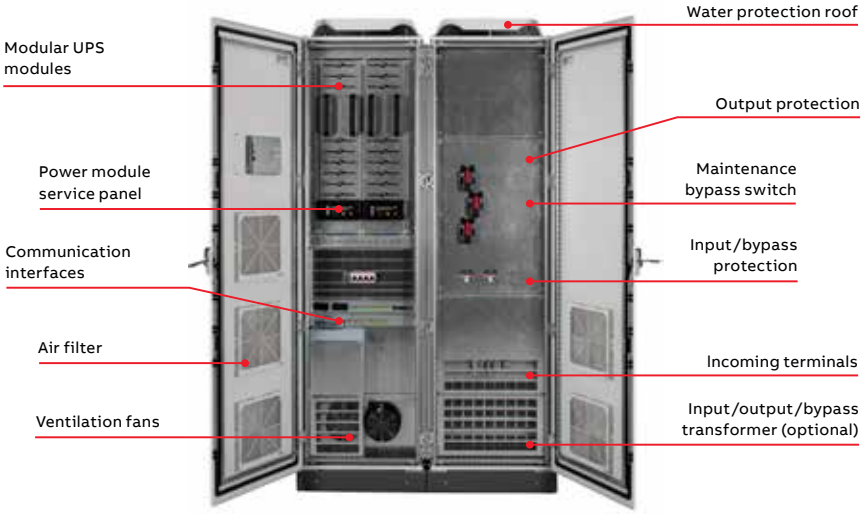
Options
- Manual bypass switch (one-frame applications)
- Control and monitoring (ModBus RS-485, ModBus TCP/IP, SNMP and others)
- Remote panel (graphical touch screen display)
- Battery temperature sensor
- Cold start
- Synchronization kit

Conceptpower DPA 500
Technical specification

General data	
System power range	100 kW–3 MW
Nominal power / module	100 kW
Nominal power / frame	500 kW
Output power factor	1.0
Topology	Online double conversion, Decentralized Parallel Architecture
Parallel configuration	Up to 5 modules in one cabinet (500 kW) / up to 6 cabinets in parallel (3 MW)
Cable entry	Bottom or top as standard
Serviceability	Full front
Back-feed protection	Built-in as standard
Input	
Nominal input voltage	3× 380 / 220 V + N, 3× 400 / 230 V + N, 3× 415 / 240 V + N
Voltage tolerance (referred to 400 / 230 V)	For loads <100% (–10%, +15%), <80% (–20%, +15%), <60% (–30%, +15%)
Input distortion THDi	<3.5%
Frequency range	35–70 Hz
Power factor	0.99
Walk in / soft start	Yes
Output	
Rated output voltage	3× 380 / 220 V + N, 3× 400 / 230 V + N, 3× 415 / 240 V + N
Voltage tolerance (referred to 400 / 230 V)	<±1% with static load / <±4% with step load
Voltage distortion	<2% with linear load / <4% with non linear load
Frequency	50 Hz or 60 Hz (selectable)
Efficiency	
Overall efficiency	Up to 96%
In eco-mode	≥99%
Environment	
Protection rating	IP 20
Storage temperature	–25 °C to +70 °C
Operating temperature	0 °C to +40 °C
Altitude (above sea level)	1000 m without derating
Batteries	
Types	VRLA / NiCd / Li-Ion
Battery charger	Decentralized charger per module
Communications	
User interface	Graphical touch screen (one per frame as standard) Decentralized LCD and mimic diagram (one per module as standard)
Communication ports	USB, RS-232, potential-free contacts, SNMP (optional)
Customer interface	Remote shutdown, gen-set interface, external bypass contact
Compliancy	
Safety	IEC / EN 62040-1
EMC	IEC / EN 62040-2
Performance	IEC / EN 62040-3
Manufacturing	ISO 9001:2015, ISO 14001:2015, OHSAS18001
Weight, dimensions	
Weight	975 kg (500 kW system)
Dimensions w × h × d	1580 × 1975 × 940 mm

PowerLine DPA 20–120 kVA
Full power for industrial applications





PowerLine DPA (3ph and 1ph) is an online double conversion UPS and makes the advantages of ABB's unique modular UPS architecture available for locations that are usually rough on electronic equipment. PowerLine DPA is based on ABB's Decentralized Parallel Architecture (DPA) that ensures the very best UPS design in terms of availability, serviceability, safety and ease of use.

Its robust design is suitable for industrial plant environments that have a variety of temperatures, dust, moisture and corrosive contaminants. The PowerLine DPA is designed to have a design life of 15 years. Its pre-configured options, tailored for industry, allow agile implementations with short lead times.

Fail safe electrical design
- High overload and short circuit capability
- System integrated galvanic isolation and step up-down voltage transformers (optional)
- High capacity for battery current charge for long battery banks

High availability
- Decentralized Parallel Architecture (DPA)
- Replace or add modules with no downtime (online swappable)

Fail safe mechanical design
- High degree of protection: IP31 (standard), IP42 (optional)
- Designed for deployment in demanding industrial situations
- Small foot print /high power density

Efficient service concept
- User-friendly operating interface
- Fast maintenance
- Full front access
- Reduced spare parts needed

PowerLine DPA
Product Features

—
01 Local control and metering are provided via a HMI (human-machine interface) consisting of graphical display showing the UPS mimic diagram, UPS operating status (normal, battery and bypass), and programmable alarms.

The robust UPS
PowerLine DPA's IP31-rated protection can easily cope with dust, water condensation, excessive humidity (up to 95 percent), corrosive air contamination and rough manhandling. The UPS is designed to operate in a temperature range of −5 to +45 °C. High priority has been given to safety and PowerLine DPA features a high degree of protection for users and maintenance staff. The device's compliance with the relevant standards – IEC/EN 62040-1 for general and safety aspects, IEC/EN 62040-2 for EMC and IEC/EN 62040-3 for performance and test – has been verified. All sort of transformers are available to meet customer voltage requirements and electrical isolation. In addition, PowerLine DPA has a high overload capacity and robust short-circuit capability, and is available with rated powers of 20 to 120 kVA. With input and output (three-phase) voltages in the range 220 to 415 VAC the UPS requires no onerous electrical installation considerations and is straightforward to service.

Monitoring
PowerLine DPA UPS can be supplied with relay boards and a network management card that provide connection to a DCS (distributed control system) or SCADA (supervisory control and data acquisition) system via SNMP, ModBus TCP or ModBus RS-485.
These interfaces allow:
- Environmental monitoring
- Extensive alarm handling and dispatching
- Redundant UPS monitoring
- Integration of PowerLine DPA into multivendor and multiplatform environments
- The supply of UPS data to Web applications

Battery bank
Most industrial processes will draw substantial amounts of power from a UPS. Therefore, PowerLine DPA is able to work with valve-regulated lead-acid (VRLA), NiCad and lithium-ion batteries to support autonomy times up to 10 h. Fast recharging is also catered for to get the UPS battery bank back up to operational levels as quickly as possible.

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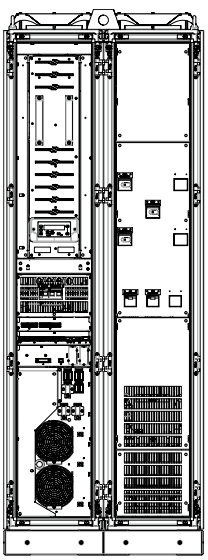
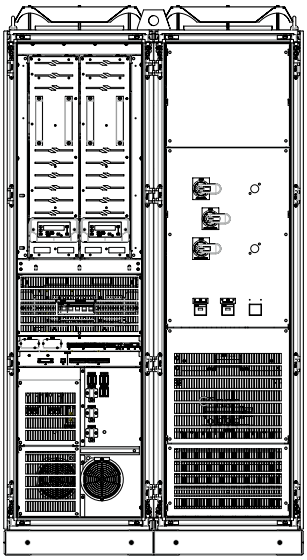
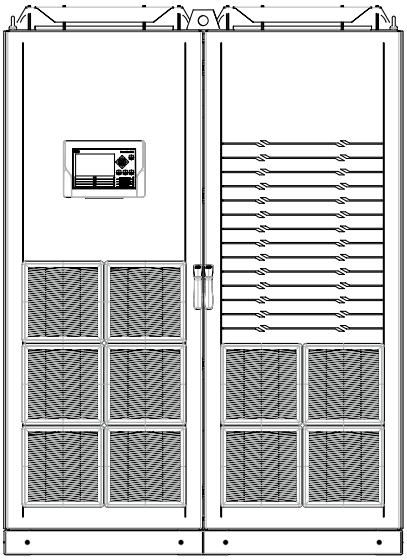
PowerLine DPA
Available models

Cabinet type	PowerLine DPA 40	PowerLine DPA 80	PowerLine DPA 120
Number of modules	1	2	3
Dimension w × h × d	800×2200×800 mm	1200×2200×800 mm	1600×2200×800 mm
Weight in kg (without transformers)	Up to 300 kg	Up to 500 kg	Up to 850 kg

UPS cabinet configuration
- 3ph and 1ph online double conversion UPS
- Decentralized Parallel Architecture
- Housed in an industrial metal enclosure, IP31, RAL 7035, bottom cable entry
- Halogen free cable
- Forced ventilation with monitored fans
- Input, bypass and battery protection
- Manual bypass switch
- Integrated back-feed protection
- HMI interface with graphical display, control push keys, UPS operating status indication and programmable alarm section
- Communication interfaces: Relay board with 9 programmable outputs and 8 inputs, RS-232 and USB ports

Options
- Input, output, bypass aluminum transformer
- Customized input & output voltages
- Ingress protection IP42
- Top cable entry
- Redundant fan monitoring (N + 1)
- Tropicalization and anti-corrosion protection for electrical boards
- Anti-condensator heater
- Lifting eyes
- Control and monitoring (ModBus RS-485, ModBus TCP/IP, SNMP)
- Battery temperature sensor
- Cold start
- Redundant configuration

PowerLine DPA
Technical specification

General data	PowerLine DPA 40		PowerLine DPA 80	PowerLine DPA 120
System power range	20 - 120 kVA (3ph); 20 - 80 kVA (1ph)			
Nominal power / frame	20 kVA	40 kVA	80 kVA	120 kVA
Number of UPS modules	1		2	3
Output power factor	1.0			
Topology	Online double conversion			
UPS configuration	Single, redundant, dual, N+1			
UPS type	Modular (Decentralized Parallel Architecture)			
Input				
Nominal input voltage	3× 400/230 V + N			
Voltage tolerance (referred to 3× 400 / 230 V)	For loads <100% (–15%, +10%), <80% (–20%, +10%), <60% (–25%, +10%)			
Input distortion THDi	≤4%			
Frequency	50 or 60 (selectable)			
Power factor	0.99			
Output				
Rated output voltage	3× 400/230 AV (3ph); 230 (1ph)			
Voltage distortion (referred o 3 × 400/230 V)	<1%			
Frequency	50 Hz or 60 Hz			
Overload capability	150% 1 min, 125% 10 min			
Output short capability	2.7 × Inom (3ph); 2.4 x Inom (1ph)			
Unbalanced load	100% (all three phases regulated independently)			
Crest factor	3:1 (load supported)			
Efficiency				
Overall efficiency / transformerless	Up to 96% (3ph); 94% (1ph)			
In eco-mode configuration	98%			
Environment				
Storage temperature	–25 °C to +70 °C			
Operating temperature	–5 °C to +45 °C			
Humidity	5% to 95% without condensation			
Altitude	1000 m without derating			
Electrical / Mechanical				
Degree of protection	IP31, IP42 (optional)			
Color	RAL 7035			
Cable entry	Bottom, Top (optional)			
Wiring	Halogen free cable			
Operating and maintenance access	Front access			
Ventilation	Forced ventilation with monitored fans			
Battery				
Battery type	VRLA / NiCd / Li-Ion			
Autonomy	According to customer's requirement			
Communications				
HMI	Graphical display for control and metering, 8 programmable alarm indications			
Relay contactors	8 in / 9 out programmable relays			
LCD	On system level HMI with graphical display and alarm indications; on module level service control interface			
LEDs	LED for notification and alarm			
Communication ports	USB, RS-232, SNMP slot, potential-free contacts			
Standards				
Safety	IEC / EN 62040-1			
Electromagnetic compatibility (EMC)	IEC / EN 62040-2			
Performance	IEC / EN 62040-3			
Product certification	CE			
Manufacturing	ISO 9001:2015, ISO 14001:2015, OHSAS18001			
Weight, dimensions				
Weight (with modules / without transformers)	Up to 300 kg		Up to 500 kg	Up to 850 kg
Dimensions w × h × d (mm)	800×2200×800 mm		1200×2200×800 mm	1600×2200×800 mm

PowerValue 11T G2

A cost-effective solution for maximum power protection

1 kVA B | 2/3 kVA B | 1 kVA S | 2/3 kVA S | 6-10 kVA B | 6-10 kVA S

ABB's PowerValue 11T G2 is a single-phase in/out, double conversion online uninterruptible power supply (UPS) that guarantees up to 10 kW per single UPS of clean, reliable power for your critical single-phase applications. As well as maintaining power to your server room, advertising display, turnstiles, lab equipment, transportation signaling systems, ATM or vending machine, the PowerValue 11T G2 also conditions incoming power to eliminate spikes, swells, sags, noise and harmonics.

Featuring voltage and frequency independent (VFI) topology, the tower-only PowerValue 11T G2 saves costs by minimizing energy losses with its best-in-class double conversion efficiency of up to 98 percent. Two or three units can be connected in parallel to boost power delivery to a maximum of 30 kW or to provide redundancy.

Simple to install or maintain, inexpensive to run and with the most compact online UPS footprint available on the market, the PowerValue 11T G2 provides stable, regulated, transient-free, pure sine wave AC power with extremely tight output voltage regulation. All units can be fitted with up to four external battery modules (EBMs) to extend runtime to well over two hours. Each EBM is dedicated to its corresponding UPS and setup is easily accomplished via the LCD menu.

High reliability
- Double conversion topology protects the load from all input disturbances
- Parallelable up to three units (6-10k only) to provide system redundancy
- User replaceable batteries
- Wide input voltage tolerance

Low cost of ownership
- Scalable runtime
- High operating efficiency
- Low installation and upgrading costs
- Compact design
- Output power factor of 1.0 (6-10 kVA only)

Flexible design
- Multiple connectivity options
- Each UPS can be connected with up to four parallel battery modules for extended runtime
- Adjustable DC voltage and battery charger current
- Extended backup time models available
- Best power density available in the market segment

Efficient service concept
- Integrated manually operated maintenance bypass switch (6-10 kVA only)
- Easy setup and maintenance (plug and play)
- User-friendly display
- Remote monitoring options

PowerValue 11T G2
Product features

The PowerValue 11T G2 with its cost-effective ABB UPS technology makes a high-performance and is now available to market sectors with lower power requirements: Small server rooms, critical lab or industrial equipment, security installations and applications of a similar power class can now profit from one of 12 PowerValue 11T G2 models.

With the most compact online UPS footprint available, the PowerValue 11T G2 features true on-line double conversion. This provides a flexible output frequency and isolates the UPS from upstream disturbances so that the critical load sees only stable, well-regulated, transient-free, pure sine wave AC power.

A rated output power factor up to 1.0 (kVA = kW) means the PowerValue 11T G2 delivers 11 percent more active power than a UPS with a power factor of 0.9. The UPS is optimized for modern IT loads and helps users reduce their energy budget with a best-in-class double conversion efficiency of up to 98 percent.

- Low input line disturbances: input PF ≥ 0.995 @ 100 percent linear load – THDi < 3 percent
- Flexible configuration for scalable runtime: UPS and EBMs with and without batteries (long backup)
- Adjustable DC voltage and battery charger current
- Digital charger technology provides accurate charger current setting and reduces charger ripple current
- The UPS is delivered with an inbuilt parallel board and paralleling cables. No additional hardware is required for this installation.

All this with the same guaranteed high availability and quality standards as ABB's higher-power premium UPS models - and at the most attractive entry level price around.

UPS configuration

Standard
- Tower-type, IP20 UPS enclosure
- Single-phase in and out
- Online double conversion UPS
- Paralleling up to three units allows for increase of capacity to 30 kW or redundancy (6-10 kVA only)
- Operator and status LCD
- Wide voltage input frequency range
- Inbuilt batteries (B/B2 versions only)
- Maintenance bypass switch (6-10 kVA only)
- Plug-and-play

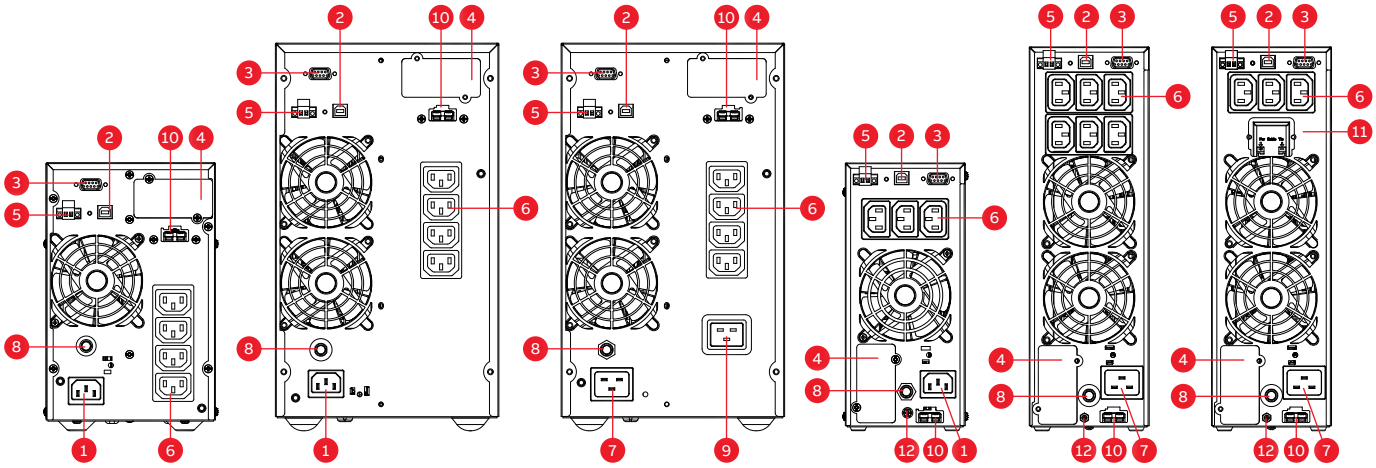
Options
- Additional battery cabinets (EBM) for scaling autonomy time
- SNMP, ModBus and AS400 interface cards for remote control and monitoring of the UPS via a web browser
- Sensors – combined with the network interface card, environmental humidity and temperature sensors can be integrated into the system and monitored remotely
- Connectivity functionality via Winpower SNMP (network management card), mini SNMP, ModBus, mini ModBus, EMP (environmental monitoring probe), AS400 and mini AS400

Battery runtime at full nominal load

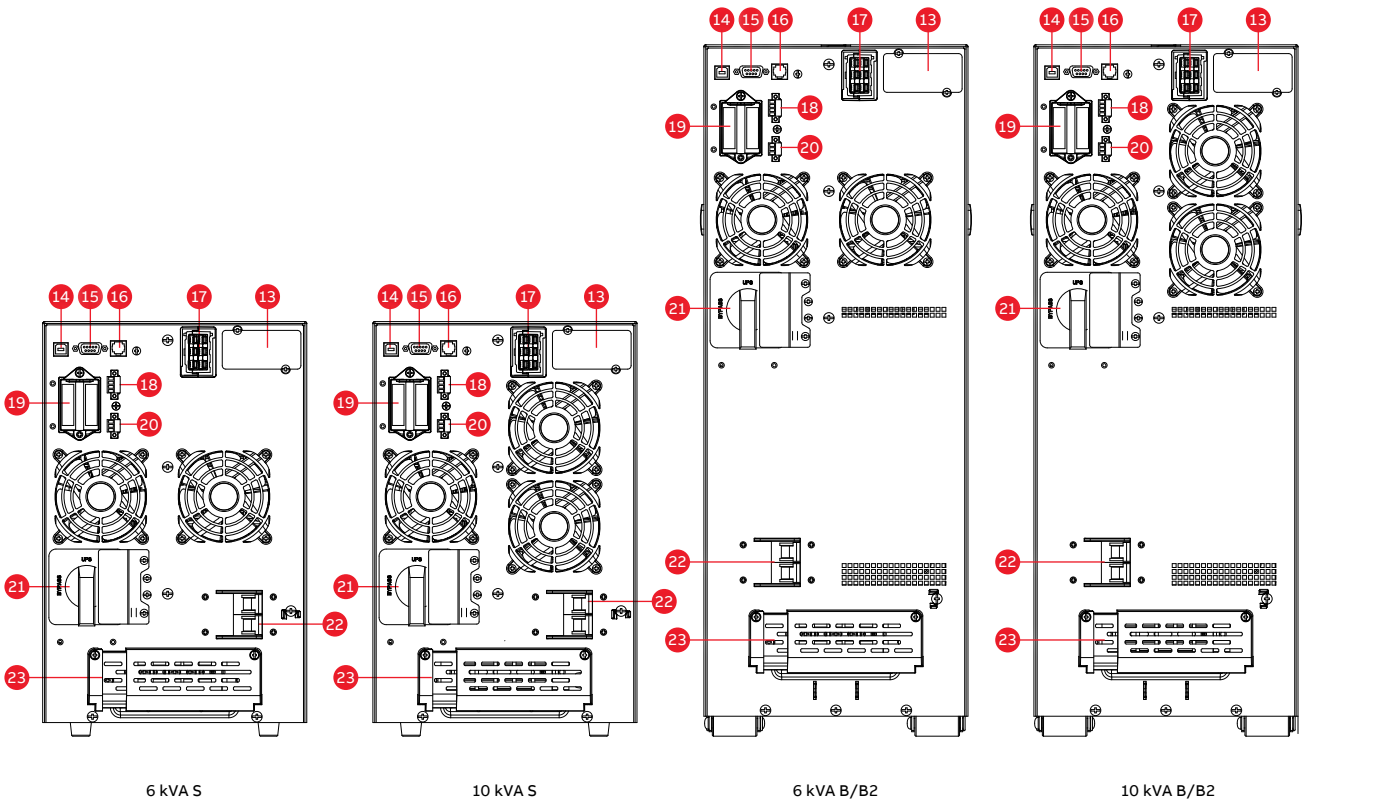
Model	Internal batteries	EBM	UPS	UPS + 1 EBM	UPS + 2 EBM	UPS + 3 EBM	UPS + 4 EBM
G2 1 kVA B	1 x 2 x 9.4 Ah	3 x 2 x 9 Ah	5	23	52	85	120
G2 1 kVA S	No	3 x 2 x 9 Ah	-	17	48	70	100
G2 2 kVA B	1 x 4 x 9.4 Ah	3 x 4 x 9 Ah	5.5	25	55	90	125
G2 2 kVA S	No	3 x 4 x 9 Ah	-	18	50	80	110
G2 3 kVA B	1 x 6 x 9.4 Ah	2 x 6 x 9 Ah	5.5	16.5	35	55	80
G2 3 kVA S	No	2 x 6 x 9 Ah	-	10.5	28	50	70
G2 6 kVA B	1 x 16 x 7.2 Ah	2 x 16 x 9 Ah	4	18	41	68	99
G2 6 kVA B2	1 x 20 x 7.2 Ah	2 x 20 x 9 Ah	5.5	25	55.5	92.5	134
G2 6 kVA S	No	2 x 20 x 9 Ah	-	18	49	88	133
G2 10 kVA B	1 x 16 x 9 Ah	2 x 16 x 9 Ah	3	12	25	39	55.5
G2 10 kVA B2	1 x 20 x 9 Ah	2 x 20 x 9 Ah	4	17	34	53	75
G2 10 kVA S	No	2 x 20 x 9 Ah	-	9	24	42.5	64

in minutes at full load

PowerValue 11T G2
Available models



1. AC input 10 A	4. Mini SNMP/ Mini ModBus / Mini AS400	7. AC input 16 A	10. EBM connector
2. USB port	5. EPO / dry input	8. Output breaker	11. AC output 20 A
3. RS-232	6. AC output 10 A	9. AC output 16 A	12. GND contact



13. SNMP/ModBus/AS400	16. Reserved for future use	19. Parallel port	22. Input breaker
14. USB port	17. EBM connector	20. EPO	23. I/O terminals
15. RS-232	18. Dry in / out	21. MBP switch	

PowerValue 11T G2
Technical specifications

GENERAL DATA	G2 1kVA B/ S	G2 2kVA B/ S	G2 3kVA B/ S	G2 6kVA B/ B2 / S	G2 10kVA B/ B2 / S
Output rated power	900 W	1'800W	2'400W	6'000W	10'000W
Output power factor	0.9	0.9	0.9	1.0	1.0
Topology	Online double conversion				
Parallel configuration	No	No	No	Yes, up to 3 UPS	Yes, up to 3 UPS
Inbuilt batteries	Yes/No	Yes/No	Yes/No	Yes/Yes/No	Yes/Yes/No
INPUT					
Nominal input voltage	220/230/240 VAC			208/220/230/240 VAC	
Input voltage tolerance	100-300 VAC (load dependent)			100-276 (load dependent)	
Input current THDi	5% with full resistive load			<3% with full resistive load	
Frequency range	45-55 Hz / 54-66 Hz			45-55Hz / 54-66Hz (extendable to 40~70HZ at load < 60%)	
Power factor	≥0.99			≥0.995	
OUTPUT					
Rated output voltage	220/230/240 VAC			208/220/230/240 VAC	
Voltage tolerance	±1% (referred to 230V)				
Voltage distortion	<2% linear load, <6% non linear load			<1% linear load, <5% non linear load	
Overload capacity (linear load) on inverter	60s: 106-130% load 10s: 131-150% load 300ms: ≥ 150% load			10m: 102-125% load 30s: 126 to 150% load 500 ms: ≥ 150% load	
Nominal frequency	50 or 60 Hz				
Crest factor	3:1 (load supported)				
EFFICIENCY					
Overall system efficiency	Up to 89%	Up to 91%	Up to 91%	Up to 95%	
In eco-mode	Up to 97.5%	Up to 98%	Up to 98%	Up to 98%	
ENVIRONMENT					
Protection rating	IP20				
Storage temperature	UPS: -25°C to 60°C; Batteries: 0°C to 35°C				
Operating temperature	0°C to 40°C			0°-40°C (up to 50°C at 50% load)	
Relative humidity	0% to 95%				
Altitude (above see level)	1000m without derating				
BATTERIES					
Type	VRLA (valve regulated lead-acid)				
Inbuilt batteries	2x9.4 Ah (B)	4x9.4Ah(B)	6x9.4Ah(B)	16x9Ah(B) 20x9Ah (B2)	16x9Ah(B) 20x9Ah (B2)
Charging current	1.5A/3-6A adjustable	1.5A/1.5-6A adjustable	1.5A/1.5-6A adjustable	0-4A adjustable (B,B2) 0-12 adjustable (S)	
Recharge time (inbuilt batteries)	4h to 90%				
COMMUNICATIONS					
User interface	LCD display				
Optional communication cards	SNMP;ModBus;AS400;Environmental monitoring sensor probe				
STANDARDS					
Safety	IEC/EN 62040-1				
EMC	IEC/EN 62040-2				
Performance	IEC/EN 62040-3				
Manufacturing	ISO 9001:2015, ISO 14001:2015, OHSAS 18001				
WEIGHT, DIMENSIONS					
Weight	9.2/3.9 Kg	17.4/6.4 Kg	22.7/6.4 Kg	53/63/13 Kg	55.2/65.2/15.2 Kg
Dimensions w x h x d	144x228x356 mm 102x228x346mm	190x327x399 mm 102x327x390 mm	190x327x399 mm 102x327x390 mm	B / B2: 225 x 589x 452 mm S: 225x 348 x 452 mm	B / B2: 225 x 589x 452 mm S: 225x 348 x 452 mm

PowerValue 11 RT

The single-phase UPS for critical applications

ABB's PowerValue 11 RT is a double-conversion online UPS that guarantees up to 10 kVA of clean, reliable power for your critical single-phase applications. As well as maintaining power to your servers, point-of-sale terminals, workstation clusters, routers, switches, hubs and sensitive electronic equipment, the PowerValue 11 RT also conditions incoming power to eliminate spikes, swells, sags, noise and harmonics.

The PowerValue 11 RT can be used as a standalone UPS device or installed into a standard 19" rack configuration, with connectivity options available for each.

Three units of the 6 or 10 kVA models can be configured in parallel to provide redundancy or to increase the systems total capacity up to 30 kW. All units can be fitted with up to four battery modules to extend runtime.

High reliability
- Reliable double conversion topology protects load from all input disturbances
- Batteries can be added or replaced easily
- Reduced recovery time from discharge
- Redundant parallel operation available (6 and 10 kVA units)

Low cost of ownership
- Scalable runtime
- High operating efficiency, regardless of loading
- Reduced installation and upgrading costs
- Compact design

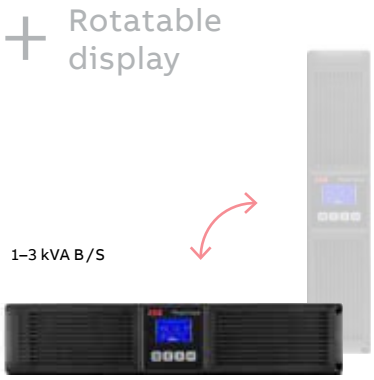
Flexible design
- Configurable in tower or rack-mount format
- Rotatable display
- UPS can be connected with up to four parallel battery modules for extended runtime
- Long backup models available
- Full set of accessories and connectivity options

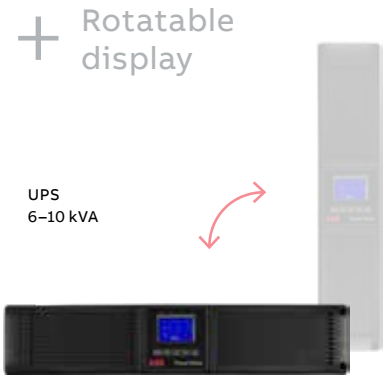
Efficient service concept
- Manually operated maintenance bypass switch (optional)
- Easy set up and maintenance (plug and play)
- User-friendly display
- Hot swap user-replaceable batteries

PowerValue 11 RT
Product features

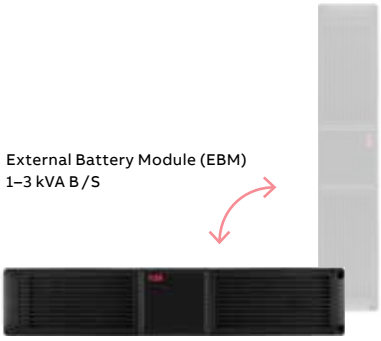
The advanced system architecture guarantees that the user is able to select a system to match their needs. Scalable runtime and the easy introduction of additional batteries make the solution sustainable.

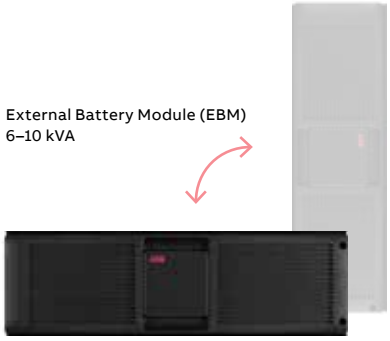
In addition, three PowerValue 11 RT 6 or 10 kVA UPSs can be connected in parallel to increase total power or to add redundancy. The UPSs are delivered with an installed parallel board and paralleling cables. No additional hardware is required for a parallel installation.





Scalable battery runtime



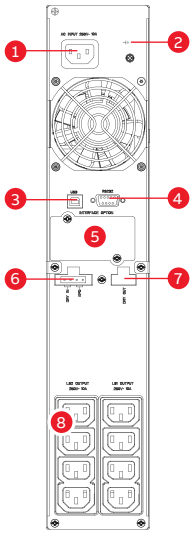


Battery runtime at full / half nominal load

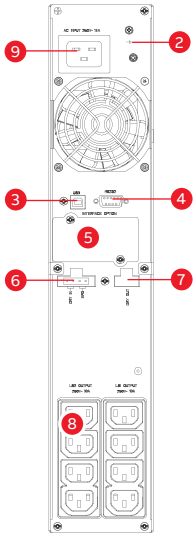
	1 kVA B		1 kVA S		2 kVA B		2 kVA S		3 kVA B		3 kVA S		G2 6 kVA		G2 10 kVA	
	100%	50%	100%	50%	100%	50%	100%	50%	100%	50%	100%	50%	100%	50%	100%	50%
UPS	<4	8	n.a.	n.a.	4	11	n.a.	n.a.	4	11	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
UPS + 1 EBM	16	40	6	22	12	29	<5	11	13	31	<5	10	7	18	3	9
UPS + 2 EBM	32	76	22	62	22	54	11	34	23	56	10	34	18	49	9	24
UPS + 3 EBM	52	119	40	112	32	78	22	62	35	82	21	61	33	88	16	42,5
UPS + 4 EBM	68	166	62	160	45	105	34	99	49	111	33	98	49	133	24	64

PowerValue 11 RT
Available models

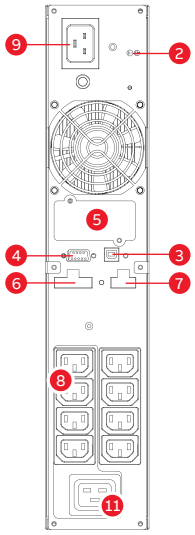
1	AC input 10 A
2	Ground contact
3	USB port
4	RS-232
5	SNMP / AS400 slot
6	EPO / dry contact input port
7	Dry contact output port
8	AC output 10 A
9	AC input 16 A
10	AC input 20 A
11	AC output 16 A
12	EPO
13	Parallel port
14	Dry in / out
15	MBP connector
16	Output breaker
17	I/O terminals
18	Input breaker
19	EBM connector



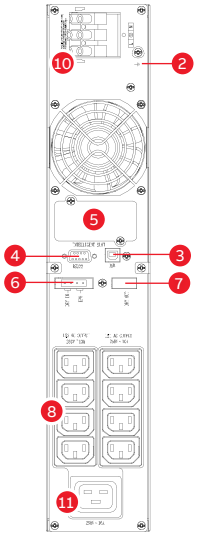
PowerValue 11 RT – 1–2 kVA B and 1 kVA S



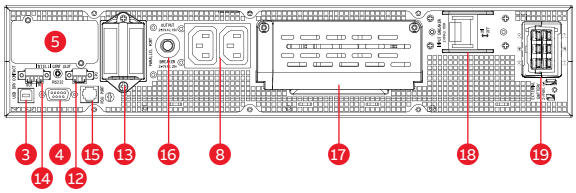
PowerValue 11 RT – 2 kVA S



PowerValue 11 RT – 3 kVA B



PowerValue 11 RT – 3 kVA S



PowerValue 11 RT – 6 -10 kVA

Options

- Rack installation kit allows for easy mounting to standard 19'' rack
- Full range connectivity: SNMP, ModBus (RS-485 and TCP/IP), environmental monitoring probe, relay card with I/O contacts
- External maintenance bypass
- Automatic transfer switch (PowerValue 11RT 1-3 kVA)

UPS cabinet configuration

- Online double conversion UPS
- Efficiency in online mode up to 95%
- Efficiency in eco-mode up to 98%
- Configurable in tower format or rack-mount
- Three 6 kVA and 10 kVA UPSs (max 30 kW per system) can be connected in parallel for redundancy or extra capacity
- Cold start
- Frequency converter operation (50 Hz or 60 Hz)
- Interfaces: USB, RS-232, potential-free contacts, EPO contact inputs
- Emergency power-off for remote shutdown
- Load segmentation (for PowerValue 11RT 1-3 kVA)

PowerValue 11 RT
Technical specification

GENERAL DATA	1kVA B/ S	2kVA B/ S	3kVA B/ S	G2 6kVA	G2 10kVA
Output rated power	900 W	1'800W	2'400W	6'000W	10'000W
Output power factor	0.9	0.9	0.9	1.0	1.0
Topology	Online double conversion				
Parallel configuration	No	No	No	Yes, up to 3 UPS	Yes, up to 3 UPS
Inbuilt batteries	Yes/No	Yes/No	Yes/No	No	No
INPUT					
Nominal input voltage	208/220/230/240 VAC				
Input voltage tolerance	120-276 VAC (load dependent)			100-276 (load dependent)	
Input current THDi	<5% with full resistive load			<3% with full resistive load	
Frequency range	45-55 Hz / 54-66 Hz			45-55Hz / 54-66Hz (extendable to 40~70HZ at load < 60%)	
Power factor	≥0.99			≥0.995	
OUTPUT					
Rated output voltage	208/220/230/240 VAC				
Voltage tolerance	±1% (referred to 230V)				
Voltage distortion	≤2% linear load, ≤5% non linear load			<1% linear load, <5% non linear load	
Overload capacity (linear load) on inverter	12s: 102-129% load 1.5s: 130-150% load 100ms: ≥ 150% load			10m: 102-125% load 30s: 126 to 150% load 500 ms: ≥ 150% load	
Nominal frequency	50 or 60 Hz				
Crest factor	3:1 (load supported)				
EFFICIENCY					
Overall system efficiency	Up to 93%			Up to 95%	
In eco-mode	Up to 95%			Up to 98%	
ENVIRONMENT					
Protection rating	IP20				
Storage temperature	UPS: -25°C to 60°C; Batteries: 0°C to 35°C				
Operating temperature	0°C to 40°C				
Relative humidity	0% to 95%				
Altitude (above see level)	1000m without derating				
BATTERIES					
Type	VRLA (valve regulated lead-acid)				
Inbuilt batteries	3x7.2 Ah (B)	4x9Ah(B)	6x9Ah(B)	-	-
Charging current	1.5A/6A	1.5A/6A	1.5A/6A	0-12 A adjustable	
Recharge time (inbuilt batteries)	3h to 90%				
COMMUNICATIONS					
User interface	LCD display				
Optional communication cards	SNMP;ModBus;AS400;Environmental monitoring sensor probe				
STANDARDS					
Safety	IEC/EN 62040-1				
EMC	IEC/EN 62040-2				
Performance	IEC/EN 62040-3				
Manufacturing	ISO 9001:2015, ISO 14001:2015, OHSAS 18001				
WEIGHT, DIMENSIONS					
Weight	16.2/8.4 Kg	19.7/9.3 Kg	28.6/13 Kg	13.6 Kg	15.5 Kg
Dimensions w x h x d	438x86.5(2U) x436mm	438x86.5(2U) x436mm	438x86.5(2U) x608mm	438x86(2U) x573 mm	438x86(2U) x573 mm

PowerValue 11 / 31 T

The single-phase UPS for IT rooms, networks and other critical applications

The PowerValue 11/31 T UPS delivers reliable power, low running costs, long battery life, easy maintenance and high levels of flexibility. Featuring double-conversion, voltage and frequency independent (VFI) topology, the PowerValue 11/31 T is available in both 10 and 20 kVA versions, with the option to configure up to four units in parallel to boost power capability or provide redundancy.

Three-phase or single-phase inputs can also be accommodated, as well as single- or dual-supply inputs – allowing the customer to manage two independent power sources. Simple to install and with a small footprint, the PowerValue 11/31 T provides stable, regulated, transientfree, pure sine wave AC power with extremely tight output voltage regulation.

High reliability
- Online double conversion topology
- Parallelable up to four units to provide system redundancy
- Programmed and automated battery tests ensure optimized battery management

Low cost of ownership
- Simple power increase by paralleling up to four units
- High operating efficiency, regardless of loading
- Reduced installation costs
- Compact design

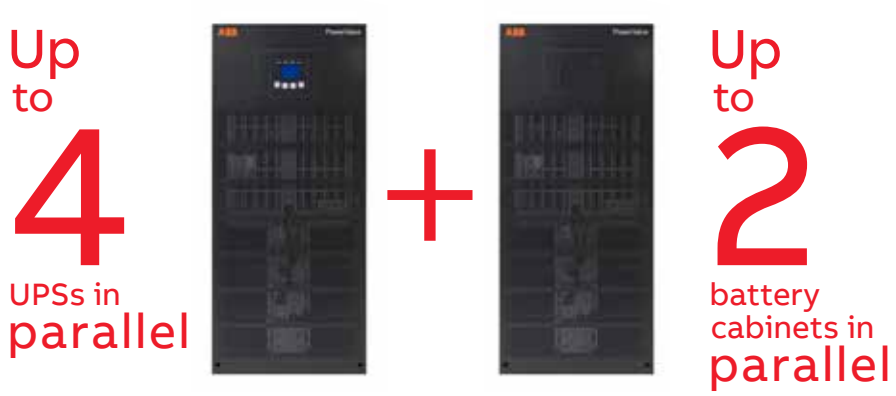
Flexible design
- Different autonomy variations with inbuilt batteries or additional battery cabinets
- Long backup models available
- Single- or three-phase input – adaptable to installation requirements (field configurable)
- Single- or dual-input power source compatible (field configurable)
-

Efficient service concept
- Integrated manual bypass switch
- Easy to install and maintain
- User-friendly display
- User-replaceable batteries
- Remote monitoring and connectivity options

PowerValue 11 / 31 T
Product features

Compact power protection up to 80 kVA
PowerValue 11 / 31 T 10 and 20 kVA UPS can be installed in parallel to increase the total system power up to 80 kVA or to add redundancy to the system. The UPSs are delivered with an inbuilt parallel board and paralleling cables. No additional hardware is required for this installation.

PowerValue 11 / 31 T can be configured with up to two matching battery cabinets to satisfy extended runtime demands. Easily accessible and replaceable batteries increase availability and reduce mean time to repair (MTTR).



Battery runtime at full / half nominal load

	10 kVA		10 kVA S		10 kVA B		10 kVA B2		20 kVA		20 kVA S		20 kVA B	
	100%	50%	100%	50%	100%	50%	100%	50%	100%	50%	100%	50%	100%	50%
UPS internal battery	–	–	–	–	4	12	12	30	–	–	–	–	4	12
UPS + A*	12	30	–	–	21	49	30	69	4	12	–	–	12	29
UPS + B**	30	69	30	69	39	87	49	109	12	29	12	29	21	49
UPS + A + B*/**	49	109	49	109	58	130	69	151	21	49	21	49	29	69
UPS + 2B**	69	151	69	151	79	176	87	208	29	69	29	69	39	97

in minutes at full / half load

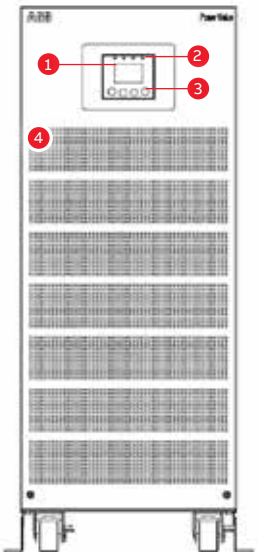
Battery cabinet	Batteries
Configuration A*	2 × 24 × 9 Ah
Configuration B**	4 × 24 × 9 Ah

Frequency conversion
Operating as a frequency converter, PowerValue 11 / 31 T not only converts the power supply frequency (50 Hz to / from 60 Hz), but it also protects the load from power disturbances and guarantees additional battery power in case of mains failure.

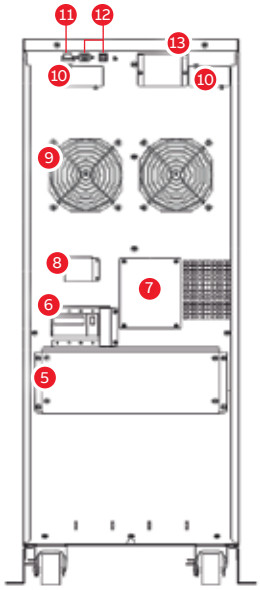
The operation and installation is simple and consisys merely of correctly wiring the UPS and selecting the frequency conversion mode in the LCD.

- Input frequency range: 40–70 Hz
- Output frequency: 50 Hz or 60 Hz
- Output derating:
  - Single-phase input: 60%
  - Three-phase input: no derating

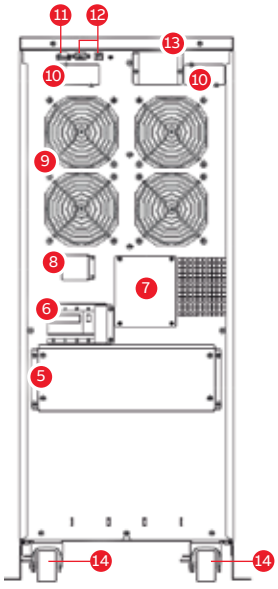
PowerValue 11 / 31 T
Available models



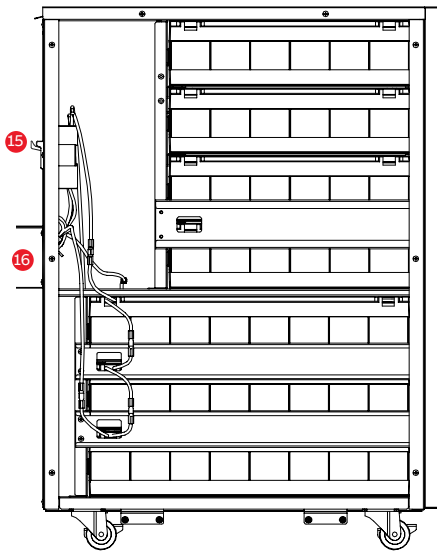
10 / 20 kVA



10 kVA



20 kVA



Battery cabinet (A and B)

1 LCD	**5** Connection terminals	**9** Fans	**13** Parallel port
2 LEDs	**6** Input breaker	**10** Network interface / AS400 slot	**14** Wheels / support and brakes
3 Control keys	**7** Manual bypass	**11** EPO contact	**15** Fuse holder
4 Ventilation inlets	**8** Back-feed protection terminals	**12** RS-232 port / USB port	**16** Battery connection terminals

UPS cabinet configuration

- Online double conversion UPS
- Efficiency in online mode up to 93.9%
- Efficiency in eco-mode up to 97%
- Paralleling up to four units allows for increase of capacity or redundancy
- Same model supports different wiring schemes
- Three-phase and single-phase input
- Single- and dual-input feed
- LCD
- Frequency converter operation (50 Hz or 60 Hz)
- Interfaces: USB, RS-232, ModBus, potential-free contacts, EPO contact inputs
- Emergency power-off for remote shutdown

Options

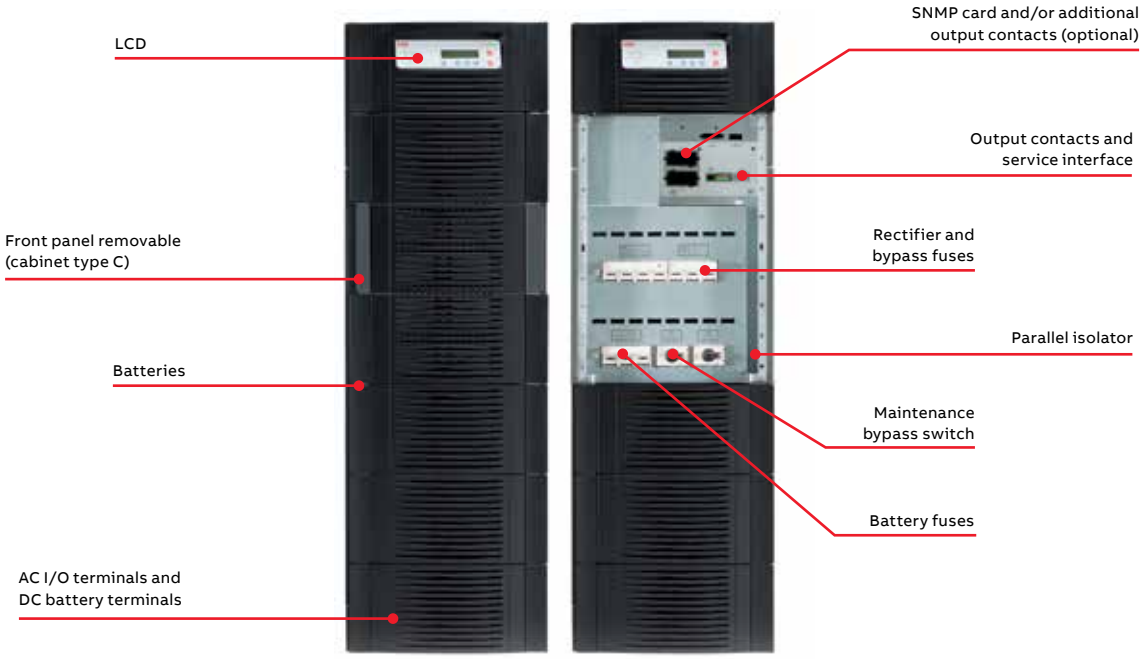
- Dry-contact card – relay interface card enables advanced communication between the UPS systems
- Network interface cards – control and monitoring of the UPS via a web browser
- Sensors – combined with the network interface card, humidity and temperature sensors can be integrated into the system and monitored remotely
- Additional battery cabinets that match perfectly with the UPS for scaling autonomy time

PowerValue 11 / 31 T
Technical specification

General data	10 kVA	10 kVA S	10 kVA B	10 kVA B2	20 kVA	20 kVA S	20 kVA B
Output rated power	9 kW				18 kW		
Output power factor	0.9						
Topology	Online double conversion						
Parallel configuration	Up to 4 units						
Inbuilt batteries	No	No	Yes	Yes	No	No	Yes
Input							
Nominal input voltage	1 ph + N: 220 / 230 / 240 VAC 3 ph + N: 380 / 400 / 415 VAC						
Input voltage tolerance	1 ph + N: 110–276 VAC 3 ph + N: 190–486 VAC						
Input current THDi	<5% linear load, <7% non linear load						
Frequency range	45–55 Hz for 50 Hz systems / 55–65 Hz for 60 Hz system						
Power factor	≥0.99						
Output							
Rated output voltage	220 / 230 / 240 VAC						
Voltage tolerance	±2%						
Voltage distortion	≤2% linear load, ≤5% non linear load						
Overload capability (linear load)	1 min: 110–130% / 5 min: 105–110% 100 ms: >150% / 10 s: 130–150%						
Nominal frequency	50 Hz or 60 Hz						
Crest factor	3:1 (load supported)						
Efficiency							
Overall efficiency	Up to 93.1%				Up to 93.9%		
In eco-mode	≥97%						
Environment							
Protection rating	IP 20						
Storage temperature	–15 °C to +60 °C for UPS, 0 °C to approx. +35 °C for battery						
Operating temperature	0 °C to +40 °C						
Relative humidity	0% to 95% (Non-condensing)						
Altitude (above sea level)	1000 m without derating						
Battery							
Type	VRLA (vented lead-acid)						
Inbuilt batteries	–	–	1 × 24	2 × 24	–	–	2 × 24
Battery capacity	–	–	9 Ah	9 Ah	–	–	9 Ah
Charging current	4 A	8 A	4 A	4 A	4 A	8 A	4 A
Recharge time	–	–	3 h to 90%	8 h to 90%	–	–	8 h to 90%
Communications							
User interface	LCD						
Communication cards (option)	Network interface (SNMP card), dry-contact card (AS400)						
Standards							
Safety	IEC / EN 62040-1						
EMC	IEC / EN 62040-2						
Performance	IEC / EN 62040-3						
Manufacturing	ISO 9001:2015, ISO 14001:2015, OHSAS18001						
Weight, dimensions							
Weight	56 kg	65 kg	116 kg	178 kg	67 kg	68 kg	190 kg
Dimensions w × h × d	350 × 890 × 715 mm	350 × 890 × 715 mm	350 × 890 × 715 mm	350 × 890 × 715 mm	350 × 890 × 715 mm	350 × 890 × 715 mm	350 × 890 × 715 mm

PowerScale

The three-phase UPS for low power applications



PowerScale is an online, double-conversion, VFI (voltage frequency independent) UPS that provides enhanced power protection in a compact format. Its outstanding price / performance delivers the best value for money in its category with uncompromised system reliability and power availability. PowerScale is available in three cabinet sizes, enabling you to choose the ideal capacity and required autonomy for your critical load.

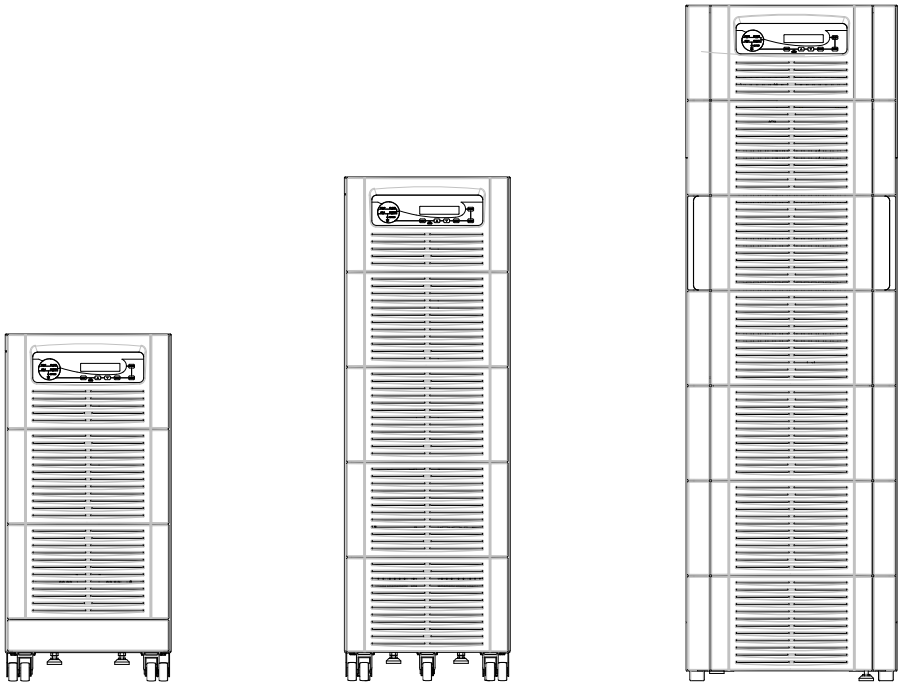
High reliability
- Online double conversion technology
- Parallelable systems for increased redundancy

Low cost of ownership
- Scalable power and autonomy time
- Small footprint / high power density
- High efficiency at partial and rated loads (up to 95.5%)
- Reduced installation costs
- Ripple-free and temperature controlled battery chargers extend battery life time performance
- Low input harmonic distortion (THDi <3%)

Flexible design
- Available in seven power ratings and three cabinet sizes
- Parallel capacity up to 20 units
- External battery cabinets for extended autonomy

Efficient service concept
- Manually operated maintenance bypass switch
- User-friendly LCD
- Ergonomic design for easy serviceability
- Remote monitoring and connectivity options

PowerScale
Available models



Cabinet type	Cabinet A: 10–20 kVA	Cabinet B: 10–25 kVA	Cabinet C: 25–50 kVA
Dimension w × h × d	345 × 720 × 710 mm	345 × 1045 × 710 mm	440 × 1400 × 910 mm
Internal battery capacity	Up to 48 blocks 7 / 9 Ah	Up to 96 blocks 7 / 9 Ah	Up to 144 blocks 7 / 9 Ah or 48 blocks 24 / 28 Ah

UPS cabinet configuration
- Online double conversion UPS
- Capacities from 10 kVA to 50 kVA in three different cabinet sizes
- Input, bypass and battery protection fuses
- Manual bypass switch
- Up to 95.5% efficiency across a wide load range
- Single- and dual-input feed available
- Communication interfaces: RS-232 and USB ports, I/O dry contacts (EPO, GEN On, …)
- Free space to place internal batteries

Options
- Integrated back-feed protection
- Parallel kit
- Cold start
- IP 21
- Halogen-free cabling
- Battery temperature sensor
- Communication interfaces: Relay card, ModBus RS-485, ModBus TCP/IP, SNMP
- Internal batteries
- External battery cabinets

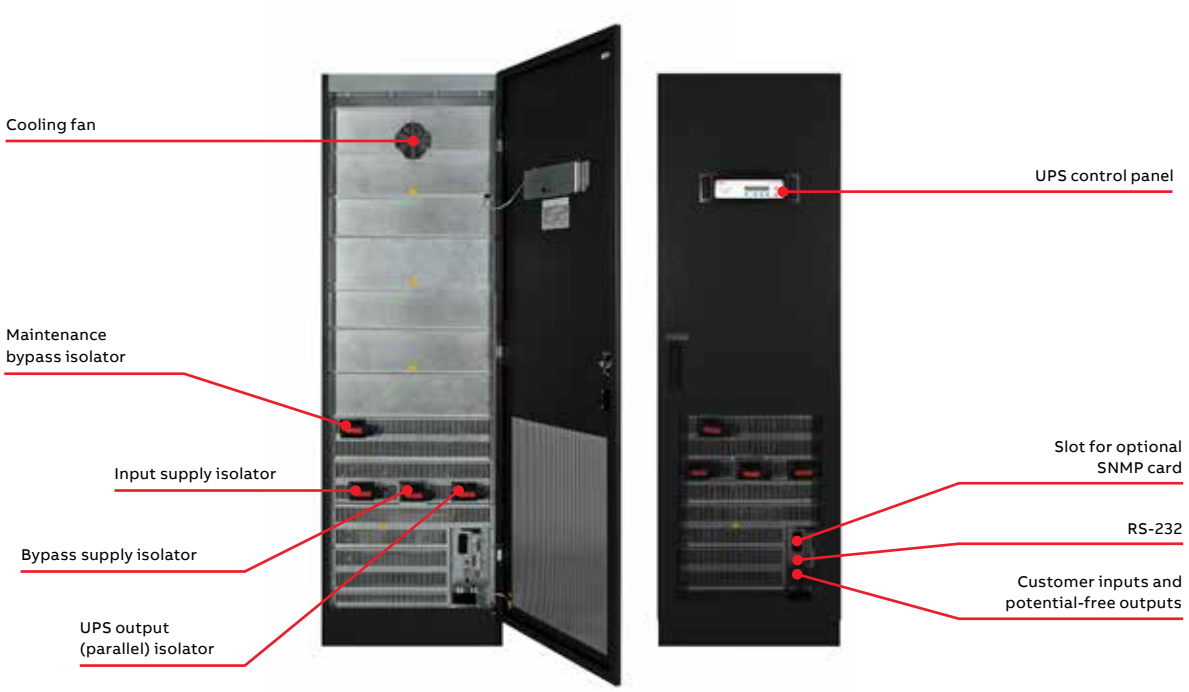
ABB’s uninterruptible power supplies are the stars of the UPS stage. No other UPS offers your critical processes such a low cost of ownership or fuss-free operation. The pioneers and leaders in large, modular UPS offer you easily scalable and easily maintained UPSs that give unparalleled uptime and energy efficiency.

PowerScale
Technical specifications

General data	10 kVA	15 kVA	20 kVA	25 kVA	30 kVA	40 kVA	50 kVA
Output power max.	9 kW	13.5 kW	18 kW	22.5 kW	27 kW	36 kW	45 kW
Output power factor	0.9						
Topology	Online double conversion						
Parallel configuration	Up to 20 units in parallel configuration						
UPS type	Standalone						
Inbuilt batteries	Yes						
Input							
Nominal input voltage	3× 380 V / 220 V + N, 3× 400 V / 230 V + N, 3× 415 V / 240 V + N						
Voltage tolerance (referred to ×400 V / 230 V)	For loads <100% (–10%, +15%), <80% (–20%, +15%), <60% (–30%, +15%)						
Input distortion THDi	≤3 at 100% (sine wave)						
Frequency	35–70 Hz						
Power factor	0.99 at 100% load						
Output							
Rated output voltage	3× 380 V / 220 V + N, 3× 400 V / 230 V + N, 3× 415 V / 240 V + N						
Voltage tolerance (referred to ×400 V / 230 V)	1% (static), 4% (dynamic)						
Voltage distortion	<2% linear load, <4% non linear load (IEC / EN62040-3)						
Frequency	50 Hz or 60 Hz						
Overload capability	5 min.:110 % or 20 sec.: 125 % (10 kVA - 25 kVA); 10 min.: 110 % or 1 min.: 125 % (30 kVA - 50 kVA)						
Unbalanced load	100% (all three phases regulated independently)						
Crest factor	3:1 (load supported)						
Efficiency							
Overall efficiency	Up to 95.5%						
In eco-mode configuration	98%						
Environment							
Storage temperature	–25 °C to +70 °C						
Operating temperature	0 °C to +40 °C						
Altitude	1000 m without derating						
Battery							
Battery type	7 Ah / 9 Ah / 28 Ah, sealed, lead-acid, maintenance-free						
Battery replacement	Field-replaceable						
Battery voltage	Flexible voltage for longer backup times						
Battery capacity	48 or 96 × 7 / 9 Ah	48 or 96 × 7 / 9 Ah	48 or 96 × 7 / 9 Ah	96 or 144 × 7 / 9 Ah	144 × 7 / 9 Ah or 48 × 28 Ah	144 × 7 / 9 Ah or 48 × 28 Ah	144 × 7 / 9 Ah or 48 × 28 Ah
Communications							
LCD	Yes (per module)						
LEDs	LED for notification and alarm						
Communication ports	RS-232, SNMP slot (USB and potential-free contacts optional)						
Standards							
Safety	IEC / EN 62040-1						
Electromagnetic compatibility (EMC)	IEC / EN 62040-2						
Performance	IEC / EN 62040-3						
Product certification	CE						
Protection rating	IP 20						
Manufacturing	ISO 9001:2015, ISO 14001:2015, OHSAS18001						
Weight, dimensions							
Cabinet type	A or B	A or B	A or B	B or C	C	C	C
Weight	60 or 88 kg	62 or 90 kg	64 or 92 kg	94 or 135 kg	145 kg	150 kg	155 kg
Dimensions w × h × d (mm)	345 × 720 × 710 or 345 × 1045 × 710	345 × 720 × 710 or 345 × 1045 × 710	345 × 720 × 710 or 345 × 1045 × 710	345 × 1045 × 710 or 440 × 1400 × 910	440 × 1400 × 910	440 × 1400 × 910	440 × 1400 × 910

PowerWave 33

Efficient power protection for today's IT and process-related work environments



PowerWave 33, an online double conversion UPS, delivers continuous power availability to network-critical infrastructures of both data centers and process control environments. Offering maximum power protection, the PowerWave 33 has a small footprint and uses less energy than comparable products – thus delivering significant savings.

The PowerWave 33 is available over a model range of 60 kW to 500 kW and can be configured to operate as a single, standalone UPS or as a multi-cabinet UPS system with up to ten UPS cabinets connected in parallel, achieving a total power capacity of up to 5 MW.

High reliability
- Online double conversion technology
- Parallelable systems for increased redundancy
- Extendable backup time
- Ripple-free and temperature controlled battery chargers extend battery life time performance

Low cost of ownership
- Up to 96% efficiency in double conversion across a wide load range
- Up to ≥99% efficiency in eco-mode
- Rated output power factor 1.0
- Near-unity input power factor at partial and full loads

Compact size
- Small footprint offers saving on expensive floor space
- Cooling air exhaust through the top of the cabinet – no rear cabinet clearance is required (only 60–120 kW and 400 to 500 kW units)

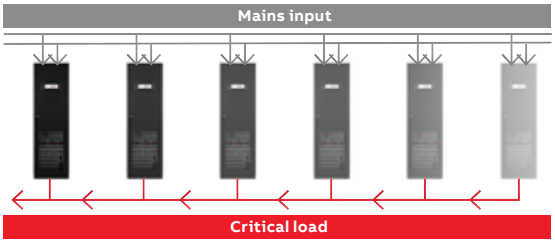
Efficient service concept
- Front access for serviceability and maintenance
- User-friendly LCD
- Remote monitoring and connectivity options

PowerWave 33
Product features

—
01 The PowerWave 33 is available in various configurations.
—
02 As your power requirements grow, the UPS system grows with them – thanks to its scalability – even in the most confined spaces.

—
01

Easily scalable for capacity and redundancy



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02

Up to 10 units can be configured in parallel to provide up to five megawatts of UPS power or redundant backup. This scalability means the UPS system capacity can be sized to match the load requirements, with the possibility to add incremental capacity later, when power needs change. The resulting savings in power usage over the service life of the UPS are substantial.

Space-saving and simple to service
Space-saving mechanical design results in a power density of up to 363 kW/m² and front-to-top airflow allows installation directly against a wall (60–120 kW and 400–500 kW units). For service, only frontal access is needed, which means that the total footprint with maintenance clearances is minimized.

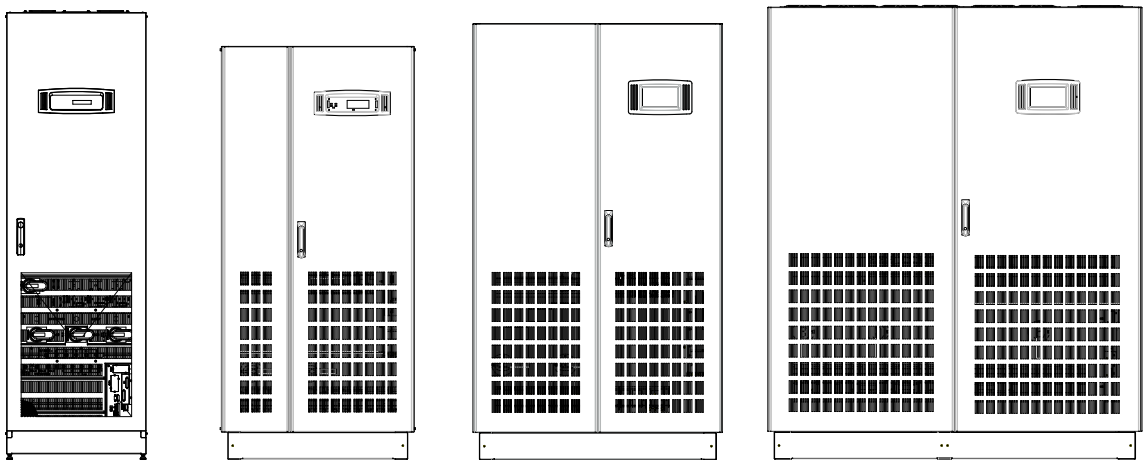
Optionally a top cable entry enclosure may be used for the 400–500 kW UPS. This enclosure permits the connection of all incoming power cables from the top and extends the overall width of the UPS by 500 mm.

Well optimized for modern loads
A 1.0 rated output power factor means that each and every Watt of power is real power that is available for use. This helps with optimizing the complete electrical infrastructure in terms of switchgear and cabling, both upstream and downstream from the UPS.

Battery runtime can be optimized to match the exact needs. The UPS supports usage of 42–48 batteries (60–120 kW units) or 44–50 batteries (160–500 kW units) in a single string, which minimizes the total cost of installation as an optimal configuration can be used and so there is no need to oversize the battery.

Mains-friendly with low input harmonics and advanced PFC
This UPS's front-end rectifier actively controls the input power factor and has extremely low input current harmonic content. This means that no additional filters are required upstream and the UPS does not cause any disturbance to other equipment connected to the same input source. Unity input power factor and low harmonic distortion allows upstream cabling, switchgear and generator sizes to be optimized, and reduces heating of input transformers.

PowerWave 33
Available models



Cabinet type	**60–120kW**	**160–200kW**	**250–300kW**	**400–500kW**
Dimension w × h × d	615 × 1975 × 480mm	850 × 1820 × 750mm	1100 × 1920 × 750mm	1650 × 1994 × 850mm
Footprint	0.3m²	0.64m²	0.82m²	1.4m²

UPS cabinet configuration
- Online double conversion UPS
- HMI interface with mimic diagram and LCD (60–200kW)
- Graphical touch screen display (250–500kW units)
- Input, bypass and battery protection fuses
- Manual bypass switch (optional for the units 400–500kW)
- Single- and dual-input feed available
- Communication interfaces: RS-232 port and 5 input dry contacts (incl. EPO and GEN On)

Options
- Integrated back-feed protection
- Parallel system kit
- Synchronization kit
- Battery temperature sensor
- Remote panel (graphical touch screen display)
- Halogen-free cabling
- IP21
- Control and monitoring (relay card, ModBus RS-485, ModBus TCP/IP, SNMP)
- External battery cabinets
- Top cable entry enclosure (400–500kW units)

PowerWave 33 60–120 kW
Technical specification

General data	60 kW	80 kW	100 kW	120 kW
Output power max.	60 kW	80 kW	100 kW	120 kW
Output power factor	1.0			
Topology	Online double conversion			
Parallel configuration	Up to 10 units			
UPS type	Standalone			
Input				
Nominal input voltage	3× 380 / 220 VAC + N, 3× 400 / 230 VAC + N, 3× 415 / 240 VAC + N			
Voltage tolerance (referred to 3× 400 / 230 V)	For loads <100% (–10%, +15%), <80% (–20%, +15%), <60% (–30%, +15%)			
Input distortion THDi	≤4%			
Frequency	35–70 Hz			
Power factor	0.99			
Output				
Rated output voltage	3× 380 / 220 VAC + N, 3× 400 / 230 VAC + N, 3× 415 / 240 VAC + N			
Voltage distortion	<2%			
Frequency	50 Hz or 60 Hz			
Overload capability	0.5 min.: 150% load / 5 min.: 125% load / 20 min.: 110% load			
Unbalanced load	100% (all three phases regulated independently)			
Efficiency				
Double conversion	Up to 96%			
In eco-mode configuration	≥99%			
Environment				
Storage temperature	–25 °C to +70 °C			
Operating temperature	0 °C to +40 °C			
Altitude configuration	1000 m without derating			
Battery				
Battery type	Sealed, lead-acid, maintenance-free or NiCd			
Communications				
User interface	Optional			
Customer inputs	Remote shutdown, genset interface			
Customer outputs	Potential-free contacts (optional), USB (optional)			
Standards				
Safety	IEC / EN 62040-1			
Electromagnetic compatibility (EMC)	IEC / EN 62040-2			
Performance	IEC / EN 62040-3			
Product certification	CE			
Protection rating	IP 20			
Manufacturing	ISO 9001:2015, ISO 14001:2015, OHSAS18001			
Weight, dimensions				
Weight (without batteries)	198 kg	206 kg	228 kg	230 kg
Dimensions w × h × d	615 × 1954 × 480 mm or 615 × 1978 × 480 mm (with feet)			

Availability is everything when it comes to a UPS, so ABB's UPS architecture is designed to make sure that power is always available when you need it.

PowerWave 33 160–500 kW
Technical specification

General data	160 kW	200 kW	250 kW	300 kW	400 kW	500 kW
Output power max.	160 kW	200 kW	250 kW	300 kW	400 kW	500 kW
Output power factor	1.0					
Topology	Online double conversion					
Parallel configuration	Up to 10 units					
UPS type	Standalone					
Inbuilt batteries	Optional					
Input						
Nominal input voltage	3× 380 / 220 V + N, 3× 400 / 230 V + N, 3× 415 / 240 V + N					
Voltage tolerance (referred to 3× 400 / 230 V)	For loads <100% (–23%, +15%), <80% (–30%, +15%), <60% (–40%, +15%)					
Input distortion THDi	≤3.5%					
Frequency	35–70 Hz					
Power factor	0.99					
Output						
Rated output voltage	3× 380 / 220 V + N, 3× 400 / 230 V + N, 3× 415 / 240 V + N					
Voltage distortion	<2%					
Frequency	50 Hz or 60 Hz					
Overload capability	1 min.: 135% load / 10 min.: 110% load					
Unbalanced load	100% (all three phases regulated independently)					
Crest factor	3:1 (load supported)					
Efficiency						
Overall efficiency	Up to 96%					
In eco-mode configuration	98%					
Environment						
Storage temperature	–25 °C to +70 °C					
Operating temperature	0 °C to +40 °C					
Altitude configuration	1000 m without derating					
Battery						
Battery type	Sealed, lead-acid, maintenance-free or NiCd					
Communications						
Graphical display	Optional		Yes			
Standards						
Safety	IEC / EN 62040-1					
Electromagnetic compatibility (EMC)	IEC / EN 62040-2					
Performance	IEC / EN 62040-3					
Product certification	CE					
Protection rating	IP 20					
Manufacturing	ISO 9001:2015, ISO 14001:2015, OHSAS18001					
Weight, dimensions						
Weight (without batteries)	290 kg	310 kg	390 kg	410 kg	950 kg	1000 kg
Dimensions w × h × d	850 × 1820 × 750 mm		1100 × 1920 × 750 mm		1650 × 1994 × 850 mm	

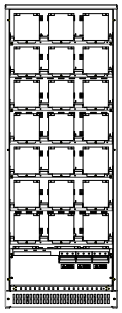
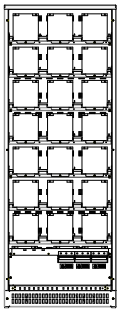
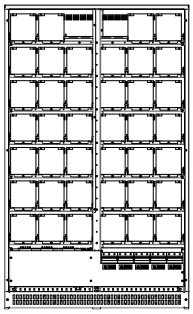
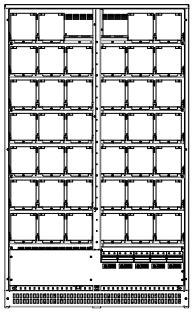
Battery cabinets and accessories
Extendable runtime

ABB offers a line of battery cabinets for its modular and standalone UPS series. These battery cabinets with integral overcurrent protection are compatible with a wide range of battery configurations and are optimized to meet application runtime needs.

Appropriate battery sizing will ensure that the autonomy is of an adequate duration for the load supplied. The user should first decide what battery autonomy is required, then select the battery configuration and cabinets accordingly. This document assists in this process, which may be broken down into the following steps:

1. Choose the UPS power and type (pages 14–53)
2. Define the backup time required
3. Choose common or separate batteries (in case of modular UPS)
4. Check autonomy tables for appropriate battery configuration and compatible battery cabinets (pages 57–59)
5. Check technical specification of selected battery cabinets for further information (pages 54–56)

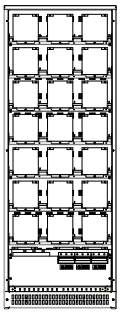
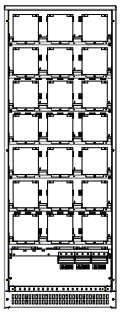
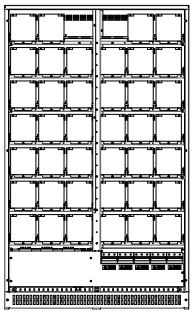
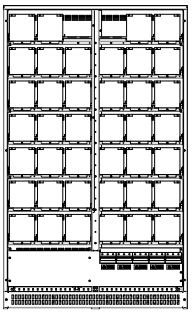
Battery cabinets for Conceptpower DPA

Availabel models

Type	CBAT-DPA-120 C	CBAT-DPA-120 S	CBAT-DPA-200 C	CBAT-DPA-200 S
Compatible UPS models	Conceptpower DPA 150 kVA Conceptpower DPA 250 kVA		Conceptpower DPA 150 kVA Conceptpower DPA 250 kVA	
Battery quantity / type / capacity	Up to 120 VRLA 24/28 Ah		Up to 200 VRLA 24/28 Ah	
Autonomy	Depends on UPS rated power, see detailed autonomy tables (pages 57–59)			
Battery arrangement common / separate	Common (C)	Separate (S)	Common (C)	Separate (S)
Dimensions w × h × d	730 × 1975 × 796 mm		1200 × 1975 × 796 mm	
Color	Front (doors) RAL 9007; side walls graphite grey (similar to RAL 7024)			

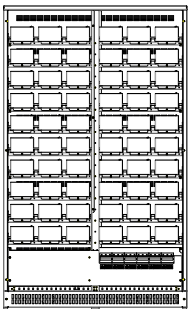
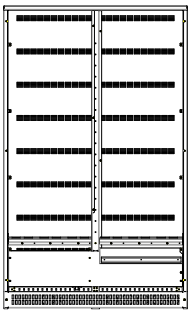
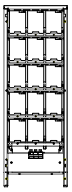
Battery cabinets for DPA UPScale / PowerWave 33

Available models

Type	CBAT-DPA UPSCALE-120C	CBAT-DPA UPSCALE-120S	CBAT-DPA UPSCALE-200C	CBAT-DPA UPSCALE-200S
Compatible UPS models	DPA UPScale ST40* | DPA UPScale ST80 DPA UPScale ST60* | DPA UPScale ST120		DPA UPScale ST40* | DPA UPScale ST80 DPA UPScale ST60* | DPA UPScale ST120 | DPA UPScale ST200 PowerWave 33 S2 160 kW | PowerWave 33 S2 200 kW	
Battery quantity / type / capacity	Up to 120 VRLA 24 / 28 Ah		Up to 200 VRLA 24 / 28 Ah	
Autonomy	Depends on UPS rated power, see detailed autonomy tables (pages 57–59)			
Battery arrangement common / separate	Common (C)	Separate (S)	Common (C)	Separate (S)
Dimensions w × h × d	730 × 1975 × 796 mm		1200 × 1975 × 796 mm	
Color	Graphite grey (similar to RAL 7024)			

Battery cabinets for DPA UPScale / PowerWave 33 / PowerScale

Available models

Type	CBAT-DPA UPSCALE-600S	CBAT-FLEX**	CBAT-POWERSCALE-88
Compatible UPS models	DPA UPScale ST120	DPA UPScale ST40* DPA UPScale ST80 DPA UPScale ST60* DPA UPScale ST120 PowerWave 33 S2 160 kW PowerWave 33 S2 200 kW PowerWave 33 S2 250 kW PowerWave 33 S2 300 kW	PowerScale 25 kVA Cab C* PowerScale 30 kVA Cab C* PowerScale 40 kVA Cab C* PowerScale 50 kVA Cab C*
Battery type & capacity	Up to 600 VRLA 7 / 9 Ah	VRLA up to 150 Ah	VRLA up to 88 24 / 28 Ah
Autonomy	Depends on UPS rated power, see detailed autonomy tables below	Not applicable	Depends on UPS rated power, see detailed autonomy tables below
Battery arrangement common / separate	Separate (S)	Not applicable	Common (C)
Dimensions w × h × d	1200 × 1975 × 796 mm		475 × 1400 × 940 mm
Color	Graphite grey (similar to RAL 7024)		

* Only if no internal batteries
** For further consultancy please contact your local area sales manager.

Battery cabinets
Technical specification

General data	CBAT-120	CBAT-200	CBAT-600	CBAT-FLEX	CBAT-88
Battery cabinet models	CBAT-DPA UPSCALE-120S CBAT-DPA UPSCALE-120C CBAT-DPA-120S CBAT-DPA-120C	CBAT-DPA UPSCALE-200S CBAT-DPA UPSCALE-200C CBAT-DPA-200S CBAT-DPA-200C	CBAT-DPA UPSCALE-600S	CBAT-FLEX	CBAT-POWERSCALE-88
Max. number of UPS modules (applies only to separate batt. configuration)	3	5	6	–	–
Battery					
Battery type	VRLA 24 Ah or 28 Ah	VRLA 24 Ah or 28 Ah	VRLA 7 Ah or 9 Ah	Any VRLA or 7 to 50–60 Ah	VRLA 24 Ah or 28 Ah
Battery dimensions w × h × d	168 × 125 × 175 mm	168 × 125 × 175 mm	151 × 98 × 65 mm	Not applicable	168 × 125 × 175 mm
Max. number of batteries	120	200	600	Not applicable (depends on the batt. type)	88
Number of batteries / string	30–50 blocks	20–50 blocks	20–50 blocks	Any	16–44 blocks
Max. number of battery strings	3	5	12	Depends on the batt. type	2
Battery placement	On trays; 5 pcs / tray	On trays; 5 pcs / tray	On trays; 5 pcs / tray	On shelves	On trays; 5 pcs / tray
Electrical characteristics and wiring connection					
Nominal DC voltage	360–600 V	240–600 V	240–600 V	Not applicable	240–600 V
DC fuse	9 × 100 A	15 × 100 A	18 × 50 A	–	6 × 100 A
Wiring terminal type	S type: Terminals C type: Bus bars	S type: Terminals C type: Bus bars	S type: Terminals	N / A	Terminals
Wiring terminals	S type: 3 × 3 × 50 mm² + PE 1 × (2 × M8) C type: 3 × (2 × M8) + PE 1 × (2 × M8)	S type: 3 × 5 × 50 mm² + PE 1 × (2 × M8) C type: 3 × (4 × M8) + PE 1 × (2 × M10)	S type: 3 × 6 × 35 mm² + PE 1 × (2 × M8)	N / A	3 × 25 mm² + PE 1 × 25 mm²
Physical characteristics					
Dimensions w × h × d	730 × 1975 × 796 mm	1200 × 1975 × 796 mm	1200 × 1975 × 796 mm	1200 × 1975 × 796 mm	475 × 1400 × 940 mm
Weight with trays w/o batteries	280 kg	390 kg	450 kg	W/o trays 190 kg; weight of one shelf 15 kg	140 kg
Weight with trays and batteries	Approx. 1480 kg	Approx. 2390 kg	Approx. 2010 kg	–	Approx. 1040 kg
Feet	4 feet of 12.5 cm² each	6 feet of 12.5 cm² each	6 feet of 12.5 cm² each	6 feet of 12.5 cm² each	4 feet of 12.5 cm² each
Color	Graphite grey: RAL 7024 Silver: RAL 9007 (door only)	Graphite grey: RAL 7024 Silver: RAL 9007 (door only)	Graphite grey: RAL 7024	Graphite grey: RAL 7024	Graphite grey: RAL 7024
UPS color	Graphite grey: RAL 7024 Silver: RAL 9007 (door only)	Graphite grey: RAL 7024 Silver: RAL 9007 (door only)	Graphite grey: RAL 7024	Graphite grey: RAL 7024	Graphite grey: RAL 7024
Options					
Cables (UPS to batt. cabinet)	4 m length; 10–150 mm²	4 m length; 10–150 mm²	4 m length; 10–35 mm²	N / A	4 m length; 25 mm²

Autonomy table for DPA UPScale ST80 / 120 / 200

10 kW modules

Load power in kW / Autonomy in minutes											
	5 min.	6 min.	8 min.	10 min.	12 min.	15 min.	20 min.	25 min.	30 min.	40 min.	60 min.
10 kW	1×34×28Ah*	1×34×28Ah*	1×34×28Ah*	1×34×28Ah*	1×34×28Ah*	1×34×28Ah*	1×34×28Ah*	1×34×28Ah*	1×34×28Ah*	1×34×28Ah	1×44×28Ah
20 kW	1×34×28Ah*	1×34×28Ah*	1×34×28Ah*	1×34×28Ah*	1×34×28Ah*	1×34×28Ah	1×38×28Ah	1×46×28Ah	2×34×28Ah	2×34×28Ah	2×44×28Ah
30 kW	1×34×28Ah*	1×34×28Ah	1× 36×28Ah	1×40×28Ah	1×44×28Ah	2×34×28Ah*	2×34×28Ah*	2×34×28Ah	2×42×28Ah	2×50×28Ah	3×44×28Ah
40 kW	1×42×28Ah	1×44×28Ah	1×48×28Ah	2×34×24Ah*	2×34×24Ah*	2×34×28Ah	2×40×28Ah	2×46×28Ah	3×38×28Ah	3×46×28Ah	4×44×28Ah
50 kW	2×34×28Ah*	2×34×28Ah*	2×34×28Ah*	2×34×28Ah	2×36×28Ah	2×42×28Ah	2×50×28Ah	3×38×28Ah	3×46×28Ah	4×42×28Ah	n.a.
60 kW	2×34×28Ah*	2×34×28Ah	2×36×28Ah	2×40×28Ah	2×44×28Ah	3×34×24Ah	3×38×28Ah	3×46×28Ah	4×42×28Ah	4×50×28Ah	n.a.
80 kW	2×42×28Ah	2×44×28Ah	2×48×28Ah	3×36×28Ah	3×40×28Ah	3×46×28Ah	4×38×28Ah	4×46×28Ah	n.a.	n.a.	n.a.
100 kW	3×36×24Ah	3×38×28Ah	3×40×28Ah	3×44×28Ah	3×48×28Ah	4×42×28Ah	4×50×28Ah	n.a.	n.a.	n.a.	n.a.
120 kW	3×42×28Ah	3×44×28Ah	3×50×28Ah	4×40×28Ah	4×44×28Ah	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
160 kW	4×42×28Ah	4×44×28Ah	4×50×28Ah	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
200 kW	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Color codes for appropriate battery cabinet:
- CBAT-DPA UPSCALE-120
- CBAT-DPA UPSCALE-200

Autonomy table for DPA UPScale ST80 / 120 / 200

20 kW modules

Load power in kW / Autonomy in minutes											
	5 min.	6 min.	8 min.	10 min.	12 min.	15 min.	20 min.	25 min.	30 min.	40 min.	60 min.
20 kW	1×48×28Ah*	1×48×28Ah*	1×48×28Ah*	1×48×28Ah*	1×48×28Ah*	1×48×28Ah*	1×48×28Ah*	1×48×28 Ah	2×48×28Ah*	2×48×28Ah*	2×48×28Ah
40 kW	1×48×28Ah*	1×48×28Ah*	1×48×28Ah	2×48×28Ah*	2×48×28Ah*	2×48×28Ah*	2×48×28Ah*	2×48×28Ah	3×48×28Ah*	3×48×28Ah	4×48×28Ah*
60 kW	2×48×28Ah*	2×48×28Ah*	2×48×28Ah*	2×48×28Ah*	2×48×28Ah*	3×48×28Ah*	3×48×28Ah*	3×48×28Ah	4×48×28Ah*	4×50×28Ah	n.a.
80 kW	2×50×28Ah*	2×50×28Ah*	2×50×28Ah	3×48×28Ah*	3×48×28Ah*	3×48×28Ah*	4×48×28Ah*	4×50×28Ah	n.a.	n.a.	n.a.
100 kW	3×48×28Ah*	3×48×28Ah*	3×48×28Ah*	3×48×28Ah*	3×48×28Ah	4×48×28Ah*	4×48×28Ah	n.a.	n.a.	n.a.	n.a.
120 kW	3×48×28Ah*	3×48×28Ah*	3×48×28Ah	4×48×28Ah*	4×48×28Ah*	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
160 kW	4×48×28Ah*	4×48×28Ah*	4×48×28Ah	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
200 kW	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Color codes for appropriate battery cabinet:
- CBAT-DPA UPSCALE-120
- CBAT-DPA UPSCALE-200

* Battery configuration gives more autonomy than indicated; the battery blocks may be reduced if the UPS is partially loaded. Refer to the product datasheet.

Battery configurations are for example purposes only and calculations are based on an ambient temperature of 20 °C to 25 °C.
ABB recommends that the user checks or recalculates configurations according to the battery manufacturer's datasheet.

Autonomy table for DPA UPScale ST120

10 kW modules

Load power in kW / Autonomy in minutes											
	5 min.	6 min.	8 min.	10 min.	12 min.	15 min.	20 min.	25 min.	30 min.	40 min.	60 min.
10 kW	1×1×40×7.2Ah	1×1×44×7.2Ah	1×1×50×7.2Ah	1×1×40×9Ah	1×1×44×9Ah	1×2×36×7.2Ah	1×2×44×7.2Ah	1×2×50×7.2Ah	1×2×44×9Ah	n.a.	n.a.
20 kW	2×1×40×7.2Ah	2×1×44×7.2Ah	2×1×50×7.2Ah	2×1×40×9 Ah	2×1×44×9 Ah	2×2×36×7.2Ah	2×2×44×7.2Ah	2×2×50×7.2Ah	2×2×44×9Ah	n.a.	n.a.
30 kW	3×1×40×7.2Ah	3×1×44×7.2Ah	3×1×50×7.2Ah	3×1×40×9 Ah	3×1×44×9 Ah	3×2×36×7.2Ah	3×2×44×7.2Ah	3×2×50×7.2Ah	3×2×44×9Ah	n.a.	n.a.
40 kW	4×1×40×7.2Ah	4×1×44×7.2Ah	4×1×50×7.2Ah	4×1×40×9Ah	4×1×44×9Ah	4×2×36×7.2Ah	4×2×44×7.2Ah	4×2×50×7.2Ah	4×2×44×9Ah	n.a.	n.a.
50 kW	5×1×40×7.2Ah	5×1×44×7.2Ah	5×1×50×7.2Ah	5×1×40×9 Ah	5×1×44×9 Ah	5×2×36×7.2Ah	5×2×44×7.2Ah	5×2×50×7.2Ah	5×2×44×9Ah	n.a.	n.a.
60 kW	6×1×40×7.2Ah	6×1×44×7.2Ah	6×1×50×7.2Ah	6×1×40×9 Ah	6×1×44×9 Ah	6×2×36×7.2Ah	6×2×44×7.2Ah	6×2×50×7.2Ah	6×2×44×9Ah	n.a.	n.a.

Color codes for appropriate battery cabinet:
CBAT-DPA UPSCALE-600 S

Autonomy table for DPA UPScale ST120

20 kW modules

Load power in kW / Autonomy in minutes											
	5 min.	6 min.	8 min.	10 min.	12 min.	15 min.	20 min.	25 min.	30 min.	40 min.	60 min.
20 kW	1×2×48×7.2 Ah	1×2×48×7.2 Ah	1×2×50×7.2 Ah	1×2×48×9 Ah	1×2×48×9 Ah	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
40 kW	2×2×48×7.2 Ah	2×2×48×7.2 Ah	2×2×50×7.2 Ah	2×2×48×9 Ah	2×2×48×9 Ah	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
60 kW	3×2×48×7.2 Ah	3×2×48×7.2 Ah	3×2×50×7.2 Ah	3×2×48×9 Ah	3×2×48×9 Ah	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
80 kW	4×2×48×7.2 Ah	4×2×48×7.2 Ah	4×2×50×7.2 Ah	4×2×48×9 Ah	4×2×48×9 Ah	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
100 kW	5×2×48×7.2 Ah	5×2×48×7.2 Ah	5×2×50×7.2 Ah	5×2×48×9 Ah	5×2×48×9 Ah	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
120 kW	6×2×48×7.2 Ah	6×2×48×7.2 Ah	6×2×50×7.2 Ah	6×2×48×9 Ah	6×2×48×9 Ah	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Color codes for appropriate battery cabinet:
CBAT-DPA UPSCALE-600 S

Autonomy table for Conceptpower DPA

Load power in kW / Autonomy in minutes											
	5 min.	6 min.	8 min.	10 min.	12 min.	15 min.	20 min.	25 min.	30 min.	40 min.	60 min.
24 kW	1×40×28Ah*	1×40×28Ah*	1×40×28Ah*	1×40×28Ah*	1×40×28Ah	1×42×28Ah	1×46×28Ah	2×40×28Ah*	2×40×28Ah	2×40×28Ah	3×40×24Ah*
32 kW	1×40×28Ah*	1×40×28Ah*	1×40×28Ah	1×44×28Ah	1×48×28Ah	2×40×28Ah*	2×40×28Ah	2×40×28Ah	2×44×28Ah	3×40×28Ah*	3×46×28Ah
40 kW	1×42×28Ah	1×44×28Ah	1×50×28Ah	2×40×28Ah*	2×40×28Ah*	2×40×28Ah*	2×40×28Ah	2×46×28Ah	3×40×28Ah*	3×46×28Ah	4×44×28Ah
48 kW	1×50×28Ah	2×40×28Ah	2×40×28Ah*	2×40×28Ah*	2×40×28Ah*	2×42×28Ah	2×46×28Ah	3×40×28Ah	3×44×28Ah	4×40×28Ah	n.a.
64 kW	2×40×28Ah*	2×40×28Ah*	2×40×28Ah	2×44×28Ah	2×48×28Ah	3×40×28Ah*	3×42×28Ah	3×50×28Ah	4×44×28Ah	n.a.	n.a.
72 kW	2×40×28Ah*	2×40×28Ah*	2×44×28Ah	2×50×28Ah	3×40×28Ah	3×42×28Ah	3×46×28Ah	4×42×28Ah	4×50×28Ah	n.a.	n.a.
80 kW	2×42×28Ah	2×44×28Ah	2×48×28Ah	3×40×28Ah*	3×40×28Ah*	3×46×28Ah	4×40×28Ah	4×46×28Ah	n.a.	n.a.	n.a.
96 kW	3×40×28Ah*	3×40×28Ah*	3×40×28Ah*	3×44×28Ah	3×48×28Ah	4×42×28Ah	4×46×28Ah	n.a.	n.a.	n.a.	n.a.
120 kW	3×42×28Ah	3×44×28Ah	3×48×28Ah	4×40×28Ah	4×44×28Ah	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
128 kW	3×46×28Ah	3×48×28Ah	4×40×28Ah	4×44×28Ah	4×48×28Ah	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
160 kW	4×42×28Ah	4×44×28Ah	4×50×28Ah	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
200 kW	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Color codes for appropriate battery cabinet:
CBAT DPA 120
CBAT DPA 200

* Battery configuration gives more autonomy than indicated; the battery blocks may be reduced if the UPS is partially loaded. Refer to the product datasheet.

Autonomy table for PowerScale

Cabinet A

Load power in kW / Autonomy in minutes											
	5 min.	6 min.	8 min.	10 min.	12 min.	15 min.	20 min.	25 min.	30 min.	40 min.	60 min.
9 kW	internal bat.	internal bat.	internal bat.	internal bat.	internal bat.	internal bat.	1 × 26 × 28 Ah*	1 × 26 × 28 Ah*	1 × 26 × 28 Ah*	1 × 30 × 28 Ah	1 × 40 × 28 Ah
13.5 kW	internal bat.	internal bat.	internal bat.	1 × 36 × 28 Ah*	1 × 36 × 28 Ah*	1 × 36 × 28 Ah*	1 × 36 × 28 Ah*	1 × 36 × 28 Ah*	1 × 38 × 28 Ah	1 × 46 × 28 Ah	2 × 36 × 28 Ah*
18 kW	internal bat.	1 × 44 × 28 Ah*	1 × 44 × 28 Ah*	1 × 44 × 28 Ah*	1 × 44 × 28 Ah*	1 × 44 × 28 Ah*	1 × 44 × 28 Ah*	1 × 44 × 28 Ah	2 × 44 × 28 Ah*	2 × 44 × 28 Ah*	2 × 44 × 28 Ah*

Cabinet B

Load power in kW / Autonomy in minutes											
	5 min.	6 min.	8 min.	10 min.	12 min.	15 min.	20 min.	25 min.	30 min.	40 min.	60 min.
9 kW	internal bat.	internal bat.	internal bat.	internal bat.	internal bat.	internal bat.	internal bat.	internal bat.	internal bat.	internal bat.	1 × 40 × 28 Ah
13.5 kW	internal bat.	internal bat.	internal bat.	internal bat.	internal bat.	internal bat.	internal bat.	1 × 36 × 28 Ah	1 × 38 × 28 Ah	1 × 46 × 28 Ah	2 × 36 × 28 Ah
18 kW	internal bat.	internal bat.	internal bat.	internal bat.	internal bat.	internal bat.	1 × 44 × 28 Ah*	1 × 44 × 28 Ah*	1 × 48 × 28 Ah	2 × 44 × 28 Ah*	2 × 44 × 28 Ah*
22.5 kW	internal bat.	internal bat.	internal bat.	internal bat.	1 × 48 × 28 Ah*	1 × 48 × 28 Ah*	1 × 48 × 28 Ah*	n.a.	n.a.	n.a.	n.a.

Cabinet C

Load power in kW / Autonomy in minutes											
	5 min.	6 min.	8 min.	10 min.	12 min.	15 min.	20 min.	25 min.	30 min.	40 min.	60 min.
22.5 kW	internal bat.	internal bat.	internal bat.	internal bat.	internal bat.	internal bat.	internal bat.	n.a.	n.a.	n.a.	n.a.
27 kW	internal bat.	internal bat.	internal bat.	internal bat.	internal bat.	internal bat.	2 × 28 × 28 Ah	2 × 32 × 28 Ah	2 × 38 × 28 Ah	n.a.	n.a.
36 kW	internal bat.	internal bat.	internal bat.	internal bat.	2 × 36 × 28 Ah*	2 × 36 × 28 Ah*	2 × 36 × 28 Ah	2 × 42 × 28 Ah	n.a.	n.a.	n.a.
45 kW	internal bat.	internal bat.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Color codes for appropriate battery cabinets A, B and C:
- CBAT-POWERSCALE-88
- UPS internal batteries

* Battery configuration gives more autonomy than indicated; the battery blocks may be reduced if the UPS is partially loaded. Refer to the product datasheet

Autonomy table for PowerWave 33

Load power in kW / Autonomy in minutes											
	5 min.	6 min.	8 min.	10 min.	12 min.	15 min.	20 min.	25 min.	30 min.	40 min.	60 min.
60 kW	2×42×28Ah*	2×42×28Ah*	2×42×28Ah*	2×42×28Ah	2×44×28Ah	3×42×28Ah*	3×42×28Ah*	3×46×28Ah	4×42×28Ah	n.a.	n.a.
80 kW	2×42×28Ah	2×44×28Ah	2×48×28Ah	3×42×28Ah*	3×42×28Ah	3×46×28Ah	4×42×28Ah*	4×48×28Ah	n.a.	n.a.	n.a.
100 kW	3×42×28Ah*	3×42×28Ah*	3×42×28Ah	3×44×28Ah	3×48×28Ah	4×42×28Ah	4×48×28Ah	n.a.	n.a.	n.a.	n.a.
120 kW	3×42×28Ah	3×44×28Ah	3×48×28Ah	4×42×28Ah	4×48×28Ah*	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Color codes for appropriate battery cabinet:
- CBAT-DPA UPSALE-120
- CBAT-DPA UPSALE-200

* Battery configuration gives more autonomy than indicated; the battery blocks may be reduced if the UPS is partially loaded. Refer to the product datasheet

Connectivity solutions
Smart power monitoring for single or multiple systems

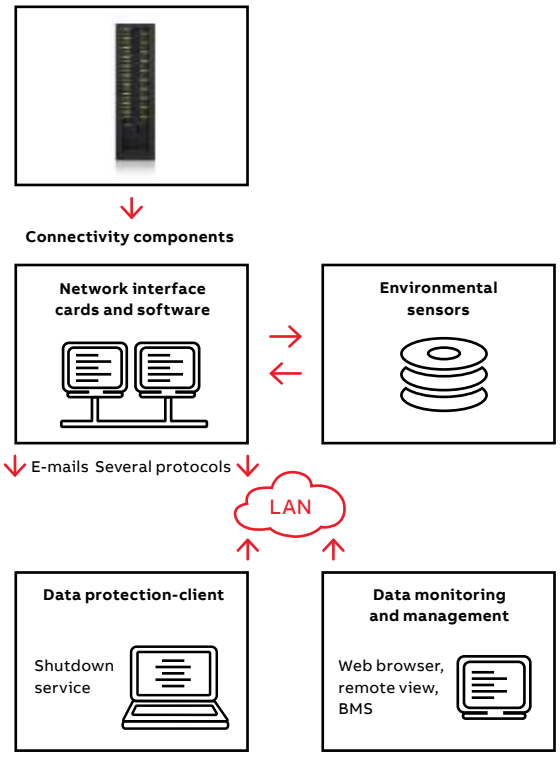
ABB offers intelligent solutions that monitor the status of your power system and thus ensure your data storage equipment or control process continues to receive clean, reliable power. The monitoring devices provide real-time visibility of the condition of your power equipment and help in identify problematic trends before they become critical.

Power and environmental monitoring
Network interface cards connect ABB's UPS systems to the network. These cards also provide the ability to connect several environmental sensors to the UPS. This combination allows for a clear visual representation on a web interface of not only the UPS system but also its environment.

Management software
The network interface cards are provided with extensively configurable software that provide access to measurement values and to the UPS's status information. The status of each UPS cabinet, UPS module or the entire system can be presented on a separate mimic diagram. These diagrams provide users with clear, real-time information. During normal operation, records of all events are kept in a log file. In case of a power failure, battery autonomy is monitored and network shutdown of the protected devices is initiated.

Data protection
The remote shutdown software manages a particular workstation, network or servers. Shutdown or reboot can be executed safely.

In addition, text messages, e-mails, pop-ups and mobile messages can be dispatched or displayed before the devices are shut down – giving the user the flexibility to manage or cancel the operation.



Highlights
- Remote monitoring via web
- Environmental monitoring
- Extensive alarm handling and dispatching
- Redundant UPS monitoring
- Integration into network or building management system
- Integration into multivendor and multiplatform environments
- ModBus interface
- Multiple standard protocols are supported

Applications
- Personal computers
- Servers and network devices
- Data centers
- Storage systems
- Industrial automation
- Power systems

Connectivity solutions
Network interface cards

ABB offers several network interface options to suit all the customers' needs:

Slot format

CS141 Basic
For interfacing the UPS with the network without the need for additional sensors or interfaces. Available in slot and box formats.

Supports the following protocols			
1	HTTP	4	ModBus TCP
2	SNMP	5	Telnet FPT
3	SMTP (e-mail)		

Slot format

CS141 Advanced
For interfacing UPS with the network and allowing users to connect additional sensors and I/O options either directly to the card or via sensor manager. Available in slot and box formats.

Supports the following protocols			
1	HTTP	4	ModBus TCP
2	SNMP	5	Telnet FPT
3	SMTP (e-mail)	6	ModBus RS-232

Box format

CS141 ModBus
For interfacing UPS with the network and the ModBus RS-485 with option to connect alarms buzzers or additional relay board. Available in slot and box formats.

Supports the following protocols			
1	HTTP	4	ModBus TCP
2	SNMP	5	Telnet FPT
3	SMTP (e-mail)	6	ModBus RS-485

Slot format

USHA+
For interfacing UPS with the network with an option to connect additional environmental sensors. Available in slot format only.

Supports the following protocols			
1	HTTP	4	ModBus TCP
2	SNMP	5	Telnet FPT
3	SMTP (e-mail)		

Slot cards are UPS powered, while cards in box format require external power.

Connectivity solutions

Monitoring for single or multiple systems

List of connectivity and sensor options for different network interfaces

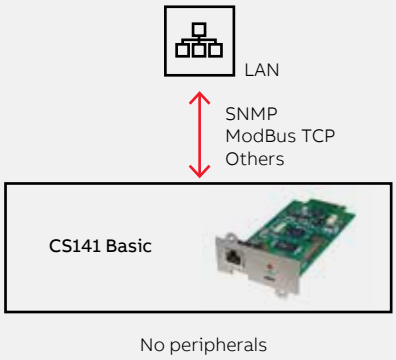
CS141	Network interface*	04-3865	Box	CS141 Basic	Web / SNMP interface ModBus TCP	No sensor options	Sensor connections
		04-3866	Slot			No aux options	
		04-3861	Box	CS141 Advanced		Optional sensors	
		04-3862	Slot			Aux connection	
		04-3863	Box	CS141 ModBus		ModBus RS-845	
		04-3864	Slot			Aux connection	
	I/O options	04-0592	Alarm buzzer CS141			Buzzer, 60 dB	5 m cable
		04-0593	Relay board CS141			4 digital inputs 4 relay outputs	1 m cable
		04-0594	Profibus converter			External DIN rail mount device	
		00-6944	Temperature sensor			−25 °C to +100 °C, ±0.5%	1.8 m cable
		04-3880	Combisensor for temperature and humidity			−25 °C to +100 °C, ±0.5% 0% to 100% RH, ±5%	1.8 m cable
	Sensor manager options	00-5915	Sensor manager			Environmental interface	
		00-5916	Temperature sensor			0 °C to +100 °C, ±0.5%	5 m cable
		00-6948	Combisensor for temperature and humidity			0 °C to +100 °C, ±0.5% 0% to 100% RH, ±5%	5 m cable
		00-6945	Alarm buzzer			85 dB	5 m cable
		00-6947	Relay box			1 input contact 1 output contact	5 m cable
	RCCMD	04-3869	RCCMD license			For Windows, Linux, MAC X, OS / 2, UNIX, NOVELL	
		04-3870	RCCMD license			For IBM AS 400 V4R5, V5, V6, V7	
		01-0014	RCCMD enterprise license			>50 licenses (Windows, Linux, MAC X, OS / 2, UNIX, NOVELL)	

USHA+	Network interface**	04-0210	USHA+ network interface card	Web / SNMP interface ModBus TCP	Sensor connections
	Environmental	04-0212	EMD with temperature and humidity sensors	0 °C to +80 °C, ±1 °C 10% to 90% RH, ±3%	2 m cable
		04-0213	Vibration detector		1 m cable
		04-0214	Smoke detector		
		04-0215	Door contact detector		
		04-0216	Water leakage detector		
		04-0990	Water leakage detector		

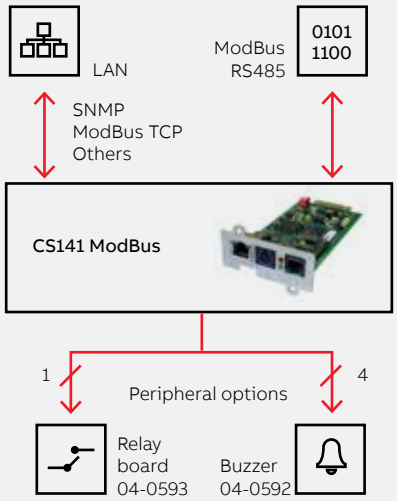
* All CS141 cards / boxes come with one free RCCMD client and a CD containing the monitoring software.
** All USHA+ cards come with RCCMD client and a CD containing the monitoring software.

Connectivity and sensor options for CS cards and boxes

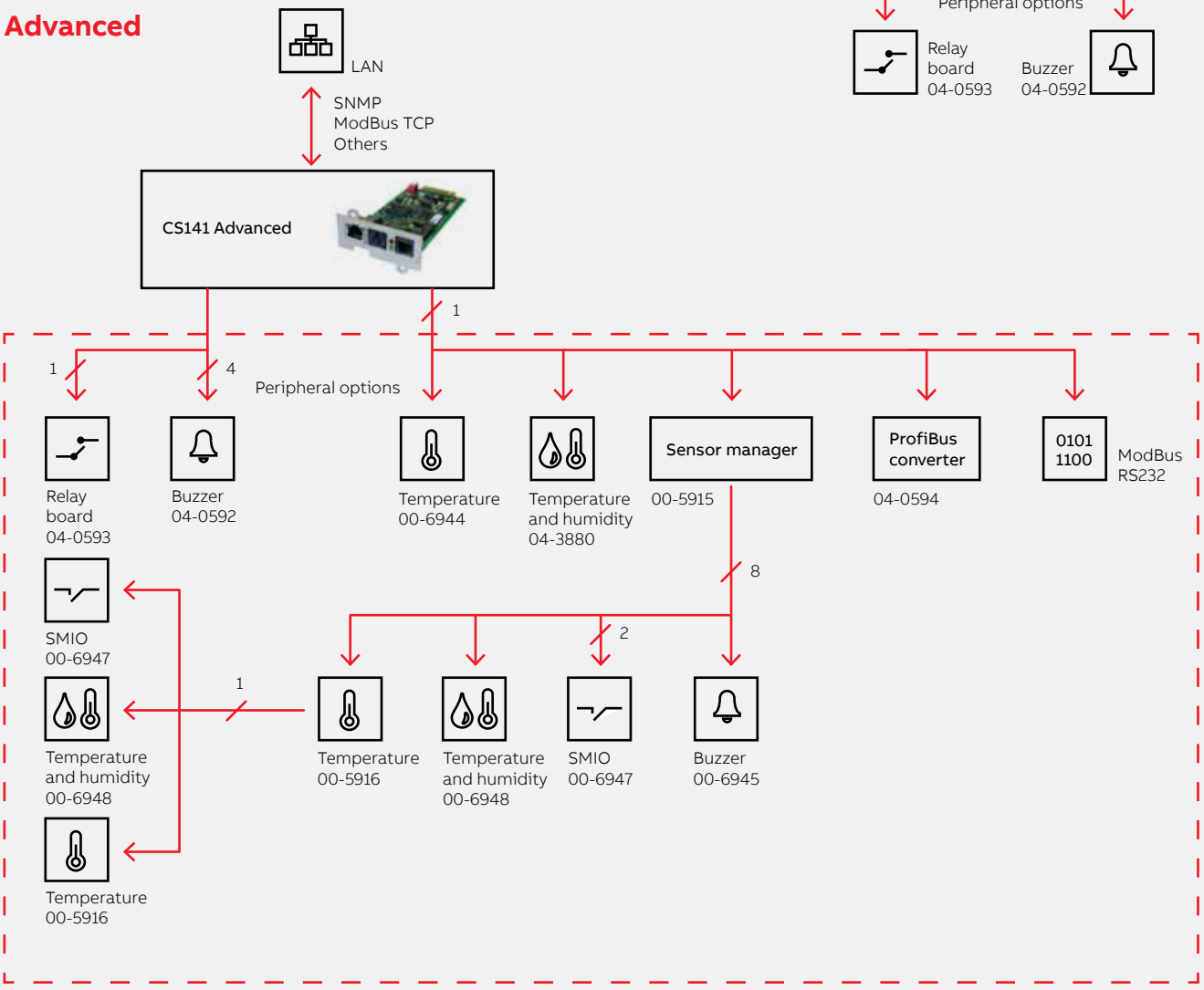
Basic



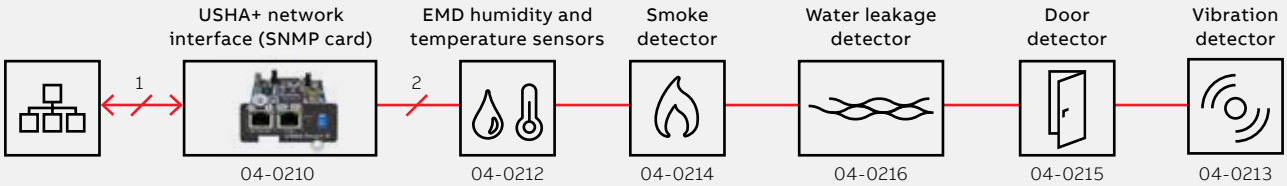
ModBus



Advanced



Connectivity and sensor options for USHA+ card



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