Three-phase UPS system

DPA UPScale ST 10 – 200 kW
The modular UPS designed for low- and medium-power applications

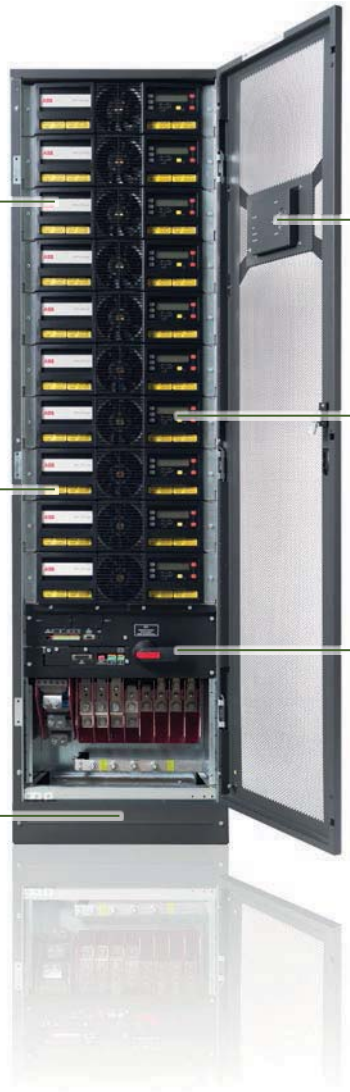
Power and productivity
for a better world™

DPA UPScale ST – always protecting your critical applications

Up to **10** modules
in parallel per cabinet

Up to **20** modules
in parallel per system

0.42 m^2
footprint only



System display

400 kW
total system power

Customer input
and output interfaces

All-in-one power protection solution

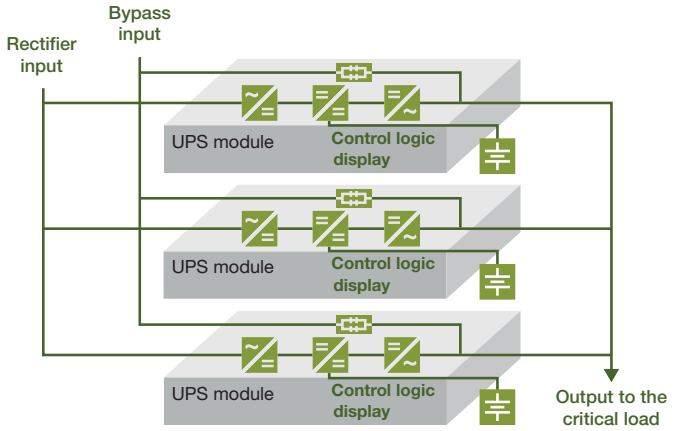
ABB's DPA UPScale ST is available for high-density applications requiring an all-in-one power protection solution that includes UPS modules, maintenance bypass, batteries, I/O terminals and communications. A single system delivers power protection from 10 kW to 200 kW in 10 kW or 20 kW modular steps. For a continuously growing mid-sized infrastructure, DPA UPScale ST 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 reduces the initial cost for installations.

Product features:

- Online double conversion UPS
- Power range from 10 kW to 200 kW in a single frame
- Redundant capacity (N+1) per frame
- Up to four frames in parallel
- Online swap modularity (OSM)
- Up to 96% online efficiency
- Eco-mode efficiency ≥ 98%
- Low input harmonic distortion (THDi < 3%)
- High power density (472 kW/m^2)
- Flexible battery configuration
- Remote control and monitoring options

DPA – The best way to maximize power availability and minimize TCO

Decentralized parallel architecture
ABB's DPA UPScale ST optimizes availability and total cost of ownership (TCO). The UPS design is based on the concept of true redundancy. Each UPS module has all the hardware and software needed for autonomous operation. 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. ABB calls this modular approach decentralized parallel architecture (DPA™).



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

How DPA maximizes availability and minimizes TCO:

High availability

+ Add redundancy
In a truly redundant system (DPA), all modules are active and share the load equally. Should one module fail, the remaining modules smoothly take over the load.

+ Apply best topology
In ABB DPA UPSs, the incoming AC is first converted to DC. The output AC is then synthesized from this DC – giving a clean sinusoid. These two conversion steps give the term "double conversion" and isolate the output voltage waveform from any disturbances on the input AC side.

+ Minimize service time
Because the UPS modules in a DPA are independent, they can be online-swapped without risk to the critical load and without the need to power down or transfer to raw mains supply. Therefore, engineers can work on the UPS without interrupting operations.

+ Standardized solution
DPA UPScale ST is based on standardized building blocks – this reduces maintenance and spare part stock requirements.

+ Select high-quality equipment
ABB's Swiss-built DPA UPSs have quality and reliability as fundamentals pillars of their core design and each product is thoroughly tested before leaving the factory.

Low total cost of ownership

+ Optimize your investments
As UPS power requirements change, modularity makes it easy to add modules and increase the power capabilities.

+ Optimize your battery capacity
Run-time and battery sizing can be tailored to requirements. A separate battery allows the system to be upgraded and autonomy preserved, while not compromising availability.

+ Save valuable floor space
Modularity lends itself well to keeping UPS footprint small – ideal where real estate is limited and expensive. A modular UPS rack has a small footprint and when extra modules are added, no extra floor space is taken up.

+ Lower installation and maintenance costs
The modular approach makes installation and commissioning easy. Standardized modules reduce inventory levels of specialist spare parts and simplify system upgrades.

+ Save energy costs
Costs are held down by designs that have best-in-class energy efficiency. DPA UPScale ST's efficiency curve is very flat so there are significant savings in every working regime.

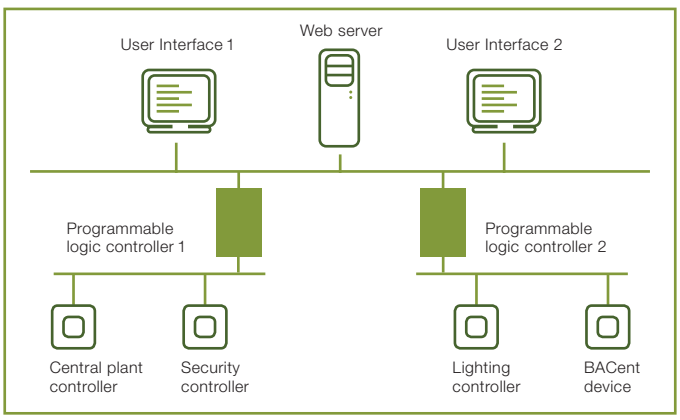
DPA UPScale ST
Available models

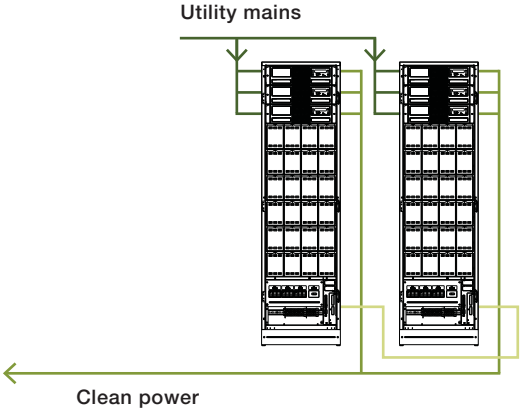
Cabinet type	ST40	ST60	ST80	ST120	ST200
Number of modules per cabinet	1 to 2	1 to 3	1 to 4	1 to 6	1 to 10
Parallel frames per system	4	4	4	3	2
Max. number of modules per system	8	12	16	18	20
Max. total system capacity w/o redundancy	160 kW	240 kW	320 kW	360 kW	400 kW

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 for protecting critical applications such as building management systems (BMS). Large facilities are often provided with a 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
Technical specifications

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 9001:2008, ISO 14001:2004, 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