



Standalone three-phase UPS system

PowerScale

10–50 kVA

Maximize your availability  
with PowerScale

# PowerScale – premium power protection

**PowerScale is a mid-size, three-phase UPS system that delivers premium power protection for the increasing loads in today's server rooms and data centers. PowerScale is available in seven power ratings: 10, 15, 20, 25, 30, 40 and 50 kVA.**

This new generation of transformer-less UPS responds to all major concerns of IT and facility managers. As saving costs and 100 percent uptime are their top priorities, PowerScale offers the lowest cost of ownership of any UPS system by providing energy efficiency, scalable flexibility, highest availability and easy serviceability.

The all-in-one solution includes a true online double conversion (VFI = Voltage Frequency Independent), a power distribution unit, a manual maintenance bypass, a static thyristor bypass, intelligent battery management

## High system availability

Today's critical applications require full redundancy in order to ensure the highest availability and 100 percent uptime. Up to 20 PowerScale units can be installed in parallel. Also, PowerScale shows superior reliability as a result of being built of the highest quality components.

The high quality of components used, the advanced design, the highly efficient and lean production process and the exhaustive system test of each unit ensure the exceptional reliability of all PowerScale units. These specific measures are confirmed by PowerScale industry-leading technical characteristics such as:

- Output power factor: 0.9
- High input voltage tolerance (100 % load: -23 % / +15 %; 60 % load: -40 % / +15 %)
- High input frequency tolerance (35–70 Hz)
- AC-AC efficiency up to 95.5 %
- Ripple-free battery charging

Parallel systems (n+x) substantially increase redundancy and therefore ensure continuous support of the load should any unit shut down. The redundant system allows for maintenance on all parallel cabinets without the need for an external maintenance bypass and without having to remove the critical load from conditioned power.

and space for internal batteries. PowerScale is a complete power protection system in one box and allows for simple installation.

The standalone three-phase UPS system is the ideal solution for server rooms, networks, small data centers, telecommunications and health care infrastructures, banking and industrial applications.

The broad range of PowerScale has been designed to offer the most important benefits to our customers and fulfil today's most demanding requirements in terms of:

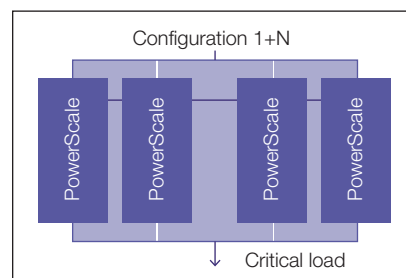
- System availability
- Environmental impact
- Total cost of ownership
- Solution flexibility

## Low environmental impact

The PowerScale range operates in the largest three-phase UPS market. Consequently it is even more important that PowerScale offers best-in-class, environmentally friendly features such as:

- High efficiency for energy saving
- Small size for space saving
- Flexible battery block per string for minimal environmental impact
- Sustainable material for proper recycling
- Efficient manufacturing

PowerScale fully embodies the fundamental values of ABB and allows IT facility managers to employ a sustainable power protection strategy.



**Up to 20 UPS units can be installed in parallel to achieve increased redundancy or more power.**

# Low total cost of ownership

Thanks to its broad range and simple parallel configuration, each PowerScale system can be configured and extended to function with the initial or future power requirements of your infrastructure.

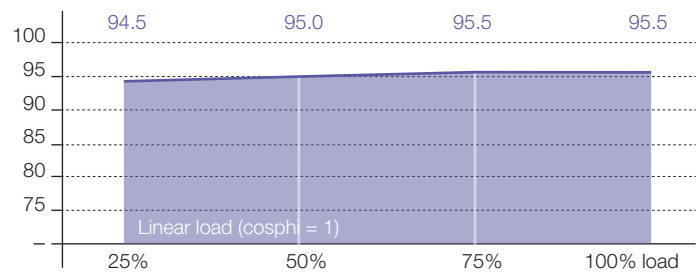
Initial right-sizing of the UPS system and gradual extension according to effective load requirements will optimize your investment.

PowerScale exhibits state-of-the-art energy efficiency of up to 95.5 percent, therefore helping you to further reduce operating costs over the life of your UPS system. The flat efficiency curve is typical for all ABB products, and hence the fall in efficiency is marginal even at partial loads.

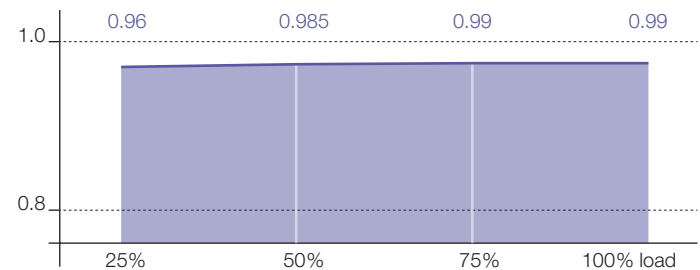
This enables significant energy savings in every working condition. The input power factor of PowerScale is near unity. This is made possible by the advanced booster PFC (Power Factor Correction) circuit of ABB's transformer-less technology. As a result there is no need for a filter for phase compensation. When using PowerScale, the UPS system respects the power grid regulations, and therefore achieves important energy savings.

The outstanding low input current total harmonic distortion (THDi) helps to enhance the compatibility with generators. Low THDi eliminates possible interference with other equipment in the scheme, reduces the size of power cables, fuses and breakers at the input and avoids excess heating of power transformers.

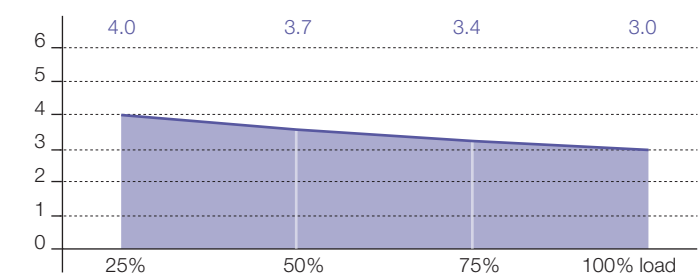
AC-AC efficiency



Input power factor versus load



Input current total harmonic distortion (THDi)



# 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	True online double conversion						
Parallel configuration	Up to 20 units in parallel configuration						
UPS type	Standalone						
Cable entry	Rear accessible	Rear accessible	Rear accessible	Rear accessible	Front accessible	Front accessible	Front accessible
Inbuilt batteries	Yes						
<b>INPUT</b>							
Nominal input voltage	3 × 380 V / 220 V + N, 3 × 400 V / 230 V + N, 3 × 415 V / 240 V + N						
Voltage tolerance	For loads < 100 % (-23 %, +15 %), < 80 % (-30 %, +15 %), < 60 % (-40 %, +15 %)						
(Ref. to 3 × 400V / 230 V)							
Input distortion THDi	≤ 3 % at 100 % (sinewave)						
Frequency	35–70 Hz						
Power factor	0.99 at 100 % load						
<b>OUTPUT</b>							
Rated output voltage	3 × 380 V / 220 V + N, 3 × 400 V / 230 V + N, 3 × 415 V / 240 V + N						
Voltage tolerance	1 % (static), 4 % (dynamic)						
(Ref. to 3 × 400 V / 230 V)							
Voltage distortion	< 2 % linear load, < 4 % non-linear load (IEC / EN62040-3)						
Frequency	50 or 60 Hz						
Overload capability	10 min.: 125 % or 1 min.: 150 % (at cosphi 0.8); 10 min.: 111 % or 1 min.: 133 % (at cosphi 0.9)						
Unbalanced load	100 % (all 3 phases regulated independently)						
Crest factor	3 : 1						
<b>EFFICIENCY</b>							
Overall efficiency	Up to 95.5 %						
In eco-mode configuration	98 %						
<b>ENVIRONMENT</b>							
Storage temperature	–25–70 °C						
Operating temperature	0–40 °C						
Altitude	1000 m without derating						
<b>BATTERY</b>							
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 × 7 / 9 Ah	48 × 7 / 9 Ah	96 × 7 / 9 Ah	96 × 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
<b>COMMUNICATIONS</b>							
LCD display	Yes						
LEDs	LED for notification and alarm						
Communication ports	RS 232, SNMP slot, (USB and potential free contacts optional)						
<b>STANDARDS</b>							
Safety	IEC / EN 62040-1-1, IEC / EN 60950-1						
Electromagnetic compatibility (EMC)	EN 61000-6-4, Product standard: EN 62040-2, EN 61000-6-2, Product standard: EN 62040-2						
Performance	IEC / EN 62040-3						
Product certification	CE						
Protection rating	IP 20						
Manufacturing	ISO 9001:2008, ISO 14001:2004						
<b>WEIGHT, DIMENSIONS</b>							
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	345 × 720 × 710 or 345 × 720 × 710 or 345 × 720 × 710 or 345 × 720 × 710 or 440 × 1400 × 910 440 × 1400 × 910 440 × 1400 × 910						
W × H × D (mm)	345 × 1045 × 710	345 × 1045 × 710	345 × 1045 × 710	440 × 1400 × 910			

# Solution flexibility

GENERAL DATA	10 kVA		15 kVA		20 kVA		25 kVA		30 kVA	40 kVA	50 kVA
Cabinet type	A	B	A	B	A	B	B	C	C	C	C
Maximum number of batteries 7/9 Ah	1 × 48	2 × 48	1 × 48	2 × 48	1 × 48	2 × 48	2 × 48	3 × 48	3 × 48	3 × 48	3 × 48
Maximum number of batteries 28 Ah	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	1 × 48	1 × 48	1 × 48	1 × 48
Maximum autonomy of internal batteries in minutes at full load (cosphi 0.9)	15	35	10	20	6	15	12	20	15	10	8

## Flexible battery configuration

In each cabinet, the space available for internal batteries is designed to fulfil most of the run-time requirements. The smaller units (10 to 25 kVA) are available in two cabinet sizes, and the larger units (30 to 50 kVA) can house different battery sizes (7/9 Ah or 28 Ah).

If extended autonomy is required, the complementary battery cabinet of the PowerScale range can easily be connected to any unit.

With the advanced booster technology of ABB's transformerless UPS, the number of battery blocks per string can be adjusted to the exact run-time required. This unique flexibility allows an optimal sizing of the battery capacity and a minimal investment.

## Compact design and simple serviceability

The compact design and small footprint of all PowerScale models serve to minimize space requirements and save valuable floor space. The units are available in three different cabinet sizes: A/B/C (see technical specifications for detailed dimensions).

Cabinet type C allows front access. The front panel is easily removable and offers simple serviceability. Cabinet types A and B are accessible from the rear.

## Enhanced communication capabilities

PowerScale is equipped with a variety of standard and optional communications features for network connectivity and application management.

### Standard features

- RS 232 on Sub-D9 port
- 4 input contacts
- 12 V<sub>DC</sub> source
- RJ 45 for multidrop

### Optional features

- SNMP card (slot)
- Card including 5 potential free output contacts and USB port



The front panel of the type C cabinet is easily removable.