



2017

# ABB UPS product portfolio

Power Protection

# Electrification Products division

Well positioned in attractive markets

## Utilities

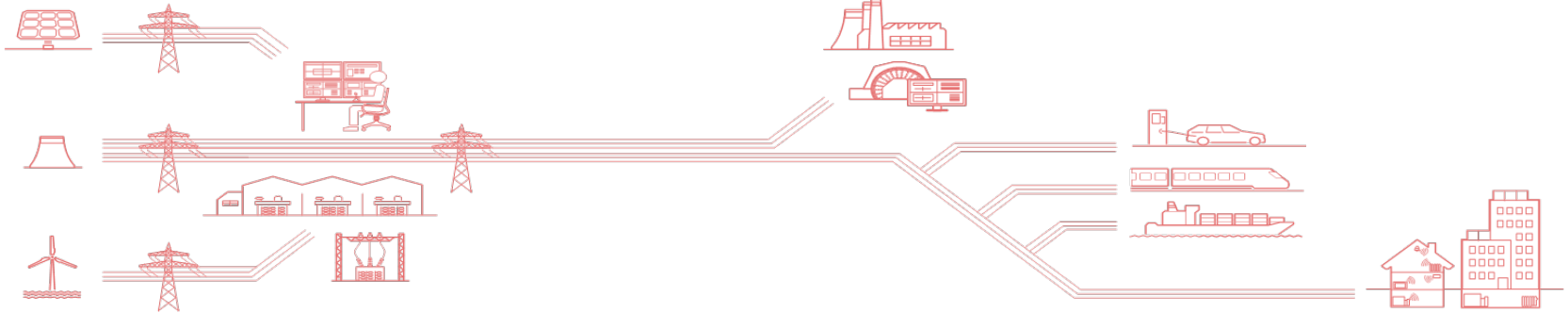
Renewable electrification  
Smart distribution

## Industry

Electrical distribution  
Power quality & reliability  
Safety & protection

## Transport & Infrastructure

Building electrification & automation  
Transport electrification  
Data centers



Delivering the broadest portfolio of low- and medium-voltage solutions in the industry;  
connecting, protecting and managing electrical power

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# PG Power Protection

An overview

[ABB Power Protection Group](#)

[Product offerings overview](#)

[More product info in detail](#)

[PowerValue 11RT](#)

[PowerValue 31/ 11 T](#)

[PowerScale](#)

[PowerWave 33 60-500 kW](#)

[Modular UPS Systems](#)

[PCS100 UPS-I](#)

[PCS100 MV UPS](#)

[PCS100 AVC](#)

[PCS100 RPC](#)

# Power Protection

A comprehensive premium product portfolio for the Power Protection Business

## Facts and Figures

- Appr. 900 employees in over 20 countries
- R&D in Switzerland, New Zealand, USA
- Production in China, Switzerland, New Zealand, USA
- Service in Europe, Middle East, Asia, USA

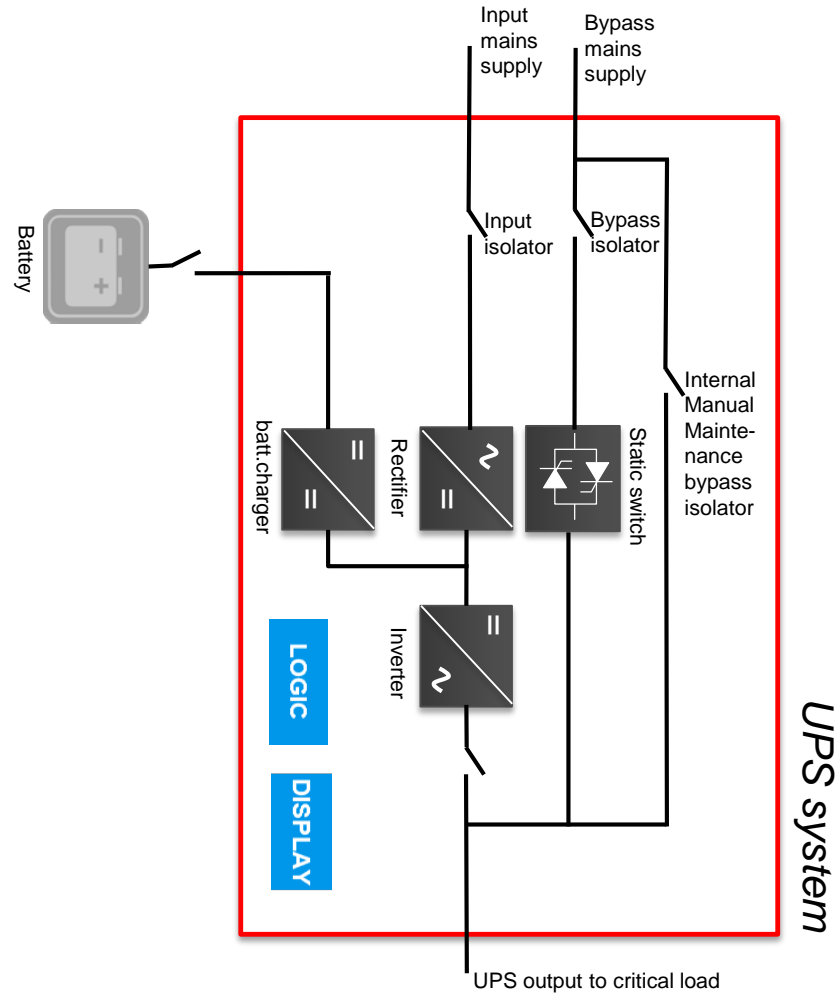
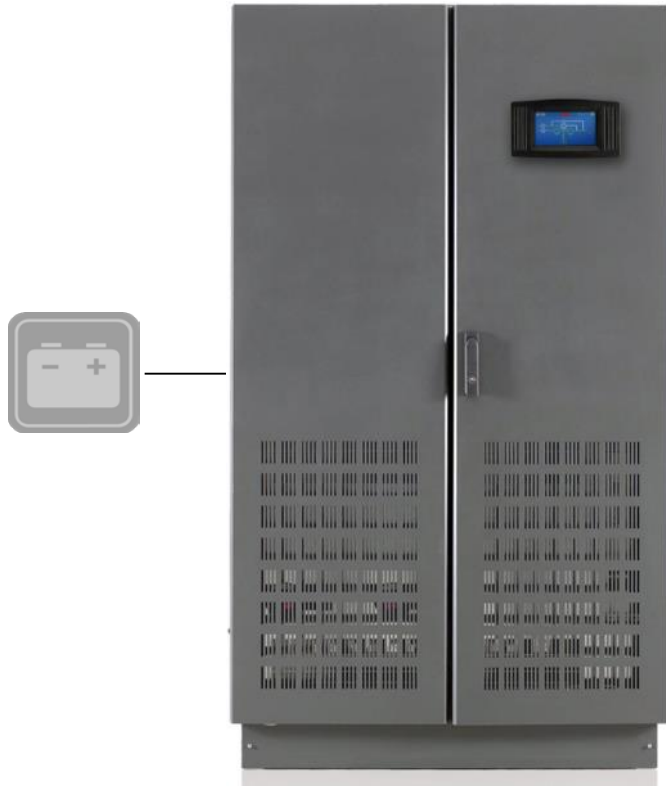
Business offering:

- UPS & Industrial UPS
- Power Conditioning products
- Static Transfer Switching
- Power Distribution
- Multichannel approach to the market (through OEMs, SI, EPCs, distributors, ...)



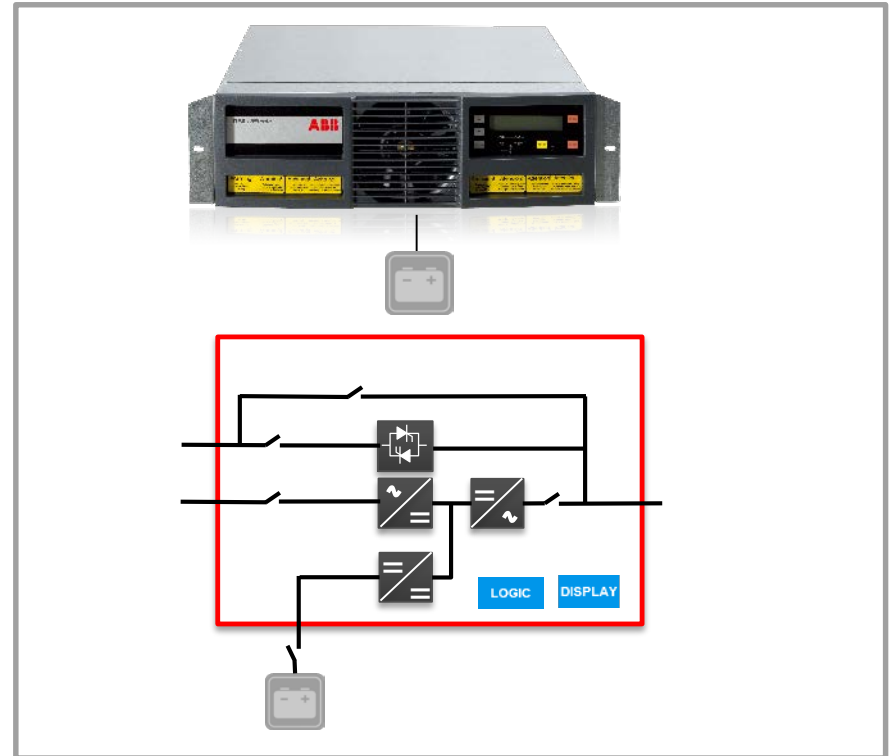
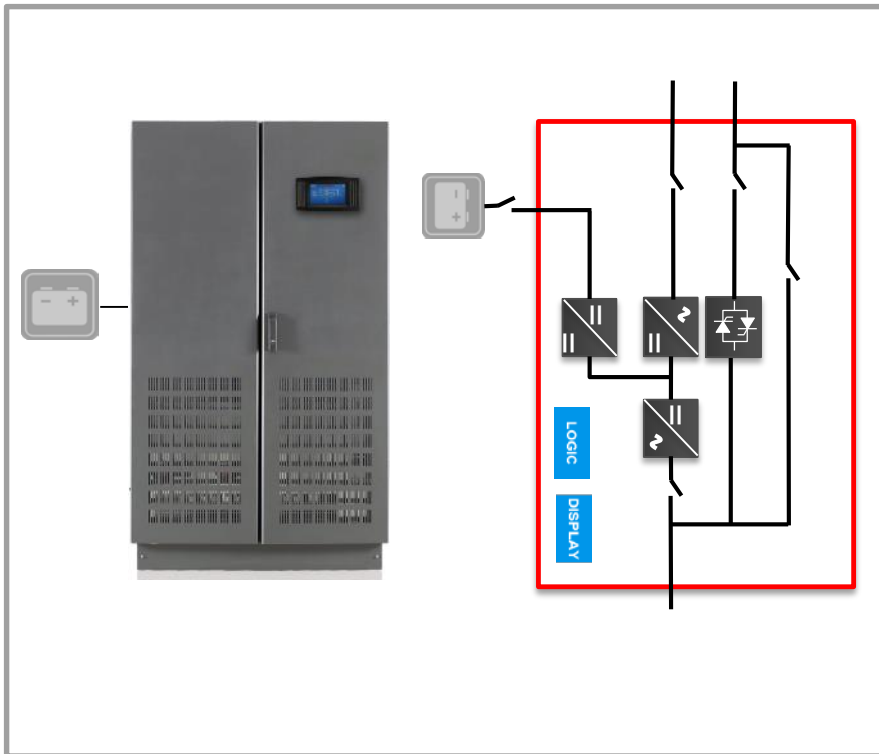
# Technology: Traditional standalone UPS concept

## Main functional elements



# The DPA concept mirrors the traditional UPS concept

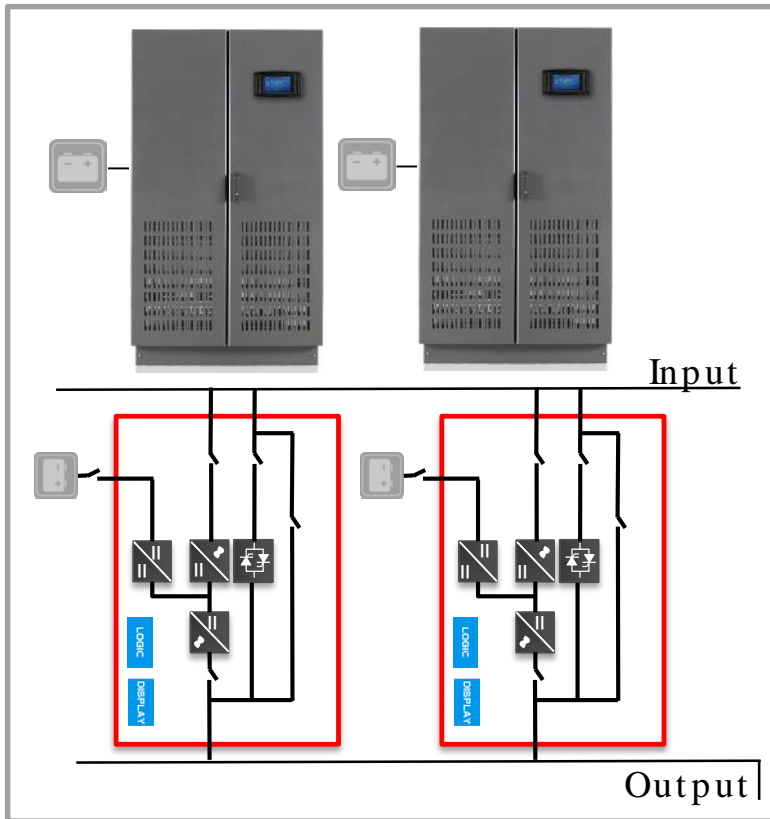
Main functional elements single UPS



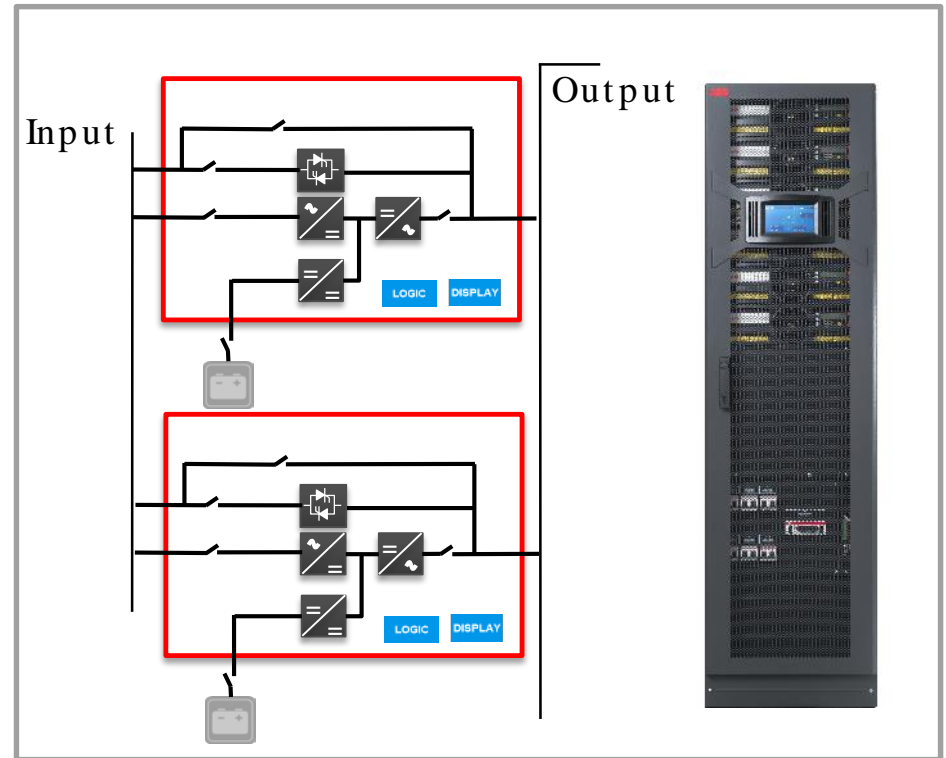
Each DPA module is a complete UPS system

# The DPA concept mirrors the traditional UPS concept

Main functional elements parallel UPS










Horizontal scalability for capacity and redundancy



Vertical and horizontal scalability for capacity and redundancy

# Power Protection – main offering

|                            | UPS   |  |   | Industrial UPS  |   |  |   |
|----------------------------|---|--|---|---|---|--|---|
|                            | Double Conversion Standalone UPS  | Double Conversion Modular UPS  | Static Switch and Power Distribution  | Double Conversion Industrial UPS & Chargers   | Double Conversion Modular UPS   | Single Conversion UPS  | Power Conditioning  |
| Watch portfolio video here |   |  |   |   |   |  |   |
| Product                    | PowerValue<br>PowerScale<br>PowerWave 33  | DPA Upscale<br>Conceptpower DPA  | Superswitch<br>Cyberex ZF<br>PDUs, FaultGuard<br>RPP, BCMS                              | PowerBuilt UPS<br>Cyberwave UPS<br>RBE II, IDM  | Powerline DPA   | PCS100 UPS-I<br>PCS100 MV UPS  | PCS100 AVC<br>PCS100 RPC<br>PCS100 SFC  |
| Major Market Segments      | <ul style="list-style-type: none"> <li>IT Rooms &amp; Data Centers</li> <li>Telecom</li> <li>Healthcare</li> <li>Transportation</li> <li>Building infrastructure</li> </ul> | <ul style="list-style-type: none"> <li>IT Rooms &amp; Data Centers</li> <li>Transportation</li> <li>Building infrastructure</li> </ul> | <ul style="list-style-type: none"> <li>Data Center</li> <li>General Industry</li> </ul> | <ul style="list-style-type: none"> <li>Process Automation</li> <li>Oil &amp; Gas</li> <li>Power Generation</li> </ul> | <ul style="list-style-type: none"> <li>Process Automation</li> <li>Manufacturing</li> <li>Transportation</li> <li>Food &amp; Beverage</li> <li>Industrial infrastructure</li> </ul> | <ul style="list-style-type: none"> <li>Data Center</li> <li>General Industry</li> <li>Process Automation</li> <li>Water Processing</li> <li>Food &amp; Beverage</li> </ul> | <ul style="list-style-type: none"> <li>General Industry</li> <li>Process Automation</li> <li>Water Processing</li> <li>Food &amp; Beverage</li> </ul> |
| Pictures                   |   |    |       |                                    |   |    |   |
| Power Range                | 1 kVA - 500 kW<br>Parallel to 5 MW  | 10 kW - 500 kW<br>Parallel to 3 MW   | Up to 4000 ASTS,<br>600 kVAPDM  | 10 – 40 kVA<br>Up to 112 kVA  | 20 – 120 kW<br>Up to 120 kVA  | 150 kVA - 3 MVA/LV<br>1 MVA - 6MVA/MV  | 125 kVA – 20 MVA<br>(parallel)  |
| Compliance                 | IEC   | UL-IEC   | UL - IEC  | UL - IEC  | IEC   | IEC - UL   | IEC - UL  |
|                            | <b>UPS</b><br>(IEC: CH–Quartino / UL: US-Richmond)  |  | <b>Power Solutions</b><br>(US - Richmond)   |   | <b>UPS</b><br>(CH-Quartino)   | <b>Power Conditioning</b><br>(NZ - Napier)   |   |



# Overview of UPS business experience

Pioneering transformerless and modular trend

## Head quarter in Quartino, Switzerland

- 300 employees
- Pioneering advanced double conversion UPS technologies: modular, transformerless
- Recognized as a premium supplier with 20 years UPS experience
- Launched first modular UPS in the market in 1998 !
- Introduced the unique Decentralized Parallel Architecture (DPA™) in 2005



# Product offerings overview

# Overview of UPS business experience

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# ABB's standalone UPSs

Small- to medium-sized datacenters - Server rooms and IT applications – Office and building power protection - Critical process protection.

## Double conversion standalone UPS

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### PowerValue 11 RT

- Parallelable up to 2 units
- System power 20 kVA
- Single-phase rack or tower convertible



### PowerScale

- Parallelable up to 20 units
- System power 1000 kVA
- 3 different cabinets and configurations
- Three-phase standalone tower



### PowerValue 11/ 31 T

- Parallelable up to 4 units
- System power 80 kVA
- Single in/ three-phase out standalone tower



### PowerWave 33

- Parallelable up to 10 units
- System power 5000 kW
- 10 different cabinets and configurations
- Three-phase standalone tower



# PowerValue 11 RT

## 1- 10 kVA

# PowerValue 11 RT 1-10 kVA

## Product Overview

- 5 different UPS models
- Each model has its matching battery module

UPS

1, 2, 3 kVA



6 kVA



10 kVA

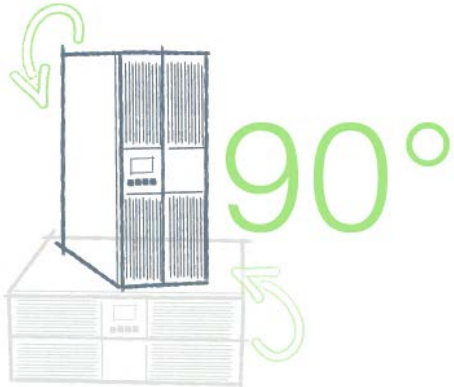


Battery modules



# PowerValue 11 RT 1-10 kVA

## Highlights



Rack / tower convertible



Up to  
battery modules

Extended autonomy

- High efficiency (up to 93%)
- Power Factor 0.9
- Eco-mode available
- Easy serviceability
- Low MTTR
- Up to 2 units in parallel (6-10kVA)
- Single and dual input feed (6-10 kVA)
- Small weight
- Cold start
- Compact Design



# PowerValue 11/ 31 T

## 10-20 kVA



# PowerValue 11/31 T 10-20kVA

## Product overview



10/20 kVA

PowerValue is available in 10 or 20 kVA version with different battery configurations:

### 10kVA

- No in-built batteries
- 5 minutes\* → 1x24x9Ah batteries
- 16 minutes\* → 2x24x9Ah batteries

### 20kVA

- No in-built batteries
- 5 minutes\* → 2x24x9Ah batteries At full load

A matching external battery cabinet is available for extended runtimes

All UPS models and the battery cabinet match perfectly each other as they all have the same dimensions and aligned design.

# PowerValue 11/31 T 10-20kVA

## Redundancy and paralleling



**Up to 4** units in parallel

- Increased power
- Increased availability through redundancy

# PowerValue 11/31 T 10-20kVA

## Highlights

### Reliable

- Online double conversion topology
- Power redundancy through paralleling up to 4 units
- Immediate detection of alarms through ABB monitoring devices (through e-mails or SMS)

### Flexible

- Power increase in parallel configuration
- Different autonomies with in-built or external batteries
- Single- or three-phase input field configurable
- Single or dual power sources compatible (single or dual input feed field configurable)

### Reduced costs

- High efficiencies reduces consumed power
- Reduced heat losses maintains the operating temperature lower, thus prolonging the lifetime of components and batteries
- Small footprint saves space in the infrastructure
- LCD interface and event log for immediate failure identification (low MTTR)

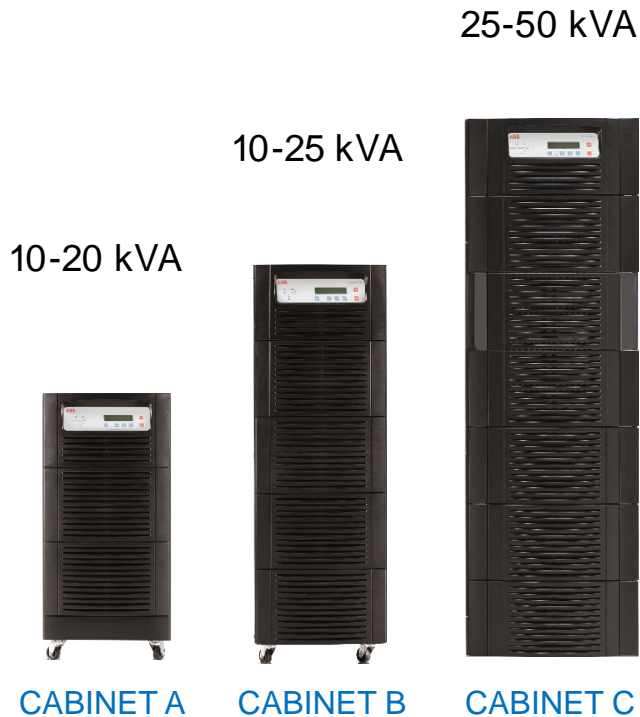


# PowerScale

## 10-50 kVA

# PowerScale 10-50 kVA

Maximize your availability



## Feature Highlights:

- Highest reliability and increased availability with **True on-line double conversion (VFI) UPS – 3ph input / 3ph output**
- Minimizes energy losses with industry top-level **double conversion efficiency up to 95.5%**
- Optimized for modern IT loads with **rated output power factor 0.9**
- Low input line disturbances; input PF 0.99 @ 100% load – ITHD ≤ 3%
- **Up to 20 units can be connected in parallel** for redundancy and/ or to increase system capacity
- “All included” with **integrated manual bypass switch**
- No nasty surprises in the event of utility failure – **manual and automatic battery tests ensure that battery health is known at all times**
- Ease of servicing and short MTTR ensure **cost for downtime – scheduled and unscheduled – is minimized**
- High variety of runtimes can be supported by using cabinet internal batteries only. This makes the system compact and saves installation space.
- Fit for different installation environments by having both, **single or dual input feed, supported.**



# PowerWave 33

60- 5000 kW system power

# PowerWave 33 60-120 kW

## Unmatched power performance



### Feature Highlights:

- Highest reliability and increased availability with **True on-line double conversion UPS and fully front end rectifier topology**
- Minimizes energy losses with industry top-level **double conversion efficiency up to 96% and 99% in ECO mode**
- Optimized for modern IT loads with **rated output power factor 1.0**
- Low input line disturbances; input PF 0.99 @ 100% load – ITHD  $\leq$  3.5%
- **Up to 10 units can be connected in parallel** for redundancy and/ or to increase system capacity
- “All included” with **integrated manual bypass switch and optional back feed protection**
- No nasty surprises in the event of utility failure – **manual and automatic battery tests ensure that battery health is known at all times**
- Front service access and short MTTR ensure **cost for downtime – scheduled and unscheduled – is minimized**
- Fit for different installation environments by having both, **single or dual input feed, supported.**
- Easy to operate and monitor

# Powerwave 33

## 160 – 500 kW standard frames

- Up to 96% efficiency in double conversion saves energy and reduces running costs
- Front serviceability and high power density save installation space and makes maintenance service simple and fast
- Designed to match modern loads – rated output power factor 1.0 maximizes available output active power (kW = kVA)
- Paralleling up to 10 UPS's



| FRAME TYPE                    | 160-200 kW       | 250 – 300kW       | 400 – 500kW       |
|-------------------------------|------------------|-------------------|-------------------|
| Rated output power            | 160, 200 kW      | 250, 300 kW       | 400, 500 kW       |
| Internal batteries            | -                | -                 | -                 |
| Dimensions W x H x D (mm)     | 850 x 1820 x 750 | 1100 x 1920 x 750 | 1650 x 1994 x 850 |
| Frame weight (w/ o batteries) | 290– 310 kg      | 390 – 410 kg      | 950 – 1000 kg     |





# ABB Rackmountable Modular UPS

10 - 3000 kW System power

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# ABB's modular UPSs

Large datacenters - Mid-sized datacenters - Server rooms and IT applications - Critical process protection.

## Double conversion three-phase modular UPS



### DPA UPScale ST

- Parallelable up to 20 modules
- System power 400 kW
- 5 different cabinets and configurations



### Conceptpower DPA

- Parallelable up to 30 modules
- System power 1500 kVA
- 2 different cabinets and configurations



### DPA UPScale RI

- System power 80 kW
- Rack-independent UPS system
- 7 different subracks and configurations



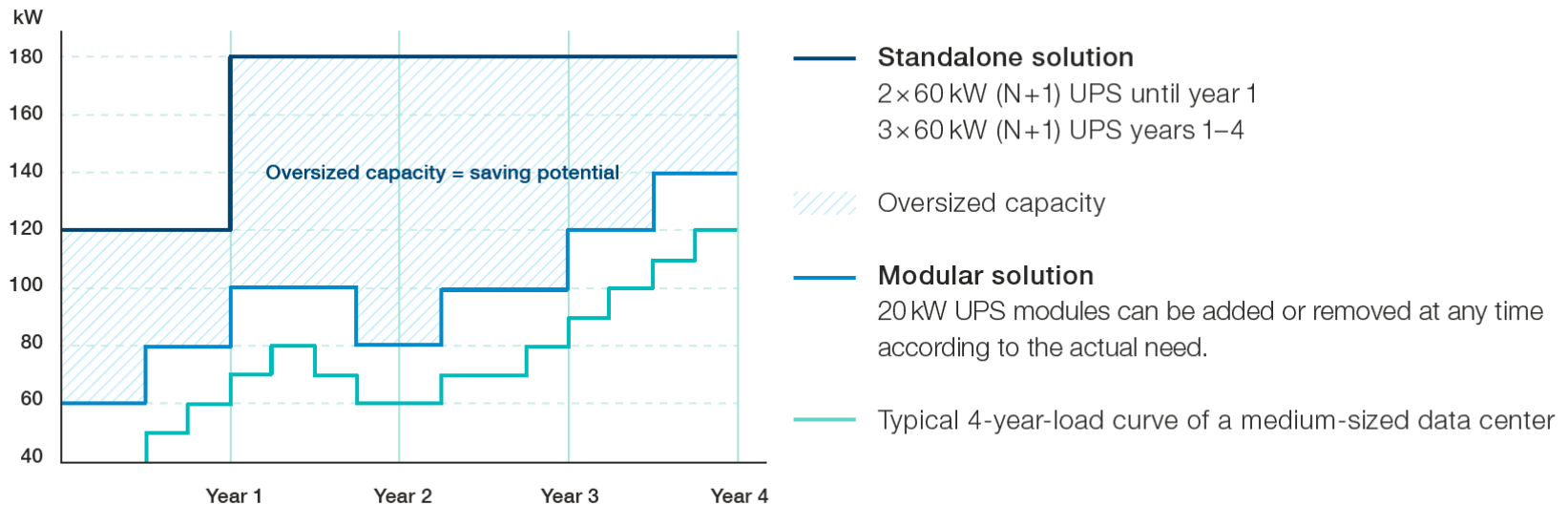
### Conceptpower DPA 500

- Parallelable up to 30 modules
- System power 3000 kW

# ABB's modular UPS design

Ensures high availability and low total cost of ownership

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



Example of a changing (increasing) load up to 120 kW in 4 years.

Vertical modularity minimizes space requirements and maximizes predictability of future space requirements



# DPA UPScale ST S2

10 – 400 kW

# DPA UPScale ST S2

## Available Models



| PRODUCT TYPES  | ST 40            | ST 60            | ST 80            | ST 120           | ST 200           |
|--|------------------|------------------|------------------|------------------|------------------|
| <b>Maximum output power</b>                                  | 40 kW            | 60 kW            | 80 kW            | 120 kW           | 200 kW           |
| <b>No. Of internal batteries (7/9 Ah)</b>                    | Up to 80         | Up to 240        | -                | -                | -                |
| <b>Dimensions W x H x D (mm)</b>                             | 550 x 1135 x 775 | 550 x 1975 x 775 | 550 x 1135 x 775 | 550 x 1975 x 775 | 550 x 1975 x 775 |
| <b>Weight frame (without modules/<br/>without batteries)</b> | 92 kg            | 173 kg           | 82 kg            | 133 kg           | 174 kg           |

# DPA UPScale ST S2

## Vertical and horizontal scalability

### Highlights:

- Vertical scalable power from 10kW up to 200kW (180kW N+1) in a single frame
- Horizontal scalable power to increase the capacity up to 400kW (380 N+1)



200kW + 200 kW

| Cable type                                 | ST 40  | ST 60  | ST 80  | ST 120 | ST 200        |
|--|--------|--------|--------|--------|---------------|
| Number of modules per frame                | 2      | 3      | 4      | 6      | 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 | <b>400 kW</b> |



# Conceptpower DPA

## 30 – 1500 kVA

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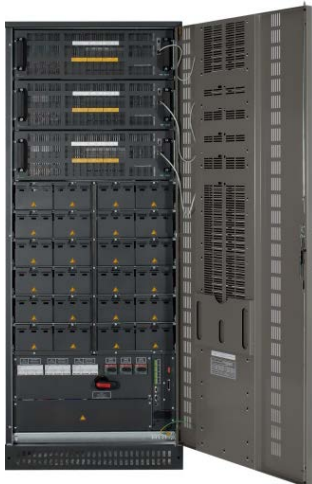
# Conceptpower DPA

## 3 models to cover all needs

- UPS is available with 2 different frames.
- Up to 6 frames can be paralleled to achieve maximum of 1.5 MVA/ 1.2 kW power
- All modules are automatically redundant with each other and can be removed, added or replaced while running the system in double conversion

### 150kVA frame

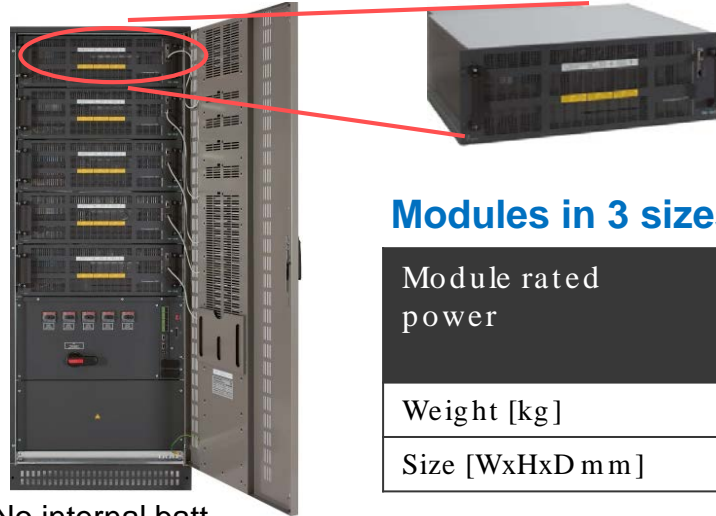
- Max 3 modules
- Frame internal batteries



**7 min runtime @ 150 kVA load**  
 Weight (w/o batteries): 379kg  
 Dimensions: 730x1975x800mm

### 250kVA frame

- Max 5 modules
- No internal batteries



No internal batt.  
 Weight (w/o batteries): 439 kg  
 Dimensions: 730x1975x800 mm  
 250kVA=439kg

### Modules in 3 sizes

|                    |                    |                   |                      |
|--------------------|--------------------|-------------------|----------------------|
| Module rated power | 24 kW /<br>30 kVA  | 32 kW /<br>40 kVA | 40 kW<br>/ 50<br>kVA |
| Weight [kg]        | 43.1 kg            | 45.3 kg           | 46.8 kg              |
| Size [WxHxD mm]    | 663 x 225 x 720 mm |                   |                      |





# Concept power DPA 500

100 – 3000 kW

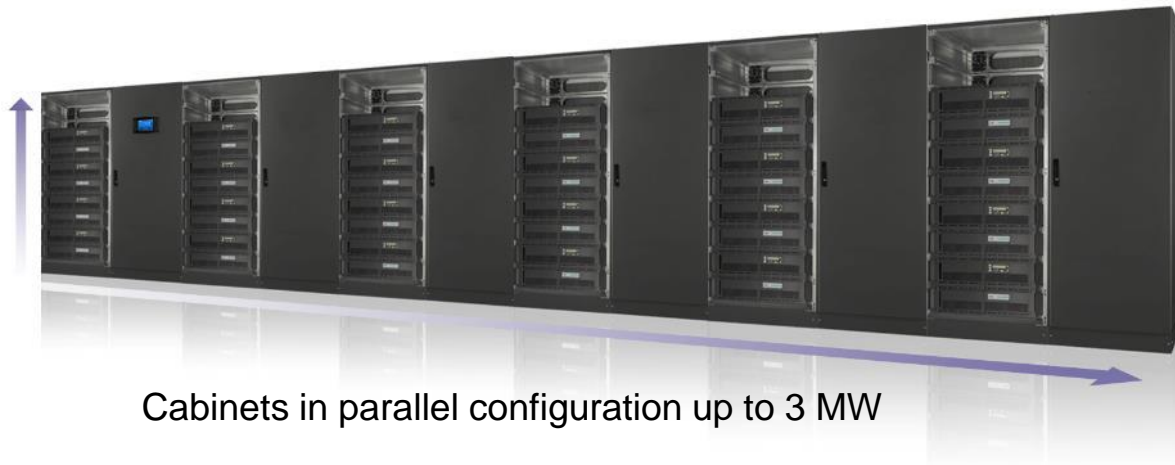
# Conceptpower DPA 500

## High power modular UPS

### All True Modular system benefits *available in MW range*

- The UPS for large data centers and other high power applications
- Scalable power in 100 kW steps

One to five  
modules in one  
single cabinet



Cabinets in parallel configuration up to 3 MW

### Decentralized Parallel Architecture (DPA™)

- Secures the highest level of availability through having true redundancy across modules.

# Top-of-the-line Performance

## Specifications – brief overview



[Watch the product video here](#)

### Technical Highlights

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|                                  |                                |
|----------------------------------|--------------------------------|
| Classification IEC/EN 62040-3    | VFI-SS-111                     |
| Working mode                     | on-line double conversion      |
| Module power rating              | 100 kW                         |
| Maximum power per frame          | 500 kW                         |
| Paralleling                      | 5 modules per frame / 6 frames |
| System Power Range               | 100 kW – 3 MW                  |
| Maximum power (N+1)              | 2.9 MW                         |
| Output power factor              | 1.0                            |
| Efficiency in double conversion  | up to 96 %                     |
| Efficiency in eco-mode           | >99 %                          |
| Footprint                        | 1.49 m <sup>2</sup>            |
| Power density per m <sup>2</sup> | up to 335 kW/m <sup>2</sup>    |
| Maximum weight w/out batteries   | 975 kg                         |
| Module weight                    | 55 + 54 kg (100 kW)            |
| Input current distortion THDI    | < 3.5 %                        |
| Input power factor (PF)          | 0.99                           |
| Back-feed protection             | standard in each module        |

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# Overview of Power Conditioning business experience

## Head quarter in Napier, New Zealand

- 200 employees

Design & manufacture power protection products;

- Industrial UPS (PCS100 UPS-I and MV UPS)
- Active Voltage Conditioner (PCS100 AVC)
- Reactive Power Conditioner (PCS100 RPC)
- Static Frequency Converter (PCS100 SFC)

Typical applications are 24/ 7 operations & critical processes:

- Semiconductor / automotive / textile
- Shore-to-ship / marine / oil & gas
- Plastics / cable extrusion
- Data centers



[Watch video here](#)

# BU Power and Electric Vehicle Infrastructure

## Overview Global Product Groups

### Solar



Solar inverters for residential, commercial and utility-scale use

- String inverters
- Central inverters
- Turnkey stations, packaged solutions
- Energy storage

### Power Protection



Uninterruptible Power Supplies (UPS)

- Static transfer switches
- Power distribution units
- Power conditioners
- Fuel cell inverters

### Electric Vehicle Infrastructure



Electric vehicle chargers for cars and buses

Service

# ABB's industrial modular UPSs

For industrial applications, perfect for rail control and signaling systems - paging and information distribution systems - emergency lighting systems

## Double conversion modular UPS



### PowerLine DPA (IEC)

- Parallelabile up to 3 modules
- System power 120 kVA
- 3 different cabinets and configurations
- Three-phase system



### PowerBuilt (UL)

- Parallelabile up to 2 frames
- System power up to 80 kVA
- 2 different cabinets and configurations
- Three-phase in/ single-phase out system



### PCS100 UPS-I (IEC-UL)

- Ratings from 150 kVA to 3000 kVA and voltages 208 Vac to 480 Vac
- Very high efficiency (99% typical)

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# ABB's medium voltage UPSs

For large manufacturing plants such as chemical or semiconductor manufacturing and mega data centers

## Single conversion modular UPS

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### PCS100 MV

- System power up to 6.6 kV
  - Modular design with integrated redundancy
  - 3-Phase (3-Wire) IT or TN
-

# ABB's Power and voltage conditioners

For sag correction commercial and industrial applications

## Cleaning the current and protecting sensitive loads from disturbances



PCS100 AVC-20

- Power range 250 – 3000 kVA
- Three-phase + Neutral (4-Wire) Centre ground referenced (TN-S)



PCS 100 RPC

- Capacity rating 100 kVA to 2000 kVAr (other ratings by request)
- Three-phase, 3 wire



PCS100 AVC-40

- Power range 250 – 3000 kVA (higher available on request)
- Three-phase + Neutral (4-Wire) Centre ground referenced (TN-S)



PCS100 SFC

- System power from 125kVA up to 2MVA, even larger systems are possible as multiple units can be paralleled if required.
- Three-phase TN



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# ABB's Power solutions

Focuses on the needs of the mission critical environment, such as large data centers in the financial sector, as well as the industrial and utility industry.

Highly customizable systems that utilizes a standardized robust design

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## Static transfer switches (commercial)

- From 200A to 4000A
- 3-phase, 3 wire + ground
- no single point of failure to interrupt your critical loads



## Power distribution unit

- From 50 kVA to 800 kVA
- 3-phase, 4-wire + ground
- Almost unlimited configurations of panelboards, sub-feed breakers



## DC Chargers

- Cyberex Digital Single Phase Charger 6-100A
- Cyberex Digital Three Phase Charger 25-1000A
- Cyberex Batteries and Cabinets



## Remote Power Panel (RPP)

- Power distribution system
  - 3-phase, 4-wire + ground
  - From 150A to 400A
  - Customizable cabinet configurations
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**ABB**