

# 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  $\geq 99\%$  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

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## 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.



60–120 kW



160–200 kW



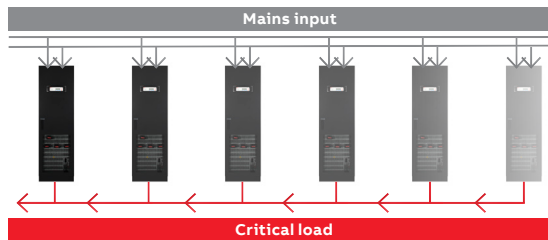
250–300 kW



400–500 kW

01

### Easily scalable for capacity and redundancy



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/m<sup>2</sup> 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.

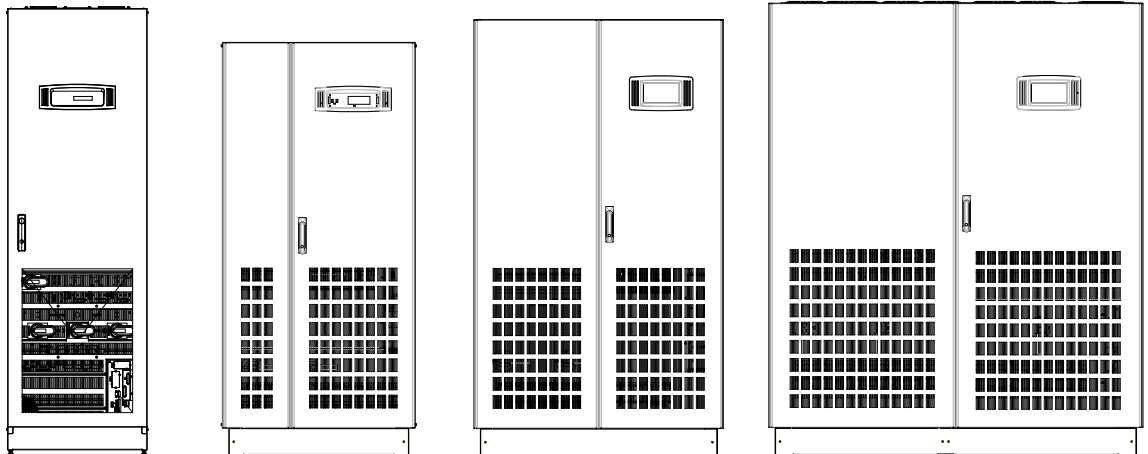
Battery runtime can be optimized to match the exact needs. The UPS supports usage of 42–48 batteries (60–120 kW units) or 44–50 batteries (160–500 kW units) in a single string, which minimizes the total cost of installation as an optimal configuration can be used and so there is no need to oversize the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

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## 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	0.3m <sup>2</sup>	0.64m <sup>2</sup>	0.82m <sup>2</sup>	1.4m <sup>2</sup>

### 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	60kW	80kW	100kW	120kW
Output power max.	60kW	80kW	100kW	120kW
Output power factor	1.0			
Topology	Online double conversion			
Parallel configuration	Up to 10 units			
UPS type	Standalone			
<b>Input</b>				
Nominal input voltage	3× 380 / 220VAC + N, 3× 400 / 230VAC + N, 3× 415 / 240VAC + N			
Voltage tolerance (referred to 3× 400 / 230V)	For loads <100% (-10%, +15%), <80% (-20%, +15%), <60% (-30%, +15%)			
Input distortion THDi	≤4%			
Frequency	35–70 Hz			
Power factor	0.99			
<b>Output</b>				
Rated output voltage	3× 380 / 220VAC + N, 3× 400 / 230VAC + N, 3× 415 / 240VAC + 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)			
<b>Efficiency</b>				
Double conversion	Up to 96%			
In eco-mode configuration	≥99%			
<b>Environment</b>				
Storage temperature	-25 °C to +70 °C			
Operating temperature	0 °C to +40 °C			
Altitude configuration	1000m without derating			
<b>Battery</b>				
Battery type	Sealed, lead-acid, maintenance-free or NiCd			
<b>Communications</b>				
User interface	Optional			
Customer inputs	Remote shutdown, genset interface			
Customer outputs	Potential-free contacts (optional), USB (optional)			
<b>Standards</b>				
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			
<b>Weight, dimensions</b>				
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)			

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