PRODUCT BROCHURE

PCS100 UPS-I 150 kVA - 3000 kVA

Industrial UPS

- Protection against deep sags and short term outages
- Small footprint
- Faster return on investment due to high efficiency

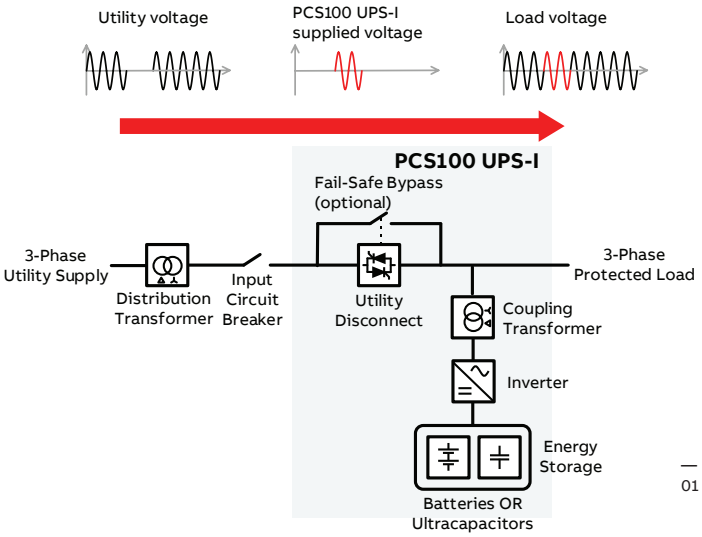
PCS100 UPS-I 150 kVA to 3000 kVA
Industrial UPS

An ideal solution where very deep sags or short term power outages are a problem.

The PCS100 UPS-I is a high performance, high efficiency UPS system that ensures protection from power quality events, such as deep sags or short-term outages, enabling continuous power supply to modern industrial processes.

The PCS100 UPS-I uses a modular energy storage and inverter system to supply continuous power during utility events. The PCS100 UPS-I provides flexibility in the choice of energy storage, ultracapacitors or VRLA batteries to suit the required autonomy. Battery systems can deliver autonomy up to 5 minutes. Ultracapacitors provide seconds of protection for short power quality events, which are the most common power quality problems around the world. Ultracapacitors have extremely high power density and long lifetime resulting in a very compact and low maintenance solution.

Harsh electrical environments are often found in modern industry. The PCS100 UPS-I uses a robust high-speed power electronic disconnect switch to connect the load to the utility. The modular inverter construction and fail-safe electromechanical bypass provides the highest system availability. Coupled with the small footprint and easy serviceability, this low maintenance, high efficiency industrial UPS is the solution for all power protection applications.



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— 01 PCS100 UPS-I Single line diagram

How it works

When the utility voltage is within a user defined range, the load is supplied directly by the utility. When a sag, surge or outage occurs, the PCS100 UPS-I immediately transfers the load onto its inverter and energy storage.

When the utility voltage returns to within specification the PCS100 UPS-I will seamlessly transfer the load from the inverter back to the utility.

Key benefits

- Robust fail-safe modular industrial design
- Long lifetime energy storage
- Small footprint
- Highest efficiency and availability
- Low maintenance requirements
- Easy serviceability

Key features

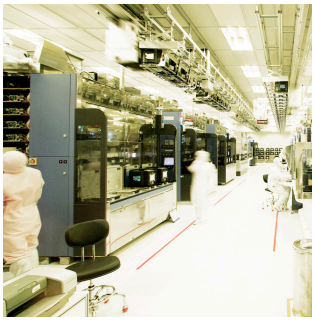
- Very high efficiency (99% typical)
- Designed specifically for industrial loads (motors, drives, transformers, production tools)
- Modular design providing high reliability and typically 30 minutes MTTR (mean time to repair)
- Very high fault current capacity
- Advanced ultracapacitor or high discharge rate battery storage
- Generator walk-in algorithm for a controlled transfer of the load to backup generators
- Ratings from 150 kVA to 3000 kVA and voltages
- 208 Vac to 480 Vac

PCS100 UPS-I advantages compared to alternative solutions

- Robust with high availability
- Designed for harsh industrial electrical environments
- Modular design
- Lowest cost of ownership
- Highest efficiency
- Long lifetime energy storage
- Small footprint
- Flexible energy storage options (ultracapacitors or VRLA batteries)

Complete power protection
Typical applications

Improving productivity, reducing downtime and increasing manufacturing quality with minimized total cost of ownership.






Semiconductor fabrication, test and assembly lines
Flat panel and LCD production lines need to be in operation 24/7 in order to meet today's demands. ABB have installed many UPS-Is, that amount to hundreds of MVA at leading companies like, Samsung and many other LCD manufacturing plants worldwide.

High-speed packaging lines
Voltage variations in high-speed packaging lines cause major disruptions. The PCS100 UPS-I is protecting many high speed packaging lines, including a dairy operation in Washington DC, that produces several million "one time use" plastic coffee creamers per day.

Medical
To ensure that production at multi-billion dollar companies is not brought to a standstill by power failures, voltage sags and other electrical disruptions, power protection is needed. ABB's PCS100 UPS-I is protecting major medical suppliers like B.Braun from such events.

Cable manufacture
Contact manufactures such as NKT's specialist cable factory at Karlskrona, Sweden know the impact of an unplanned shutdown on their operation and invested in two high capacity UPS-I. The UPS-I secure the factory's operations against seasonal weather related utility disturbances along with less predictable voltage events caused by accidents.

Data centers HVAC and servers
PCS100 UPS-Is protects data centers and servers from voltage sags and surges. For example, the PCS100 UPS-I is supporting one of the Swiss government data centers with emergency power supply and a major data center based in Memphis, USA.

Aerospace application
Carbon fiber is extensively used in the aerospace industry. The PCS100 UPS-I protects the production of the carbon fibers, ensuring quality and yield requirements are met. Carbon fiber is the base fiber for all carbon composites.

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Utility - Input

Rated Supply Voltage (according to model)	220 V (208 – 220 V) 400 V (380 – 400 V) 480 V (415 - 480 V) Note: Operation at lower than the rated voltage results in less kVA
Voltage tolerance	± 10%
Nominal supply frequency	50 Hz or 60 Hz
Frequency tolerance	± 5 Hz
Maximum Continuous Voltage	110%
Power system	3 phase + Neutral (4-Wire) Centre ground referenced (TN-S) Contact us for use in other power systems
Overvoltage category	III
Fault capacity	Refer to the model tables in the PCS100 UPS-I technical catalogue
Efficiency (400 V & 480 V models)	99% (typical)
Efficiency (220 V models)	98% (typical)
Overload and Short Circuit Protection	Circuit Breaker (not included)
Overload Capacity	120% for 60 s 150% for 30 s 200% for 10 s 300% for 5 s Not more than once every 10 minutes. For more information refer t

Load - Output

Capacity Rating	150 kVA to 3000 kVA
Displacement Power Factor of Connected Load	0.5 lagging to 0.9 leading
Crest Factor for Rated kVA	2.0
Maximum allowed motor load	25% of rated kVA Contact ABB for applications with greater than 25%
Overload Capability – Inverter	110% for 30 s

Inverter Supply

Maximum operating period	30 s at rated load
Transfer time	≤ 1.8 ms (typical)
Voltage Settling time	≤ 5 ms (typical)
Cooling	Air cooled, fan forced
Minimum output voltage	> 95% at end of discharge
Output Frequency	50 or 60 Hz Inverter frequency equals the supply frequency.
Frequency accuracy	0.10%
Overload capability	110% for 30 s
Voltage distortion	< 2.5% THDv for linear loads
Voltage unbalance (negative / positive sequence)	<3% for 100% unbalanced loads
Fault capacity (short circuit)	120% of rated current

Fail-Safe Bypass

900 A Utility Disconnect	Integrated normally closed contactors
2200 A & 4200 A Utility Disconnect	Optional air circuit breaker (ACB)
Overload Capability	150% for 500 s 200% for 300 s 300% for 120 s 500% for 30 s Note: Not more than once every 30 minutes.
Closing Time 900 A	20 ms
Closing Time 2200 & 4200 A	80 ms
Cooling	Convection

Coupling Transformer

Capacity Rating	110% of PCS100 UPS-I kVA rating for 30 s

	Note: Optimized for short-term performance.
Type	Dry
UL Insulation Class	N (200 °C)
Design Temperature	Temperature rise 60 °C for short-term full load operation
Typical Impedance	8% Note: The PCS100 UPS-I incorporates impedance voltage compensation control methods

Energy Storage - Ultracapacitors

System DC Nominal Voltage	750 V DC
Discharging Voltage Range	750 V DC to 554 V DC
Overload Capacity	100%
Rated power	300 kW per string
Autonomy period	2 s @ 300 kW For more information refer to the autonomy calculations in refer to the PCS100 UP
Operationg tempertaure	15 °C to 25 °C (recommended)
Design life	15 years at 25 °C
Cycle Life	> 500,000
Recharge time	< 45 s

Energy Storage - Batteries

System DC Nominal Voltage	672V DC (56 x 12V DC)
Discharging Voltage Range	780 V DC to 554 V DC
Overload Capacity	100%
Rated power	240 kW per string
Autonomy period	30 s @ 240 kW For more information refer to ABB Document 2UCD120000E018
Operationg tempertaure	15 °C to 25 °C (recommended)

Design life	10 years at 25 °C
Cycle Life	> 800 (full load 30 s discharge)
Recharge time	< 30 min
System DC Nominal Voltage	672 V DC (56 x 12V DC)
Dsicharging Voltage Range	780 V DC to 554 V DC

Event Recording

Measurement Method	Line to Line
Sample Time	125 µs
Resolution of time stamp in event log	10 ms
Measurement Type	Half-cycle RMS according to IEC 61000-4-30

Environmental

Operating temperature range	0° C to 40° C 32° F to 104° F
Operating altitude	1< 1000 m without derating
Capacity derating with altitude	1% every 100 m above 1000 m 2000 m maximum
Humidity	< 95%, non-condensing
Pollution degree rating	2
Noise	< 75dBA @ 2 m

Enclosure

Enclosure rating	IP20 / NEMA 1
Material	Electro-galvanized steel
Panel Thickness Side and Rear10 ms	1.5 mm

Panel Thickness Door	2 mm
Finish	Standard epoxy-polyester powder coating textured finish
Color	RAL7035
Enclosure Access	Hinged doors with key lock

User Interface

User Interface	10.1” color touch panel
Touch panel	Full parameter control
Control inputs	Start / Stop / Reset digital inputs
Control outputs	Running, warning and fault relays

Serial Coms

Access protocol	Ethernet connectivity Modbus TCP

Standards and Certifications

Quality	ISO 9001
Marking	CE
Construction and safety	IEC 62040-1
Electromagnetic Compatibility	IEC 62040-2, Category C3
Performance	IEC 62040-3, VFD SX 211 ≤ 450 kVA VFD SS 211 > 450 kVA

Technical specifications are subject to change without notice.