



P  **WERSIDE®**

Power Quality Correction Solutions for Data Centers

Correct abnormal power behavior to protect uptime
and keep critical infrastructure operating reliably

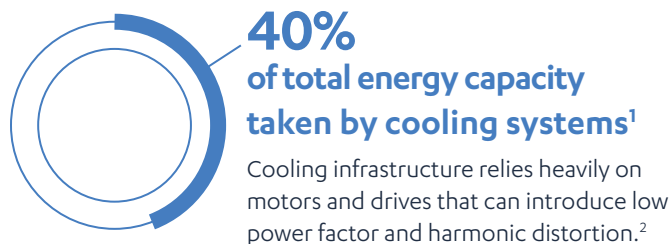
The Rise of AI and Cloud Computing Is Increasing Pressure on Data Centers

To support always-on computing environments, data centers rely on complex electrical systems that power servers, cooling equipment, backup infrastructure and more around the clock. But these systems can introduce and be susceptible to harmful power quality conditions that threaten the reliability of data center operations.

Left unaddressed, these issues can negatively impact equipment and ultimately lead to expensive downtime and outages. The solution is power quality correction — eliminating threats before they impact operations.

Power Quality Threats Are Growing Alongside Data Center Demand

Many of the biggest threats to uptime originate from the electrical infrastructure supporting data center facilities.



The average cost of a data center power outage is \$740,357 per incident, or almost \$9,000 per minute — a statistic that continues to rise.³



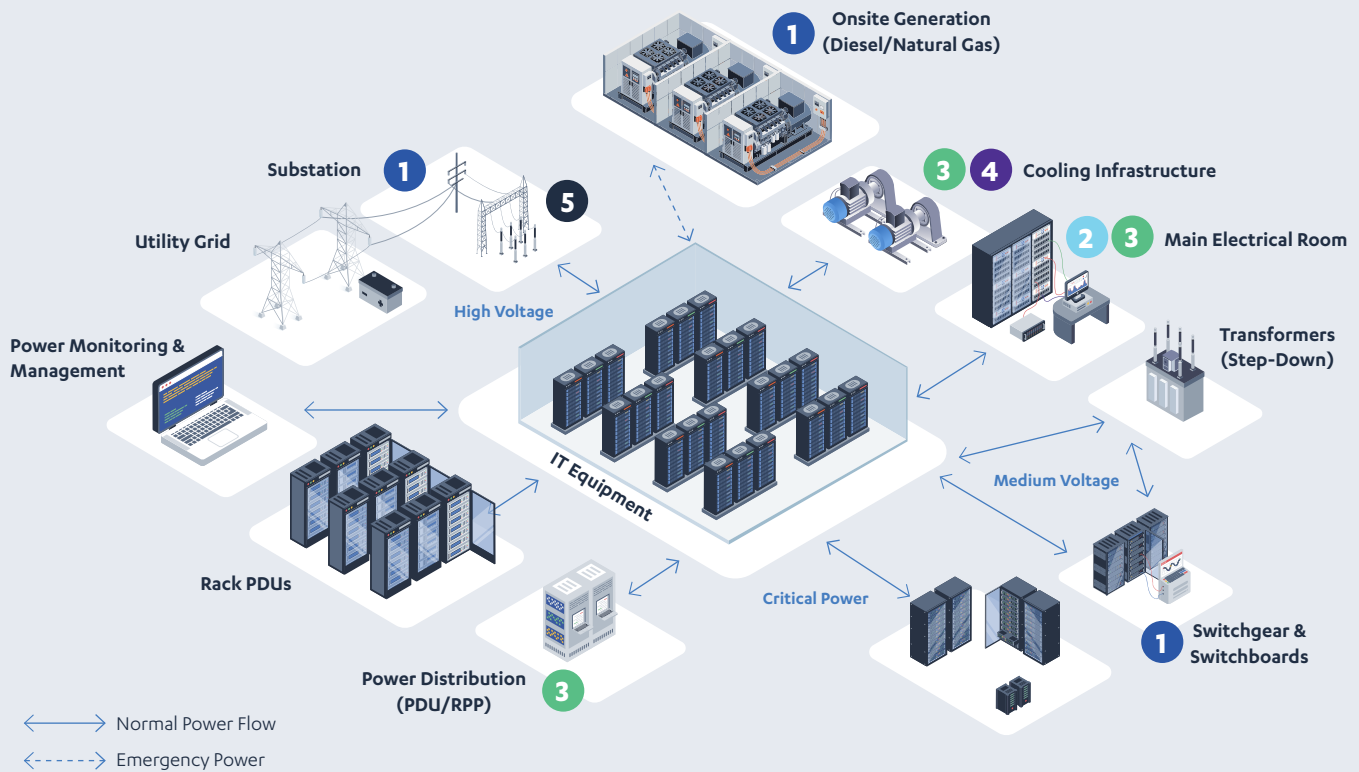
Uninterruptible power supply (UPS) systems, server racks, cooling systems and backup generators constantly interact and create fluctuating electrical conditions that require active management.

Correct Power Quality Issues Before They Impact Uptime

Powerside helps data centers proactively manage power quality challenges with solutions designed to improve reliability and protect mission-critical infrastructure.

From server floors to incoming utility substations, our correction technologies work together to optimize electrical performance across your facility.

End-to-End Power Quality Protection for Data Centers



- 1 PowerMVar Metal Enclosed MV Filter Bank**
Acts as the facility's first line of defense by filtering harmonics, regulating incoming voltage, protecting backup generators and supporting IEEE 519 compliance.



- 2 PowerVar LV Auto Bank**
Automatically adjusts reactive power compensation as server and AI workloads fluctuate, improving power factor and preventing electrical instability.



- 3 PowerAct LV Active Filter**
Continuously monitors the LV bus and removes harmful harmonics generated by UPS systems, server racks and cooling equipment in real time.



- 4 PowerCap LV Fixed Bank**
Installed directly at motor control centers (MCCs) and constant-running mechanical loads to improve power factor and stabilize voltage.



- 5 STATCOM Technology**
Hybrid or fully active configurations improve PF, regulate voltage and mitigate harmonics up to the 13th order. Q, PF and V ref control modes with a modular 3-level inverter. Scalable up to 35 kV via transformer integration.

Types of data centers we support

Enterprise

Colocation

Hyperscale

Modular

Edge

Use cases & applications

Switchgear

Auto transfer switches (ATS)

Power distributing units (PDUs)

Cooling systems

Uninterruptible power supply (UPS)

Transformers

Genset

Our correction solutions take the burden of poor power quality off your operations to boost data center performance and resilience.

PowerCap Low Voltage Fixed Bank

Reliable reactive power compensation for large, steady mechanical loads.

Data centers rely heavily on cooling infrastructure that runs continuously to maintain optimal operating temperatures. These large motor loads draw significant inductive reactive power, reducing the facility's overall power factor and increasing energy costs.

PowerCap Fixed Banks are installed directly on the load side of these large, steady mechanical motors.

By delivering localized reactive power compensation where it's needed most, they improve efficiency without impacting other areas of the facility.

Benefits

- Stabilize terminal voltage at large motor loads
- Improve energy efficiency throughout cooling operations
- Reduce stress on electrical infrastructure
- Prevent costly low power factor penalties
- Easily install with compact floor or wall-mounted designs

Applications

Cooling chillers

Pumps

Fans

HVAC systems



PowerVar Low Voltage Auto Bank

Dynamic power factor correction for rapidly changing server loads.

Power demands fluctuate constantly as AI workloads and cloud traffic change throughout the day. Traditional fixed capacitor banks typically can't respond quickly enough to these shifting loads — and may create dangerous over-correction conditions.

PowerVar LV Auto Banks continuously monitor the LV distribution bus and automatically adjust capacitance to meet changing reactive power demands. Integrated detuning reactors mitigate harmonics from server power supplies, helping prevent electrical resonance and maintain system reliability.

Benefits

- Extend equipment life through intelligent branch cycling
- Improve long-term performance with self-healing capacitors and maintenance-free terminations
- Neutralize moderate network harmonics
- Prevent dangerous over-voltage conditions
- Minimize time to repair (MTTR) with heat-conscious design and front-access serviceability

Applications

Main electrical rooms

Central LV distribution boards



PowerAct Low Voltage Active Filter

Real-time harmonic filtering for VFDs and non-linear loads.

Dense server environments, UPS systems and VFD-driven cooling equipment generate harmful harmonics that compromise power quality and threaten the reliability of sensitive IT equipment. Unnecessary breaker trips and overheating are just a couple issues that degrade performance.

PowerAct LV Active Filter cancels out harmonic distortion in real time. Installed on the LV bus, PowerAct continuously monitors the system to detect distortion and immediately inject equal and opposing currents to eliminate harmonics before they impact operations.

Benefits

- Eliminate harmonics up to the 51st order
- Prevent nuisance circuit breaker trips
- Improve power quality across connected systems
- Compact, modular design simplifies expansion
- Faster response times improve filtering performance

Applications

Critical power rooms

UPS rooms

Mechanical rooms



PowerMVar Metal Enclosed Medium Voltage Filter Banks

Facility-wide power quality protection at the utility entrance.

Data centers consume enormous amounts of power directly from the utility grid. Large UPS systems, VFDs and backup generators can introduce severe harmonic distortion back into the incoming electrical network.

PowerMVar Filter Banks provide unparalleled protection throughout your data center. Installed upstream at the incoming substations, these powerful banks filter harmonics and regulate voltage, freeing up valuable transformer capacity before power is distributed throughout the facility.

Benefits

- Filter harmful harmonics before they enter the facility
- Regulate incoming network voltage
- Free up transformer capacity (kVA)
- Protect backup generators
- Help maintain IEEE 519 compliance

Applications

Main substations

MV switchgear rooms



Static Synchronous Compensators (STATCOMs)

Dynamic, real-time voltage stabilization and harmonic mitigation.

Large AI/computing environments and rapidly fluctuating server loads can create dynamic reactive-power demands that traditional capacitor banks can't correct quickly enough. These conditions can result in voltage instability, poor power factor and harmonic distortion.

STATCOM technology continuously monitors system conditions and automatically injects or absorbs reactive power to keep up. With scalability up to 35 kV, you get fast, precise compensation for even the most demanding environments.

Benefits

- Dynamically improves power factor and voltage stability
- Mitigates harmonics up to the 13th order
- Operates in Q, PF and V reference control modes
- Available in hybrid or fully active configurations
- Modular architecture allows for flexible deployment

Applications

Main substations

MV switchgear rooms

Incoming utility feeds



Keep Your Data Center Running at Peak Performance

Uptime is critical. We're here to help you maintain it. Learn more about our power quality correction solutions and how we can help improve the long-term resilience of your facility.

powerside.com/industries/data-centers

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¹Deloitte, "As generative AI asks for more power, data centers seek more reliable, cleaner energy solutions." November 2024.

²Congress.gov, "Data Centers and Their Energy Consumption: Frequently Asked Questions." May 2025.

³Ponemon Institute, "Cost of Data Center Outages."

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