Prevalon™
Hybrid Power Stabilizer for Data Centers

PREVALON
A Mitsubishi Power Americas and EES Joint Venture

Stabilizing Power for Always-On, AI-Driven Data Centers

AI-driven data centers generate rapid, unpredictable load swings that traditional UPS- and generation-centric architectures can't manage. Prevalon's Hybrid Power Stabilizer (HPS) delivers active, millisecond-level power control to stabilize voltage and frequency, protect critical equipment, and maintain continuous operation across grid-connected, hybrid, and islanded environments. Backed by more than 1.3 GW of project execution, HPS is already operating at scale in mission-critical power systems.

The Power Challenge Facing Modern Data Centers

Today's data centers face a convergence of challenges that strain conventional power systems:

- Rapid load swings from synchronized AI workloads
- Growing reliance on hybrid power architectures with on-site generation
- Grid constraints and limited interconnection capacity
- Zero tolerance for downtime, nuisance trips, or performance degradation

Traditional UPS- and generation-centric designs cannot respond fast enough, increasing operational risk as facilities scale.

How the Hybrid Power Stabilizer Solves the Challenge

The Hybrid Power Stabilizer responds in milliseconds at the power electronics layer, coordinating battery storage, inverters, and generation assets to actively manage load volatility and grid disturbances—creating a controllable, resilient power architecture built for AI-scale operations, validated at scale under stochastic load conditions.

Core Benefits

- **Millisecond Response:** Stabilizes voltage and frequency during rapid load swings
- **Equipment Protection:** Reduces stress on IT equipment and rotating generation
- **Operational Resilience:** Maintains uptime across grid-connected and islanded modes
- **Architecture Simplification:** Reduces dependence on traditional UPS systems
- **Future-Ready:** Scales with increasing compute density and campus growth

Designed for Hybrid Data Center Power Architectures

The Hybrid Power Stabilizer is designed for modern data center power systems that integrate utility interconnections, battery energy storage, on-site generation, and renewables. HPS acts as a dynamic bridge—absorbing rapid load changes, stabilizing transitions, and enabling black start and recovery without relying on slow-responding systems.

insightOS™ — The Control Layer That Makes It Work

At the core of HPS is insightOS™, Prevalon's U.S.-engineered, utility-grade Energy Management System (EMS). insightOS delivers millisecond-level, closed-loop control through a deterministic, on-premise architecture, providing secure IEC 62443–compliant operation and seamless coordination across grid-connected, hybrid, and islanded modes.

Data Center-Specific Capabilities

- **Real-Time Stabilization:** Maintains voltage and frequency during AI-driven load swings
- **AI Load Volatility Management:** Handles synchronized AI workloads and extreme ramp events
- **Hybrid Power Coordination:** Smooths transitions between grid, generation, and storage
- **UPS Ride-Through & Replacement:** Enables controlled ride-through and orderly shutdown
- **Black Start & Islanding:** Supports grid-independent restart and autonomous operation
- **Cybersecure by Design:** U.S.-built, on-premise hardened control architecture
- **Scalable Deployment:** Built on our Prevalon Energy Storage Platform, scalable from tens to thousands of megawatts

A New Power Architecture for Data Centers

As data centers scale, power architectures must evolve. The Hybrid Power Stabilizer maintains voltage and frequency in real time, reduces reliance on traditional UPS systems, accelerates recovery from outages, improves efficiency during normal operation, and provides greater flexibility in how power assets are deployed and operated.

Ready to Design for AI-Scale Power Dynamics?

Prevalon designs hybrid power systems that stabilize data center operations across every load profile, operating mode, and growth phase.