Delta UPS Modulon Family
DPH Gen3 Series

125- 625/1250/2000 kVA
(380/400/415 Vac)

www.deltaww.com

Legacy of Reliability, Leading in Power Density

The DPH series is an exceptional 3-phase modular uninterruptible power supply (UPS) crafted to meet the evolving needs of future-ready data centers. For over fifteen years, DPH UPS systems have served as the fortified, mission-critical backbone of the global digital economy, earning an international reputation for steadfast stability and uncompromising quality. As the preferred power solution for the world's leading carrier-neutral colocation providers, regional interconnection giants, and North America's premier hyperscale developers, the DPH series has been forged in the heat of real-world challenges to guarantee maximum uptime where it matters most.

Building on proven multi-gigawatt deployments, the DPH Gen3 advances power engineering to a new level of performance and efficiency. This latest generation combines field-proven reliability with next-generation design, delivering an exceptional 125kW of backup power within a compact 3U footprint—positioning it among the highest power-density solutions in the industry. Beyond power density, DPH Gen3 also reinforces its leadership in sustainable performance, achieving an industry-leading online efficiency of up to 97.5%. The result is a solution designed not just for today's demands, but ready to support the evolving requirements of future high-density infrastructure.

Designed for seamless scalability and adaptability in dynamic, high density environments, DPH Gen3 empowers data centers to build resilient, efficient, and future-ready digital infrastructures.

Versatile Protection Across Critical Sectors

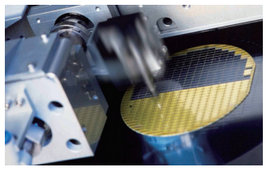
The modular and highly adaptable design of the DPH series makes it the ideal power protection platform for a diverse array of enterprise and industrial sectors:

Information Technology

Data center
Colocation
Could

Telecom

Core network switching centers, data hubs
Telecom core nodes and data centers
Base station aggregation hubs



Industrial

Semiconductor fabs
PCB manufacturing lines

Transportation

Control centers
Station critical loads
IT & communication systems

Government

National data center
E-government system
Smart city infrastructure control
Defense/military command centers

Financial

Trading platforms
Bank data centers

Engineering the Future of Power Infrastructure

By integrating advanced materials, modular architecture and intelligent control, DPH Gen3 addresses four critical priorities shared by hyperscale and large-scale data center operators: Power Density, Resilience, Efficiency, and Manageability.

Peak Power Density, Maximum Profits

DPH Gen3 leverages SiC semiconductors and advanced magnetics to deliver **125kW** in a compact **3U** height. This leading-class power density maximizes rack utilization and frees up valuable floor space for revenue-generating IT capacity.

Hardened Resilience, Continuous Availability

Engineered for continuous availability, DPH Gen3 features an inbuilt synchronized multi-bus and a robust **GR-63 Zone 4** seismic-rated design to ensure operational integrity under both electrical and environmental stress. Enhanced short-circuit capability further guarantees uninterrupted operation for critical, high-load applications.

Optimized TCO, Sustainable at Scale

With up to **97.5%** online efficiency and intelligent operating modes—including **Green Mode, Clean Mode**, and input current limiting—DPH Gen3 minimizes energy waste and stabilizes power quality. The result is lower operating costs, improved PUE performance, and alignment with stringent sustainability targets.

Intelligent Operations, Simplifed Management

Managing complex power systems is now more intuitive than ever. With an integrated **Battery Management System (BMS)** and real-time LCD monitoring, the Gen3 transforms raw data into clear, actionable insights.

Technical Specifications

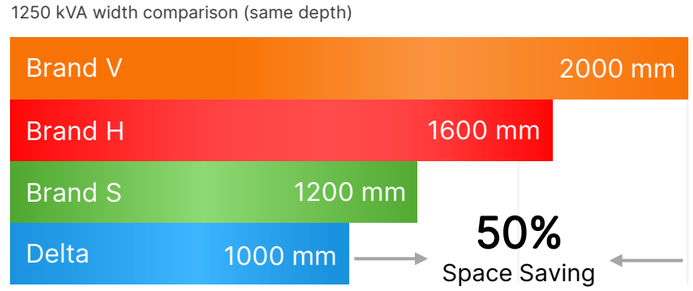
Model		DPH-G3-625K-MD	DPH-G3-1250K-MD	DPH-G3-2000K -MD[1]
Power Rating		125-625 kVA 125-625 kW	125-1250 kVA 125-1250 kW	125-2000 kVA 125-2000 kW
System Capacity		625 kVA	1250 kVA	2000 kVA
Power Module Rating		125 kW		
Power Module Slots		6 (N+1)	10	16
Parallel Configuration		Up to 8 units		
INPUT				
Nominal Voltage		380/400/415 Vac, 3P4W+PE		
Voltage Range		323-477 Vac (100% load); 249-323 (with derating to 70% load)		
Frequency Range		40-70 Hz		
Total Harmonic Distortion (THDi)[2]		< 1.5% (linear load) < 2% (non-linear load)		
Power Factor		> 0.99 (100% load)		
Short Circuit Withstand Current		100 kA		
OUTPUT				
Nominal Voltage		380/400/415 Vac, 3P4W+PE		
Voltage Regulation		±1% (static); ±3% (dynamic)		
Frequency		50/60 ± 0.05 Hz		
Total Harmonic Distortion (THDv)		< 1% (linear load); < 3% (non-linear load)		
Power Factor		1		
Permitted Load Power Factor		Optional, 0.5 leading to 0.5 lagging without derating		
Overload Capability		< 110%: continuously[3]; ≤ 125%: 10 min; ≤ 150%: 1 min		
Current Crest Ratio		3:1		
EFFICIENCY				
Online Mode		Up to 97.5%		
ECO Mode		Up to 99%		
Clean Mode (VI Mode)		Up to 99%		
BATTERY				
Battery Type		VRLA/ Lithium-ion		
Nominal Voltage		480 Vdc		
Quantity		40 pcs, 32[4] ~ 48 pcs (Configuratble, 12V VRLA battery)		
Maximum Charge Current		40 A		
COMMUNICATION INTERFACE				
Display		10-inch color touchscreen		
Port		RS-232, RS-485, USB, RJ45, REPO		
Protocols		SNMP, Modbus, HTTP(S)		
PHYSICAL				
Dimensions (W x D x H)		800 x 1000 x 2000 mm	1000 x 1000 x 2060 mm	2000 x 1000 x 2200 mm
Net Weight	UPS System	530 kg	898 kg	[5]
	Per Power Module	60 kg		
ENVIRONMENT				
Operating Temperature		0 to 40°C		
Humidity		0-95% (non-condensing)		
Altitude		0-1000 m		
CONFORMANCE				
Safety		CE, RCM		
EMC		IEC 62040-2		
Performance		IEC 62040-3		
Seismic Rating		GR63-Zone4		
Sustainability		RoHS, REACH		
FEATURES				
Standard		Synchronized multiple bus, Input current limitation, Green mode, Clean mode, Power walk-in for generator, Burn-in test without load bank, Cold start function, Battery shunt trip, Auxiliary power 48 Vdc for shunt trip, Failure prediction, Frequency conversion		
Optional		Grid Interactive, Software integration with Delta Lithium-ion battery BMS		

(1) Upcoming product
(2) When input THDv < 1%
(3) Operation temperature < 30°C
(4) 32-38 pcs requires load derating
(5) To be released

All specifications are subject to change without prior notice.

Peak Power Density, Maximum Revenue Efficiency

DPH Gen3 redefines high-density UPS design by delivering up to 125kW in a compact 3U module, enabling a significantly higher power footprint efficiency compared to conventional architectures. This allows operators to reduce UPS footprint and reclaim valuable white space—transforming it into revenue-generating IT capacity in high-density environments.



Next-Generation SiC Semiconductor

At the core of this advancement is the integration of silicon carbide (SiC) semiconductors. By reducing switching losses and improving thermal characteristics, SiC technology enables higher efficiency and power conversion density. The result is a more compact, thermally optimized UPS module capable of delivering greater output within limited space.

Patented Topology

Delta's patented shared-choke topology achieves a masterclass in spatial optimization by integrating the battery charger and the balance-leg into a unified magnetic framework. This innovative design leverages advanced dynamic control to orchestrate the two functions, significantly reducing internal hardware bulk. By managing this synergy through high-precision algorithms, we deliver a substantially denser functional layout that maximizes power capability while upholding the steadfast performance expected of the DPH series.

Intelligent Dynamic Sensing

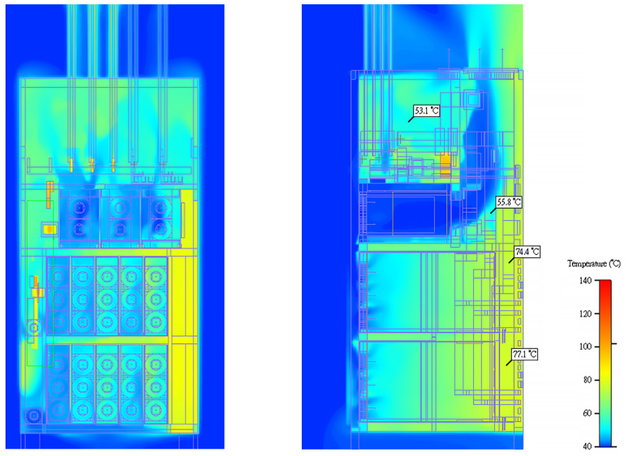
Precision is the key to compactness. Advanced sensing algorithms enable rapid detection of grid conditions and load dynamics. This allows optimization of the DC bus architecture, reducing 20% capacitance requirements compared to major competitors while maintaining system stability—resulting in improved space utilization and component efficiency.

Thermal Design Mastery

DPH Gen3 integrates Delta's expertise in both power electronics and thermal design, with high static-pressure fan engineering as a key enabler of its cooling performance. By optimizing airflow and improving air penetration across high-density components, the system ensures efficient heat dissipation under demanding operating conditions.

This enhanced airflow capability allows flexible installation, including against-the-wall deployment, without compromising thermal performance. By eliminating the need for rear service clearance, valuable floor space can be reclaimed and reallocated to IT equipment. The result is a thermally optimized system that supports both reliable operation and efficient space utilization in high-density data center environments.

Online mode temperature



Front view　　Side view

Advanced Composite Magnetic Materials

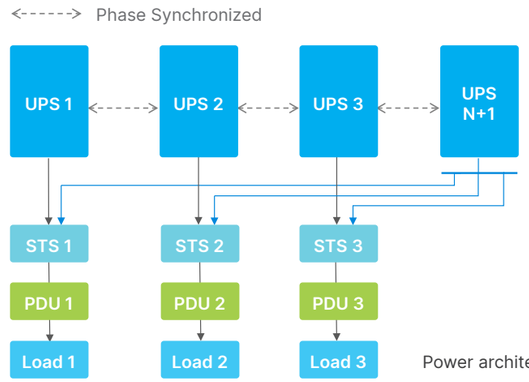
We have moved beyond traditional constraints with composite magnetic choke materials. This specialized core strikes the perfect equilibrium between bias current performance and core loss. By moving away from single-material limitations, we ensure our magnetic components remain compact, cost-effective, and highly efficient across all load conditions.

Hardened Resilience, Continuous Availability

Built-in Synchronized Multiple Bus (SMB)

In hyperscale data centers, Tier-level redundancy typically relies on dual-source architectures combined with Static Transfer Switches (STS). However, phase synchronization between independent power buses remains a critical requirement for safe operation. Without real-time synchronization, source transfers may result in phase misalignment, leading to high inrush currents, voltage disturbances, and potential impact on downstream IT equipment.

DPH Gen3 addresses this challenge with **built-in Synchronized Multiple Bus (SMB)** functionality as a standard feature. Integrated directly into the UPS architecture, SMB continuously aligns phase angles across all connected UPS systems—including active and N+1 backup units.



Power architecture with "catcher" configuration

Key Benefits

Seamless Source Transfer
Ensures smooth, millisecond-level switching across STS without phase mismatch.

Controlled Inrush Current
Minimizes current spikes during transfer, preventing upstream protection trips.

Stable Output Performance
Maintains voltage stability during dynamic load migration and fault conditions.

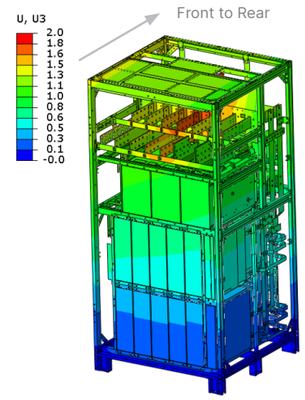
By embedding SMB natively, DPH Gen3 eliminates the need for external synchronization solutions—reducing system complexity while improving overall reliability and TCO.

Seismic Resilience & Structural Optimization

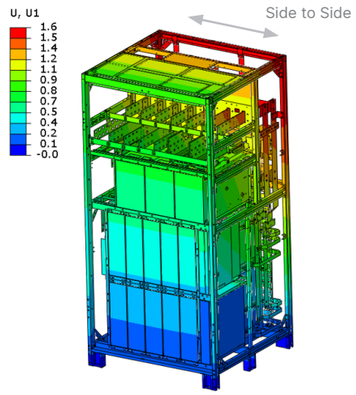
DPH Gen3 is engineered with a high-rigidity structural frame designed to ensure continuous operation under seismic conditions. The cabinet structure is optimized through advanced CAE simulation to meet **GR-63 Zone 4 seismic requirements**, a standard widely adopted for mission-critical infrastructure.

The design focuses on maintaining mechanical stability and avoiding resonance under seismic excitation. By optimizing frame stiffness and mass distribution, the system achieves natural frequencies outside typical earthquake excitation ranges, significantly reducing the risk of structural amplification. In parallel, the cabinet structure is reinforced to control deformation under dynamic loading. Simulation results confirm that structural displacement remains within defined engineering limits, ensuring that internal components, electrical connections, and power paths remain intact during and after seismic events. Together, these design and validation approaches ensure that DPH Gen3 maintains structural integrity and operational continuity, even in seismically demanding deployment environments.

GR-63 Zone 4 Seismic Validation: Structural Frequency > 2 Hz

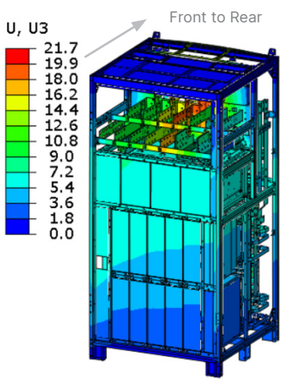


Main Frame, **8.17 Hz**

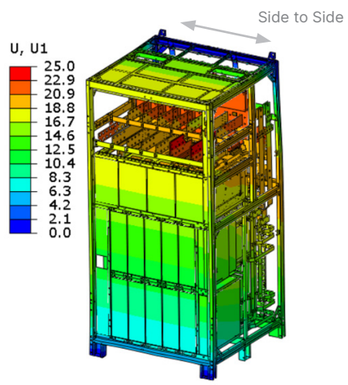


Main Frame, **7.29 Hz**

GR-63 Zone 4 Seismic Validation: Displacement Analysis (Displacement < 45 mm)



Max. displacement **7.3 mm**



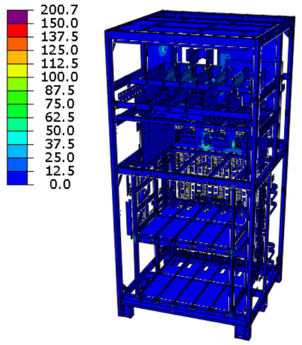
Max. displacement **19.9 mm**

Short-Circuit Withstand Capability & FEA Structural Integrity

In high-density power infrastructures, surviving a catastrophic electrical fault demands supreme structural and mechanical resilience. The DPH Gen3 series has been engineered and validated through rigorous Short Circuit Simulation to guarantee absolute safety and continuity under maximum system stress.

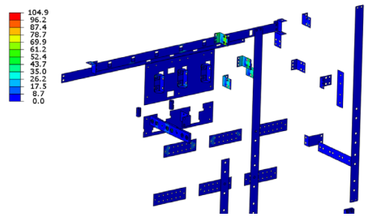
When subjected to a massive fault current, the internal mechanical frame and power distribution network demonstrate exceptionally robust engineering. Utilizing advanced Finite Element Analysis (FEA), the peak stresses on all vital structural layers are verified to remain safely within their material elastic zones, far below their respective yielding thresholds:

100kA Short-Circuit Withstand Simulation



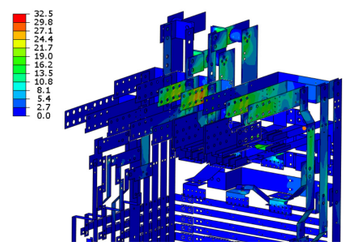
Main Frame:
Optimally reinforced to withstand immense structural pulling forces without permanent enclosure deformation.

Max. Stress
200.7 MPa (< 220 MPa)



Insulation Supports:
Formulated to absorb extreme localized thermodynamic and mechanical stress, preserving critical dielectric insulation integrity when subjected to extreme fault energy.

Max. Stress
104.9 MPa (< 150 MPa)



Copper Busbars:
Engineered with superior mechanical restraint to counter high-current magnetic repulsion and maintain perfect electrical pathways.

Max. Stress
32.5 MPa (< 270 MPa)

By scientifically mitigating the severe electromagnetic forces generated during a short circuit, this system eliminates the risk of structural failure and safeguards your mission-critical uptime.

Optimized TCO, Sustainable at Scale

The DPH Gen3 does more than just save space—it actively recaptures your operational budget. By minimizing energy waste and streamlining site commissioning, we ensure that your infrastructure is as lean as it is robust.

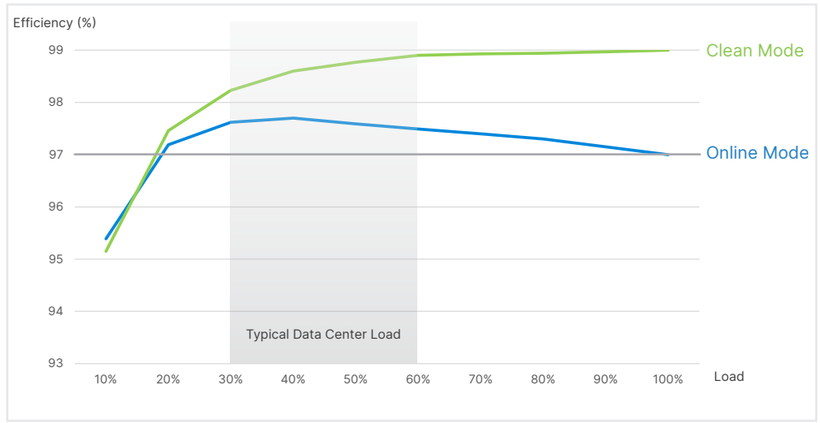
Top-Tier Online Efficiency

DPH Gen3 achieves up to **97.5% online efficiency**, with peak performance aligned to typical data center loading conditions. As most facilities operate within a **30–60% load range** due to redundancy design, the system is optimized to maintain high efficiency precisely within this operating window.

By sustaining a flat and stable efficiency curve across partial and full-load conditions, DPH Gen3 minimizes energy losses and reduces cooling demand—resulting in lower annual electricity costs and improved PUE performance.

Advanced Clean Mode (VI Mode)

To further optimize your TCO, the integrated Clean Mode introduces an advanced VI (Voltage Independent) operational state that redefines standard eco-efficiency. This mode serves as the ideal bridge between extreme energy savings and robust power conditioning—actively mitigating power line disturbances from reactive or non-linear loads while maintaining an ultra-high efficiency profile through every operational shift.



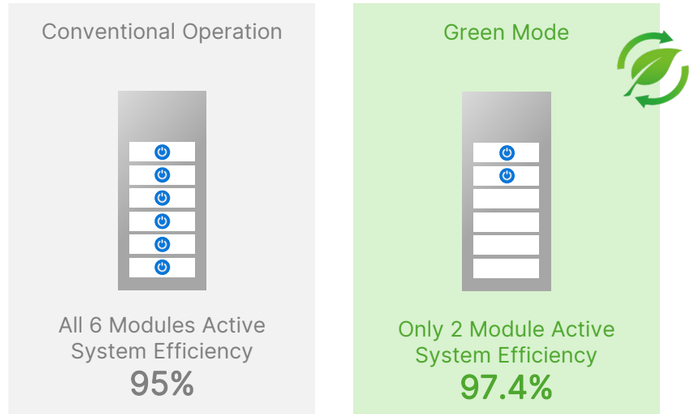
DPH G3-625K Efficiency Curve

Upstream Infrastructure Optimization

Integrated input current limiting allows precise control of load fluctuations at the rectifier and DC stage. By preventing peak current spikes, the system protects upstream equipment and stabilizes power demand. This enables optimized sizing of circuit breakers, transformers and switchgear—reducing both CAPEX and system design complexity without compromising safety or performance.

Intelligent Green Mode (Load Aggregation)

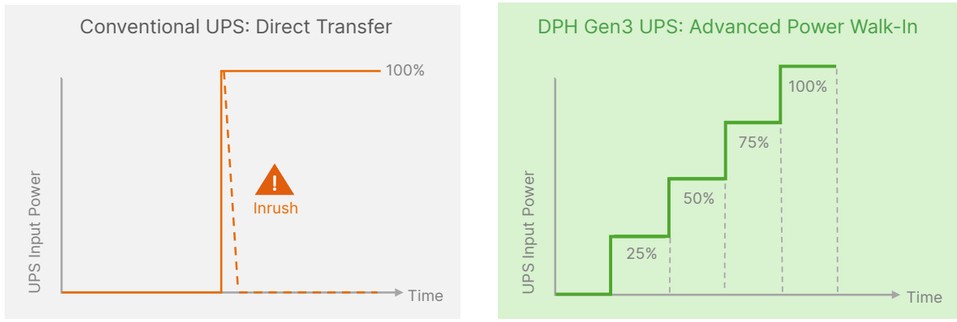
DPH Gen3 dynamically manages module activation based on real-time load demand. By consolidating active load onto fewer modules operating near optimal efficiency points, the system maintains operation within its electrical and thermal “sweet spot.” This approach improves overall efficiency, reduces thermal stress on components, and extends system lifespan—especially under partial load conditions.



Green Mode Efficiency Optimization & Performance at 40% Load

Generator-Friendly Power Management

A controlled, sequential start-up mechanism reduces inrush current during transfer to generator power. This minimizes stress on generator systems and enables more accurate generator sizing. As a result, facilities can avoid over-specification of backup generators, reducing upfront infrastructure costs while maintaining operational reliability.



Intelligent Operations, Simplifed Management

Native BMS Integration: Enhanced Safety and Operational Control

DPH Gen3 integrates natively with Delta lithium-ion battery systems through a unified Battery Management System (BMS) architecture. This design not only simplifies system integration, but also strengthens operational safety—one of the most critical considerations in high-density data center environments.

By enabling real-time monitoring and active control at both system and cell levels, the BMS continuously manages voltage, current, and temperature conditions to detect abnormal behavior early and mitigate risks such as overheating or thermal instability before escalation. Native integration further eliminates compatibility gaps associated with third-party solutions, ensuring stable coordination between the UPS and battery system.

Key Capabilities

Active safety management
Continuous monitoring and control of cell-level voltage, current, and temperature to prevent abnormal conditions.

Early risk detection
Identification of potential issues before they develop into critical events.

Centralized visibility
Unified UPS and battery monitoring via native Modbus/TCP and CAN communication.

Predictive maintenance
Real-time SOC/SOH tracking and automated cell balancing.

Robust protection mechanisms
Multi-layer hardware and software safeguards for fault handling.

By combining power conversion and energy storage control into a single, validated ecosystem, DPH Gen3 enables data center operators to enhance safety, reduce integration complexity, and maintain stable, continuous operation.

Streamlined Commissioning with Virtual Load Testing

DPH Gen3 simplifies the commissioning process through integrated virtual load testing capabilities, significantly reducing the complexity and risk associated with traditional on-site testing methods.

Instead of relying on external load banks and temporary high-capacity cabling, the system enables full-load testing to be performed internally. This approach eliminates the need for extensive cable routing, termination, and removal—tasks that are typically labor-intensive, time-consuming, and prone to operational risk.

By removing bulky external test equipment from the deployment workflow, site logistics are greatly simplified. The commissioning process becomes cleaner, faster, and more predictable, particularly in controlled data center environments where space constraints and operational discipline are critical. As a result, DPH Gen3 not only accelerates project timelines but also reduces installation cost, minimizes human error, and improves overall deployment quality—delivering a more efficient path from installation to operation.

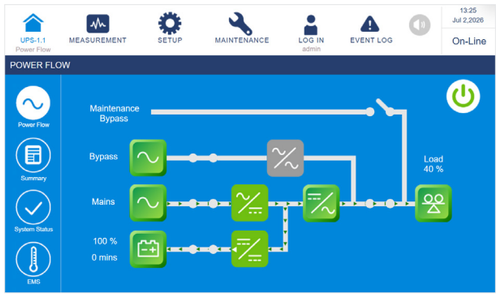
Intrinsic Visibility: Local HMI & Remote Monitoring

DPH Gen3 is designed to provide comprehensive system visibility across both local and remote operating environments, enabling operators to maintain full control of critical power infrastructure at all times.

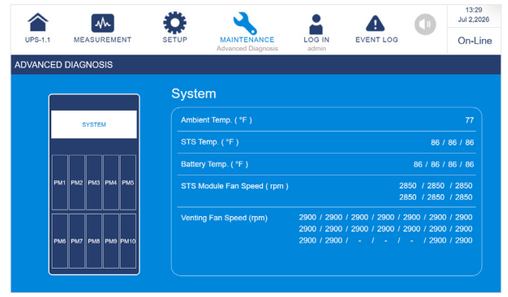
At the system level, a user-friendly **10-inch color touchscreen HMI** offers intuitive visualization of UPS status, parallel system configurations, and real-time battery performance. Operators can easily monitor system conditions, identify anomalies, and access detailed diagnostic information through an integrated event log, supporting efficient troubleshooting and maintenance.

Beyond on-site operation, DPH Gen3 supports decentralized monitoring through standardized communication interfaces, including SNMP protocols. This allows operators to remotely access system status, receive real-time alarms, and perform configuration adjustments across distributed facilities.

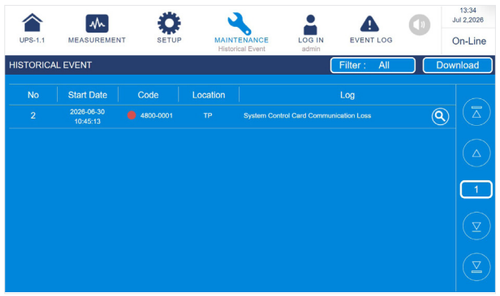
By combining intuitive local control with scalable remote monitoring capability, the system ensures consistent operational visibility—from single-site deployments to large-scale, geographically distributed data center infrastructures.



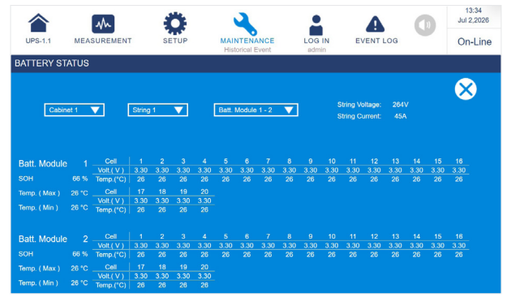
Power Flow Diagram



Failure Prediction



Event Logs



Battery Management System

The DPH Modular UPS Portfolio

Scalable Power, Precisely Matched to Your Data Center

While DPH Gen3 represents the latest advancement in high-density UPS design, the strength of the DPH series lies in its unified modular platform—engineered to support a wide spectrum of data center applications.

From edge deployments to hyperscale infrastructure, every data center operates under unique constraints in space, capacity planning, and investment strategy. The DPH portfolio is designed to address these variations with a flexible, right-sized approach—enabling operators to deploy the optimal solution today while scaling seamlessly for tomorrow.

One Platform. Scalable Across Every Tier

The DPH ecosystem delivers consistent architecture and operational experience across all capacity levels—simplifying deployment, management, and future expansion.

Target Application	Edge & Micro Data Center	Enterprise & Colocation	Hyperscale & Cloud
Power Module	20kW / 2U	50kW / 3U	125kW / 3U
System Capacity	80/120 kW	200 — 600 kW	625 — 2000 kW
Battery	Internal Battery (80k)	External Cabinet	External Cabinet

Optional Accessories

Delta Lithium-ion Batteries

LZH Series

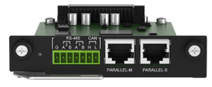
- UL 9540A Tested | UL 1973, IEC 62619, JIS C 8715-2, UN38.3
- Up to 470 kW / 62 kWh in a single cabinet
- < 5 mins backup time
- > 4000 cycles @ 25°C
- CAN 2.0, Modbus RTU/TCP, Dry contact
- 2-Wire system
- Dimensions (W x D x H): 668 x 873 x 2100 mm (2407 mm with top-hat)

LZM Series

- UL 9540A Tested | UL 1973, IEC 62619, JIS C 8715-2 (S-Mark), UN38.3
- Up to 430 kWh capacity
- 10–30 mins backup time
- > 2500 cycles @ 25°C
- CAN 2.0, Modbus RTU/TCP, Dry contact
- 2-Wire system
- Dimensions (W x D x H): 620 x 625 x 1910 mm (2185 mm with top-hat)

Integrated Battery Switch Cabinet

- Isolates the UPS from battery power
- Easy to monitor through leakage current display
- Dimensions (W x D x H): 600 x 875 x 1900 mm



Multifunctional Communication Card (MFC)

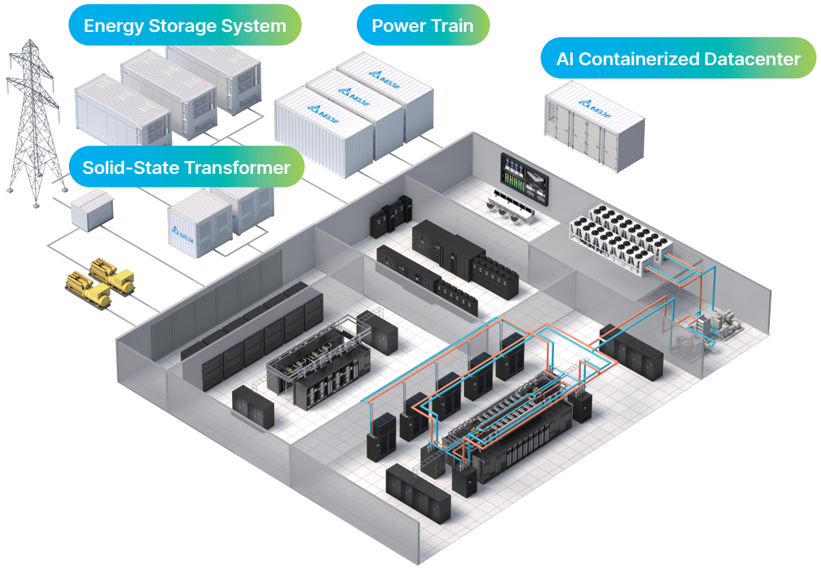
- Helps the UPS communicate with the lithium-ion battery system. This lets users monitor battery temperature, voltage, current, and alarms on the UPS's LCD
- The MFC card synchronizes battery data between UPS units sharing a common battery cabinet

Other Accessories

- DC battery ground fault defector
- EMS1000: monitors temperature, humidity and other connected monitoring devices in a room environment.
- Battery management system
- Battery cabinet temperature sensor cable
- Integrated battery cabinet without switch
- Parallel cable
- Dust filter

Beyond UPS —
Engineering the Future-Ready Infrastructure

By bridging grid-to-chip energy savings and power resilience, Delta defines the benchmark for AI infrastructure. Our portfolio, spanning microgrids to in-rack solutions, delivers a unified foundation to optimize system integration and maximize operational efficiency.



In-Room

- UPS
- In-Row Power
- Battery
- Fan Wall
- LTL CDU
- DCIM
- AI POD
- Static Transfer Switch
- Power Distribution Unit
- Busway

In-Row

- IT Rack
- RowCool
- LTA CDU
- LTL CDU
- Immersion Cooling
- Remote Power Panel
- Busway

In-Rack

- Switch
- AI Accelerator Module
- Power Shelf
- Inverter Shelf
- BBU Shelf
- In-Rack CDU
- Cold Plate
- Power Capacitance Shelf

Delta's UPS serves as the ultimate anchor for power reliability. Together with our diverse power and thermal management solutions, they form a unified energy backbone designed for maximum uptime and efficiency.

Power Distribution: From Grid to Rack

- Busway: IP68 vacuum-cast epoxy (Outdoor 400–6400A) and 99.9% copper with continuous hot-swappable slots (Indoor 400–2000A)
- PDU (stand-alone): DOE-compliant K-factor copper transformers ensure premium power quality and stability
- rPDU (In-rack): Basic, Metered, and Switched models with space-saving Zero-U installation

Power Stabilizing: Mitigates GPU Power Peaks

- APURA-600 instantly neutralizes GPU spikes within milliseconds to ensure grid-to-chip stability. By eliminating costly UPS oversizing, it optimizes TCO and prevents battery degradation

Power Redundancy: Seamless Source Transfer

- STS (Stand-alone) : 200–1800A rating with redundant control boards
- rSTS (In-rack): 1-phase & 3-phase options with patented SCR with parallel relay

Cooling

- Liquid Cooling: Liquid-to-Liquid & Liquid-to-Air CDU
- Air Cooling: Rear Door Heat Exchanger, CRAH and In-row Cooling (Chilled water & Direct expansion)

Data Center Infrastructure Management (DCIM)

One Tool. Complexity Mastered

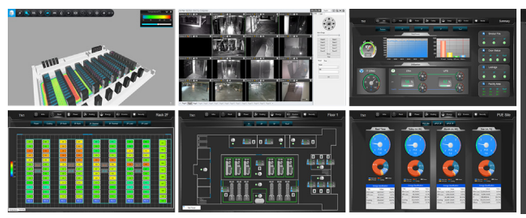
Delta DCIM acts as the central brain, unifying power, cooling, and IT management into one platform. It correlates thermal data with real-time workloads to help ensure peak infrastructure performance.

- Total visibility: Unify the monitoring of power, cooling, security, and other facilities
- 3D visualization: Generate real-time heat maps and equipment layouts

Smart Energy: Data-Driven Optimization

An intelligent extension to DCIM, it integrates advanced analytics to help improve energy ROI and support your carbon footprint reduction goals.

- Thermal Insights: Data-driven thermal simulations to assist with cooling management
- Sustainability Insights: Comprehensive tracking and optimization reporting for carbon footprint management and energy efficiency



Data center one-stop management

Power trends

Smarter. Greener. Together.

Delta, founded in 1971, is a global leader in power and thermal management with a thriving portfolio of IoT-based smart energy-saving solutions in the fields of data center infrastructure, microgrids, smart manufacturing, intelligent buildings, and E-mobility to nurture mankind's sustainable development. As a world-class corporate citizen guided by its corporate mission, "To provide innovative, clean and energy-efficient solutions for a better tomorrow," Delta leverages its core competence in high-efficiency power electronics and its ESG-embedded business model to address key environmental issues related to climate change. Delta serves customers through its sales offices, R&D centers and manufacturing facilities spread over close to 200 locations across 5 continents. Throughout its history, Delta has received numerous awards and worldwide recognition for its business achievements, innovative technologies, and dedication to ESG.

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