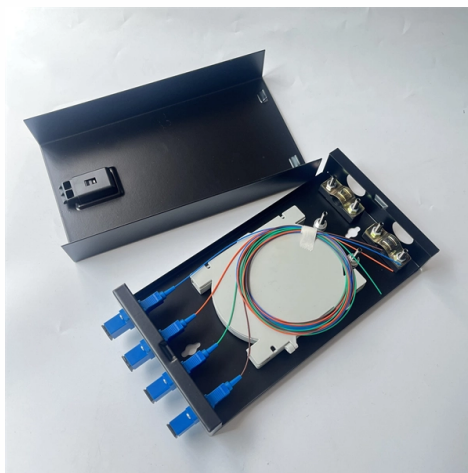


Installation of Micro-Module Data Center



Overview

Highly integrated and flexible installed data center infrastructure for rapid deployment and efficient operation and maintenance.

Key Takeaways

Micro-module data centers enable rapid, high-density deployment with prefabricated, modular components integrating power, cooling, and monitoring systems.

Micro-module data centers are compact, prefabricated, and modular solutions designed for rapid deployment and flexible expansion. They integrate cabinets, power distribution, cooling, security, and monitoring systems into a single, standardized unit, allowing installation in limited spaces while supporting high-density IT loads ranging from 1 kW to over 50 kW per rack depending on the technology used (air, cold plate, or immersion cooling) .

Installation Process

- **Prefabrication and Factory Assembly:** Most micro-module solutions, such as those from Delta, Inspur, and Sunsea, are factory-assembled with integrated UPS, PDUs, cooling, and monitoring systems. This reduces on-site construction time and ensures quality control .
- **Site Preparation:** The installation site can be a cement floor or elevated floor. Proper leveling, grounding, and access for power and network cabling are required. Closed cold/hot aisle arrangements are often pre-configured to optimize airflow .



- **On-Site Modular Installation:** Prefabricated modules are delivered and installed on-site. Modules are connected via standardized interfaces, simplifying power, network, and cooling integration. Plug-and-play connections allow rapid commissioning, often within 72 hours for fully prefabricated units .
- **Integration of Systems:**
 - **Power:** Modular UPS and intelligent PDUs provide flexible, high-efficiency power distribution with N, N+1, or 2N redundancy options .
 - **Cooling:** In-row, rack-level, or immersion cooling systems maintain optimal temperature and humidity. Cold plate or liquid immersion technologies support high-density racks up to 50 kW .
 - **Monitoring and Management:** Intelligent monitoring systems track temperature, humidity, power usage, and security, with real-time alerts and remote management capabilities .
 - **Testing and Commissioning:** After installation, modules undergo functional testing for power, cooling, and network connectivity. Intelligent monitoring ensures all subsystems operate correctly before production deployment .

Advantages

- **Rapid Deployment:** Prefabrication and modular design reduce construction cycles by over 50%, enabling deployment in days rather than months .
- **High Efficiency:** Advanced cooling and power distribution reduce PUE to as low as 1.1-1.3, improving energy efficiency .
- **Scalability:** Standardized modules allow incremental expansion without major redesigns.
- **Space Optimization:** High-density integration increases space utilization by over 30% .
- **Intelligent Management:** Real-time monitoring and automated control enhance reliability and reduce operational risks .

Applications

Micro-module data centers are ideal for edge computing, AI workloads, regional IT deployments, and small to medium enterprise environments where rapid deployment, energy efficiency, and high-density computing are critical . In summary, micro-module data center installation combines prefabricated modular units with integrated power, cooling, and monitoring systems, enabling fast, efficient, and scalable deployment for modern IT infrastructure needs.

Article Content

Micro Module

Highly integrated and flexible installed data center infrastructure for rapid deployment and efficient operation and maintenance.

The Intelligent Micro Module, the Element of Intelligent Data Centers

The Intelligent Micro Module can provide simultaneous, efficient operations in order to provide the best green data center, the best

Modular Data Centers: System Architecture and Benefits

A modular data center is comprised of the power system, cooling system, rack system, cable connecting system, intelligent

Micro-Module Data Centers: Innovative Solutions for Modern Data

These prefabricated, intelligent systems integrate essential data center components into standardized modules,

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