Composition of Micro-modular computer room



Overview

Smart Modular Data Center Solution Suitable for the green energy saving data center with fast, flexible deployment, small number of cabinets, large single.

Key Takeaways

A micro-modular computer room integrates IT racks, power supply, cooling, cabling, monitoring, and security systems into prefabricated, standardized modules for rapid deployment and efficient operation. Core ComponentsIT Racks and Cabinets: Micro-modular rooms consist of two rows of IT racks arranged back-to-back or face-to-face, forming a closed aisle to isolate cold and hot air flows. Each rack can house servers, storage, and networking equipment, with standardized dimensions and capacities to allow flexible assembly and future upgrades.

Power Supply System: Each module includes an uninterruptible power supply (UPS) and associated battery packs. Power distribution is pre-planned with cable bridges and connections to the main power distribution rack, ensuring rapid on-site integration. Cooling System: Near-end cooling equipment is placed close to the IT racks to create a localized cooling cycle.

Cold and hot aisles are sealed to prevent air mixing, improving airflow efficiency. Cooling can be achieved via chilled water or direct expansion systems, with emergency drainage provisions for water-based systems. Cabling and Network Infrastructure: Copper and optical fiber cables are routed through overhead bridges to the top of control racks, with reserved lengths for flexibility.

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This ensures organized, safe, and maintainable connections for power and data. Monitoring and Management Systems: Intelligent management systems monitor power, cooling, and environmental conditions, optimizing efficiency and reliability. These systems allow on-demand adjustments and predictive maintenance.

Fire Protection and Security: Each module integrates fire suppression, lighting, and security systems, ensuring safety and compliance with industry standards.

Modular Design Principles

Prefabrication and Standardization: Components are factory-tested and prefabricated, allowing rapid on-site assembly. Modules are standardized in size, capacity, and interfaces, enabling flexible deployment and phased expansion. Decoupling from Civil Construction: Micro-modules are independent of the building's civil structure, allowing the main building to be completed while modules are deployed as needed.

This separation supports phased investment and rapid deployment. Scalability and Flexibility: Multiple micro-modules can be combined to form larger data centers. Internal components can be adjusted to accommodate changes in server configurations, power density, or cooling requirements, enhancing long-term adaptability.

Space Efficiency: Compared to traditional layouts, micro-modular rooms reduce the required floor area per cabinet and simplify the functional partitioning of the data center, improving overall space utilization. In summary, a micro-modular computer room is a highly integrated, prefabricated solution that combines IT, power, cooling, cabling, monitoring, and safety systems into standardized modules. This design enables rapid deployment, efficient operation, and scalable expansion while maintaining high reliability and energy efficiency.

Article Content

Smart Modular Data Center Solution

Suitable for the green energy saving data center with fast, flexible deployment, small number of cabinets, large single cabinet load and limited height of the computer room.

What is a modular computer room? Unveiling the efficient ...

A modular computer room is a prefabricated, standardized, and intelligent data center solution that integrates core systems such as cabinets, power distribution, cooling, monitoring, and

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Inside that umbrella you''ll find micro-modules and smart aisles, all-in-one containerized units, prefabricated rooms and IT pods, dedicated power and cooling blocks, and full hybrid

What is a micro-module computer room

A Micro Module refers to an independent operating unit that takes several functional cabinets such as IT cabinets, power supply units, and air conditioning terminal units as the basic unit, and includes

MODULAR DATA CENTER MICRO MDC

The Micro is a self-contained data center which contains all critical components of a larger MDC, such as cooling, power, battery backup, security, fire detection and fire suppression.

Technical functional characteristics of micro-module computer rooms

Integrating the cabinet system, refrigeration, power supply and distribution, centralized monitoring and other systems into one, with a fully redundant design, it ensures the safe and reliable

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Abbreviated as micro-module, it is a small rack cluster formed by a certain number of two rows of back-to-back or face-to-face IT racks, uninterruptible power supply, near-end cooling equipment and so on

What Is The Specific Operating Principle Of A Micro-modular Data

A micro-modular data center is a modular data center product that integrates IT cabinets, refrigeration, uninterruptible power supply, fire protection, lighting, monitoring, wiring, security and

Micro Modula Data Center /Computer Room

With the help of integrated cabinet single cabinet and multi cabinet series, you can achieve unique customized modular micro data centers/data centers of any size, which can maximize flexibility,

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Computer Labs When you are working on a computer-generated project and require computer workstations with the ability to see what''s happening throughout your

What Are Micro Data Centers and Why Are They

Conclusion Micro data centers are transforming how businesses manage their IT infrastructure, offering agility, security, and efficiency in a

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2.1 Integrated micro-modular data center Abbreviated as micro-module, it is a small rack cluster formed by a certain number of two rows of back-to-back or face-to-face IT racks, uninterruptible power

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The Intelligent Micro Module, the Element of Intelligent Data ...

Popular Micro Modular Data Centers The modular data center, comprised of micro modules, has become more and more popular. The modules'' flexibility and predictability are highly valued by large

Modular Data Centers: Prefabricated Containers and Modules

What is a Modular Data Center? Modular data centers are pre-engineered, prefabricated, and standardized buildings, equipped with power and cooling infrastructure, designed to house computer

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