

Modular Data Center Parameters



Summary of Content

Modular data centers are pre-engineered, factory-built units designed for rapid deployment, scalable capacity, and flexible power and cooling configurations.

Core Design and Construction

Modular data centers (MDCs) are pre-fabricated, standardized modules constructed off-site and delivered as complete units, reducing on-site labor and construction risk (). They can take the form of micro-modules, containerized edge units, prefabricated rooms, or multi-megawatt blocks for hyperscale campuses (). Each module is pre-assembled, integrated, and factory-tested, including power distribution, cooling, fire protection, and IT infrastructure, ensuring quality and faster commissioning ().

Power Architecture

MDCs feature medium-voltage utility feeds, MV/LV transformers, main switchgear, ATS/STS, UPS systems (lithium-ion or VRLA), batteries, PDUs, and busways (). Redundancy strategies such as 2N or N+1 are pre-determined at the factory, optimizing runtime and reliability. Power density per rack has increased significantly, with modern AI workloads reaching 27 kW per rack, and specialized systems like NVIDIA DGX H100 nodes drawing up to 14-135 kW per rack depending on configuration ().

Cooling Systems



Article Content

Modular Data Centres: Prefab Construction, Cost, and

How modular and prefabricated data centres work. Covers construction speed, cost per MW, deployment models, leading vendors,

Exploring Modular Data Centers: Benefits, Design, And Deployment

Understand the benefits and design considerations of modular data centers, including deployment strategies and

Prefabricated modular data center solutions

Learn how prefabricated modular data center solutions accelerate AI, cloud, and edge deployments with scalable

Prefabricated modular data center solutions

The rapid rise of AI is driving data center demand far beyond what traditional construction timelines can support. Prefabricated

The Modular Data Center Ultimate Guide

Using prefabricated modules, these centers are operational in weeks rather than months, unlike traditional ones. This

Modular Datacenter Design: Speed, Scalability, Efficiency and ...

Discover how modular data center design enables rapid deployment, cost optimization, and sustainability through circular design

Modular data center

A modular data center system is a portable method of deploying data center capacity. A modular data center can be placed

Data center modular infrastructure

At SLB, our world-wide team of multi-disciplinary engineers take a modular approach to data center infrastructure replacing site-built

Modular Data Center Guide: Types & When It Wins | ModulEdge

This post covers what a modular data center actually is, the form factors that exist, what's inside a module, the

Modular Data Centers Guide

Learn about modular data center benefits, types and structural engineering requirements for a resilient IT infrastructure

Contact Us

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