UAE Single-Rack Micro-Module Data Center Configuration

Overview

Dubai Smart Micro-Module Data Center ConfigurationWe offer a compelling option for businesses in Dubai and the UAE seeking a scalable and efficient AgileMo.

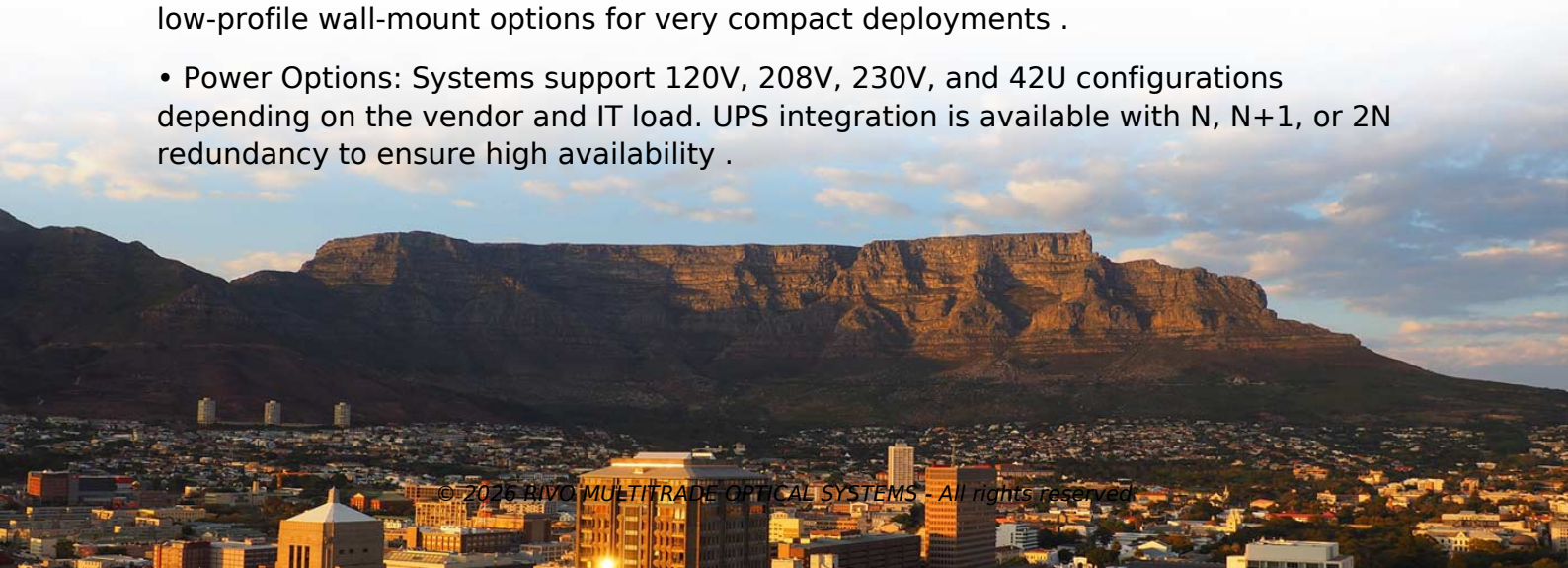
Key Takeaways

Single-rack micro-module data centers in the UAE offer compact, pre-integrated solutions with configurable power, cooling, and monitoring systems for rapid deployment and efficient operation.Overview

Single-rack micro-module data centers are prefabricated, enclosed rack systems designed to host IT equipment in a compact footprint while providing full data center functionality. These solutions are ideal for edge computing, small business IT environments, or industrial applications where space is limited and rapid deployment is required .

Rack and Power Configurations
• Rack Sizes: Common configurations include 6U, 12U, 18U, 24U, and 42U racks, with low-profile wall-mount options for very compact deployments .

• Power Options: Systems support 120V, 208V, 230V, and 42U configurations depending on the vendor and IT load. UPS integration is available with N, N+1, or 2N redundancy to ensure high availability .



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• IT Load Capacity: Single-rack micro-modules typically support up to 20kVA, suitable for small-scale or regional IT operations .

Cooling and Environmental Management

• Cooling Systems: Options include row cooling, room cooling, liquid cooling, and indirect free cooling to maintain optimal temperature and humidity for IT equipment .

• Airflow Management: Containment modules, rack side sealing, blanking panels, and hot/cold aisle separation prevent energy loss and improve PUE (Power Usage Effectiveness), often achieving PUE below 1.1 .

• Monitoring: Integrated sensors track temperature, humidity, smoke, door access, and power status, with remote monitoring and alert capabilities via web, email, SMS, or SNMP/Modbus-TCP .

Security and Compliance

• Access Control: Fingerprint, PIN, or RFID systems provide secure access to racks and modules .

• Fire Protection: Compatible with automatic fire suppression systems and fire-rated enclosures .

• Regulatory Compliance: Solutions are designed to meet UAE local authority regulations, energy codes, and safety standards, ensuring smooth handover and operational compliance .

Scalability and Hybrid Deployment

• Modular Expansion: Single-rack units can be stacked or added to accommodate growing IT demands without overprovisioning .

• Hybrid Options: Core workloads can remain in a central hall, while additional compute or disaster recovery workloads are deployed in containerized wings, balancing cost, resilience, and operational efficiency .

• Remote Management: Centralized monitoring allows management of multiple single-rack modules across sites, supporting IT-OT convergence and edge computing .

Vendor Examples in UAE

• Schneider Electric EcoStruxure Micro Data Centre: Offers pre-integrated racks with Cisco HyperFlex, Dell EMC VxRail, or HPE SimpliVity, configurable for industrial and edge applications .

• Delta InfraSuite: Provides highly integrated racks with UPS, cooling, fire control, and intelligent monitoring, suitable for IT loads under 20kVA .

• Huawei FusionModule800: Compact, intelligent micro data center for sectors like finance, healthcare, and government .

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• AgileMod and 2I Modular Solutions: Prefabricated, scalable, and hybrid-ready solutions with advanced cooling, UPS, and monitoring systems for UAE deployments . These single-rack micro-module configurations provide rapid deployment, energy efficiency, high availability, and compliance with UAE standards, making them suitable for edge computing, industrial automation, and small-scale enterprise IT environments.

Article Content

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We offer a compelling option for businesses in Dubai and the UAE seeking a scalable and efficient AgileMod data center solution.

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This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

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