

Modular Data Center Power Systems Market Forecasts to 2034 – Global Analysis By Component (Uninterruptible Power Supply (UPS), Cabling & Busway Systems, Power Distribution Units (PDUs), Power Monitoring & Management Software, Switchgear, Energy Storage Systems, Backup Generators, and Transfer Switches), Power Capacity, System Configuration, Data Center Type, Service Type, End User and By Geography

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Abstracts

According to Statistics MRC, the Global Modular Data Center Power Systems Market is accounted for \$39.88 billion in 2026 and is expected to reach \$141.99 billion by 2034 growing at a CAGR of 17.2% during the forecast period. Modular data center power systems are scalable, pre-engineered power infrastructure solutions designed to support data centers with greater flexibility and efficiency. These systems use standardized building blocks such as uninterruptible power supplies, power distribution units, and backup components that can operate independently or be combined as capacity needs increase. This modular approach allows gradual expansion, lowers initial capital investment, accelerates deployment, improves energy performance, and strengthens reliability while enabling operators to adjust power capacity in line with evolving workloads and operational demands.

Market Dynamics:

Driver:

Rapid time-to-market for AI clusters

Organizations are under pressure to reduce latency and deliver scalable computing environments that can support machine learning and deep learning applications. Modular architectures allow faster installation compared to traditional builds, enabling companies to meet urgent demand. Vendors are designing preconfigured power modules that integrate seamlessly with AI clusters, shortening commissioning timelines. This agility is particularly valuable for hyperscale operators and cloud service providers competing in dynamic markets. The ability to rapidly expand capacity without disrupting existing operations is a critical advantage. As AI adoption intensifies across industries, rapid time-to-market remains a defining driver for modular power solutions.

Restraint:

Complex maintenance & skills gap

Operators often face challenges in managing advanced technologies such as DC distribution, lithium-ion UPS, and intelligent monitoring systems. The skills gap in the workforce limits the ability of enterprises to fully leverage these innovations. Smaller organizations struggle to recruit or train personnel with the necessary technical background. Maintenance complexity also raises operational costs, particularly when integrating multiple modules across diverse geographies. Vendors must invest in training programs and remote support tools to mitigate these issues.

Opportunity:

Shift to DC distribution architectures

DC systems reduce energy conversion losses, improving overall efficiency and lowering operational costs. They also simplify integration with renewable energy sources such as solar and wind, aligning with sustainability goals. Modular DC architectures enable streamlined cabling and reduced footprint, which is attractive for edge deployments. As enterprises prioritize green initiatives, DC distribution is gaining traction as a future-ready solution. Vendors are innovating with hybrid AC/DC modules to ease the transition for operators. This shift opens new pathways for differentiation and market expansion in power system design.

Threat:

Lack of global standardization

Variations in regional regulations, safety codes, and interoperability requirements complicate deployment across borders. Vendors must customize solutions for different geographies, increasing costs and slowing scalability. The lack of harmonized protocols also hinders seamless integration with existing infrastructure. Enterprises operating globally face difficulties in ensuring consistent performance and compliance. Industry associations are working toward common frameworks, but progress remains uneven. Until standardization improves, fragmentation will continue to pose a threat to widespread adoption.

Covid-19 Impact:

The pandemic disrupted supply chains and delayed construction projects, affecting the rollout of modular data centers. Lockdowns and travel restrictions slowed installation schedules and limited access to skilled labor. However, the crisis also accelerated digital transformation, driving demand for cloud services, remote work, and online platforms. This surge in data traffic highlighted the need for resilient and quickly deployable power systems. Vendors responded by emphasizing modularity, automation, and remote monitoring capabilities. Post-pandemic strategies now prioritize flexibility and decentralized deployment to withstand future disruptions.

The uninterruptible power supply (UPS) segment is expected to be the largest during the forecast period

The uninterruptible power supply (UPS) segment is expected to account for the largest market share during the forecast period. UPS systems are critical for ensuring continuous operations and protecting sensitive workloads from outages. Their widespread use across hyperscale, enterprise, and edge facilities reinforces their market leadership. Advances in lithium-ion technology and intelligent monitoring are enhancing reliability and efficiency. Modular UPS designs allow scalability, enabling operators to expand capacity in line with demand. The growing reliance on AI, IoT, and cloud services further amplifies the importance of resilient power backup.

The healthcare segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the healthcare segment is predicted to witness the highest growth rate, due to rising digitalization of medical records, telemedicine, and AI-driven

diagnostics. Hospitals and research institutions require uninterrupted power to safeguard critical patient data and support advanced analytics. Modular systems provide flexibility to expand capacity as healthcare networks grow. The sector's emphasis on resilience and compliance makes robust power solutions indispensable. Integration with edge data centers is enabling real-time monitoring and remote care delivery.

Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share, due to strong cloud adoption, hyperscale expansion, and advanced IT infrastructure. Major technology companies are investing heavily in modular data centers to support AI and edge computing. Regulatory frameworks and energy efficiency initiatives further encourage adoption of modular power systems. The presence of leading vendors and integrators strengthens market penetration. Enterprises in the U.S. and Canada are prioritizing rapid deployment to meet growing digital demand.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR, owing to rapid urbanization, digital transformation, and government-led smart city initiatives are fueling demand. Countries such as China, India, and Singapore are investing in large-scale data infrastructure projects. The region's expanding internet user base and booming e-commerce sector require resilient power solutions. Modular systems are particularly attractive for emerging markets due to their scalability and cost efficiency. Local players are partnering with global vendors to accelerate technology adoption.

Key players in the market

Some of the key players in Modular Data Center Power Systems Market include Schneider Electric SE, Socomec Group S.A., Eaton Corporation, General Electric Company (GE), ABB Ltd., CyberPower Systems, Inc., Vertiv Holdings Co., Toshiba Corporation, Siemens AG, Mitsubishi Electric Corporation, Delta Electronics, Inc., Caterpillar Inc., Huawei Technologies Co., Ltd., Cummins Inc., and Legrand SA.

Key Developments:

In January 2026, McLaren Racing and Schneider Electric announced that Schneider Electric will become the Official Energy Technology Partner of McLaren Racing, including the McLaren Mastercard Formula 1 Team, the Arrow McLaren IndyCar Team, McLaren F1 Academy, as well as the McLaren United Autosports WEC Hypercar Team.

In July 2025, Siemens AG announced today that it has completed the acquisition of Dotmatics, a leading provider of Life Sciences R&D software headquartered in Boston and Portfolio Company of global software investor Insight Partners, for an enterprise value of \$5.1 billion. With the transaction now completed, Dotmatics will form part of Siemens' Digital Industries Software business, marking a significant expansion of Siemens' industry-leading Product Lifecycle Management (PLM) portfolio into the rapidly growing and complementary Life Sciences market.

Components Covered:

Uninterruptible Power Supply (UPS)

Cabling & Busway Systems

Power Distribution Units (PDUs)

Power Monitoring & Management Software

Switchgear

Energy Storage Systems

Backup Generators

Transfer Switches

Power Capacities Covered:

Below 100 kW

100 kW – 500 kW

500 kW – 1 MW

1 MW – 5 MW

Above 5 MW

System Configurations Covered:

Prefabricated Power Modules

Power Skids

Containerized Power Systems

Customized Modular Power Solutions

Data Center Types Covered:

Hyperscale Data Centers

Colocation Data Centers

Enterprise Data Centers

Micro Data Centers

Service Types Covered:

Design & Engineering Services

Installation & Integration

Maintenance & Support Services

Managed Power Services

End Users Covered:

- IT & Telecommunications
- Retail & E-commerce
- Banking, Financial Services & Insurance (BFSI)
- Manufacturing & Industrial
- Government & Defense
- Energy & Utilities
- Healthcare
- Other End Users

Regions Covered:

- North America
 - US
 - Canada
 - Mexico
- Europe
 - Germany
 - UK
 - Italy
 - France

Spain

Rest of Europe

Asia Pacific

Japan

China

India

Australia

New Zealand

South Korea

Rest of Asia Pacific

South America

Argentina

Brazil

Chile

Rest of South America

Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & Africa

What our report offers:

- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2023, 2024, 2025, 2026, 2027, 2028, 2030, 2032 and 2034
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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