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Global High-density Liquid-cooled AC/DC Rectifier Modules for Data-center and Telecom Power Rooms Market 2026 by Manufacturers, Regions, Type and Application, Forecast to 2032

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Abstracts

According to our (Global Info Research) latest study, the global High-density Liquid-cooled AC/DC Rectifier Modules for Data-center and Telecom Power Rooms market size was valued at US$ 59.68 million in 2025 and is forecast to a readjusted size of US$ 386 million by 2032 with a CAGR of 27.8% during review period.

High-density liquid-cooled AC/DC rectifier modules for data-centre and telecom power-room applications refer to modular power-conversion units that convert single-phase or three-phase AC input into regulated DC output for rack-level, cabinet-level or facility-level DC power architectures. These modules are typically based on high-frequency switch-mode power conversion, active power-factor correction, digital control, hot-swappable or serviceable mechanical designs, and liquid-assisted thermal management such as cold-plate cooling, conduction cooling, dripless liquid-loop interfaces, immersion-compatible packaging or hybrid liquid-and-air cooling. Typical output architectures include 48V/54V rack power, 240V/380V high-voltage DC, and programmable wide-range DC outputs. Depending on power rating and integration level, mainstream module power may range from approximately 3kW to more than 30kW per module.

Based on publicly observable product positioning, liquid-cooled or conduction-cooled high-power rectifier modules are typically priced above conventional air-cooled telecom rectifiers, with indicative module-level prices ranging from roughly USD 2,000 to USD 20,000 where advanced cooling interfaces, hot-swap design, communication functions, certification and customer-specific engineering are required.

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Based on our research, high-density liquid-cooled AC/DC rectifier modules for data-centre and telecom power-room applications should be treated as an emerging power-electronics segment rather than a conventional telecom rectifier market. The product is positioned at the intersection of rack-level power delivery, high-voltage or 48V/54V DC distribution, liquid-cooled IT infrastructure and modular critical-power architectures. Its strategic relevance is rising because AI and HPC racks are pushing power density beyond the comfort zone of traditional air-cooled power-conversion units. In this context, the rectifier module becomes not only a conversion device, but also a thermal-management, serviceability and space-efficiency component in the wider data-centre energy chain.

From a supply-side perspective, the number of companies with clear official evidence for liquid-cooled or conduction-cooled high-density rectifier modules remains limited. OmniOn Power, Astrodyne TDI and the historical ABB/HPE project evidence represent the most direct Western supply-side references. Taiwan-based suppliers such as Compuware and LITEON are more closely aligned with liquid-cooled AI server PSU and rack power architectures. Chinese suppliers such as InfyPower, KSTAR, Sinexcel and VAPEL show strong capability in liquid-cooled power-conversion modules, ultra-fast charging rectifier cabinets and energy-storage converters, but most of these revenues should not be directly counted in the narrow data-centre rectifier-module market unless data-centre or telecom power-room deployment is evidenced.

The market remains small in 2025 under a strict definition, but its growth outlook is strong. The primary drivers are AI rack power density, liquid-cooled server deployment, 48V/54V rack power adoption, high-voltage DC architectures and the need to reduce fan power and maintenance complexity. The most likely industry path is not a sudden replacement of all conventional rectifiers, but a phased adoption in high-end AI/HPC clusters, supercomputing systems, selected telecom central offices and dense edge facilities. Over time, the boundary between rectifier module, server PSU, power shelf and rack-level power system will become more commercially important than the traditional product labels used by suppliers.

This report is a detailed and comprehensive analysis for global High-density Liquid-cooled AC/DC Rectifier Modules for Data-center and Telecom Power Rooms market. Both quantitative and qualitative analyses are presented by manufacturers, by region & country, by Product Function and by Application. As the market is constantly changing, this report explores the competition, supply and demand trends, as well as key factors that contribute to its changing demands across many markets. Company profiles and product examples of selected competitors, along with market share estimates of some

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of the selected leaders for the year 2025, are provided.

Key Features:

Global High-density Liquid-cooled AC/DC Rectifier Modules for Data-center and Telecom Power Rooms market size and forecasts, in consumption value ($ Million), sales quantity (Units), and average selling prices (US$/Unit), 2021-2032

Global High-density Liquid-cooled AC/DC Rectifier Modules for Data-center and Telecom Power Rooms market size and forecasts by region and country, in consumption value ($ Million), sales quantity (Units), and average selling prices (US$/Unit), 2021-2032

Global High-density Liquid-cooled AC/DC Rectifier Modules for Data-center and Telecom Power Rooms market size and forecasts, by Product Function and by Application, in consumption value ($ Million), sales quantity (Units), and average selling prices (US$/Unit), 2021-2032

Global High-density Liquid-cooled AC/DC Rectifier Modules for Data-center and Telecom Power Rooms market shares of main players, shipments in revenue ($ Million), sales quantity (Units), and ASP (US$/Unit), 2021-2026

The Primary Objectives in This Report Are:

To determine the size of the total market opportunity of global and key countries

To assess the growth potential for High-density Liquid-cooled AC/DC Rectifier Modules for Data-center and Telecom Power Rooms

To forecast future growth in each product and end-use market

To assess competitive factors affecting the marketplace

This report profiles key players in the global High-density Liquid-cooled AC/DC Rectifier Modules for Data-center and Telecom Power Rooms market based on the following parameters - company overview, sales quantity, revenue, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include OmniOn Power, Astrodyne TDI, Compuware Technology Inc.,

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LITEON Technology Corporation, Honor Electronic, Gospower, ABB Ltd., InfyPower, etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

Market Segmentation

High-density Liquid-cooled AC/DC Rectifier Modules for Data-center and Telecom Power Rooms market is split by Product Function and by Application. For the period 2021-2032, the growth among segments provides accurate calculations and forecasts for consumption value by Product Function, and by Application in terms of volume and value. This analysis can help you expand your business by targeting qualified niche markets.

Market segment by Product Function

AC/DC Rectifier Module

Bidirectional ACDC Module

Server PSU / Power Shelf Module

HVDC Bulk Rectifier Module

Other

Market segment by Cooling Architecture

Cold-plate / Conduction Cooling

Direct Liquid-loop Cooling

Immersion-compatible Cooling

Hybrid Liquid-and-Air Cooling

Other

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Market segment by DC Output Architecture

48V / 54V Rack Power

240V / 380V HVDC

Programmable Wide-range DC

Other

Market segment by Deployment Layer

Module / Blade Level

Shelf / Subrack Level

Cabinet / Rack Level

Facility / Power-room Level

Market segment by Application

AI / HPC Data Centers

Telecom Central Office / RAN

Edge Data Centers

EV Charging / ESS Power Rooms

Other

Major players covered

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OmniOn Power

Astrodyne TDI

Compuware Technology Inc.

LITEON Technology Corporation

Honor Electronic

Gospower

ABB Ltd.

InfyPower

Market segment by region, regional analysis covers

North America (United States, Canada, and Mexico)

Europe (Germany, France, United Kingdom, Russia, Italy, and Rest of Europe)

Asia-Pacific (China, Japan, Korea, India, Southeast Asia, and Australia)

South America (Brazil, Argentina, Colombia, and Rest of South America)

Middle East & Africa (Saudi Arabia, UAE, Egypt, South Africa, and Rest of Middle East & Africa)

The content of the study subjects, includes a total of 15 chapters:

Chapter 1, to describe High-density Liquid-cooled AC/DC Rectifier Modules for Data-center and Telecom Power Rooms product scope, market overview, market estimation caveats and base year.

Chapter 2, to profile the top manufacturers of High-density Liquid-cooled AC/DC Rectifier Modules for Data-center and Telecom Power Rooms, with price, sales

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quantity, revenue, and global market share of High-density Liquid-cooled AC/DC Rectifier Modules for Data-center and Telecom Power Rooms from 2021 to 2026.

Chapter 3, the High-density Liquid-cooled AC/DC Rectifier Modules for Data-center and Telecom Power Rooms competitive situation, sales quantity, revenue, and global market share of top manufacturers are analyzed emphatically by landscape contrast.

Chapter 4, the High-density Liquid-cooled AC/DC Rectifier Modules for Data-center and Telecom Power Rooms breakdown data are shown at the regional level, to show the sales quantity, consumption value, and growth by regions, from 2021 to 2032.

Chapter 5 and 6, to segment the sales by Product Function and by Application, with sales market share and growth rate by Product Function, by Application, from 2021 to 2032.

Chapter 7, 8, 9, 10 and 11, to break the sales data at the country level, with sales quantity, consumption value, and market share for key countries in the world, from 2021 to 2026.and High-density Liquid-cooled AC/DC Rectifier Modules for Data-center and Telecom Power Rooms market forecast, by regions, by Product Function, and by Application, with sales and revenue, from 2027 to 2032.

Chapter 12, market dynamics, drivers, restraints, trends, and Porters Five Forces analysis.

Chapter 13, the key raw materials and key suppliers, and industry chain of High-density Liquid-cooled AC/DC Rectifier Modules for Data-center and Telecom Power Rooms.

Chapter 14 and 15, to describe High-density Liquid-cooled AC/DC Rectifier Modules for Data-center and Telecom Power Rooms sales channel, distributors, customers, research findings and conclusion.

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