

Protective Relay Market: Global Industry Trends, Share, Size, Growth, Opportunity and Forecast 2023-2028

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Report description:

Market Overview:

The global protective relay market size reached US\$ 3.1 Billion in 2022. Looking forward, IMARC Group expects the market to reach US\$ 3.9 Billion by 2028, exhibiting a growth rate (CAGR) of 3.9% during 2023-2028. The rising demand for electricity across the globe, the widespread product adoption across the power utility sector, and rising popularity of renewable energy sources, aging infrastructure of the electrical grid represent some of the key factors driving the market.

The Growing Power Generation Capacity in The Developing Region is Augmenting the Market Growth

Emerging economies, such as China and India have numerous construction initiatives underway or in the pipeline, with a concomitant requirement for a reliable electricity supply. The increasing population in these regions is impelling the need for greater electrical capacity, with the installation of protective relays in power systems expected to be a vital factor in meeting this demand. Consequently, the escalating demand for energy is resulting in an increase in power generation capability, thereby fueling the demand for protective relays.

Competitive analysis such as market structure, market share by key players, player positioning, top winning strategies, competitive dashboard, and company evaluation quadrant has been covered in the report. Also, detailed profiles of all major companies have been provided. The market structure is moderately fragmented with a large number of global and regional players operating in the industry due to increasing innovations and low product differentiation. The volume of new entrants is low in the protective relay industry due to high capital requirements, and moderate government regulations.

What is Protective Relay?

A protective relay is an essential component in electrical power systems, which serves to detect and isolate faults or abnormal conditions in order to ensure its stability and safety. It is produced to maintain a check on the power system's parameters, including voltage, current, frequency, and power, and to take the proper preventive measures when a fault or other abnormal condition is noticed. It functions primarily as a sensor device that recognizes abnormal power system conditions and transmits signals to protective devices, including circuit breakers or fuses, to isolate the problematic area of the system. It continuously monitors the power system's electrical parameters, compares them to specified setpoints, and initiates protective measures when the monitored values exceed the setpoints. Additionally, it is employed to safeguard power system components, such as transformers, generators, transmission lines, and distribution systems from harm brought on by flaws or abnormal circumstances. The protective relays are positioned strategically throughout the power system, including at the feeder circuits, busbars, primary and secondary windings of transformers, and generator terminals.

COVID-19 Impact:

A short-term decrease in the overall production of protective relay devices was caused by the lockdown that was implemented across several nations and in accordance with government directions. Players were forced to reduce capacity or temporarily halt output due to the implementation of new risk-reduction processes after the implementation of social isolation and lockout measures. Numerous players suffered losses during this epidemic as a result of the restrictions on the transfer of products, restrictions on the movement of vehicles, and labor shortages. In addition, the widespread concern over coronavirus has incurred delays in technical innovation and research and development. However, as soon as the number of cases began to decline, there has been a significant rise in manufacturing activities. Moreover, leading players considerably improved their technologies as soon as business activities were resumed in order to produce goods with more safety, speed, and efficiency.

Protective Relay Market Trends:

The escalating demand for power supply majorly drives the global market. This can be supported by the growing product utilization in power utilities and other end-users in order to ensure the safe and reliable operation of electrical systems. With the rising popularity of renewable energy sources, such as wind, solar, and hydropower, the demand for protective relays has rapidly increased as these power sources require sophisticated control systems to ensure stable and reliable grid operation, further impacting the market. Along with this, the aging infrastructure of the electrical grid is influencing the demand for protective relays to detect faults and isolate the faulty sections of the grid, which is impacting the market favorably. In addition, the growing awareness of electrical safety, especially in industrial and commercial settings, such as the protection of their equipment and personnel from electrical hazards, is significantly supporting the market. Apart from this, governments across the globe are implementing regulations and standards requiring the use of protective relays in power transmission and distribution systems, which is positively influencing the demand. Furthermore, the integration of advanced sensors, communication networks, and data analytics to detect faults quickly and accurately and respond in real-time is creating a positive market outlook. Some of the other factors driving the market include continual technological advancements and the rapid expansion of smart grid infrastructure.

Key Market Segmentation:

IMARC Group provides an analysis of the key trends in each sub-segment of the global protective relay market report, along with forecasts at the global, regional and country level from 2023-2028. Our report has categorized the market based on voltage, type, application and end-use.

Voltage Insights:

High Medium

Low

The report has provided a detailed breakup and analysis of the protective relay market based on the voltage. This includes high, medium, and low. According to the report, medium voltage represented the largest segment due to the increasing demand for reliable and secure power transmission and distribution systems. Additionally, there is a growing need for advanced protection and control solutions that can prevent equipment damage, minimize downtime, and ensure an uninterrupted power supply. Additionally, the growing adoption of renewable energy sources such as solar and wind power is driving the need for innovative medium voltage protective relay systems that can integrate with these energy sources seamlessly.

Type Insights:

Electromagnetic Relays Solid-State Relays Microprocessor Relays Others

A detailed breakup and analysis of the protective relay market based on the type has also been provided in the report. This includes electromagnetic relays, solid-state relays, microprocessor relays, and others. According to the report, solid-state relays accounted for the largest market share due to their superior performance compared to traditional electromechanical relays, as they have faster response times, higher accuracy, and are more reliable. Additionally, they are more compact and require less maintenance than their electromechanical counterparts, further impacting their demand. Moreover, the increasing focus on energy efficiency and the need for more precise control in industrial processes is rising demand for solid-state relays.

Application Insights:

Feeder Protection Transformer Protection Motors Protection Generators Protection Busbar Protection Others

The report has provided a detailed breakup and analysis of the protective relay market based on the application. This includes feeder protection, transformer protection, motors protection, generators protection, busbar protection, and others. According to the report, feeder protection represented the largest segment due to the growing demand for reliable and uninterrupted power supply, especially in critical infrastructure, such as hospitals, data centers, and industrial plants. As a result, utilities and industrial customers are investing in advanced feeder protection systems to prevent power outages and reduce downtime. Additionally, the increasing adoption of renewable energy sources, such as wind and solar, is resulting in a more complex and dynamic power grid, driving the need for advanced protection systems. Moreover, the stringent regulatory requirements and safety standards are also driving the demand for feeder protection applications, as they ensure compliance and mitigate the risk of accidents or equipment damage.

End-Use Insights:

Power Generation and Distribution Industrial Equipments and Systems Railways

Others

A detailed breakup and analysis of the protective relay market based on the end-use has also been provided in the report. This includes power generation and distribution, industrial equipments and systems, railways, and others. According to the report, power generation and distribution accounted for the largest market share due to the rising demand for reliable and efficient power supply, particularly in developing countries where the need for electrification is high. Additionally, the increasing emphasis on smart grid technology and the integration of digital systems in power distribution networks are also driving the demand for protective relays with advanced features, such as communication capabilities and remote monitoring.

Regional Insights:

North America **United States** Canada Asia Pacific China lapan India South Korea Australia Indonesia Others Europe Germany France United Kingdom Italy Spain Russia Others Latin America Brazil Mexico Others Middle East and Africa

The report has also provided a comprehensive analysis of all the major regional markets, which include North America (United States, Canada); Asia-Pacific (China, Japan, India, South Korea, Australia, Indonesia, and others); Europe (Germany, France, United Kingdom, Italy, Spain, Russia, and others); Latin America (Brazil, Mexico, and others); and the Middle East and Africa. According to the report, Asia-Pacific was the largest market for the protective relay. Some of the factors driving Asia-Pacific protective relay market included rapid urbanization, favorable government regulations and technological advancements, etc.

Competitive Landscape:

The report has also provided a comprehensive analysis of the competitive landscape in the global protective relay market. Competitive analysis such as market structure, market share by key players, player positioning, top winning strategies, competitive dashboard, and company evaluation quadrant has been covered in the report. Also, detailed profiles of all major companies have been provided. Some of the companies covered are ABB Ltd., Basler Electric Company, Bender GmbH & Co. KG,

Eaton Corporation, Fanox Electronics, General Electric, Littelfuse Inc., Mitsubishi Electric Corporation, NR Electric Co. Ltd. (NARI Technology Development Limited Co.), Schneider Electric, Schweitzer Engineering Laboratories Inc., Siemens Aktiengesellschaft, Toshiba Corporation, Woodward Inc., etc. Kindly note that this only represents a partial list of companies, and the complete list has been provided in the report.

Key Questions Answered in This Report:

How has the global protective relay market performed so far, and how will it perform in the coming years? What are the drivers, restraints, and opportunities in the global protective relay market? What is the impact of each driver, restraint, and opportunity on the global protective relay market? What are the key regional markets? Which countries represent the most attractive protective relay market? What is the breakup of the market based on the voltage? Which is the most attractive voltage in the protective relay market? What is the breakup of the market based on the type? Which is the most attractive type in the protective relay market? What is the breakup of the market based on the application? Which is the most attractive application in the protective relay market? What is the breakup of the market based on the end-use? Which is the most attractive end-use in the protective relay market? What is the competitive structure of the global protective relay market? What is the competitive structure of the global protective relay market?

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