Digital Substation Market Overview, Key Players Analysis, Emerging Opportunities and Segmentation to 2023

Global digital substation market is segmented based on module, type, voltage, and industry.

Digital Substation Market Overview:

According to Market Research Future, the global Digital Substation Market is anticipated to inflate at 7.5% CAGR at the time of forecast period. It is the industrial development across the globe that has increased digitization in many sectors, thus motivated the market’s growth over the years. Digital substation is a combination of switchgear, transformers, substation automation, monitoring & diagnostics and the standard process bus process, and acts as the backbone of smart grids. They even provide real time phasor measurement data, increasingly, required to control the power flow and keep the grid stable, despite the rapidly increasing share of intermittent renewable energy sources. Aging power distribution network and expansion of the power distribution in developing nations, are expected to remain the key drivers for the global market for digital substations during the forecast period.

Digital Substations enable electric power utilities to increase productivity, reduce footprint, increase functionality, improve the reliability of assets and, crucially improve safety for service personnel. Digital Substations exploit the benefits of digital protection, control and communication technologies, mirroring the trend towards digitalization seen in many other industries. This trend of digitalization also applies to other areas of the substation. Within medium-voltage switchgear panels, for example, the horizontal exchange of IEC 61850-8-1 GOOSE and sampled analog values reduce wiring and accelerate the testing and commissioning. Digitalized technology can, continuously, monitor mission-critical functions of power transformers and High-voltage switchgear, while performing real-time simulation and diagnostics, meaning pro-active management of the assets lifecycle is possible.

Key Players

The well-known players of global digital substation market are listed as ABB Ltd. (Switzerland), Siemens AG (Germany), General Electric Company (U.S.), Schneider Electric (France), Honeywell International Inc. (U.S.), Cisco Systems, Inc. (U.S.), Eaton Corporation plc (Ireland), Emerson Electric Co. (U.S.), NR Electric Co., Ltd. (China) and Larsen & Toubro (India).

Market Segmentation

Global digital substation market is segmented based on module, type, voltage, and industry.

By the mode of module, the market is segmented into hardware, fiber optic communication network and SCADA. Among these, the hardware is thus projected to lead the digital substation market throughout 2023. The hardware module consists of components such as transformers, bus bars, protection devices, and interfacing units. Transformers form a significant part of the market, as they are the primary components that are installed in the substation. These hardware components have a considerable share of the overall market, due to its wide-ranging use in digital substations.
On the mode of type, the market is segmented as transmission substation and distribution substation. Where distribution substation led the market in 2016 and is probable to be the fastest-growing segment for the digital substation. The exceptional growth in urbanization and industrialization across the world is likely to enhance the expansion for distribution substation market in the estimated period.

On the mode of the voltage, the market is segmented into up to 220 kV, 220–550 kV, and above 550 kV. Wherein, above 550 kV led the market in 2016 and is anticipated to be the fastest-growing Voltage over the coming five years. The suitability of above 550 kV substations is constructive in all industry applications.

On the mode of the industry, the market has been segmented into utility, metal, mining, oil & gas and transportation. Among them, the utility sector led the market in 2016 and is now likely to be the fastest-growing application in the coming years. The utility industry is one of the flourishing application areas about digital substations, due to the high gap in demand-supply in energy in most of the developing and developed nations. The growth can be accredited to the boost in demand for renewable energy sources, such as wind, solar, and hydro to congregate the consumers demand power generation. Digital substations have a massive reach in the utility industry as these systems are used in transmitting and distributing power.

Regional Outlook

The study of the global digital substation market regionally has been done under the critical regions of North America, Europe, Asia Pacific (APAC) and Rest of the World (ROW).

Among these, Asia Pacific is likely to stay as the leading region in terms of demand for digital substation. The power sector holds a robust ground in the Asia Pacific, due to the high demand for energy coupled with surging conventional and non-conventional power generation plants. The digital substation market in the Asia Pacific is also being pushed towards offering an advanced and reliable solution for transmission and distribution activity.

On the other hand, North America is also likely to hold a higher market share for digital substations in the forecast period. The growth is accredited to the augmented adoption of digital substations with the incidence of well-established players across the region, especially in the U.S. and Canada.


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