

Instrument Transformer Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

Market Report | 2023-01-23 | 178 pages | Mordor Intelligence

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Report description:

The instrument transformer market was valued at USD 4183 million in 2020, and it is anticipated to reach USD 5825 million by 2027, recording a CAGR of 5.13% during 2022-2027. The COVID-19 pandemic had a moderate impact on the global instrument transformer market as most countries witnessed a slight decrease in operational activities as well as delays in the ongoing industrial and commercial projects. This was mainly a result of the shutdown of related equipment manufacturing facilities and labor shortages in several major countries like the US, India, Russia, Brazil, and others. Factors like expansion in the transmission and distribution network and growth in renewable power generation facilities are likely to drive the market. However, the expansion of high voltage direct current (HVDC) networks is expected to hinder the market growth during the forecast period.

□ With the rapid expansion in the power grid network across emerging energy markets, it is expected that the power utility segment is likely to dominate the market during the forecast period.

□ The increasing integration of advanced technologies such as AI and IoT with instrument transformers is expected to create several opportunities for the market in the future.

□ Asia-Pacific is likely to dominate the market during the forecast period, with the majority of the demand coming from China and India.

Instrument Transformer Market Trends

Power Utility Sector Likely to Dominate the Market

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□ The power utility industry includes the generation, transmission, and distribution of electrical energy. As power utility devices are vulnerable to damage from power quality fluctuations, instrument transformers are used in such systems mainly for measurement, protection of equipment, and providing energy to protective relays. In measurement applications, instrument transformers are used for revenue metering. They provide accurate and reliable current and voltage measurements for secondary equipment such as meters, protection relays, bay computers, and other devices.

□ Instrument transformers are used in applications involving a wide range of voltages. For high voltage applications, instrument transformers convert the currents and voltages of high voltage lines to values, which are measurable by meters and protections. These transformers are mainly used for voltages over 72.5 kV to 1200 kV. They are used in transmission networks primarily as current transformers, voltage transformers, combined transformers, metering units, capacitor voltage transformers, power voltage transformers, instrument transformers for GIS applications, and line traps.

□ Medium voltage instrument transformers operate primarily between the voltage ranges of 1 to 72.5 kV. These are primarily used in indoor applications, with a primary target of saving space. These transformers are placed in metal-enclosed cubicles, and primary terminals are modified according to customer requirements. Low voltage instrument transformers operate in voltage ranges below 1 kV and hence, require limited insulation and are formed by sheets of paper or polymers. These are smaller in size and are primarily used in control and measurement panels.

□ In transmission and distribution systems, high voltage instrument transformers are generally used. These devices are primarily used in high voltage applications, and they form a critical part of HVAC systems. Due to this, the demand for these transformers is expected to be primarily driven by South America and Asia-Pacific, where most new large-scale HV transmission projects are under development.

□ In 2020, China announced that it is planning to expand its UHV system by spending about USD 26.8 billion on 14 UHV projects, which include six ultra-HVDC transmission line projects, a back-to-back converter station, and seven ultra-HVAC transmission projects. In September 2021, Indonesia approved a giant solar link project between Australia and Singapore, called the Australia-Asia PowerLink project. The giant USD 22 billion project will send electricity generated from solar energy across 5000 km through Indonesian waters via high-voltage undersea cables to Singapore. New transmission projects in growing markets such as Asia-Pacific are expected to drive the demand for instrument transformers during the forecast period.

□ Therefore, owing to the above factors, the power utility sector is expected to dominate the market during the forecast period.

Asia-Pacific Likely to Dominate the Market

□ The Asia-Pacific region accounted for a significant share in the instrument transformer market in 2020, owing to increasing power consumption, government initiatives to increase power generation capacity using renewable energy sources, and the expansion and enhancement of aging grid infrastructure. Countries such as India, China, Japan, Korea, and Australia are the key contributing nations in the region.

□ In 2020, the total primary energy consumed by the Asia-Pacific region was 253.25 exajoules, a rise of 29% compared to 2010. Further, power infrastructure grew significantly, with an electricity generation of 12,919.33 TWh in 2020, which amounted to a 56% increase in the region during 2010-2020. The electricity generation share of renewables is rising steadily by about 16% Y-o-Y.

□ Many countries in the region are investing in developing their power grid infrastructure during the forecast period. In China, the total power consumption in 2020 was about 7,510 terawatt-hour (TWh), a rise of 79% compared to a decade ago in 2010, when power consumption amounted to 4,199.9 TWh.

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□ To cater to the increasing power demand, the Chinese government plans to invest nearly USD 900 billion in the next five years to develop the country's power grid infrastructure. In addition, according to the State Grid Corp. of China, the country's biggest power utility, the investments in power grids infrastructure and related industries are expected to surpass CNY 6 trillion (approximately USD 896 billion) in 2021-2025, focusing on power transmission, electric vehicle chargers, and new digital infrastructure.

□ In May 2021, state-run Power Grid Corporation of India Ltd (PGCIL) approved investments totaling INR 22.02 billion for various power transmission projects. The board approved the investment approval for the Transmission System Strengthening Scheme for Evacuation of Power from Solar Energy Zones in Rajasthan (8.1 GW) under Phase-II at an estimated cost of INR 11.85 billion. The project is slated for commissioning phase-wise, with Part-A by December 2021, Part-B by March 2021, Part-C by June 2022, Part-D by August 2022, and Part-E by September 2022.

□ Therefore, owing to the above factors, the Asia-Pacific region is expected to dominate the instrument transformer market during the forecast period.

Instrument Transformer Market Competitor Analysis

The instrument transformer market is moderately fragmented. Some of the key players in the market include ABB Ltd, Siemens Energy AG, General Electric Company, Schneider Electric SE, and Artech Group.

Additional Benefits:

The market estimate (ME) sheet in Excel format
3 months of analyst support

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