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Continuous Thermal Monitoring Market by Offering (Hardware, Software, Service), Application (Bus Duct Monitors, Switchgear, Motor Control Centers, Low-voltage Transformers, Dry Transformers), End User, and Region - Global Forecast to 2030

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Abstracts

The continuous thermal monitoring market is projected to reach USD 1.49 billion by 2030 from an estimated USD 1.00 billion in 2024, at a CAGR of 6.8% during the forecast period (2024–2030). The continuous thermal monitoring market is driven by factors such as an increased focus on energy efficiency among industries, an increased demand for smaller and more powerful electronic devices, and a growing number of data centers and cloud computing services. These trends require efficient thermal management solutions that ensure optimal performance and prevent overheating, hence driving the demand for continuous thermal monitoring technologies.

“Hardware is expected to have the highest growth rate segment during the forecast period.”

The hardware component is the fastest segment due to its critical role to enable accurate, reliable temperature identification. Hardware machines are widely used in numerous industries for the detection of thermal anomalies so that overheating is prevented. They also maximize operational efficiency as they can operate to identify thermal patterns in real-time. Predictive maintenance continues to be of high demand due to its various applications in numerous industries such as manufacturing, utility, and data center operations. Technological advancements also led to a compact, affordable, and even IoT-enabled hardware that integrates so well with a smart monitoring system, making these devices more alluring.

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“Bus Duct Monitors segment is expected to emerge as the fastest growing segment by application.”

The continuous thermal monitoring market in bus duct monitoring is gaining immense growth due to the importance of reliability and security for electrical infrastructure. This further gains momentum due to prevention and avoidance of costly failures and fire hazards, growing smart grid adoption, and emerging demand from data centers and renewable energy. The increasing stringency of regulatory standards, advancement in IoT and predictive analytics, and the massive costs associated with system downtime make real-time thermal monitoring an absolute necessity. Industrialization is growing at a faster pace, and the focus has shifted towards efficiency and safety. Bus duct monitoring is rapidly becoming an essential part of modern power distribution systems.

“China to grow at the highest CAGR for Asia Pacific Continuous thermal monitoring market.”

China is the Asia-Pacific region's fastest growing market for continuous thermal monitoring in Asia Pacific, given its vast industrial base, rapid urbanization, and vast infrastructure developments. The strong focus on energy efficiency and rigid safety regulations by the nation has further accelerated the deployment of high-tech monitoring systems across power distribution networks, data centers, and renewable energy projects. Moreover, the proactive interest of the government in smart grid development and the incorporation of IoT technology has created a tremendous momentum for implementing real-time thermal monitoring solutions. Significant investment in industrial automation with a firm commitment to minimizing downtime and energy losses drives China at the fore in the region to embrace leading-edge thermal monitoring technologies.

In-depth interviews have been conducted with various key industry participants, subject-matter experts, C-level executives of key market players, and industry consultants, among other experts, to obtain and verify critical qualitative and quantitative information, as well as to assess future market prospects. The distribution of primary interviews is as follows:

By Company Type: Tier 1- 30%, Tier 2- 45%, and Tier 3- 25%

By Designation: Director Levels- 20%, C-Level- 30%, and Others- 50%

By Region: North America- 18%, Europe- 8%, Asia Pacific- 60%, the Middle East &

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Africa- 10%, and South America- 4%

Note: Others include sales managers, engineers, and regional managers.

Note: The tiers of the companies are defined based on their total revenues as of 2023. Tier 1: > USD 1 billion, Tier 2: From USD 500 million to USD 1 billion, and Tier 3: ABB (Switzerland), Siemens (Germany), Schneider Electric (France), Honeywell International Inc. (US) and Teledyne Technologies (US) are some of the key players in the continuous thermal monitoring market.

The study includes an in-depth competitive analysis of these key players in the continuous thermal monitoring market, with their company profiles, recent developments, and key market strategies.

Research Coverage:

The report defines, describes, and forecasts the continuous thermal monitoring market by offering (hardware, software, services), By Application (Bus Duct Monitors, Switchgear, Motor Control Centers, Dry Transformers, Low-voltage Transformers, Other Applications), By End User (Data Centers, Oil & Gas, Logistics, Utilities, Manufacturing, Healthcare, Retail, Telecommunications, Other End Users) and By Region (North America, South America, Europe, Asia Pacific, and Middle east & Africa). The scope of the report covers detailed information regarding the major factors, such as drivers, restraints, challenges, and opportunities, influencing the growth of the continuous thermal monitoring market. A detailed analysis of the key industry players has been done to provide insights into their business overview, solutions, and services; key strategies; Contracts, partnerships, agreements, investment, divestment, new product & service launches, and recent developments associated with the continuous thermal monitoring market. Competitive analysis of upcoming startups in the continuous thermal monitoring market ecosystem is covered in this report.

Key Benefits of Buying the Report

Analysis of key drivers (Growing emphasis on predictive maintenance, Rising adoption of IoT and AI technology, Increasing adoption of industrial automation), restraints (High initial costs associated with advanced monitoring systems and Technical complexities in integrating advanced monitoring systems with existing industrial infrastructure), opportunities (Rapid deployment of smart grids, Rapid deployment of smart grids, and Rising adoption of data centers), and challenges

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(Rising cyberattacks) influences the growth of the continuous thermal monitoring market.

Product Development/ Innovation: Microchip Technology introduced the MCP998x family, comprising 10 automotive-qualified remote temperature sensors capable of monitoring multiple channels accurately. These sensors feature integrated resistance error correction and beta compensation, enhancing precision and reducing the need for additional components. Designed to operate across a wide temperature range, the MCP998x family offers up to five monitoring channels, with certain models including fixed shutdown temperature setpoints for added safety. This product line addresses the growing demand for reliable thermal management in automotive and industrial applications.

Market Development: The development of continuous thermal monitoring systmes are moving towards greater efficiency and electrical equipment safety. Additionally, the growing focus on energy efficiency and sustainability has led industries to implement thermal monitoring systems to optimize energy use and reduce carbon footprints.

Market Diversification: Honeywell expanded its Emissions Management Suite to include decarbonization audits and reduction roadmaps for thermal solutions. This enhancement aimed to help industries identify emissions reduction opportunities and implement tailored strategies to achieve sustainability goals, aligning with global efforts to combat climate change.

Competitive Assessment: In-depth assessment of market shares, growth strategies, and service offerings of leading players like ABB (Switzerland), Siemens (Germany), Schneider Electric (France), Honeywell International Inc. (US) and Teledyne Technologies Incorporated (US) among others in the continuous thermal monitoring market.

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