

Temperature Sensors - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

Market Report | 2025-04-28 | 220 pages | Mordor Intelligence

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Report description:

The Temperature Sensors Market size is estimated at USD 9.35 billion in 2025, and is expected to reach USD 12.68 billion by 2030, at a CAGR of 6.28% during the forecast period (2025-2030).

Temperature sensors employed using IoT connectivity are expected to speed up owing to the increasing need for COVID-19 testing and screening. Semtech and Polysense Technologies collaborated to develop temperature monitoring devices for a human body based on Semtech's LoRa LPWAN. The company's temperature sensors would offer frontline healthcare workers real-time data for faster screening of individuals with a high temperature.

Key Highlights

- The growing adoption of HVAC modules in the automotive industry and industrial end users applications are some of the major driving factors of the temperature sensor market.
- Growing demand for consumer electronics is also expected to boost market growth further. An increase in the global focus on security and surveillance and various government initiatives toward safety norms is also expected to promote the adoption of the temperature sensor market.
- The growing adoption of wireless temperature sensors in various industries is mainly attributed to the applications of non-contact measurement features, which enable them to reach locations where a device's physical deployment is impossible.
- Various applications of temperature sensors, including flare systems, wellhead tanks, chemical tanks, pipeline data collection, and compressors, are among some of the multiple applications of temperature sensors in the oil and gas industry. The applications of temperature sensors in the oil and gas industry are considered critical. Installing a wired device inside a pipe or a tank would be inefficient if the operating temperature is relatively high.
- Further, the nature of the industry makes the usage of temperature sensors crucial, as it is essential to monitor the temperature

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changes in these lines and maintain safe working conditions. The super-heated steam and water pipelines are extended, and accidents in these may lead to the damage and loss of other assets, which is one of the driving factors for the demand and regulatory needs.

- Trends in the personal computing industry, such as smaller system sizes, faster processors, and the need to support more advanced applications, make monitoring and controlling heat imperative. This trend, coupled with robust sales and advancements in desktop and portable computers, is likely to continue to support the growth of temperature sensors.
- One of Honor's recently announced smartphones, the Honor Play 4 Pro, is available with an infrared temperature sensor. In the era of a COVID-19 pandemic, when a high temperature could be a sign of being ill with COVID-19, it could be a helpful smartphone feature. According to Honor, the sensor works between temperatures of -20 degrees Celsius and 100 degrees Celsius (approximately -4 to 212 degrees Fahrenheit), which is more than enough to cover the human body's range of potential temperatures, and it can sense temperatures down to the tenth of a degree.

Temperature Sensors Market Trends

Infrared Temperature Sensors to Drive the Market Growth

- IR Temperature sensors, unlike many contact temperature sensors, could be used for taking readings from a moving object at less than 10 m/s. Such advantages of temperature sensors enable them to be used for multiple applications in various fields, including manufacturing, automotive, food processing, and defense.
- The applications of IR temperature sensors are also found in various defense applications, including variable emissivity measurements and optical target sighting, which helps track activities. All these applications have a continuous demand and advance owing to the increasing military spending.
- Recently, the demand for infrared temperature sensors has been increasing in the manufacturing sectors, driven by the global adoption of Industry 4.0 policies. IR temperature sensors, in the case of predictive maintenance, have been increasingly gaining a considerable market share. The increasing requirement for monitoring the temperature of moving parts could rarely be substituted with the efficiency of IR temperature sensors.
- In the case of the plastic molding industry, IR sensor technology can optimize thermoplastic demolding processes. In the automotive sector, IR temperature sensors are used in collaboration with paint workshops, which, with the help of intelligent algorithms, calculate the amount of time a chassis spends in the drying oven without affecting the paint job.
- The rapid surge in COVID-19 cases has caused nations worldwide to take steps to stop the spread. Ever since the deadly disease outbreak, there has been a need to check temperatures routinely. Large-area detection and screening for fever would soon be a reality for the safety of all and containment of not only the current COVID-19 impacting today but also a prescriptive measure of preparedness.
- An infrared body temperature monitoring system for large-area monitoring and detection would significantly improve awareness and control the spread of an outbreak. Such a system would have an effective alarm using a temperature range feature, the ability to track and raise alarms at multiple points, miss no targets, identify between human/animal/organic targets and other high-temperature objects and use video/photographic images for monitoring and analysis - all in real-time.

North America to Hold Maximum Market Share

- North America held the largest market share due to several established manufacturers in the region investing significantly in developing and improving existing temperature sensors.
- According to the American Automotive Policy Council, Automakers and their suppliers are America's largest manufacturing

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sector, responsible for 3% of America's GDP. Moreover, over the past five years alone, FCA US, Ford, and General Motors have announced nearly USD 35 billion in investments in their U.S. assembly, engine and transmission plants, R & D labs, headquarters, administrative offices, and other infrastructure that connects and supports them.

- Companies in the region, such as Emerson Electric Co., offer thermocouple temperature sensors that feature resilience and durability in harsh process environments. Other companies, such as Vernier Software and Technology, offer thermocouple temperature sensors to measure temperatures between -200oC to 1400oC. It can also measure flame temperatures as high as 1400 °C or liquid nitrogen temperatures at -196 °C.
- Moreover, the region is expected to supply much of the world's growing demand for oil over the next five years, according to the International Energy Agency (IEA). As per the IEA, the United States is expected to account for 80% of the global oil supply increase between 2017 and 2025 as shale producers find more ways to pump oil profitably at lower prices. Thus, the country's growing oil and gas sector is likely to boost further the demand for the market studied over the forecast period.
- With the U.S. Department of the Interior planning to allow offshore exploratory drilling in about 90% of the Outer Continental Shelf (OCS) acreage under the National Outer Continental Shelf Oil and Gas Leasing Program (National OCS Program) for 2019-2024, the oil and gas sector in the region is expected to open up new opportunities to the market.
- Additionally, the healthcare industry uses temperature sensors extensively for continuous cardiac output monitoring, thermal dilution catheters, etc. With such advancements across various industries in the region and the R & D of various types of temperature sensors being integrated into more and more products, the market for temperature sensors is set to grow at a healthy rate.

Temperature Sensors Industry Overview

The competitive rivalry is high in this market, owing to the presence of many players operating in the market, such as Honeywell, Texas Instruments, and STMicroelectronics, among other regional and local manufacturers. Continuous product upgradation and industry convergence drive the market towards highly differentiated offerings.

In December 2022, OMEGA Engineering announced the launch of the latest version of its HANI Clamp-On Temperature Sensor: the HANI Clamp Sensor is explicitly designed for plastic pipe applications. The Sensor precisely measures the temperature of media inside a pipe in seconds without ever breaching the pipe.

In July 2022, Apple introduced temperature sensors in its Apple Watch. The company aims to inform the wearer if they have a fever due to a higher-than-normal body temperature.

Additional Benefits:

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

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