

United States Gas Sensors Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

Market Report | 2023-01-23 | 120 pages | Mordor Intelligence

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Report description:

The US gas sensors market is expected to register a CAGR of 4.94% over the forecast period (2023 - 2028). Gas sensors are generally utilized in environmental monitoring, alcohol breath analyzer tests, fire location, process control industries, the discovery of unsafe gases in mines, home health, and reviewing of agro-items, such as espresso and flavor. These sensors adopt different techniques for quantifying the exact amount of gas in a medium. Owing to the COVID-19 pandemic, the market was impacted due to disruptions in the operations of particular end-user businesses that rely heavily on gas sensors.

Key Highlights

The major trend driving the gas sensors market is the development of wireless capabilities and miniaturization, coupled with improved communication capabilities that enable their integration into various devices and machines without compromising the detection of toxic or flammable gases at safe distances.

Market players are designing gas sensors according to the end-user requirement, such as miniaturization. For instance, in September 2021, NevadaNano, a United States-based company, launched a new miniature hydrocarbons gas sensor, the MPS Mini. The sensor is based on the company's molecular property spectrometer (MPS) flammable gas sensor, which eliminates maintenance throughout the sensor's lifetime, according to the company.

The US government is at the forefront of the fight against climate change. The country has a strong record of advancing technologies and techniques to reduce greenhouse gas emissions as part of this fight. According to the United States Environmental Protection Agency (EPA), in the United States, the oil and gas industry is the largest industrial source of methane emissions, which emits more methane compared to the total emissions of all greenhouse gases from 164 countries combined. Oil and natural operations also emit toxic air pollutants such as benzene and smog-forming volatile organic compounds (VOCs). In November 2021, the US government launched an initiative to reduce emissions from the oil and gas industry significantly. Through actions, the United States is catalyzing similar actions around the world, working in partnership with the European Union

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to lead a Global Methane Pledge to reduce overall methane emissions by 30% below 2020 levels by 2030.

Researchers are implementing advanced technologies for designing to manufacturing gas sensors in response to a large number of new and emerging requirements and applications. Wearable gas sensors, energy harvesting gas sensors, self-powered gas sensors, and gas sensors in mobile phones are some of the research sectors.

US Gas Sensors Market Trends

Increasing Health and Safety Regulations in Various Industries

Indoor air quality (IAQ) is a major concern to companies, businesses, building managers, and workers because it can impact the health, wellbeing, comfort, and productivity of the building occupants.

The American Conference of Governmental Industrial Hygienists (ACGIH) provided a threshold limit of 25 ppm for an 8-hour long workday, whereas the National Institute for Occupational Safety and Health (NIOSH) estimated a recommended exposure limit of 35 ppm.

The US Environmental Protection Agency (EPA) determined that leaking equipment, such as pumps, valves, and connectors, are the prime source of emissions of volatile organic compounds (VOCs) and volatile hazardous air pollutants (VHAPs) from chemical manufacturing facilities and petroleum refineries. The agency also estimated that around 9,357 metric ton per year of HAPs and 70,367 metric ton per year of VOCs had been emitted from equipment leaks.

Leak detection and repair (LDAR) programs are required by many State Implementation Plans (SIPs), National Emission Standards for Hazardous Air Pollutants (NESHAP), New Source Performance Standards (NSPS), the Resource Conservation and Recovery Act (RCRA), and other state and local requirements. There are nearly 25 federal standards that require facilities to implement LDAR programs.

Furthermore, in November 2021, building on the US government's strategy to achieve net-zero greenhouse gas (GHG) emissions by 2050, the US Environmental Protection Agency (EPA) issued a proposal under Clean Air Act to considerably expand regulations of methane from oil and gas industry operations in the United States.

Growing Wireless and Miniaturization Trends

The evolution of communication platforms such as the Internet of Things (IoT) and 5G wireless communication networks makes it possible to develop smart gas sensor networks for real-time monitoring of chemical safety and personal health. This application scenario requires a combination of characteristics of gas sensors, including small form factor, ultralow power consumption, superior sensitivity, low cost, and high intelligence.

Market players are utilizing these technologies to integrate gas sensors for performance improvement and ease of operations. Air quality sensors have been distributed in urban areas for wireless node network applications. Functional materials such as carbon nanomaterials, metal oxides, and hybrid composites are allowing technologies for chemical sensing.

Low-cost sensors incorporated in low-power sensor systems have been operated in wireless sensor networks for urban air quality monitoring of toxic gases as well as particulate matter at the outdoor level with high temporal and spatial resolution. Stationary sensor networks, mobile sensing on ground vehicles, and unmanned aerial vehicles (UAV) are used in smart and sustainable cities and Internet-of-Things (IoT) applications as a supplement to the expensive air quality monitoring stations.

Currently, applications of wireless gas detection are feasible for reliable operations in the long term, fixed installations with minimal operating costs. This offers operators more options to increase gas detection coverage, improving plant safety. The common requirements from the customers were to expand coverage and reduce the number of people in the field to ensure safety.

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US Gas Sensors Market Competitor Analysis

The US gas sensors market is partially fragmented. Some of the major players in the market are Honeywell International Inc., Emerson Electric Co., MSA Safety Incorporated, Figaro USA Inc., and Amphenol Advanced Sensors.

October 2021 - Honeywell launched two new Bluetooth-connected gas detectors that are able to deliver continuous monitoring for hazardous gases even in the rain, snow, fog, and other adverse weather conditions, helping facilities keep their petrochemical, oil, and gas, chemical, and other industrial sites workers safe. The new Honeywell Searchline Excel Edge and Searchline Excel Plus are the next generations of open path gas detectors that use high-powered infrared technology and advanced optics for staying operational in poor visibility conditions and operate over longer distances than before.

July 2021 - MSA Safety Incorporated, a safety equipment manufacturer, announced that it completed the acquisition of Bacharach Inc. in a transaction valued at USD 337 million. Based in New Kensington, Pennsylvania, Bacharach is a gas detection technologies provider that is used in the heating, ventilation, air conditioning, and refrigeration (HVAC-R) markets, with annual revenue of approximately USD 70 million.

Additional Benefits:

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

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