

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

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Report description:

Key Highlights

The Gas Sensors Market is expected to register a CAGR of 5.1% over the forecast period. Furthermore, the development of wireless capabilities and miniaturization, combined with improved communication capabilities that allow their integration into various devices and machines without compromising the detection of toxic or flammable gases at safe distances, propels the gas sensors market.

Gas sensors are utilized to control and monitor gas emissions from a variety of industrial processes, both domestic and industrial. Furthermore, the rising demand to control harmful emissions from critical industries bodes well for market growth. Technological advancements and innovations enable gas sensor manufacturers to create intelligent gas sensors. Various companies are also developing drone-based gas leak detection systems to improve safety for pipeline operators worldwide.

For instance, in April 2021, ABB introduced the HoverGuard, a drone-based gas leak detection system. The HoverGuard, safely, quickly, and reliably detects, maps, and quantifies leaks up to 100 meters in length from natural gas distribution and storage facilities, transmission pipelines, gathering lines, and other potential sources. Such technological advancements bode well for market growth.

Gas sensors in conventional power plants have been increasing to limit emissions of pollutants, including mercury, sulfur oxides, nitrogen, and carbon dioxide due to the stringent government regulations for achieving sustainability goals. These try to reduce greenhouse emissions and other types of pollution by utilizing resources effectively. Sensors contribute to increased turbine efficiency, increased plant safety, decreased transmission losses, and decreased environmental impact.

In addition, in March 2021, BOSCH Sensortec introduced the first gas sensor with artificial intelligence. The BME688 is a creative four-in-one air quality measurement solution that integrates gas, humidity, temperature, and barometric pressure sensing with artificial intelligence. The BME688 is a MEMS gas sensor with artificial intelligence, integrated high-linearity, and high-accuracy pressure, temperature, and humidity sensors. It has been specially created for applications demanding small sizes and low power consumption.

The gas sensors are the first to accurately detect, quantify, and classify a vast array of flammable or explosive gases using a single calibration. September 2021- NevadaNano, the world's greatest innovator in gas detection sensor technology announced

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the "MPSTM Mini," a miniaturized version of the widely used Molecular Property Spectrometer (MPS) Flammable Gas Sensor. The new sensor is the most accurate hydrocarbon sensor in its class and requires no maintenance over its 10-year lifespan. Furthermore, the evolving nature of the market is leading to rapid changes and the overcrowding of sensors for major gases like carbon dioxide and carbon monoxide. Rising costs are also an issue in the ever-changing market, characterized by innovations and low product differentiation.

Moreover, the COVID-19 pandemic further stressed the importance of maintaining air quality, especially indoor air quality, whether at the home, office, or other public spaces. It was leveraging this trend Bosch Sensortec developed an environmental MEMS sensor and AI-based software to reduce the risk of virus infection in April 2021.

Gas Sensors Market Trends

Safety and Regulations are the Primary Drivers for Industrial Implementation

Several sorts of gases have been used as raw materials in various industries in recent years. It becomes crucial to control and monitor these gases, as there is a significant risk of damage to property and human lives if a leak occurs. The necessity to continually monitor and control the gases emitted sprouted the need for gas sensors in industries.

Furthermore, in the United Kingdom, the highest number of deaths from unintentional carbon monoxide poisoning in 2021 occurred in December, with the death toll being 119.

The stringent government regulations mandated the gas sensors' applications, making the industries safer. This also made industries more confident about preventing accidents related to gas leaks. For instance, according to the Center for Disease Control and Prevention study, more than 50 people in Canada die every year from CO poisoning, as per the Ontario Association of Fire Chiefs. As a result, adopting carbon monoxide (CO) gas sensors is beneficial, as these appliances can unknowingly cause dangerous levels of CO gas to build up in the houses.

Moreover, owing to efficient energy usage and the safety of inhabitants, gas sensors have witnessed increased adoption in intelligent homes. Furthermore, the government implemented standards and regulations to follow and install these devices. For instance, NFPA 720, which is a standard published by the National Fire Protection Association, includes sections 5.1.1.1 and 5.1.1.2, according to which all CO (carbon monoxide) sensors should be located outside of each sleeping area in the immediate vicinity of all the bedrooms, and each detector should be found on the ceiling, walls, or other locations as specified in the installation instructions that accompany the unit.

Asia Pacific is Expected to be the Fastest Growing Market

The Asia-Pacific region is one of the most rapidly growing regions for the gas sensors market, and it is projected to be the market leader during the forecast period. The growing awareness of the impact of air pollutants on human health in Asia-Pacific countries, such as India and China is driving demand for gas sensors for air quality monitoring.

In September 2022, Figaro Engineering Inc. introduced the KE-LF series of lead-free galvanic cell oxygen sensors for safety, environmental (combustion gas monitoring), food, and educational applications. The KE-LF Series consists of the KE-25LF and KE-25F3LF, lead-free galvanic cell-type oxygen sensors developed by Maxell Ltd. in Japan. They have a long life expectancy of around five years in ambient air, excellent chemical durability, and no influence from CO₂, H₂S, or SO₂. These new sensors have the same dimensions as existing KE series oxygen sensors, allowing onsite quick and easy replacement of current KE series oxygen sensors.

The growing use of gas sensors in vehicles for passenger comfort and safety drives the growth of manufacturing gas sensing applications. According to the IBEF, India has a strong market in terms of both domestic demand and exports. Total passenger

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vehicle sales in FY22 reached 3.07 million, with India exporting 5,617,246 vehicles.

India is the largest provider of generic drugs globally. Furthermore, the Indian pharmaceutical sector supplies 50% of the global demand. These pharmaceutical production facilities use a variety of solvents and gases in the manufacturing process and need to be continuously monitored, which raises the demand for gas sensors, thereby, driving the market.

Moreover, the presence of many industries in the APAC region is a crucial market wherein the demand for these detectors is increasing. The rising demand and stable profitability are attracting several vendors to enter the market. For instance, in February 2021, NevadaNano Inc., a gas detection sensor technology trader, announced that Elematec Corporation would distribute its Molecular Property Spectrometer to its customer base throughout Japan.

Gas Sensors Market Competitor Analysis

The gas sensors market is fragmented due to many players operating in the market. Further, the companies providing various types of gas sensors have technological product differentiation. Hence, they are adopting competitive pricing strategies to gain market share.

In December 2021, AMETEK, Inc. declared the acquisition of Alphasense, a leading provider of gas and particulate sensors for use in environmental, health and safety, and air quality applications. Alphasense develops and manufactures a wide range of technologically advanced gas detection sensors for fixed and portable detection systems. It provides critical measurements of oxygen concentration, harmful toxic gases, and volatile organic compounds in various industrial, commercial, and environmental applications.

In July 2021, ION Science released the Cub 11.7 eV personal device. This toxic gas detection solution works in temperatures ranging from 0 to 55 degrees Celsius, and it is not affected by humidity or moisture. This gas detector weighs only 111 gms, making it comfortable to wear; its small size allows workers to move around freely without being hampered by bulky equipment, and it has a battery life of up to 12 hours.

Additional Benefits:

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

Table of Contents:

1 INTRODUCTION

- 1.1 Study Assumptions and Market Definitions
- 1.2 Scope of the Study

2 RESEARCH METHODOLOGY

3 EXECUTIVE SUMMARY

4 MARKET DYNAMICS

- 4.1 Market Overview
- 4.2 Market Drivers
 - 4.2.1 Increased Demand for Gas Sensors in Automobiles for Compliance with Governmental Regulations
 - 4.2.2 Growing Awareness on Occupational Hazards across Major Industries
- 4.3 Market Restraints

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- 4.3.1 Rising Costs and Lack of Product Differentiation
- 4.4 Industry Value Chain Analysis
- 4.5 Industry Attractiveness - Porter's Five Forces Analysis
 - 4.5.1 Threat of New Entrants
 - 4.5.2 Bargaining Power of Consumers
 - 4.5.3 Bargaining Power of Suppliers
 - 4.5.4 Threat of Substitute Products
 - 4.5.5 Intensity of Competitive Rivalry

5 MARKET SEGMENTATION

- 5.1 By Type
 - 5.1.1 Oxygen
 - 5.1.2 Carbon Monoxide (CO)
 - 5.1.3 Carbon Dioxide (CO₂)
 - 5.1.4 Nitrogen Oxide
 - 5.1.5 Hydrocarbon
 - 5.1.6 Other Types
- 5.2 By Technology
 - 5.2.1 Electrochemical
 - 5.2.2 Photoionization Detectors (PID)
 - 5.2.3 Solid State/Metal Oxide Semiconductor
 - 5.2.4 Catalytic
 - 5.2.5 Infrared
 - 5.2.6 Semiconductor
- 5.3 By Application
 - 5.3.1 Medical
 - 5.3.2 Building Automation
 - 5.3.3 Industrial
 - 5.3.4 Food and Beverages
 - 5.3.5 Automotive
 - 5.3.6 Transportation and Logistics
 - 5.3.7 Other Applications
- 5.4 By Geography
 - 5.4.1 North America
 - 5.4.1.1 United States
 - 5.4.1.2 Canada
 - 5.4.2 Europe
 - 5.4.2.1 Germany
 - 5.4.2.2 United Kingdom
 - 5.4.2.3 France
 - 5.4.2.4 Rest of the Europe
 - 5.4.3 Asia Pacific
 - 5.4.3.1 China
 - 5.4.3.2 Japan
 - 5.4.3.3 India
 - 5.4.3.4 Rest of the Asia Pacific
 - 5.4.4 Latin America

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- 5.4.4.1 Brazil
- 5.4.4.2 Argentina
- 5.4.4.3 Mexico
- 5.4.4.4 Rest of the Latin America
- 5.4.5 Middle East & Africa
- 5.4.5.1 United Arab Emirates
- 5.4.5.2 Saudi Arabia
- 5.4.5.3 Rest of the Middle East & Africa

6 COMPETITIVE LANDSCAPE

- 6.1 Company Profiles
 - 6.1.1 Figaro Engineering Inc.
 - 6.1.2 Membrapor AG
 - 6.1.3 AlphaSense Inc.
 - 6.1.4 Nemoto & Co. Ltd
 - 6.1.5 Robert Bosch GmbH
 - 6.1.6 Amphenol Advanced Sensors
 - 6.1.7 AMS AG
 - 6.1.8 Trolex Ltd
 - 6.1.9 ABB Ltd
 - 6.1.10 Siemens AG
 - 6.1.11 City Technology Ltd

7 INVESTMENT ANALYSIS

8 FUTURE OF THE MARKET

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