

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

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Report description:

The gas detectors market is expected to register a CAGR of 3.42% over the forecast period. The growing adoption of handheld devices drives the developments in the field of gas sensors, detectors, and analyzers, which has further expanded the scope of application across various end-user segments. Due to their chemical composition and properties, metal oxide gas sensors are well-suited for various applications, such as detecting all reactive gases. Depending on the material used and the gases that must be detected, typical operating temperatures range between 300°C and 900°C. The key drivers boosting the market growth include the increasing demand for gas sensors and detectors in automobiles, the growing awareness of occupational hazards, and the incremental technological advancement across gas sensors and detectors.

Key Highlights

Presently, some major market vendors are developing products across detectors and analyzers with applications across clinical assaying, environmental emission control, explosive detection, agricultural storage, and shipping, along with workplace hazard monitoring. For instance, recently, DD-scientific announced the launch of electrochemical gas sensors called the DceL suite for industrial safety. The products can measure oxygen, carbon monoxide, hydrogen sulfide, nitrogen dioxide, sulfur dioxide, and ammonia.

Stringent government regulations have also resulted in the efficiency enhancement of combustion within the vehicle to limit the emission of harmful pollutants. This has further increased the adoption of gas sensors and detectors, therefore, gaining applications in providing real-time feedback to emission management systems of automobiles. The Biden-Harris Administration has launched a whole-of-government initiative to significantly reduce greenhouse gas emissions. In addition, President Biden's national goal is to cut global methane emissions by 30% by 2030.

Wireless/portable gas detectors are also witnessing widespread adoption, owing to their reduced initial implementation costs and recurrent savings, lower maintenance costs, better workforce management, faster resources workflow, and improved safety.

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Moreover, the development of sensor capabilities and miniaturization, coupled with improved communication capabilities, enables the integration of IoT sensors into various devices and machines without compromising the detection of toxic or flammable gases at safe distances. As IoT sensors' cost is declining, industries dealing with hazardous/combustible materials have started integrating these sensors into their day-to-day operations to improve environmental safety and operational efficiency. Governmental agencies have been taking proactive measures to enforce the use of gas detectors in potentially hazardous locations, where they are seen as a vital cog for triggering emergency procedures across industries in case of an abnormal rise in the concentration of gases that are actively used for monitoring the air quality and detection of combustible gases majorly in the chemical, industrial, medical, and automotive industries. With increased R&D efforts, along with the technological advancements by some prominent players, technologies such as tunable diode lasers (TDLA) are being developed, which detect and measure gases at a low density of air, thereby offering several measurement advantages, such as highly stable calibration and less cross-interference from the presence of other gases.

The increasing cases of gas leaks in various end-user industries are further creating a demand for gas detectors. For instance, according to China's national gas accident analysis report in 2021, the number of gas accidents reported was 544; however, in 2020, the accidents reported were 615 despite the lockdown of various industries in China due to the pandemic.

The COVID-19 pandemic scenario had an immediate impact across major end-user industries of the market, including oil and gas, chemicals and petrochemicals, water and wastewater, metal and mining, and utilities. The day-to-day operations were affected, and measures such as social distancing forced enterprises to close access to their sites and maintain services with minimal staff. While the indirect impacts of COVID-19 are likely to be wide-ranging, measures to contain the virus from spreading have highlighted the importance of deploying these gas detectors in industries.

Gas Detectors Market Trends

Oil and Gas Sector is Expected to Hold Major Share

The growing demand for gas monitoring amenities to notice the presence of harmful gases is also anticipated to witness constant gas detector equipment market growth, particularly in the industrial segment. The deployment of IoT in the oil and gas industry has realized superior field communication, real-time monitoring, digital oil field infrastructure, condensed maintenance cost, reduced power consumption, higher productivity, and heightened safety and security of assets and workforce. For instance, gas wastage is a critical issue that needs to be countered. LPG gas is extremely flammable and can inflict harm to life and property. Gas detectors, coupled with IoT, can play a substantial role in gas detection and block the wastage of gases.

Additionally, world energy needs are anticipated to increase by around 40% between 2013 and 2030, particularly in developing nations like India and China. The IEA reported that the demand for oil and gas is projected to increase by 50% and 20%, respectively. Moreover, the discovery of oil reserves in countries like India and China and future investments in the exploration processes are expected to drive gas detectors' needs.

With the U.S. Department of the Interior (DoI) approving offshore exploratory drilling in almost 90% of the Outer Continental Shelf (OCS) acreage, which comes under the National Outer Continental Shelf Oil and Gas Leasing Program for 2019-24, the oil and gas industry in the region is expected to develop new opportunities for the studied market vendors.

According to the RegData's Industry Regulation Index, the oil and gas extraction industry is among the top 10 most regulated industries in the United States. Regulations, such as the Bureau of Safety and Environmental Enforcement (BSEE) - which enforces safety and environmental protection regulations for the offshore oil and natural gas industry in the United States - are prevalent across other regions, like Europe.

According to the Oil & Gas Journal, companies that are using advanced technologies to manage safety and operations performance are reported to have 8% less unscheduled asset downtime (over those who do not), experience a 13% reduction in compliance-related costs, 8% fewer regulation citations, and realize operating margins 2% or greater than targeted in the corporate plan. The businesses are focusing on incorporating advanced technologies for proposing gas-detecting product

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differentiation in the market.

North America is Expected to Hold Significant Share

North America is witnessing the growth of gas detectors due to the presence of major vendors and government regulations regarding limiting gas emissions. In the North American region, the Environmental Protection Agency (EPA) and the U.S. Occupational Safety and Health Administration (OSHA) strictly implement industrial safety, driving the adoption of gas detectors. Almost all businesses in the United States are subject to OSHA standards, so they are a significant concern for employers and employees in various industries. The Environmental Protection Agency (EPA) has released the New Source Performance Standards to measure and limit methane emissions from new, reconstructed, or modified assets.

The EPA has also mandated the use of gas detectors in the mining industry. USA-based Carroll Technologies Group is a pioneer in offering handheld gas detectors for the mining industry. One of the products is the Mine Safety Appliances (MSA) Altair 4X Detector, which alerts the miner within 15 seconds of detection.

Additionally, Canada has one of the most active mining industries in the world. According to the Mining Association of Canada, Canada ranks among the top 5 members for the global production of 13 minerals and metals such as uranium, nickel, cobalt, potash, aluminum, diamonds, titanium, and gold. Additionally, the Mining Association of Canada reports that in 2021, USD 878 million was invested in mineral exploration in Ontario. Further, 43% of the world's public mining companies globally are listed on either the TSX or TSXV. Throughout previous year, USD 10.0 billion in mining equity capital was raised on the TSX/TSXV, approximately 25% of the mining equity capital raised in the world.

The region is the primary hub for all the major manufacturing establishments worldwide. The regional authority further demands high safety concerns in countries such as the United States and Canada, which also encourages gas detectors to be deployed across the respective industries. Moreover, in October 2022, the United States Department of Labor's Mine Safety and Health Administration (MSHA) awarded USD 985,284 in grant funding to support safety courses and other programs.

Gas Detectors Market Competitor Analysis

The gas detectors market is moderately competitive and consists of several major players. In terms of market share, few major players currently dominate the market. With a prominent share in the market, these major players are focusing on expanding their customer base across foreign countries. These companies leverage strategic collaborative initiatives to increase their market share and profitability. The competition, rapid technological advancements, and frequent changes in consumer preferences are expected to threaten the growth of companies during the forecast period.

In October 2022, Dräger Marine & Offshore announced the release of the mobile gas detector, the X-am 2800. The new product simultaneously measures up to four different gases for application in confined spaces to safeguard employees working in areas at risk of oxygen depletion, explosive atmospheres, or those where toxic substances may be present.

In October 2022, Blackline Safety Corporation announced a preview of its new G6 single gas detector at the 2022 Abu Dhabi International Petroleum Exhibition and Conference. As per the company, ADIPEC is an opportunity for customers, distributors, media, and analysts in the Middle East to get a first look at this trailblazing connected safety innovation for oil and gas, petrochemical, and other industrial workplaces.

Additional Benefits:

The market estimate (ME) sheet in Excel format

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