

Functional Safety - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2019 - 2029

Market Report | 2024-02-17 | 191 pages | Mordor Intelligence

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Report description:

The Functional Safety Market size is estimated at USD 6.34 billion in 2024, and is expected to reach USD 10.43 billion by 2029, growing at a CAGR of 10.48% during the forecast period (2024-2029).

Key Highlights

- The increasing adoption of functional safety systems in a wide range of industries and the growing industrial safety standards are the factors driving the market growth. Oil and gas facilities are prone to accidents that can negatively impact society and the environment. Functional safety measures, including emergency shutdown systems, can significantly minimize the risk of disasters in oil and gas facilities.
- The increasing use of connected devices and the rapid installation of software solutions using over-the-air (OTA) are also expected to drive the demand for functional safety systems. Industrial Revolution 4.0 has increased the need for reliable security systems to protect individuals and property. These are the factors anticipated to contribute to the market's revenue growth during the forecast period.
- The adoption of functional safety systems and a datacentric approach provides enterprises in a wide range of industries with the required functionality that enables automatic prevention of dangerous failures and control in instances of such occurrences. They also offer facilities that humans cannot mimic.
- Although functional safety systems are driving the demand for the market across the world, the increasing complexity of these systems, coupled with high maintenance costs and the high initial cost of setting up these systems, is dissuading enterprises from investing in functional safety systems technology, thus leading to slow market penetration.

Functional Safety Market Trends

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Automotive to be the Fastest-growing End-user Sector

- Functional safety must be a top priority across various industries, especially with the advancements in technology and the continuous enhancements in automation equipment. Automation is assuming an increasingly crucial role in a wide array of applications, including services. It is imperative to ensure that malfunctioning equipment, robotics, and automation in sectors like medical and construction are designed to prevent accidents and eliminate any undesirable consequences.
- The automotive industry has undergone various changes over the past few years, integrating technological advancements into multiple types of vehicles. Previously, cars were mechanical, mostly with basic electrical systems that offered power for headlights and spark plugs. As technology progressed, vehicles were now equipped with advanced safety purposes, such as airbag deployment systems.
- The increase in these sensor-dependent features has driven engineers to develop more accurate sensors with automotive applications in mind. The industry's adoption of functional safety is predicted to increase due to these trends. It will enable automakers to react faster to market requirements, reduce manufacturing downtimes, enhance supply chains' efficiency, and expand productivity.
- The widespread use of modern vehicles powered by automotive electronic control units (ECU) has necessitated sophisticated safety measures. The process of functional safety has grown to be crucial to the process of developing ECU software. To reduce risks and damage in software or hardware failures, functional safety schemes for automobiles help diagnose malfunctions (electric and electronic) and specify the actions and procedures to be used.
- Electrification and automation are the two significant trends in the automotive sector. The emergence of electric vehicles in the industry has dramatically impacted the demand for sensors in the long term. More electric cars mean increased demand for sensors and a rise in sensors for applications, such as battery monitoring, various positioning, and detection of moving parts of automobiles.
- The automotive industry is among the prominent sectors that hold a significant share of the world's automated manufacturing facilities. In 2022, the ranking of the world's largest car brands was topped by Toyota, with a market share of around 11.5 percent. The production facilities of various automakers are automated to maintain efficiency. The growing trend of replacing conventional vehicles with electric vehicles (EVs) is expected to augment the automotive industry's demand further.

North America Expected to Hold Significant Market Share

- The United States is one of the largest markets for functional safety systems globally. The country is renowned for its innovation capabilities and is at the forefront of significant developments surrounding the emerging technologies of the 4th Industrial Revolution. Newfound shale resources in the United States and an increasing number of oil and gas projects are additional indicators of market potential. Prominent vendors such as Honeywell International, Rockwell Automation, Banner Engineering Corp, and General Electric are headquartered in the country.
- The government is also focusing on increasing its energy generation capacity and is investing in such projects. For instance, in October 2022, the US Department of Energy (DOE) announced that the Idaho National Laboratory (INL) would receive USD 150 million in financing from the President's Inflation Reduction Act to modernize its infrastructure and advance nuclear energy research and development. The funding will help almost a dozen projects at INL's Advanced Test Reactor (ATR) and Materials Fuels Complex (MFC), both of which have been in operation for more than 50 years and play a critical role in developing nuclear technologies for governmental organizations, business, and global collaborations. With nuclear energy accounting for approximately 5% of domestic electricity production and 50% of all domestic clean energy production, it is essential to achieving President Biden's target of 100% clean electricity by 2035.
- Furthermore, in October 2022, the United States Department of Energy (DOE) announced more than USD 28 million across three

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funding opportunities to support research and development initiatives that promote and sustain hydropower as a crucial source of clean energy.

- The expansion of low-impact hydropower and pumped storage hydropower, the construction of new pumped storage hydropower facilities, and engagement with influential voices on issues like hydropower fleet modernization, sustainability, and environmental impacts will all be supported by funding provided by Bipartisan Infrastructure Law. Such initiatives of power-generating project investments certainly increase the demand for functional safety devices in the country.

- According to the Government of Canada, the Canadian manufacturing industry accounts for approximately CAD 174 billion of its GDP, representing more than 10% of the country's total GDP. The manufacturing sector is the largest investor in R&D and implements new technologies that are expected to create scope for the market.

Functional Safety Industry Overview

The functional safety market is characterized by several prominent global players competing in a fairly competitive landscape. Key contenders in this market include Rockwell Automation Inc., Emerson Electric Company, and Honeywell International Inc. These market players are actively working on enhancing their competitive edge through various strategies, including product innovation. As a result, the competitive rivalry within the market is anticipated to remain intense.

In October 2022, Emerson made a significant move by launching its PlantWeb digital ecosystem. This innovative ecosystem integrates the AspenTech portfolio of asset-optimizing software, which harnesses the power of industrial artificial intelligence. This strategic move positions Emerson as a leader in the industry, offering one of the most comprehensive digital transformation portfolios available.

In September 2022, Yokogawa Electric Corporation acquired Votiva Singapore Pte Ltd, a prominent Southeast Asian IT consultancy specializing in the deployment of enterprise resource planning (ERP) and customer relationship management (CRM) software. Yokogawa relies on ERP systems as a core component of its solutions designed to support smart manufacturing and digital transformation (DX) for customers in the manufacturing industry. With this acquisition, Yokogawa gains the ability to expand its geographic reach in Southeast Asia, offering enhanced consulting, implementation, and technical support services for ERP solutions in the region. As a result of this transaction, Votiva Singapore Pte Ltd will be rebranded as Yokogawa Votiva Solutions, solidifying Yokogawa's presence and influence in the Southeast Asian market.

Additional Benefits:

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

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