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Global Turbine Emergency Trip System Market 2026 by Manufacturers, Regions, Type and Application, Forecast to 2032

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Abstracts

According to our (Global Info Research) latest study, the global Turbine Emergency Trip System market size was valued at US$ 451 million in 2025 and is forecast to a readjusted size of US$ 643 million by 2032 with a CAGR of 5.3% during review period.

The Emergency Trip System (ETS) is the most crucial component of turbine protection. It serves as the exit point for electrical tripping of the turbine, and its operational safety directly impacts the safe operation of the turbine. The ETS monitors critical turbine parameters such as lubricating oil pressure, condenser vacuum, turbine speed, rotor vibration, and axial displacement. When these parameters exceed limits, it outputs a trip signal to the trip solenoid valve. The solenoid valve releases the safety oil from the safety system, causing the turbine's main steam valve and regulating valve to close rapidly, thus completing the turbine tripping function and bringing the turbine to an emergency shutdown, ensuring a safe state and preventing serious consequences.

Upstream components primarily involve high-performance microprocessors, redundant controllers, high-precision sensors, and precision relays. This segment demands extremely high reliability and response speed from its components. Currently, core chips and precision hydraulic components are still supplied by leading automation companies in Europe, America, and China. Midstream components focus on logic control software and redundant architecture design. Downstream components primarily serve the power and petrochemical industries. With the global energy transition, the digital and intelligent transformation of existing power units and the supporting needs of emerging power units such as nuclear power and biomass energy have jointly driven the steady growth of the market.

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The demand for steam turbine emergency trip systems (new units + retrofits) is estimated at around 1,200 sets by 2025. A complete system typically costs between US$100,000 and US$500,000, with a gross profit margin of approximately 40% to 50%.

ETS (Electronic Safety System) is evolving from a simple 'end-of-line safety gate' into the core safety brain for the entire lifecycle management of power assets. With the increasing demands for flexible unit regulation in new power systems, ETS is no longer limited to passively receiving traditional signals such as overspeed or vacuum drops. Currently, the high-end market has fully shifted to SIL3 functional safety certification and a 2-out-of-3 (2-out-of-3) full redundancy architecture.

The changing role of generating units in the new energy system, due to the increased proportion of wind and solar power, means that traditional thermal power units frequently participate in deep peak shaving and rapid start-up and shutdown. This places rigid demands on the response accuracy of ETS under dynamic and complex operating conditions, driving the iteration of high-frequency sensors and solid-state logic modules. The maturity of predictive maintenance technology has prompted power plants to upgrade their old relay-based systems to intelligent ETS with remote diagnostic and fault prediction capabilities to reduce the huge losses caused by unplanned outages, opening up vast incremental space for high-safety ETS systems.

This report is a detailed and comprehensive analysis for global Turbine Emergency Trip System market. Both quantitative and qualitative analyses are presented by manufacturers, by region & country, by Type and by Application. As the market is constantly changing, this report explores the competition, supply and demand trends, as well as key factors that contribute to its changing demands across many markets. Company profiles and product examples of selected competitors, along with market share estimates of some of the selected leaders for the year 2025, are provided.

Key Features:

Global Turbine Emergency Trip System market size and forecasts, in consumption value ($ Million), sales quantity (Units), and average selling prices (K US$/Unit), 2021-2032

Global Turbine Emergency Trip System market size and forecasts by region and country, in consumption value ($ Million), sales quantity (Units), and average selling prices (K US$/Unit), 2021-2032

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Global Turbine Emergency Trip System market size and forecasts, by Type and by Application, in consumption value ($ Million), sales quantity (Units), and average selling prices (K US$/Unit), 2021-2032

Global Turbine Emergency Trip System market shares of main players, shipments in revenue ($ Million), sales quantity (Units), and ASP (K US$/Unit), 2021-2026

The Primary Objectives in This Report Are:

To determine the size of the total market opportunity of global and key countries

To assess the growth potential for Turbine Emergency Trip System

To forecast future growth in each product and end-use market

To assess competitive factors affecting the marketplace

This report profiles key players in the global Turbine Emergency Trip System market based on the following parameters - company overview, sales quantity, revenue, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include Emerson, Siemens, GE Vernova, Westinghouse Electric, Mitsubishi, ABB, Woodward, Honeywell, HollySys, Guoneng Zhishen Control Technology, etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

Market Segmentation

Turbine Emergency Trip System market is split by Type and by Application. For the period 2021-2032, the growth among segments provides accurate calculations and forecasts for consumption value by Type, and by Application in terms of volume and value. This analysis can help you expand your business by targeting qualified niche markets.

Market segment by Type

Dual Redundancy

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Triple Redundancy

Other

Market segment by Technology

Relay-based

PLC-based

Smart Integrated

Market segment by Functional Requirements

Grid-Connected Type

Industrial Drive Type

Market segment by Application

Thermal Power Plants

Nuclear Power Plants

Industrial Drives

Other

Major players covered

Emerson

Siemens

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GE Vernova

Westinghouse Electric

Mitsubishi

ABB

Woodward

Honeywell

HollySys

Guoneng Zhishen Control Technology

Beijing Consen Automation Control

Sciyon

Shandong Luneng Control Engineering

Jiangsu Lihe I&C Technology

Jiangyin Zhonghe Electrical Power Instrument

Market segment by region, regional analysis covers

North America (United States, Canada, and Mexico)

Europe (Germany, France, United Kingdom, Russia, Italy, and Rest of Europe)

Asia-Pacific (China, Japan, Korea, India, Southeast Asia, and Australia)

South America (Brazil, Argentina, Colombia, and Rest of South America)

Middle East & Africa (Saudi Arabia, UAE, Egypt, South Africa, and Rest of Middle East & Africa)

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The content of the study subjects, includes a total of 15 chapters:

Chapter 1, to describe Turbine Emergency Trip System product scope, market overview, market estimation caveats and base year.

Chapter 2, to profile the top manufacturers of Turbine Emergency Trip System, with price, sales quantity, revenue, and global market share of Turbine Emergency Trip System from 2021 to 2026.

Chapter 3, the Turbine Emergency Trip System competitive situation, sales quantity, revenue, and global market share of top manufacturers are analyzed emphatically by landscape contrast.

Chapter 4, the Turbine Emergency Trip System breakdown data are shown at the regional level, to show the sales quantity, consumption value, and growth by regions, from 2021 to 2032.

Chapter 5 and 6, to segment the sales by Type and by Application, with sales market share and growth rate by Type, by Application, from 2021 to 2032.

Chapter 7, 8, 9, 10 and 11, to break the sales data at the country level, with sales quantity, consumption value, and market share for key countries in the world, from 2021 to 2026.and Turbine Emergency Trip System market forecast, by regions, by Type, and by Application, with sales and revenue, from 2027 to 2032.

Chapter 12, market dynamics, drivers, restraints, trends, and Porters Five Forces analysis.

Chapter 13, the key raw materials and key suppliers, and industry chain of Turbine Emergency Trip System.

Chapter 14 and 15, to describe Turbine Emergency Trip System sales channel, distributors, customers, research findings and conclusion.

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