Sector Snapshot

Sensors for process manufacturing

Sector Definition

- **Purpose:** design, manufacture, and supply industrial sensors and related instrumentation used in the monitoring, control, and optimization of continuous or batch processes involving fluids, gases, chemicals, or bulk materials
- Key Customers: process industries such as oil and gas, chemicals, pharmaceuticals, food and beverage, water and wastewater treatment, pulp and paper, and other





Process Sensor Types

By measured parameter

Temperature

(Absolute, gauge, differential)

Flow (Mass or volumetric)

Level

Analytical

Gas, pH/ORP, conductivity, humidity/moisture, turbidity, viscosity, density, etc By communication architecture / protocol

Analog 4-20 mA

Serial (Non-fieldbus)

HART (Analog + digital overlay), IO-Link, ASCII

Fieldbus

Foundation Fieldbus, PROFIBUS, Modbus RTU (lightweight fieldbus)

IP-based / Ethernet

<u>Wired:</u> PROFINET, Modbus TCP, EtherNet/IP <u>Wireless:</u> Wi-Fi, NB-IoT/ LTE-M

Application-level: OPC UA, MQTT

Wireless

WirelessHART, ISA100.11a, LoRaWAN, IO-Link Wireless, BLE



Industry Requirements

- **Oil & gas:** high temperature/pressure, explosion-proof, corrosion resistant
- **Chemical:** chemical resistance, batch-flexible, safe in explosive zones
- Pharma: hygienic, autoclave or sterilise/ clean-in-place (SIP/CIP), validated, ultra-accurate
- Food & beverage: sanitary design, FDA/EHEDG, CIP/SIP, fast response
- Water/Waste: non-fouling, waterproof, low-maintenance
- Pulp & paper: abrasion resistance, moisture/dust protection
- ARGONAS

Market Size & Growth

- Global Process Sensors Market: valued at USD 17 bn in 2023, projected to reach USD 23 bn by 2032 (CAGR 3%)
- Main Growth Areas: digital transformation and modernisation, expanding process industries, and environmental mandates
- By Segment: growth led by Pharma & Biotech, Food & Beverage, Water & Wastewater, Chemicals, while conventional Oil & Gas lags behind

Regional Dynamics

- Asia-Pacific leads sensor market growth driven by rapid industrialization and technological advancements
- Europe and North America grow steadily through environmental regulations, sustainability initiatives, safety, modernization and digitalization
- The Middle East and Latin America show emerging growth driven by energy, mining, and food sectors

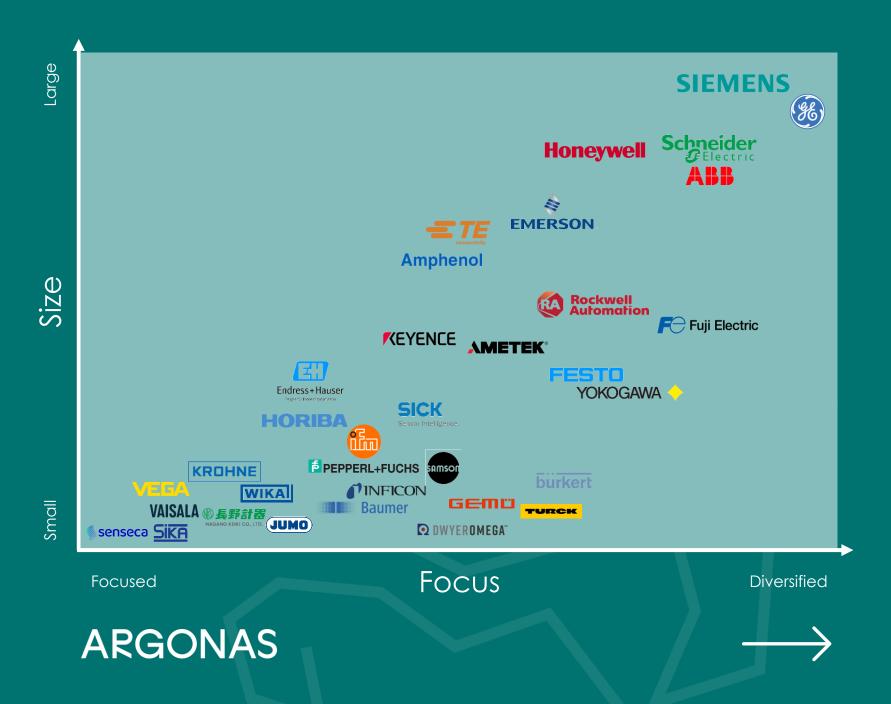




Market Structure

- Diversified Industrial Automation: Honeywell, Emerson, Siemens, Yokogawa, Schneider Electric, ABB, Rockwell Automation
- Process Instrumentation Specialists: (sensors) Endress+Hauser, KROHNE, VEGA, (+ valves and actuators) Bürkert, GEMÜ, (+ control systems) JUMO, as well as smaller niche players
- Sensors and Connectivity Specialists: TE Connectivity, Keyence, SICK, Pepperl+Fuchs

Selected Key Players



Underlying Key Drivers

- Industrial Automation: Growing implementation of smart factories and digitalized process plants
- Environmental Regulations: Emission control, waste reduction, and resource efficiency – use of gas detection and analytical sensors to ensure compliance
- Growth of Core Process Industries: Expansion in pharmaceuticals, chemicals, food & beverage, water treatment, and renewable energy

Recent Key Trends

- Smart Sensors and Wireless
 Technology: Shift from legacy devices
 to smart, self-diagnosing, and wireless
 sensors
- Predictive Maintenance and Condition Monitoring: Transition from reactive to proactive maintenance strategies
- Cloud & Edge Computing Integration: Sensors are increasingly part of larger edge analytics and cloud-based control platforms

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Transaction Market

Historical Activity:

- Strategic investors have pursued market consolidation, as well as broadening of their product portfolios, providing the acquired companies with access to capital, technology, and global distribution networks
- Private equity funds have successfully executed buy-and-build strategies, achieving value through select exits
- European sensor producers were attractive for the international buyers

Transaction Market

Key Drivers of Potential Deal Activity:

- Strategic acquisitions focused on differentiated, proprietary technologies that enhance capabilities in cost efficiency, speed, reliability, and smart connectivity driving innovation beyond internal R&D efforts
- Ongoing interest from international buyers, driven by the pursuit of advanced technological expertise and innovation



Transaction Market

Outlook & Potential Opportunities:

- The process sensor industry is evolving rapidly, with strong long-term growth tied to process optimisation, digital transformation and sustainability
- To thrive, manufacturers must balance innovation and integration with cost-efficiency and reliability
- The sector remains attractive for buy and build strategies, offering significant consolidation potential

Selected Deals





Get in Touch



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