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Global Robotic Inertial Measurement Unit (IMU) Market Growth 2026-2032

https://marketpublishers.com/r/G35EF66D7578EN.html
Date: May 2026
Pages: 96
Price: US$ 3,660.00 (Single User License)
ID: G35EF66D7578EN

Abstracts

The global Robotic Inertial Measurement Unit (IMU) market size is predicted to grow from US$ 132 million in 2025 to US$ 439 million in 2032; it is expected to grow at a CAGR of 19.4% from 2026 to 2032.

Robotic Inertial Measurement Unit (IMU) is an industrial-grade high-precision core sensing chip customized for various robotic systems, integrating MEMS/fiber optic/laser gyroscopes, high-dynamic accelerometers (and magnetometers/altimeters in mid-to-high-end models) on a single chip or chip set, with built-in industrial-grade anti-interference, wide-temperature calibration and multi-sensor fusion preprocessing circuits. It can real-time collect and process the robot's three-axis angular velocity, three-axis linear acceleration and spatial posture data in complex working conditions, and output standardized, high-reliability sensing signals to the robot's motion control system, serving as the hardware core for robots to perceive motion state, achieve precise posture control and autonomous navigation.Robotic IMU is priced in a huge tiered range by precision and manufacturing process, matching the operational requirements of different robots: Consumer-grade MEMS models for educational and lightweight service robots cost $3-8 each; Industrial-grade MEMS models used in collaborative robots and general AGVs are priced at $20-80; High-precision MEMS models for industrial robotic arms and high-end AGVs range from $120-500; Fiber optic IMU chips for special robots and unmanned vehicles cost $1,000-5,000; Laser IMU chips for military and aerospace-grade robots are priced at $5,000-50,000+.

The industrial chain is divided into three tiers, with core barriers in high-precision sensing technology. Upstream covers MEMS sensitive structures, ASIC circuits, wafer materials and other core components, with TSMC, GlobalFoundries and Bosch as key suppliers, accounting for over 40% of the total cost. Midstream focuses on chip design

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(ADI, Honeywell, CoreMEMS), manufacturing (SMIC, Sino Microelectronics) and packaging & testing (JCET Group, ASE), where the core barriers lie in wide-temperature calibration, anti-interference algorithms and fiber optic/laser sensing processes. Downstream includes manufacturers of industrial robots, service robots and AGV complete machines. The precision requirements of terminal robots drive the technological iteration direction of robotic IMU chips.

United States market for Robotic Inertial Measurement Unit (IMU) is estimated to increase from US$ million in 2025 to US$ million by 2032, at a CAGR of % from 2026 through 2032.

China market for Robotic Inertial Measurement Unit (IMU) is estimated to increase from US$ million in 2025 to US$ million by 2032, at a CAGR of % from 2026 through 2032.

Europe market for Robotic Inertial Measurement Unit (IMU) is estimated to increase from US$ million in 2025 to US$ million by 2032, at a CAGR of % from 2026 through 2032.

Global key Robotic Inertial Measurement Unit (IMU) players cover Bosch, TDK, STMicroelectronics, Murata, Panasonic, etc. In terms of revenue, the global two largest companies occupied for a share nearly % in 2025.

LP Information, Inc. (LPI) ' newest research report, the “Robotic Inertial Measurement Unit (IMU) Industry Forecast” looks at past sales and reviews total world Robotic Inertial Measurement Unit (IMU) sales in 2025, providing a comprehensive analysis by region and market sector of projected Robotic Inertial Measurement Unit (IMU) sales for 2026 through 2032. With Robotic Inertial Measurement Unit (IMU) sales broken down by region, market sector and sub-sector, this report provides a detailed analysis in US$ millions of the world Robotic Inertial Measurement Unit (IMU) industry.

This Insight Report provides a comprehensive analysis of the global Robotic Inertial Measurement Unit (IMU) landscape and highlights key trends related to product segmentation, company formation, revenue, and market share, latest development, and M&A activity. This report also analyzes the strategies of leading global companies with a focus on Robotic Inertial Measurement Unit (IMU) portfolios and capabilities, market entry strategies, market positions, and geographic footprints, to better understand these firms’ unique position in an accelerating global Robotic Inertial Measurement Unit (IMU) market.

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This Insight Report evaluates the key market trends, drivers, and affecting factors shaping the global outlook for Robotic Inertial Measurement Unit (IMU) and breaks down the forecast by Type, by Application, geography, and market size to highlight emerging pockets of opportunity. With a transparent methodology based on hundreds of bottom-up qualitative and quantitative market inputs, this study forecast offers a highly nuanced view of the current state and future trajectory in the global Robotic Inertial Measurement Unit (IMU).

This report presents a comprehensive overview, market shares, and growth opportunities of Robotic Inertial Measurement Unit (IMU) market by product type, application, key manufacturers and key regions and countries.

Segmentation by Type:

4-axis

6-axis

Others

Segmentation by Inertial Sensor Composition:

MEMS-IMU

Non-MEMS-IMU

Segmentation by Manufacturing Process:

CMOS IMU

SOC IMU

Others

Segmentation by Application:

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- Industrial Robots
- Service Robots
- Special Robots
- Military and Aerospace Robots
- Other

This report also splits the market by region:

- Americas
  - United States
  - Canada
  - Mexico
  - Brazil
- APAC
  - China
  - Japan
  - Korea
  - Southeast Asia
  - India
  - Australia
- Europe

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- Germany
- France
- UK
- Italy
- Russia

Middle East & Africa

- Egypt
- South Africa
- Israel
- Turkey
- GCC Countries

The below companies that are profiled have been selected based on inputs gathered from primary experts and analysing the company's coverage, product portfolio, its market penetration.

- Bosch
- TDK
- STMicroelectronics
- Murata
- Panasonic
- Senodia

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QST Corporation

Silan Microelectronics

Memsic

Key Questions Addressed in this Report
What is the 10-year outlook for the global Robotic Inertial Measurement Unit (IMU) market?
What factors are driving Robotic Inertial Measurement Unit (IMU) market growth, globally and by region?
Which technologies are poised for the fastest growth by market and region?
How do Robotic Inertial Measurement Unit (IMU) market opportunities vary by end market size?
How does Robotic Inertial Measurement Unit (IMU) break out by Type, by Application?

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3 GLOBAL BY COMPANY

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List Of Tables

LIST OF TABLES

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List Of Figures

LIST OF FIGURES

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