

Global Robot Encoder Supply, Demand and Key Producers, 2026-2032

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Abstracts

The global Robot Encoder market size is expected to reach \$ 3156 million by 2032, rising at a market growth of 11.2% CAGR during the forecast period (2026-2032).

A Robot Encoder is a precision sensing device used to measure position, speed, direction, or displacement in robotic systems. It converts mechanical motion into electrical signals and provides feedback to the robot controller, enabling accurate motion control. Robot encoders are widely used in servo motors, robot joints, wheels, grippers, linear actuators, and end-effectors. Depending on the application, they can be rotary or linear, incremental or absolute, optical, magnetic, capacitive, or inductive. Robot encoders are essential components for industrial robots, collaborative robots, mobile robots, humanoid robots, medical robots, and service robots. Global production capacity is approximately 15 million units.

In 2025, global sales reached approximately 12.4 million units, with an average price of around US\$ 117 per unit, gross margin around 33%.

The Robot Encoder market is a key supporting segment of the robotics industry. Its demand is closely related to the growth of industrial robots, collaborative robots, mobile robots, humanoid robots, medical robots, and precision automation equipment. As robots require higher accuracy, safety, compactness, and intelligent motion control, encoder technology will continue to develop toward high resolution, absolute position feedback, digital communication, miniaturization, and stronger environmental adaptability. In the long term, expanding robot applications in manufacturing, logistics, healthcare, service industries, and humanoid robotics are expected to support continuous growth of the Robot Encoder market.

Market Trend

The Robot Encoder market is moving toward higher precision, miniaturization, integration, and intelligent feedback control. As robots become more compact, flexible, and collaborative, encoder products are required to offer higher resolution, lower latency, better environmental resistance, and easier integration with servo motors and robotic joints. Absolute encoders and magnetic encoders are gaining attention because of their position memory, compact design, and durability. Growth in humanoid robots, collaborative robots, AMRs, medical robots, and semiconductor automation is also increasing demand for lightweight, high-reliability encoders with digital communication interfaces such as EtherCAT, BiSS, SSI, and CANopen.

Market Drive

The main drivers of the Robot Encoder market include industrial automation, labor shortages, smart manufacturing, logistics automation, and the rapid development of humanoid and collaborative robots. Robots require accurate feedback to achieve smooth movement, repeatable positioning, safe interaction, and high-speed motion control. In manufacturing, encoders help improve productivity, quality consistency, and equipment reliability. In mobile robots, encoders support navigation, wheel speed measurement, and distance calculation. In humanoid and medical robots, encoders are critical for precise joint control and safety. These expanding robot applications continue to support stable demand for high-performance encoder products.

Upstream and Downstream

The upstream supply chain of Robot Encoders includes optical components, magnetic sensors, ASIC chips, PCBs, precision bearings, code discs, magnets, housings, connectors, cables, and signal processing ICs. Key upstream companies include semiconductor suppliers, sensor manufacturers, precision machining companies, and electronic component suppliers. Downstream customers mainly include robot manufacturers, servo motor companies, automation equipment makers, AGV/AMR producers, medical robot companies, semiconductor equipment manufacturers, and system integrators. The market is strongly linked to robot production volume, servo motor demand, and automation investment. Encoder suppliers with precision manufacturing, customization, and reliability advantages are more competitive.

This report studies the global Robot Encoder production, demand, key manufacturers, and key regions.

This report is a detailed and comprehensive analysis of the world market for Robot Encoder and provides market size (US\$ million) and Year-over-Year (YoY) Growth, considering 2025 as the base year. This report explores demand trends and competition, as well as details the characteristics of Robot Encoder that contribute to its increasing demand across many markets.

Highlights and key features of the study

Global Robot Encoder total production and demand, 2021-2032, (K Units)

Global Robot Encoder total production value, 2021-2032, (USD Million)

Global Robot Encoder production by region & country, production, value, CAGR, 2021-2032, (USD Million) & (K Units), (based on production site)

Global Robot Encoder consumption by region & country, CAGR, 2021-2032 & (K Units)

U.S. VS China: Robot Encoder domestic production, consumption, key domestic manufacturers and share

Global Robot Encoder production by manufacturer, production, price, value and market share 2021-2026, (USD Million) & (K Units)

Global Robot Encoder production by Type, production, value, CAGR, 2021-2032, (USD Million) & (K Units)

Global Robot Encoder production by Application, production, value, CAGR, 2021-2032, (USD Million) & (K Units)

This report profiles key players in the global Robot Encoder market based on the following parameters - company overview, production, value, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include Heidenhain, Renishaw, Tamagawa Seiki, Omron, SICK, FAULHABER, Rockwell Automation, Inovance, Broadcom, Nikon, etc.

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

Stakeholders would have ease in decision-making through various strategy matrices used in analyzing the World Robot Encoder market

Detailed Segmentation:

Each section contains quantitative market data including market by value (US\$ Millions), volume (production, consumption) & (K Units) and average price (US\$/Unit) by manufacturer, by Type, and by Application. Data is given for the years 2021-2032 by

year with 2025 as the base year, 2026 as the estimate year, and 2027-2032 as the forecast year.

Global Robot Encoder Market, By Region:

United States

China

Europe

Japan

South Korea

ASEAN

India

Rest of World

Global Robot Encoder Market, Segmentation by Type:

Incremental Encoder

Absolute Encoder

Global Robot Encoder Market, Segmentation by Sensing Technology:

Optical Encoders

Magnetic Encoders

Capacitive Encoders

Inductive Encoders

Global Robot Encoder Market, Segmentation by Motion Measurement:

Rotary Encoders

Linear Encoders

Global Robot Encoder Market, Segmentation by Application:

Industrial Robot

Collaborative Robot

Service Robot

Companies Profiled:

Heidenhain

Renishaw

Tamagawa Seiki

Omron

SICK

FAULHABER

Rockwell Automation

Inovance

Broadcom

Nikon

Maxon Motor

Baumer

RLS

HCFA

KingKong Technology

Yuheng Optics

POSITAL

Encoder Products Company

ZeroErr

K?bler

Dynapar Encoders

SIKO

Hengstler

Guangzhou Haozhi Industrial

Balluff

Key Questions Answered:

1. How big is the global Robot Encoder market?
2. What is the demand of the global Robot Encoder market?
3. What is the year over year growth of the global Robot Encoder market?
4. What is the production and production value of the global Robot Encoder market?
5. Who are the key producers in the global Robot Encoder market?
6. What are the growth factors driving the market demand?

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