

Global Secondary Encoders for Industrial Robot Market Growth 2026-2032

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Abstracts

The global Secondary Encoders for Industrial Robot market size is predicted to grow from US\$ 293 million in 2025 to US\$ 642 million in 2032; it is expected to grow at a CAGR of 12.0% from 2026 to 2032.

Secondary encoders for industrial robots are additional position-feedback devices mounted on the robot joint output side, usually after the gearbox or reducer, rather than only on the motor shaft. They directly measure the actual joint position and help compensate for transmission errors caused by gear backlash, torsional deformation, thermal expansion, elastic deflection, and assembly tolerance. In industrial robots, secondary encoders are commonly used together with primary motor encoders to form a dual-feedback control system. They are especially important in high-precision robots, collaborative robots, semiconductor robots, machining robots, welding robots, and applications requiring high path accuracy and repeatability.

Global production capacity is approximately 5 million units.

In 2025, global sales reached approximately 2.2 million units, with an average price of around US\$ 134 per unit, gross margin around 36%.

The secondary encoders are becoming an important upgrade direction for industrial robot motion-control systems. They improve actual joint-position feedback and help overcome the limitations of motor-side encoder measurement, especially in applications requiring high accuracy, high repeatability, and stable path control. Although they increase system cost and structural complexity, their value is significant in high-end industrial robots, collaborative robots, semiconductor robots, and precision automation equipment. Future competition will focus on compact design, hollow-shaft integration,

high resolution, robustness, digital interfaces, functional safety, and compatibility with robot joint modules. The market is expected to grow with the upgrading of industrial robotics.

Market Trend

The secondary encoder market for industrial robots is moving toward higher accuracy, compact hollow-shaft structures, absolute position feedback, thin-ring designs, and easier integration into robot joints. As industrial robots are increasingly used in precision assembly, semiconductor handling, laser processing, robotic machining, and high-end welding, robot OEMs are paying more attention to actual joint-position accuracy rather than motor-side feedback alone. Optical encoders remain important in high-precision applications, while magnetic and inductive encoders are gaining adoption in compact and rugged joint designs. Dual-encoder architecture is becoming a key trend in premium industrial robots and collaborative robots.

Market Drive

The main driver of secondary encoders for industrial robots is the rising demand for higher robot accuracy, smoother motion, and better process quality. Traditional motor-side encoders cannot fully reflect errors generated by harmonic reducers, RV reducers, gear backlash, joint elasticity, and load deformation. By measuring the output-side joint position directly, secondary encoders help improve absolute positioning accuracy, trajectory control, force control, and vibration compensation. Growth in semiconductor manufacturing, electronics assembly, precision welding, robotic machining, and collaborative automation is increasing demand for dual-feedback systems. As robots move into more precise and flexible production tasks, secondary encoders are becoming more valuable.

Upstream and Downstream

The upstream side of secondary encoders includes optical gratings, glass or metal code discs, magnetic rings, inductive coils, sensor ICs, readheads, bearings, precision housings, PCBs, connectors, cables, and signal-processing chips. Downstream customers include industrial robot OEMs, collaborative robot manufacturers, robot joint-module suppliers, servo system companies, reducer manufacturers, and automation integrators. Major application industries include automotive, electronics, semiconductor, metal processing, packaging, logistics, and precision manufacturing.

LP Information, Inc. (LPI) ' newest research report, the "Secondary Encoders for Industrial Robot Industry Forecast" looks at past sales and reviews total world Secondary Encoders for Industrial Robot sales in 2025, providing a comprehensive analysis by region and market sector of projected Secondary Encoders for Industrial Robot sales for 2026 through 2032. With Secondary Encoders for Industrial Robot sales broken down by region, market sector and sub-sector, this report provides a detailed analysis in US\$ millions of the world Secondary Encoders for Industrial Robot industry.

This Insight Report provides a comprehensive analysis of the global Secondary Encoders for Industrial Robot 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 Secondary Encoders for Industrial Robot portfolios and capabilities, market entry strategies, market positions, and geographic footprints, to better understand these firms' unique position in an accelerating global Secondary Encoders for Industrial Robot market.

This Insight Report evaluates the key market trends, drivers, and affecting factors shaping the global outlook for Secondary Encoders for Industrial Robot 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 Secondary Encoders for Industrial Robot.

This report presents a comprehensive overview, market shares, and growth opportunities of Secondary Encoders for Industrial Robot market by product type, application, key manufacturers and key regions and countries.

Segmentation by Type:

Incremental Encoder

Absolute Encoder

Segmentation by Sensing Technology:

Optical Encoders

Magnetic Encoders

Capacitive Encoders

Inductive Encoders

Segmentation by Motion Measurement:

Rotary Encoders

Linear Encoders

Segmentation by Application:

Industrial Robot

Collaborative Robot

Service Robot

This report also splits the market by region:

Americas

United States

Canada

Mexico

Brazil

APAC

China

Japan

Korea

Southeast Asia

India

Australia

Europe

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.

Heidenhain

Renishaw

Tamagawa Seiki

Omron

SICK

FAULHABER

Rockwell Automation

Broadcom

Nikon

Maxon Motor

Baumer

RLS

HCFA

POSITAL

Encoder Products Company

K?bler

Dynapar Encoders

Key Questions Addressed in this Report

What is the 10-year outlook for the global Secondary Encoders for Industrial Robot market?

What factors are driving Secondary Encoders for Industrial Robot market growth,

globally and by region?

Which technologies are poised for the fastest growth by market and region?

How do Secondary Encoders for Industrial Robot market opportunities vary by end market size?

How does Secondary Encoders for Industrial Robot break out by Type, by Application?

Contents

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