

**Encoder Market by Encoder Type (Linear, Rotary), Signal Type (Incremental, Absolute), Technology, Application (Industrial, HC, Consumer Electronics, Automotive, Power, FnB, Aerospace, Printing, Textile) Region - Global Forecast to 2028**

Market Report | 2023-07-21 | 205 pages | MarketsandMarkets

**AVAILABLE LICENSES:**

- Single User \$4950.00
- Multi User \$6650.00
- Corporate License \$8150.00
- Enterprise Site License \$10000.00

**Report description:**

The encoder market is valued at USD 2.7 billion in 2023 and is projected to reach USD 4.5 billion by 2028, growing at a CAGR of 11.0% from 2023 to 2028. Some of the major factors driving the growth of the encoder market include the growing expansion of automotive markets worldwide and the rising need for high-end automation across industries. However, mechanical failure in harsh environments will be a challenge for the market in the future. The major growth opportunities for the market players are increasing demand for machine learning and artificial intelligence-based systems.

"Market for linear encoder to witness significant growth during the forecast period."

The linear encoder segment is expected to witness significant growth in the encoder market during the forecast period. Linear encoder senses and digitizes a change in the linear position or movement of a product, pin, or equipment. It is used to detect speed, distance, direction, and displacement. It can also conduct position measurements by sending feedback to control systems. The sensor reads the scale to convert the encoded position into an analog or digital signal, which can then be decoded into position by a digital readout (DRO) or motion controller. The linear encoder determines positions without needing mechanical actuators, eliminating several error sources due to its non-contact principle.

"Market for the incremental encoders is expected to hold the significant share during the forecast period."

An incremental encoder determines the position and speed by a train of pulses. It transforms the angular position or motion of the shaft into digital or pulse signals using an optical disk. One of the main properties of incremental encoders is that the pulse is

**Scotts International. EU Vat number: PL 6772247784**

tel. 0048 603 394 346 e-mail: [support@scotts-international.com](mailto:support@scotts-international.com)

[www.scotts-international.com](http://www.scotts-international.com)

counted from zero every time the encoder is switched on as the position is not stored, thus needing a reset or a reference point before counting again. Some advantages associated with incremental encoders include cost-effectiveness, less complexity, and high noise immunity. It also provides excellent speed and distance feedback. The incremental encoder is designed to be versatile and customizable to fit into various applications (servo/light industrial or heavy-duty applications) to determine positioning and motor speed feedback.

"Market for healthcare application segment to witness the highest growth during the forecast period. "

The healthcare application is expected to record the highest CAGR in the encoder market during the forecast period. The healthcare sector depends on advanced techniques, including imaging, diagnostic scanning, and robotic surgeries, to provide the best possible care to patients. Medical device manufacturers are aware of the benefits of integrating encoder components and materials into life-saving medical devices such as respirators, ventilators, and atomization systems.

"Germany is expected to have the largest market size in Europe during the forecast period."

Germany is one of the largest manufacturing hubs for automobile companies in Europe. Technological innovations in the automotive sector of the country contribute to the growth of the encoders market in Germany. As Germany has the largest automotive sector, it witnesses a higher consumption of encoders. Along with the automotive industry, encoders are also adopted in various other industrial, manufacturing, and healthcare applications.

In the process of determining and verifying the market size for several segments and subsegments gathered through secondary research, extensive primary interviews have been conducted with key industry experts in the encoders space. The break-up of primary participants for the report has been shown below:

-□By Company Type: Tier 1 - 52%, Tier 2 - 31%, and Tier 3 - 17%

-□By Designation: C-level Executives - 47%, Directors -31%, and Others - 22%

-□By Region: North America -36%, Europe - 29%, Asia Pacific- 30%, and RoW - 5%

The report profiles key players in the encoders market with their respective market ranking analysis. Prominent players profiled in this report include Sensata Technologies (US); HEIDENHAIN (Germany); Fortive (Dynapar) (US); Renishaw plc (UK); Mitutoyo Corporation (Japan); FRABA B.V. (Netherlands); ifm electronic (Germany); Pepperl+Fuchs (Germany); Maxon (Switzerland). Apart from these, Pilz GmbH & Co. KG (Germany); Tamagawa Seiki Co., Ltd (Japan), Faulhaber Group (Germany); Baumer (Switzerland); Koyo Electronics Industries Co., Ltd (Japan); Schneider Electric (France); Omron Corporation (Japan); Rockwell Automation (US); Sick AG (Germany); Kubler Group (Germany); are among a few other key companies in the encoder market.

#### Report Coverage

The report defines, describes, and forecasts the encoder market based on type, signal type, technology, and region. It provides detailed information regarding drivers, restraints, opportunities, and challenges influencing the growth of the encoder market. It also analyzes competitive developments such as product launches, acquisitions, expansions, contracts, partnerships, and actions carried out by the key players to grow in the market.

#### Reasons to Buy This Report

The report will help the market leaders/new entrants in the market with information on the closest approximations of the revenue for the overall encoder market and the subsegments. The report will help stakeholders understand the competitive landscape and gain more insight to position their business better and plan suitable go-to-market strategies. The report also helps stakeholders understand the pulse of the market and provide them with information on key drivers, restraints, opportunities, and challenges. The report will provide insights into the following pointers:

-□Analysis of key drivers (Rising need for high-end automation across industries), restraints (Variations in international regulations), opportunities (Rising government initiatives to boost industrial automation), and challenges (Mechanical failure in harsh environments) of the encoder market.

-□Product development /Innovation: Detailed insights on upcoming technologies, research & development activities, and new product & service launches in the encoder market.

-□Market Development: Comprehensive information about lucrative markets; the report analyses the encoder market across various regions.

-□Market Diversification: Exhaustive information about new products & services, untapped geographies, recent developments, and

**Scotts International. EU Vat number: PL 6772247784**

tel. 0048 603 394 346 e-mail: [support@scotts-international.com](mailto:support@scotts-international.com)

[www.scotts-international.com](http://www.scotts-international.com)

investments in the encoder market.

-Competitive Assessment: In-depth assessment of market share, growth strategies, and services, offering of leading players like Sensata Technologies (US); HEIDENHAIN (Germany); Fortive (Dynapar) (US); Renishaw plc (UK); Mitutoyo Corporation (Japan) among others in encoder market.

## Table of Contents:

1	INTRODUCTION	25
1.1	STUDY OBJECTIVES	25
1.2	MARKET DEFINITION	25
1.2.1	INCLUSIONS & EXCLUSIONS	26
1.3	STUDY SCOPE	26
1.3.1	MARKETS COVERED	26
FIGURE 1	ENCODER MARKET SEGMENTATION	26
1.3.2	GEOGRAPHICAL SCOPE	27
FIGURE 2	ENCODER MARKET: REGIONAL SCOPE	27
1.3.3	YEARS CONSIDERED	27
1.4	CURRENCY CONSIDERED	28
1.5	UNITS CONSIDERED	28
1.6	LIMITATIONS	28
1.7	STAKEHOLDERS	28
1.8	SUMMARY OF CHANGES	28
1.9	RECESSION ANALYSIS	29
2	RESEARCH METHODOLOGY	30
2.1	RESEARCH DATA	30
FIGURE 3	ENCODER MARKET: RESEARCH DESIGN	30
2.1.1	SECONDARY AND PRIMARY RESEARCH	31
2.1.2	SECONDARY DATA	32
2.1.2.1	Key data from secondary sources	32
2.1.2.2	List of key secondary sources	32
2.1.3	PRIMARY DATA	33
2.1.3.1	Primary interviews with experts	33
2.1.3.2	Key data from primary sources	33
2.1.3.3	Key industry insights	34
2.1.3.4	Primary interviews with experts	34
2.1.3.5	List of key primary respondents	34
2.1.3.6	Breakdown of primaries	35
2.2	MARKET SIZE ESTIMATION	35
FIGURE 4	MARKET SIZE ESTIMATION METHODOLOGY: APPROACH (SUPPLY SIDE): REVENUE OF PRODUCTS/SOLUTIONS/SERVICES IN ENCODER MARKET	35
2.2.1	BOTTOM-UP APPROACH	36
2.2.1.1	Capturing market share by bottom-up approach (demand side)	36
FIGURE 5	ENCODER MARKET: BOTTOM-UP APPROACH	36
2.2.2	TOP-DOWN APPROACH	37
2.2.2.1	Capturing market share by top-down approach (supply side)	37
FIGURE 6	ENCODER MARKET: TOP-DOWN APPROACH	37
2.3	MARKET BREAKDOWN AND DATA TRIANGULATION	38
FIGURE 7	DATA TRIANGULATION METHODOLOGY	38

**Scotts International. EU Vat number: PL 6772247784**

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

2.4	RESEARCH ASSUMPTIONS	39
2.5	PARAMETERS CONSIDERED TO ANALYZE IMPACT OF RECESSION ON ENCODER MARKET	39
2.6	RISK ASSESSMENT	40
3	EXECUTIVE SUMMARY	41
FIGURE 8	ROTARY TO HOLD LARGEST MARKET SHARE IN 2028	41
FIGURE 9	ENCODER MARKET, BY SIGNAL TYPE, 2023 VS. 2028	42
FIGURE 10	MAGNETIC ENCODERS TO DOMINATE MARKET DURING FORECAST PERIOD	43
FIGURE 11	INDUSTRIAL VERTICAL TO CLAIM LARGEST MARKET SHARE DURING FORECAST PERIOD	43
FIGURE 12	ENCODER MARKET IN ASIA PACIFIC TO EXHIBIT HIGHEST GROWTH RATE DURING FORECAST PERIOD	44
4	PREMIUM INSIGHTS	45
4.1	ATTRACTIVE OPPORTUNITIES FOR PLAYERS IN ENCODER MARKET	45
FIGURE 13	INCREASING ADOPTION OF INDUSTRY 4.0 TO BOOST MARKET GROWTH	45
4.2	ENCODER MARKET, BY TYPE	45
FIGURE 14	ROTARY ENCODERS TO REGISTER HIGHEST CAGR FROM 2023 TO 2028	45
4.3	ENCODER MARKET, BY APPLICATION	46
FIGURE 15	BY APPLICATION, INDUSTRIAL SEGMENT TO HOLD LARGEST MARKET SHARE IN 2028	46
4.4	ENCODER MARKET, BY TECHNOLOGY	46
FIGURE 16	MAGNETIC ENCODERS TO HOLD LARGEST SHARE IN 2028	46
4.5	ENCODER MARKET IN NORTH AMERICA, BY APPLICATION AND COUNTRY	47
FIGURE 17	INDUSTRIAL VERTICAL AND US WERE LARGEST SHAREHOLDERS IN NORTH AMERICAN ENCODER MARKET IN 2022	47
4.6	ENCODER MARKET, BY COUNTRY	47
FIGURE 18	ENCODER MARKET TO DISPLAY HIGHEST CAGR IN CHINA DURING FORECAST PERIOD	47
5	MARKET OVERVIEW	48
5.1	INTRODUCTION	48
5.2	MARKET DYNAMICS	48
FIGURE 19	ENCODER MARKET: DRIVERS, RESTRAINTS, OPPORTUNITIES, AND CHALLENGES	48
5.2.1	DRIVERS	49
5.2.1.1	Rising need for high-end automation across industries	49
5.2.1.2	Growing adoption of Industry 4.0	49
FIGURE 20	ANNUAL INSTALLATION OF INDUSTRIAL ROBOTS 2021	50
5.2.1.3	Expansion of automotive market worldwide	50
FIGURE 21	ENCODER MARKET: IMPACT ANALYSIS OF DRIVERS	51
5.2.2	RESTRAINTS	51
5.2.2.1	Accuracy-related errors	51
5.2.2.2	Variations in international regulations	52
FIGURE 22	ENCODER MARKET: IMPACT ANALYSIS OF RESTRAINTS	52
5.2.3	OPPORTUNITIES	52
5.2.3.1	Rising government initiatives to boost industrial automation	52
TABLE 1	INVESTMENTS IN INDUSTRIAL AUTOMATION PROVIDED THROUGH GOVERNMENT INITIATIVES	53
5.2.3.2	Increasing demand for machine learning and artificial intelligence-based systems	54
5.2.3.3	Innovative technologies in automotive and UAV industries	54
FIGURE 23	ENCODER MARKET: IMPACT ANALYSIS OF OPPORTUNITIES	55
5.2.4	CHALLENGES	55
5.2.4.1	Mechanical failures in harsh environments	55
5.2.4.2	Growing need to continuously invest in research and development	56
FIGURE 24	ENCODER MARKET: IMPACT ANALYSIS OF CHALLENGES	56
5.3	VALUE CHAIN ANALYSIS	56

**Scotts International. EU Vat number: PL 6772247784**

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

FIGURE 25	ENCODER MARKET: VALUE CHAIN ANALYSIS	57
5.4	ECOSYSTEM ANALYSIS	58
FIGURE 26	ENCODER MARKET: ECOSYSTEM ANALYSIS	58
TABLE 2	ENCODER MARKET ECOSYSTEM	58
5.5	PRICING ANALYSIS	59
TABLE 3	INDICATIVE PRICES OF ENCODERS	60
5.5.1	AVERAGE SELLING PRICE OF ENCODER TYPES OFFERED BY KEY PLAYERS	60
FIGURE 27	AVERAGE SELLING PRICE OF ENCODER TYPES OFFERED BY KEY PLAYERS	60
TABLE 4	AVERAGE SELLING PRICE OF SIGNAL TYPE ENCODERS OFFERED BY KEY PLAYERS (USD)	61
TABLE 5	AVERAGE SELLING PRICE OF ENCODER TYPES OFFERED BY KEY PLAYERS (USD)	61
5.5.2	AVERAGE SELLING PRICE TREND	61
FIGURE 28	AVERAGE SELLING PRICE OF ENCODER TYPE	61
5.6	TRENDS/DISRUPTIONS IMPACTING CUSTOMER BUSINESS	62
FIGURE 29	REVENUE SHIFTS AND NEW REVENUE POCKETS FOR PLAYERS IN ENCODER MARKET	62
5.7	TECHNOLOGY ANALYSIS	62
5.7.1	IMPACT OF IIOT ON ENCODER INDUSTRY	62
5.7.2	RISE OF COLLABORATIVE & AGV ROBOTS	63
5.7.3	MINIATURIZATION AND WIRELESS CONNECTIVITY OF ENCODERS	63
5.8	KEY STAKEHOLDERS AND BUYING CRITERIA	63
5.8.1	KEY STAKEHOLDERS IN BUYING PROCESS	63
FIGURE 30	ENCODER MARKET: INFLUENCE OF STAKEHOLDERS ON BUYING PROCESS FOR TOP THREE APPLICATIONS	63
TABLE 6	ENCODER MARKET: INFLUENCE OF STAKEHOLDERS ON BUYING PROCESS FOR TOP THREE APPLICATIONS	64
5.8.2	BUYING CRITERIA	64
FIGURE 31	ENCODER MARKET: KEY BUYING CRITERIA FOR TOP THREE APPLICATIONS	64
TABLE 7	KEY BUYING CRITERIA FOR TOP THREE APPLICATIONS	64
5.9	CASE STUDIES ANALYSIS	65
TABLE 8	SAM-JEONG AUTOMATION INCORPORATES RENISHAW'S INCREMENTAL ENCODER TO ACHIEVE ACCURACY	65
TABLE 9	PAL ROBOTICS INTEGRATES ENCODERS INTO ROBOTIC TECHNOLOGY	65
TABLE 10	SCODIX ULTRA CHOOSES RENISHAW'S TONIC INCREMENTAL ENCODER SYSTEM TO ACHIEVE HIGH-QUALITY PRINTING	65
5.10	TRADE ANALYSIS	66
FIGURE 32	IMPORT DATA, BY COUNTRY, 2017-2021 (USD MILLION)	66
FIGURE 33	EXPORT DATA, BY COUNTRY, 2017-2021 (USD MILLION)	67
5.10.1	TARIFF ANALYSIS	67
TABLE 11	TARIFF FOR ELECTRICAL APPARATUS FOR SWITCHING OR PROTECTING ELECTRICAL CIRCUITS OR FOR MAKING CONNECTIONS, EXPORTED BY CHINA 2021	68
TABLE 12	TARIFF FOR ELECTRICAL APPARATUS FOR SWITCHING OR PROTECTING ELECTRICAL CIRCUITS OR FOR MAKING CONNECTION EXPORTED BY GERMANY, 2021	68
TABLE 13	TARIFF FOR ELECTRICAL APPARATUS FOR SWITCHING OR PROTECTING ELECTRICAL CIRCUITS OR FOR MAKING CONNECTIONS EXPORTED BY US, 2021	68
TABLE 14	TARIFF FOR ELECTRICAL APPARATUS FOR SWITCHING OR PROTECTING ELECTRICAL CIRCUITS OR FOR MAKING CONNECTIONS, EXPORTED BY JAPAN 2021	69
TABLE 15	TARIFF FOR ELECTRICAL APPARATUS FOR SWITCHING OR PROTECTING ELECTRICAL CIRCUITS OR FOR MAKING CONNECTIONS, EXPORTED BY FRANCE 2021	69
5.11	PATENT ANALYSIS	69
FIGURE 34	TOP 10 COMPANIES WITH HIGHEST NUMBER OF PATENT APPLICATIONS IN LAST 10 YEARS	69
TABLE 16	TOP 20 PATENT OWNERS IN LAST 10 YEARS (US)	70
FIGURE 35	NUMBER OF PATENTS GRANTED PER YEAR FROM 2012 TO 2022	71

TABLE 17	ENCODER MARKET: KEY PATENTS, 2020-2022	71
5.12	PORTER'S FIVE FORCES ANALYSIS	73
FIGURE 36	ENCODER MARKET: PORTER'S FIVE FORCES ANALYSIS	73
TABLE 18	ENCODER MARKET: PORTER'S FIVE FORCES ANALYSIS	73
5.13	KEY CONFERENCES AND EVENTS, 2023-2024	75
TABLE 19	ENCODER MARKET: KEY CONFERENCES & EVENTS, 2023-2024	75
5.14	REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS	75
TABLE 20	NORTH AMERICA: REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS	75
TABLE 21	EUROPE: REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS	76
TABLE 22	ASIA PACIFIC: REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS	77
TABLE 23	ROW: REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS	77
5.14.1	STANDARDS AND REGULATIONS RELATED TO ENCODER MARKET	78
TABLE 24	STANDARDS FOR ENCODER MARKET	78
6	ENCODER MARKET, BY ENCODER TYPE	79
6.1	INTRODUCTION	80
FIGURE 37	ROTARY ENCODER SEGMENT TO ACCOUNT FOR LARGEST SHARE DURING FORECAST PERIOD	80
TABLE 25	ENCODER MARKET, BY TYPE, 2019-2022 (USD MILLION)	80
TABLE 26	ENCODER MARKET, BY TYPE, 2023-2028 (USD MILLION)	80
TABLE 27	ENCODER MARKET, BY TYPE, 2019-2022 (MILLION UNITS)	81
TABLE 28	ENCODER MARKET, BY TYPE, 2023-2028 (MILLION UNITS)	81
6.2	ROTARY	81
6.2.1	INCREASED DEMAND IN AUTOMATION INDUSTRY TO BOOST MARKET	81
TABLE 29	ROTARY: ENCODER MARKET, BY SIGNAL TYPE, 2019-2022 (USD MILLION)	82
TABLE 30	ROTARY: ENCODER MARKET, BY SIGNAL TYPE, 2023-2028 (USD MILLION)	82
TABLE 31	ROTARY: ENCODER MARKET, BY TECHNOLOGY, 2019-2022 (USD MILLION)	82
TABLE 32	ROTARY: ENCODER MARKET, BY TECHNOLOGY, 2023-2028 (USD MILLION)	82
TABLE 33	ROTARY: ENCODER MARKET, BY APPLICATION, 2019-2022 (USD MILLION)	83
TABLE 34	ROTARY: ENCODER MARKET, BY APPLICATION, 2023-2028 (USD MILLION)	83
6.3	LINEAR	84
6.3.1	INCREASING DEMAND FOR HIGH-PRECISION MACHINING TOOLS TO BENEFIT MARKET	84
TABLE 35	LINEAR: ENCODER MARKET, BY SIGNAL TYPE, 2019-2022 (USD MILLION)	84
TABLE 36	LINEAR: ENCODER MARKET, BY SIGNAL TYPE, 2023-2028 (USD MILLION)	84
TABLE 37	LINEAR: ENCODER MARKET, BY TECHNOLOGY, 2019-2022 (USD MILLION)	85
TABLE 38	LINEAR: ENCODER MARKET, BY TECHNOLOGY, 2023-2028 (USD MILLION)	85
TABLE 39	LINEAR: ENCODER MARKET, BY APPLICATION, 2019-2022 (USD MILLION)	85
TABLE 40	LINEAR: ENCODER MARKET, BY APPLICATION, 2023-2028 (USD MILLION)	86
7	ENCODER MARKET, BY SIGNAL TYPE	87
7.1	INTRODUCTION	88
FIGURE 38	INCREMENTAL ENCODER SEGMENT TO ACCOUNT FOR LARGEST SHARE DURING FORECAST PERIOD	88
TABLE 41	ENCODER MARKET, BY SIGNAL TYPE, 2019-2022 (USD MILLION)	88
TABLE 42	ENCODER MARKET, BY SIGNAL TYPE, 2023-2028 (USD MILLION)	88
7.2	INCREMENTAL	89
7.2.1	SIMPLIFIED HARDWARE AND FLEXIBLE FUNCTIONALITY TO DRIVE MARKET	89
TABLE 43	INCREMENTAL: ENCODER MARKET, BY TYPE, 2019-2022 (USD MILLION)	89
TABLE 44	INCREMENTAL: ENCODER MARKET, BY TYPE, 2023-2028 (USD MILLION)	90
?		
7.3	ABSOLUTE	90

**Scotts International. EU Vat number: PL 6772247784**

tel. 0048 603 394 346 e-mail: [support@scotts-international.com](mailto:support@scotts-international.com)

[www.scotts-international.com](http://www.scotts-international.com)

7.3.1	RELIABLE MEASUREMENT PERFORMANCE TO STRENGTHEN MARKET	90
TABLE 45	ABSOLUTE: ENCODER MARKET, BY TYPE, 2019-2022 (USD MILLION)	91
TABLE 46	ABSOLUTE: ENCODER MARKET, BY TYPE, 2023-2028 (USD MILLION)	91
8	ENCODER MARKET, BY TECHNOLOGY	92
8.1	INTRODUCTION	93
FIGURE 39	MAGNETIC TECHNOLOGY SEGMENT TO DOMINATE MARKET DURING FORECAST PERIOD	93
TABLE 47	ENCODER MARKET, BY TECHNOLOGY, 2019-2022 (USD MILLION)	93
TABLE 48	ENCODER MARKET, BY TECHNOLOGY, 2023-2028 (USD MILLION)	94
8.2	MAGNETIC TECHNOLOGY	94
8.2.1	RELIABLE DIGITAL FEEDBACK IN HARSH ENVIRONMENTS TO DRIVE MARKET	94
TABLE 49	MAGNETIC TECHNOLOGY: ENCODER MARKET, BY TYPE, 2019-2022 (USD MILLION)	95
TABLE 50	MAGNETIC TECHNOLOGY: ENCODER MARKET, BY TYPE, 2023-2028 (USD MILLION)	95
8.3	OPTICAL TECHNOLOGY	95
8.3.1	ABILITY TO MONITOR AND CONTROL MECHANICAL SYSTEMS TO DRIVE MARKET	95
TABLE 51	OPTICAL TECHNOLOGY: ENCODER MARKET, BY TYPE, 2019-2022 (USD MILLION)	96
TABLE 52	OPTICAL TECHNOLOGY: ENCODER MARKET, BY TYPE, 2023-2028 (USD MILLION)	96
8.4	INDUCTIVE TECHNOLOGY	96
8.4.1	COMPACT DESIGN WITH HIGH ACCURACY TO DRIVE DEMAND	96
TABLE 53	INDUCTIVE TECHNOLOGY: ENCODER MARKET, BY TYPE, 2019-2022 (USD MILLION)	97
TABLE 54	INDUCTIVE TECHNOLOGY: ENCODER MARKET, BY TYPE, 2023-2028 (USD MILLION)	97
8.5	OTHER TECHNOLOGIES	97
TABLE 55	OTHER TECHNOLOGIES: ENCODER MARKET, BY TYPE, 2019-2022 (USD MILLION)	98
TABLE 56	OTHER TECHNOLOGIES: ENCODER MARKET, BY TYPE, 2023-2028 (USD MILLION)	98
9	ENCODER MARKET, BY APPLICATION	99
9.1	INTRODUCTION	100
FIGURE 40	INDUSTRIAL APPLICATION TO DOMINATE MARKET DURING FORECAST PERIOD	100
TABLE 57	ENCODER MARKET, BY APPLICATION, 2019-2022 (USD MILLION)	100
TABLE 58	ENCODER MARKET, BY APPLICATION, 2023-2028 (USD MILLION)	101
9.2	INDUSTRIAL	101
9.2.1	INCREASING UTILIZATION OF ENCODERS IN ROBOTICS AND FACTORY AUTOMATION TO DRIVE MARKET	101
TABLE 59	INDUSTRIAL APPLICATION: ENCODER MARKET, BY TYPE, 2019-2022 (USD MILLION)	102
TABLE 60	INDUSTRIAL APPLICATION: ENCODER MARKET, BY TYPE, 2023-2028 (USD MILLION)	102
TABLE 61	INDUSTRIAL APPLICATION: ENCODER MARKET, BY REGION, 2019-2022 (USD MILLION)	102
TABLE 62	INDUSTRIAL APPLICATION: ENCODER MARKET, BY REGION, 2023-2028 (USD MILLION)	103
9.3	HEALTHCARE	103
9.3.1	UTILIZATION OF SURGICAL ROBOTS IN HEALTHCARE APPLICATIONS TO DRIVE MARKET	103
TABLE 63	HEALTHCARE APPLICATION: ENCODER MARKET, BY TYPE, 2019-2022 (USD MILLION)	104
TABLE 64	HEALTHCARE APPLICATION: ENCODER MARKET, BY TYPE, 2023-2028 (USD MILLION)	104
TABLE 65	HEALTHCARE APPLICATION: ENCODER MARKET, BY REGION, 2019-2022(USD MILLION)	104
TABLE 66	HEALTHCARE APPLICATION: ENCODER MARKET, BY REGION, 2023-2028 (USD MILLION)	105
9.4	CONSUMER ELECTRONICS	105
9.4.1	SURGE OF LINEAR MOTOR ENCODERS IN ELECTRICAL APPLIANCES TO DRIVE MARKET	105
TABLE 67	CONSUMER ELECTRONICS APPLICATION: ENCODER MARKET, BY TYPE, 2019-2022 (USD MILLION)	105
TABLE 68	CONSUMER ELECTRONICS APPLICATION: ENCODER MARKET, BY TYPE, 2023-2028 (USD MILLION)	106
TABLE 69	CONSUMER ELECTRONICS APPLICATION: ENCODER MARKET, BY REGION, 2019-2022 (USD MILLION)	106
TABLE 70	CONSUMER ELECTRONICS APPLICATION: ENCODER MARKET, BY REGION, 2023-2028 (USD MILLION)	106
9.5	AUTOMOTIVE	107

**Scotts International. EU Vat number: PL 6772247784**

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

9.5.1	RISING INTEGRATION OF AUTOMATION IN AUTOMOBILES TO PROPEL GROWTH	107
TABLE 71	AUTOMOTIVE APPLICATION: ENCODER MARKET, BY TYPE, 2019-2022 (USD MILLION)	107
TABLE 72	AUTOMOTIVE APPLICATION: ENCODER MARKET, BY TYPE, 2023-2028 (USD MILLION)	107
TABLE 73	AUTOMOTIVE APPLICATION: ENCODER MARKET, BY REGION, 2019-2022 (USD MILLION)	108
TABLE 74	AUTOMOTIVE APPLICATION: ENCODER MARKET, BY REGION, 2023-2028 (USD MILLION)	108
9.6	POWER	108
9.6.1	INCREASING COMPLEXITIES IN SOLAR & WIND ENERGY APPLICATIONS TO DRIVE MARKET	108
TABLE 75	POWER APPLICATION: ENCODER MARKET, BY TYPE, 2019-2022 (USD MILLION)	109
TABLE 76	POWER APPLICATION: ENCODER MARKET, BY TYPE, 2023-2028 (USD MILLION)	109
TABLE 77	POWER APPLICATION: ENCODER MARKET, BY REGION, 2019-2022 (USD MILLION)	109
TABLE 78	POWER APPLICATION: ENCODER MARKET, BY REGION, 2023-2028 (USD MILLION)	109
9.7	FOOD & BEVERAGE	110
9.7.1	INTEGRATION OF IO-LINK TECHNOLOGY INTO ENCODERS TO DRIVE MARKET	110
TABLE 79	FOOD & BEVERAGE APPLICATION: ENCODER MARKET, BY TYPE, 2019-2022 (USD MILLION)	111
TABLE 80	FOOD & BEVERAGE APPLICATION: ENCODER MARKET, BY TYPE, 2023-2028 (USD MILLION)	111
TABLE 81	FOOD & BEVERAGE APPLICATION: ENCODER MARKET, BY REGION, 2019-2022 (USD MILLION)	111
TABLE 82	FOOD & BEVERAGE APPLICATION: ENCODER MARKET, BY REGION, 2023-2028 (USD MILLION)	111
9.8	AEROSPACE	112
9.8.1	PRECISION CONTROL TECHNOLOGY OF ENCODERS IN AIRBORNE PLANES TO PROPEL GROWTH	112
TABLE 83	AEROSPACE APPLICATION: ENCODER MARKET, BY TYPE, 2019-2022 (USD MILLION)	112
TABLE 84	AEROSPACE APPLICATION: ENCODER MARKET, BY TYPE, 2023-2028 (USD MILLION)	112
TABLE 85	AEROSPACE APPLICATION: ENCODER MARKET, BY REGION, 2019-2022 (USD MILLION)	113
TABLE 86	AEROSPACE APPLICATION: ENCODER MARKET, BY REGION, 2023-2028 (USD MILLION)	113
9.9	PRINTING	113
9.9.1	USE OF ROTARY ENCODERS IN PRINTING APPLICATIONS AND OFFICE EQUIPMENT TO DRIVE MARKET	113
TABLE 87	PRINTING APPLICATION: ENCODER MARKET, BY TYPE, 2019-2022 (USD MILLION)	114
TABLE 88	PRINTING APPLICATION: ENCODER MARKET, BY TYPE, 2023-2028 (USD MILLION)	114
TABLE 89	PRINTING APPLICATION: ENCODER MARKET, BY REGION, 2019-2022 (USD MILLION)	115
TABLE 90	PRINTING APPLICATION: ENCODER MARKET, BY REGION, 2023-2028 (USD MILLION)	115
9.10	TEXTILE	115
9.10.1	GROWING UTILIZATION OF ENCODERS IN WEAVING & KNITTING PROCESSES TO DRIVE MARKET	115
TABLE 91	TEXTILE APPLICATION: ENCODER MARKET, BY TYPE, 2019-2022 (USD MILLION)	116
TABLE 92	TEXTILE APPLICATION: ENCODER MARKET, BY TYPE, 2023-2028 (USD MILLION)	116
TABLE 93	TEXTILE APPLICATION: ENCODER MARKET, BY REGION, 2019-2022 (USD MILLION)	116
TABLE 94	TEXTILE APPLICATION: ENCODER MARKET, BY REGION, 2023-2028(USD MILLION)	117
?		
9.11	OTHER APPLICATIONS	117
TABLE 95	OTHER APPLICATIONS: ENCODER MARKET, BY TYPE, 2019-2022 (USD MILLION)	117
TABLE 96	OTHER APPLICATIONS: ENCODER MARKET, BY TYPE, 2023-2028 (USD MILLION)	117
TABLE 97	OTHER APPLICATIONS: ENCODER MARKET, BY REGION, 2019-2022 (USD MILLION)	118
TABLE 98	OTHER APPLICATIONS: ENCODER MARKET, BY REGION, 2023-2028 (USD MILLION)	118
10	ENCODER MARKET, BY REGION	119
10.1	INTRODUCTION	120
FIGURE 41	ASIA PACIFIC MARKET TO REGISTER HIGHEST CAGR DURING FORECAST PERIOD	120
TABLE 99	ENCODER MARKET, BY REGION, 2019-2022 (USD MILLION)	120
TABLE 100	ENCODER MARKET, BY REGION, 2023-2028 (USD MILLION)	121
10.2	NORTH AMERICA	121

**Scotts International. EU Vat number: PL 6772247784**

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com



FIGURE 42 NORTH AMERICA: ENCODER MARKET SNAPSHOT 122

TABLE 101 NORTH AMERICA: ENCODER MARKET, BY COUNTRY, 2019-2022 (USD MILLION) 122

TABLE 102 NORTH AMERICA: ENCODER MARKET, BY COUNTRY, 2023-2028 (USD MILLION) 123

TABLE 103 NORTH AMERICA: ENCODER MARKET, BY APPLICATION, 2019-2022 (USD MILLION) 123

TABLE 104 NORTH AMERICA: ENCODER MARKET, BY APPLICATION, 2023-2028 (USD MILLION) 124

10.2.1 US 124

10.2.1.1 Large industrial base for consumer electronics and automotive manufacturing to drive market 124

10.2.2 CANADA 125

10.2.2.1 Rising adoption of advanced technologies in aerospace industry to drive market 125

10.2.3 MEXICO 125

10.2.3.1 Expanding consumer electronics industry to support market growth 125

10.2.4 RECESSION IMPACT ON ENCODER MARKET IN NORTH AMERICA 126

10.3 EUROPE 126

FIGURE 43 EUROPE: ENCODER MARKET SNAPSHOT 127

TABLE 105 EUROPE: ENCODER MARKET, BY COUNTRY, 2019-2022 (USD MILLION) 127

TABLE 106 EUROPE: ENCODER MARKET, BY COUNTRY, 2023-2028 (USD MILLION) 128

TABLE 107 EUROPE: ENCODER MARKET, BY APPLICATION, 2019-2022 (USD MILLION) 128

TABLE 108 EUROPE: ENCODER MARKET, BY APPLICATION, 2023-2028 (USD MILLION) 129

10.3.1 UK 129

10.3.1.1 Expanding manufacturing sector to drive uptake of encoders 129

10.3.2 GERMANY 130

10.3.2.1 Growing use of robotics in automobiles to drive market 130

10.3.3 FRANCE 131

10.3.3.1 Growing manufacturing & textile industries to drive demand for encoders 131

10.3.4 REST OF EUROPE 131

10.3.5 RECESSION IMPACT ON ENCODER MARKET IN EUROPE 131

10.4 ASIA PACIFIC 132

FIGURE 44 ASIA PACIFIC: ENCODER MARKET SNAPSHOT 132

TABLE 109 ASIA PACIFIC: ENCODER MARKET, BY COUNTRY, 2019-2022 (USD MILLION) 133

TABLE 110 ASIA PACIFIC: ENCODER MARKET, BY COUNTRY, 2023-2028 (USD MILLION) 133

TABLE 111 ASIA PACIFIC: ENCODER MARKET, BY APPLICATION, 2019-2022 (USD MILLION) 133

TABLE 112 ASIA PACIFIC: ENCODER MARKET, BY APPLICATION, 2023-2028 (USD MILLION) 134

10.4.1 CHINA 134

10.4.1.1 Rising expansion of manufacturing & mining industries to drive market 134

10.4.2 JAPAN 135

10.4.2.1 Rising demand for electric & hybrid vehicles in automotive industry to drive market 135

10.4.3 SOUTH KOREA 135

10.4.3.1 Increasing technological advancements in consumer electronics to drive demand 135

10.4.4 INDIA 135

10.4.4.1 Developing textile industry to boost market 135

10.4.5 REST OF ASIA PACIFIC 136

10.4.6 RECESSION IMPACT ON ENCODER MARKET IN ASIA PACIFIC 136

10.5 ROW 137

TABLE 113 ROW: ENCODER MARKET, BY COUNTRY, 2019-2022 (USD MILLION) 137

TABLE 114 ROW: ENCODER MARKET, BY COUNTRY, 2023-2028 (USD MILLION) 137

TABLE 115 ROW: ENCODER MARKET, BY APPLICATION, 2019-2022 (USD MILLION) 137

TABLE 116 ROW: ENCODER MARKET, BY APPLICATION, 2023-2028 (USD MILLION) 138

**Scotts International. EU Vat number: PL 6772247784**

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

10.5.1	SOUTH AMERICA	138
10.5.1.1	Growing mining industry to fuel market growth	138
10.5.2	MIDDLE EAST	138
10.5.2.1	Growing government investment in manufacturing to drive demand for encoders	138
10.5.3	AFRICA	139
10.5.3.1	Growth of region as manufacturing hub to drive market	139
10.5.4	RECESSION IMPACT ON ENCODER MARKET IN ROW	139
	?	
11	COMPETITIVE LANDSCAPE	140
11.1	INTRODUCTION	140
11.2	COMPANY REVENUE ANALYSIS	140
	FIGURE 45 REVENUE ANALYSIS OF TOP THREE PLAYERS, 2020-2022	140
11.3	MARKET SHARE ANALYSIS, 2022	140
	TABLE 117 MARKET SHARE OF TOP FIVE PLAYERS, 2022	141
11.4	COMPETITIVE EVALUATION MATRIX, 2022	142
11.4.1	STARS	142
11.4.2	EMERGING LEADERS	142
11.4.3	PERVASIVE PLAYERS	142
11.4.4	PARTICIPANTS	143
	FIGURE 46 COMPANY EVALUATION QUADRANT FOR KEY PLAYERS, 2022	143
11.4.5	COMPANY TYPE FOOTPRINT	144
	TABLE 118 COMPANY TYPE FOOTPRINT	144
	TABLE 119 COMPANY APPLICATION FOOTPRINT	145
	TABLE 120 COMPANY REGION FOOTPRINT	146
	TABLE 121 COMPANY FOOTPRINT	147
11.5	SMALL AND MEDIUM ENTERPRISES (SMES) EVALUATION MATRIX, 2022	148
11.5.1	PROGRESSIVE COMPANIES	148
11.5.2	RESPONSIVE COMPANIES	148
11.5.3	DYNAMIC COMPANIES	148
11.5.4	STARTING BLOCKS	148
	FIGURE 47 ENCODER MARKET: SME EVALUATION MATRIX, 2022	149
11.5.5	STARTUPS/SMES EVALUATION MATRIX	150
	TABLE 122 ENCODER MARKET: KEY STARTUPS/SMES	150
	TABLE 123 COMPETITIVE BENCHMARKING OF KEY STARTUPS/SMES	150
11.6	COMPETITIVE SCENARIOS AND TRENDS	151
11.6.1	PRODUCT LAUNCH & DEVELOPMENT	151
	TABLE 124 PRODUCT LAUNCHES & DEVELOPMENT, 2019-2022	151
11.6.2	DEALS	154
	TABLE 125 DEALS, 2019-2022	154
11.6.3	OTHERS	155
	TABLE 126 OTHERS, 2019-2022	155
12	COMPANY PROFILE	157
	(Business Overview, Products/Solutions/Services Offered, Recent Developments, and MnM View (Key strengths/Right to Win, Strategic Choices Made, and Weaknesses and Competitive Threats))*	
12.1	KEY PLAYERS	157
12.1.1	SENSATA TECHNOLOGIES, INC.	157
	TABLE 127 SENSATA TECHNOLOGIES, INC: BUSINESS OVERVIEW	157

FIGURE 48	SENSATA TECHNOLOGIES, INC: COMPANY SNAPSHOT	158
TABLE 128	SENSATA TECHNOLOGIES, INC: PRODUCTS/SOLUTIONS/SERVICES OFFERED	158
12.1.2	HEIDENHAIN	161
TABLE 129	HEIDENHAIN: COMPANY OVERVIEW	161
TABLE 130	HEIDENHAIN: PRODUCTS/SOLUTIONS/SERVICES OFFERED	161
12.1.3	FORTIVE	164
TABLE 131	FORTIVE: BUSINESS OVERVIEW	164
FIGURE 49	FORTIVE: COMPANY SNAPSHOT	165
TABLE 132	FORTIVE: PRODUCTS/SOLUTIONS/SERVICES OFFERED	166
12.1.4	RENISHAW PLC	168
TABLE 133	RENISHAW PLC: COMPANY OVERVIEW	168
FIGURE 50	RENISHAW PLC: COMPANY SNAPSHOT	169
TABLE 134	RENISHAW PLC: PRODUCTS/ SOLUTIONS/SERVICES OFFERED	170
12.1.5	MITUTOYO CORPORATION	173
TABLE 135	MITUTOYO CORPORATION: COMPANY OVERVIEW	173
TABLE 136	MITUTOYO CORPORATION: PRODUCTS/SOLUTIONS/SERVICES OFFERED	173
12.1.6	FRABA B.V.	175
TABLE 137	FRABA B.V.: COMPANY OVERVIEW	175
TABLE 138	FRABA B.V.: PRODUCTS/SOLUTIONS/SERVICES OFFERED	176
12.1.7	IFM ELECTRONIC GMBH	179
TABLE 139	IFM ELECTRONIC GMBH: BUSINESS OVERVIEW	179
TABLE 140	IFM ELECTRONIC GMBH: PRODUCTS/SOLUTIONS/SERVICES OFFERED	179
12.1.8	PEPPERL+FUCHS SE	181
TABLE 141	PEPPERL+FUCHS SE: BUSINESS OVERVIEW	181
TABLE 142	PEPPERL+FUCHS SE: PRODUCTS/SOLUTIONS/SERVICES OFFERED	181
12.1.9	MAXON	184
TABLE 143	MAXON: BUSINESS OVERVIEW	184
TABLE 144	MAXON: PRODUCTS/SOLUTIONS/SERVICES OFFERED	184
12.1.10	BALLUFF INC.	186
TABLE 145	BALLUFF INC: BUSINESS OVERVIEW	186
TABLE 146	BALLUFF INC: PRODUCTS/SOLUTIONS/SERVICES OFFERED	186
12.1.11	PILZ GMBH & CO. KG	188
TABLE 147	PILZ GMBH & CO. KG: BUSINESS OVERVIEW	188
TABLE 148	PILZ GMBH & CO. KG: PRODUCTS/SOLUTIONS/SERVICES OFFERED	188
12.1.12	TAMAGAWA SEIKI CO., LTD.	189
TABLE 149	TAMAGAWA SEIKI CO., LTD.: BUSINESS OVERVIEW	189
TABLE 150	TAMAGAWA SEIKI CO., LTD.: PRODUCTS/SOLUTIONS/SERVICES OFFERED	189
12.1.13	FAULHABER GROUP	190
TABLE 151	FAULHABER GROUP: BUSINESS OVERVIEW	190
TABLE 152	FAULHABER GROUP: PRODUCTS/SOLUTIONS/SERVICES OFFERED	190
12.1.14	BAUMER	192
TABLE 153	BAUMER: BUSINESS OVERVIEW	192
TABLE 154	BAUMER: PRODUCTS/SOLUTIONS/SERVICES OFFERED	192
12.1.15	TEKT ELECTRONICS CORPORATION	194
TABLE 155	TEKT ELECTRONICS CORPORATION: BUSINESS OVERVIEW	194
TABLE 156	TEKT ELECTRONICS CORPORATION: PRODUCTS/SOLUTIONS/SERVICES OFFERED	194

\*Details on Business Overview, Products/Solutions/Services Offered, Recent Developments, and MnM View (Key strengths/Right to

**Scotts International. EU Vat number: PL 6772247784**

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

Win, Strategic Choices Made, and Weaknesses and Competitive Threats) might not be captured in case of unlisted companies.

12.2 OTHER PLAYERS 196

12.2.1 SCHNEIDER ELECTRIC 196

12.2.2 OMRON CORPORATION 197

12.2.3 ROCKWELL AUTOMATION 198

12.2.4 SICK AG 199

12.2.5 KUBLER GROUP 199

12.2.6 ELAP SRL 200

12.2.7 SIKO GMBH 201

12.2.8 NEMICON CORPORATION 202

12.2.9 GURLEY PRECISION INSTRUMENTS 202

12.2.10 LIKA ELECTRONIC SRL 203

13 APPENDIX 204

13.1 DISCUSSION GUIDE 204

13.2 KNOWLEDGESTORE: MARKETSANDMARKETS' SUBSCRIPTION PORTAL 207

13.3 CUSTOMIZATION OPTIONS 209

13.4 RELATED REPORTS 209

13.5 AUTHOR DETAILS 210

**Scotts International. EU Vat number: PL 6772247784**

tel. 0048 603 394 346 e-mail: [support@scotts-international.com](mailto:support@scotts-international.com)

[www.scotts-international.com](http://www.scotts-international.com)

**Encoder Market by Encoder Type (Linear, Rotary), Signal Type (Incremental, Absolute), Technology, Application (Industrial, HC, Consumer Electronics, Automotive, Power, FnB, Aerospace, Printing, Textile) Region - Global Forecast to 2028**

Market Report | 2023-07-21 | 205 pages | MarketsandMarkets

To place an Order with Scotts International:

- ☐ - Print this form
- ☐ - Complete the relevant blank fields and sign
- ☐ - Send as a scanned email to support@scotts-international.com

**ORDER FORM:**

Select license	License	Price
	Single User	\$4950.00
	Multi User	\$6650.00
	Corporate License	\$8150.00
	Enterprise Site License	\$10000.00
		VAT
		Total

\*Please circle the relevant license option. For any questions please contact support@scotts-international.com or 0048 603 394 346.

\*\* VAT will be added at 23% for Polish based companies, individuals and EU based companies who are unable to provide a valid EU Vat Numbers.

Email*	<input type="text"/>	Phone*	<input type="text"/>
First Name*	<input type="text"/>	Last Name*	<input type="text"/>
Job title*	<input type="text"/>		
Company Name*	<input type="text"/>	EU Vat / Tax ID / NIP number*	<input type="text"/>
Address*	<input type="text"/>	City*	<input type="text"/>

**Scotts International. EU Vat number: PL 6772247784**

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

Zip Code*	<input type="text"/>	Country*	<input type="text"/>
		Date	2025-05-20
		Signature	<div></div>