Rotary Encoder

Extremely Versatile from Standard to Special Applications

Extremely flexible product selection, well-founded engineering knowledge and fully resistant sensors. Regardless of application and industry, the portfolio for rotary motion measurement offers perfectly tailored rotary encoder solutions that meet the requirements of every application—even in extreme areas.

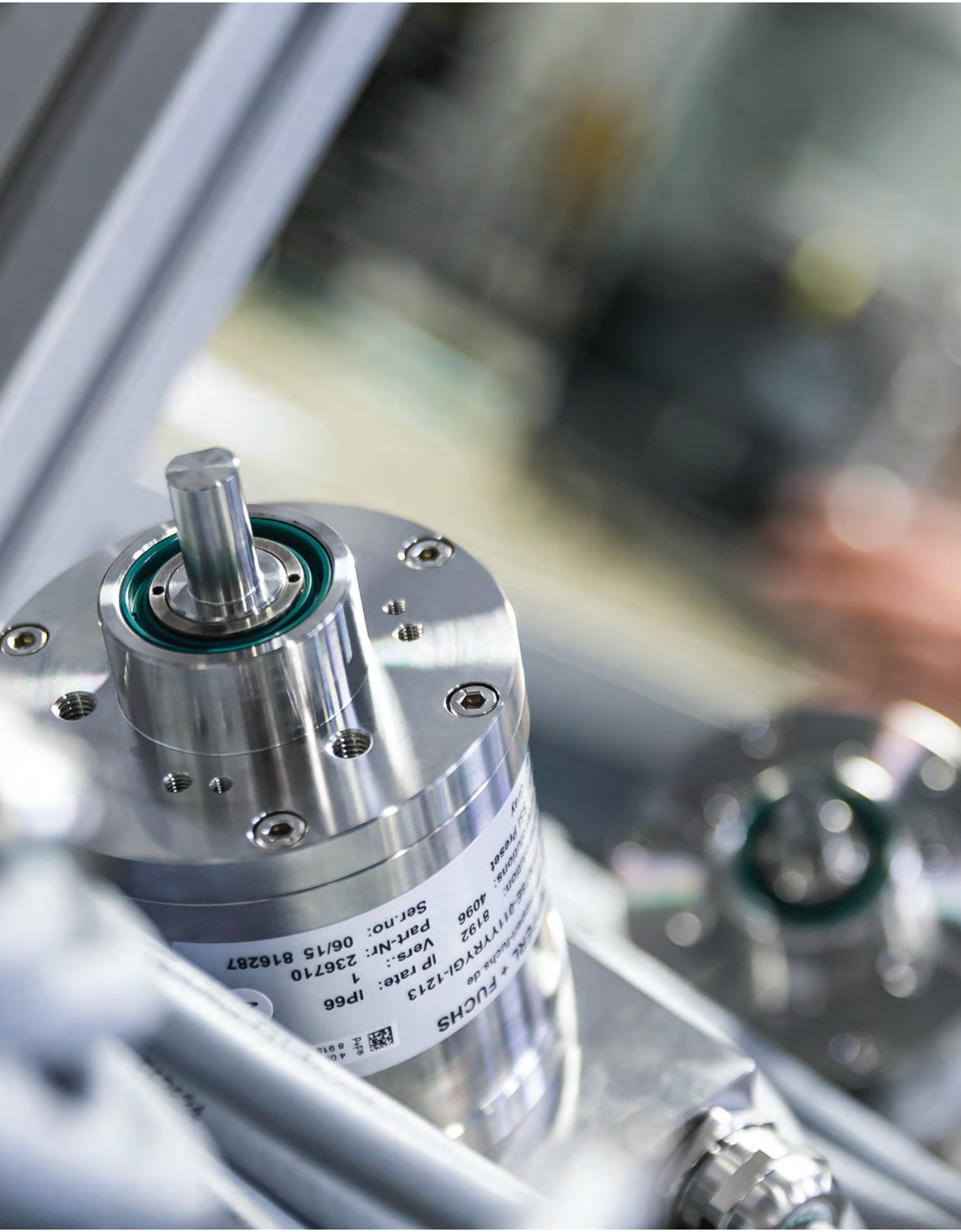
Benefit from Every Technology

Complex applications require technology that works reliably under all circumstances, regardless of the environment. Pepperl+Fuchs offers several established technologies for the optimal application solution. Whether for standard industrial or special applications, with incremental or absolute rotary encoders, the broad portfolio consists of countless configuration options and offers maximum flexibility in configuring the perfect rotary encoder.

With Application Knowledge for Customized Solutions

Our experts also develop individual customer solutions. Pepperl+Fuchs relies on close cooperation, coupled with reliable and informed advice from our application experts. They have many years of technology and application knowledge, plus they are also on hand to provide advice on difficult tasks. Countless solutions have already been implemented for extreme areas such as offshore, explosive, and safety applications.

More information is available at:
www.pepperl-fuchs.com/fa-encoder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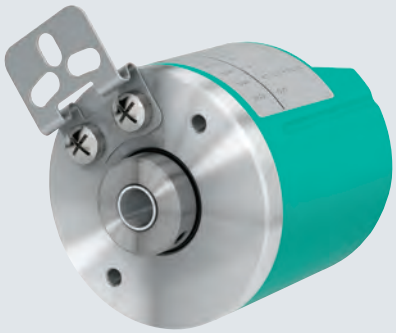
Industry Standard Rotary Encoder
Precision for Reliable Automation

Applications where success depends on plant availability and efficiency require high-performance sensors that always work reliably. The industrial standard portfolio from Pepperl+Fuchs contains high-performance devices with various technologies, detection principles, and mechanical and electrical interfaces, enabling configuration of the optimal rotary encoder.



BlueBeam technology for Unique Levels of Precision

For the first time, Pepperl+Fuchs has integrated BlueBeam technology into incremental rotary encoders, setting a new market standard for precision and reliability.

More information is available at
www.pepperl-fuchs.com/fa-bluebeam

Optical Rotary Encoders

With accuracy of up to 0.01°, optical rotary encoders are ideal for applications with the highest demands on dynamics and precision.

Typical Applications
- Elevator technology, shaft positioning, medical technology, CNC machining centers
- Warehousing and material handling, e.g., on forklift trucks for monitoring lift height

Your Benefits at a Glance
- Broad portfolio—a variety of designs ranging from cost-effective standard rotary encoders to high-end versions
- Highly flexible system integration with a wide range of electrical and mechanical interfaces
- BlueBeam technology for unique levels of precision even in the highest speed ranges

Magnetic Rotary Encoders

Magnetic technology sets new standards in the field of industry standard rotary encoders. It allows accuracy of up to 0.1°, more compact construction, and a wear-free design for outstanding service life.

Typical Applications

- Robotics: control of robot arm rotation
- Print and paper industry: speed monitoring of print rollers and motors
- Machinery and plant construction: bottle conveyors, machine tools

Your Benefits at a Glance

- Magnetic rotary encoders with advanced Hall technology for highly dynamic processes
- High resolution and absolute accuracy of < 0.1° for precision applications
- Robust, wear-free technology for high reliability

Bearing-Free Rotary Encoders

The bearing-free rotary encoders are characterized by their especially small size and combine a robust measuring system with intelligent assistance functions. The scanning is noncontact, wear-free and allows reliable continuous operation.

Typical Applications

- Rotation speed monitoring on a machine tool motor
- Position feedback of a solar tower
- Speed monitoring for drive motors with limited space

Your Benefits at a Glance

- Resistant to dirt and thermal and mechanical shocks
- Efficient solution with long service life at high rotational speed and temperature
- Assistance function and LED indicator for simplified installation and testing

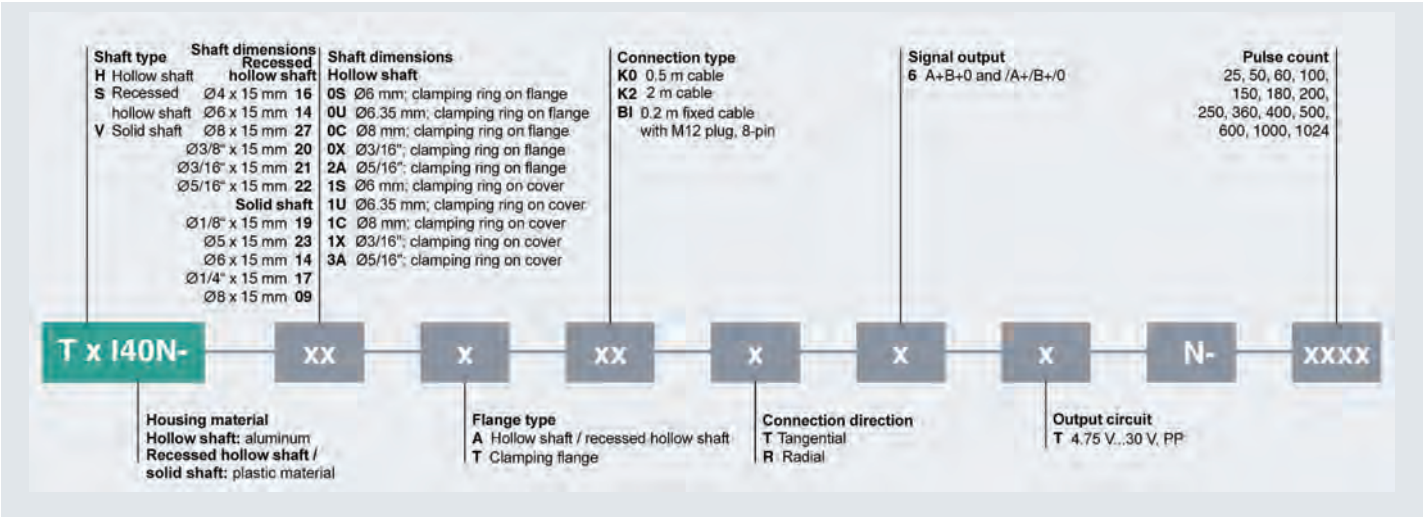
Industry Standard Rotary Encoder

Contents

TVI40, TSI40, and THI40 Series

Standard Technical Data	
Scanning method	Optical
Output type	Push-pull or RS-422
Pulse count	Max. 1024 pulses
Connection type	Cable, fixed cable with plug
Housing Design	Ø 40 mm
Shaft type	Solid, recessed hollow, and hollow shaft
Rotational speed	Max. 6000 rpm
Degree of protection	IP54
Operating temperature	-10 °C ... 70 °C
UL	■

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.



Highlights

- Compact housing design for use in confined spaces
- Flexible cable routing and mounting with tangential cable outlet
- Simple electrical integration through utilization of RS422 functionality
- Complete solution for elevator construction

Brief Description

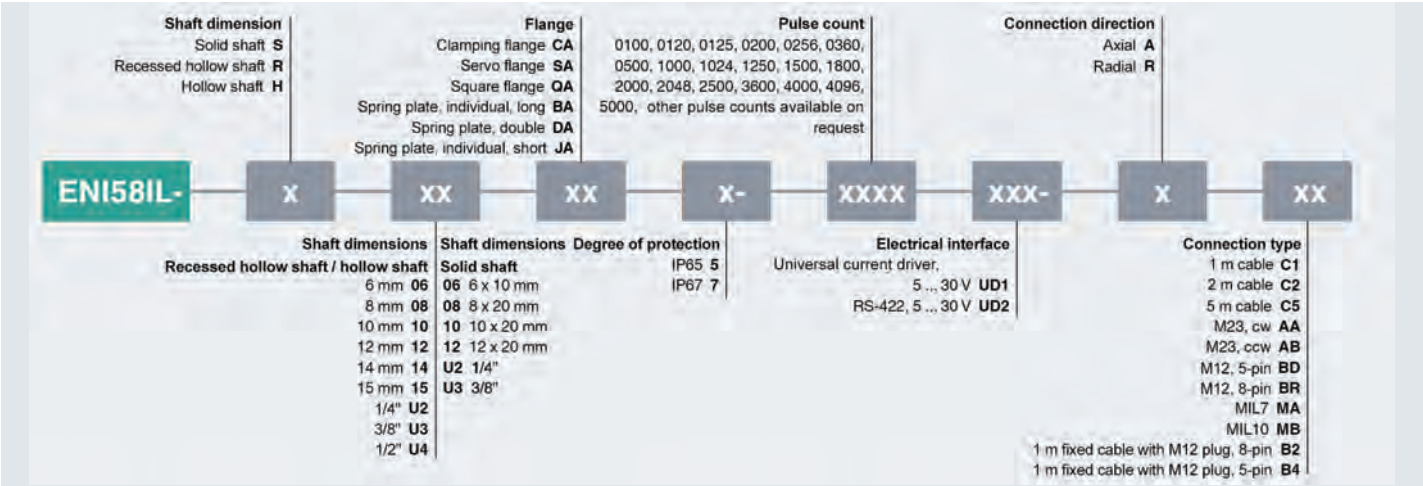
Performance in a Compact Size
With a diameter of only 40 mm, the rotary encoder is ideal for shaft positioning in elevators. It is available in different shaft versions and therefore fits a wide range of applications. Due to its RS-422 functionality with 5 V operation, electrical integration is also very simple.

Accessories	
9401/9402	Spring steel coupling
9404	Spring disk coupling
9408	Double-loop coupling
9409	Bellows coupling
9410	Precision coupling
9460	Stainless steel bellows coupling
CW	Helix coupling
Example: 9404 10*10 (D1*D2 coupling)	

ENI58IL Series

Standard Technical Data	
Scanning method	Optical
Output type	Push-pull or RS-422
Pulse count	Max. 5000 pulses
Connection type	Plug, cable, fixed cable with plug
Housing Design	Ø 58 mm
Shaft type	Solid, recessed hollow, and hollow shaft
Rotational speed	Max. 12000 rpm
Degree of protection	IP65/IP67
Operating temperature	-40 °C ... 85 °C
UL	■

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.



Highlights

- BlueBeam technology: Unmatched precision even at the highest speeds up to 12000 rpm
- Optimal application solution through a complete portfolio with a wide range of shaft, flange and connection options
- Especially robust design with blocked bearing unit for permanently high bearing loads and long service life
- High shock and vibration resistance coupled with EMC protective circuitry for maximum plant availability and process safety

Brief Description

Impressive Features Profile

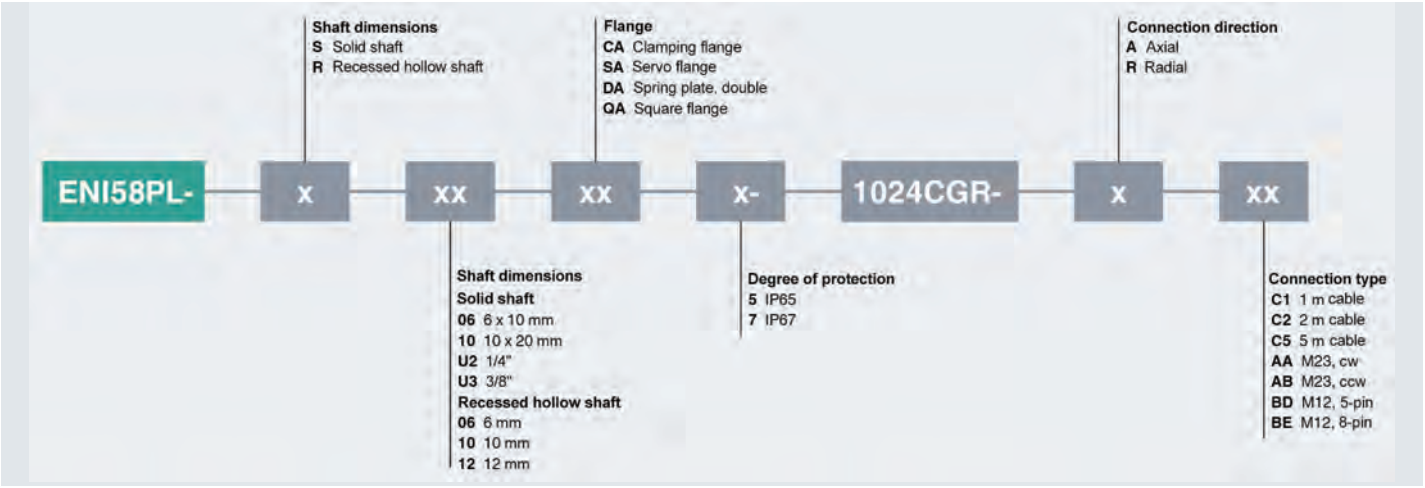
The BlueBeam technology in combination with a precisely adjusted code disk enables maximum signal quality and precision. The broad portfolio makes these advantages available for almost every application: Thanks to the wide range of shaft, flange and connection options—also for worldwide use—you always get the right configuration.
The especially robust design ensures plant availability and maximum process reliability at all times. In addition to the extreme resistance to vibration and shock, the special EMC protection circuit enables impressive immunity to interference. The blocked bearing unit permits permanently high bearing loads and prevents the ball bearings from being pressed out.

Accessories	
9401/9402	Spring steel coupling
9404	Spring disk coupling
9408	Double-loop coupling
9409	Bellows coupling
9410	Precision coupling
9460	Stainless steel bellows coupling
CW	Helix coupling
Example: 9404 10*10 (D1*D2 coupling)	

ENI58PL Series

Standard Technical Data	
Scanning method	Magnetic
Output type	Push-pull or RS-422
Pulse count	Programmable from 1…16,384 pulses
Connection type	Plug, cable
Housing Design	Ø 58 mm
Shaft type	Solid and recessed hollow shaft
Rotational speed	Max. 12000 rpm
Degree of protection	IP65/IP67
Operating temperature	-40 °C ... 85 °C

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.



Highlights

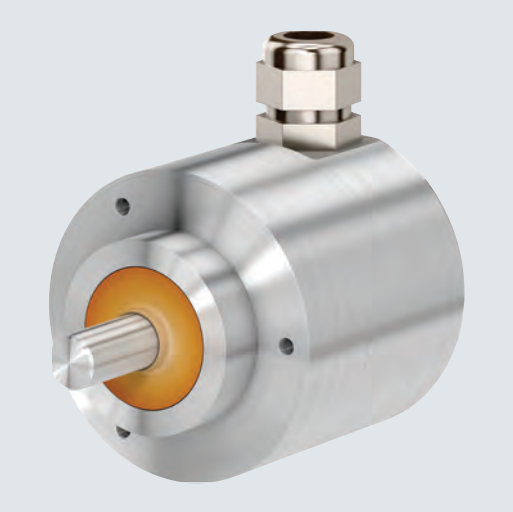
- Optimal adaptation to the respective application through simple and flexible configuration of the rotary encoder
- Configuration at the customer site reduces the number of versions in storage and allows changes in the production and process sequence without having to replace the rotary encoder

Brief Description

Flexible Application Possibilities through Programming
The ENI58PL is a robust, high-quality and versatile incremental rotary encoder with various electrical and mechanical interfaces. As the pulse count, direction of rotation and output type can be programmed via the standardized IO-Link interface, the ENI58PL can be adjusted to perfectly suit changing and specific application conditions. In addition to optimal adaptation to the application, this enables more efficient storage by reducing the number of versions in stock.

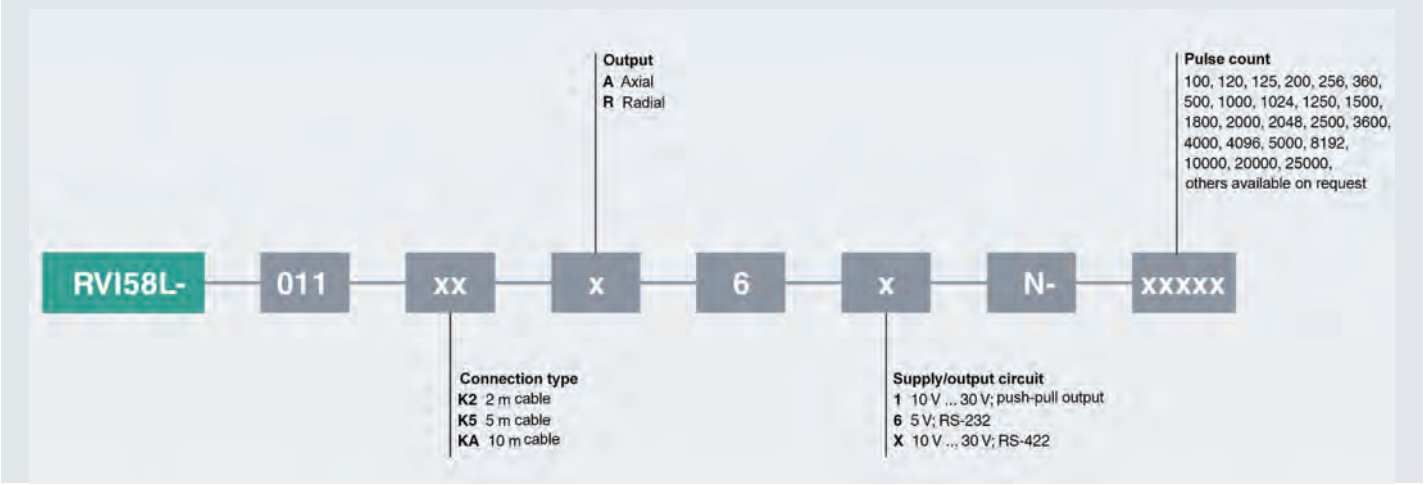
Accessories	
9416	Single-ended female cordset
9416L	Single-ended female cordset
IO-Link-Master02-USB	IO-Link master
V15S-G-0,5M-CGR-AA	Adapter cable
V15S-G-0,5M-CGR-AB	Adapter cable
V15S-G-0,5M-CGR-BD	Adapter cable
V15S-G-0,5M-CGR-BE	Adapter cable
V15S-G-0,5M-CGR-TC	Adapter cable

RVI58L Series



Standard Technical Data	
Scanning method	Optical
Output type	Push-pull or RS-422
Pulse count	Max. 25000 pulses
Connection type	Cable
Housing Design	Ø 58 mm
Shaft type	Solid shaft
Rotational speed	Max. 3600 rpm
Degree of protection	IP67/IP69K
Connection type	Fixed cable
Degree of protection	IP67
Shaft load	Axial max. 100 N/Radial max. 100 N
Operating temperature	-20 °C ... 80 °C
Housing material	Stainless steel V4A
ECOLAB	■

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.



Highlights

- Materials extremely resistant to aggressive chemical detergents and disinfectants
- Design allows easy cleaning of sensors and therefore microbiological safety
- Impermeability in applications involving a high-pressure cleaner, even when exposed to repeated thermal shocks
- Higher machine availability due to short cleaning times and long service life
- Hygiene tested according to EHEDG, approval for ECOLAB cleaning agents

Brief Description

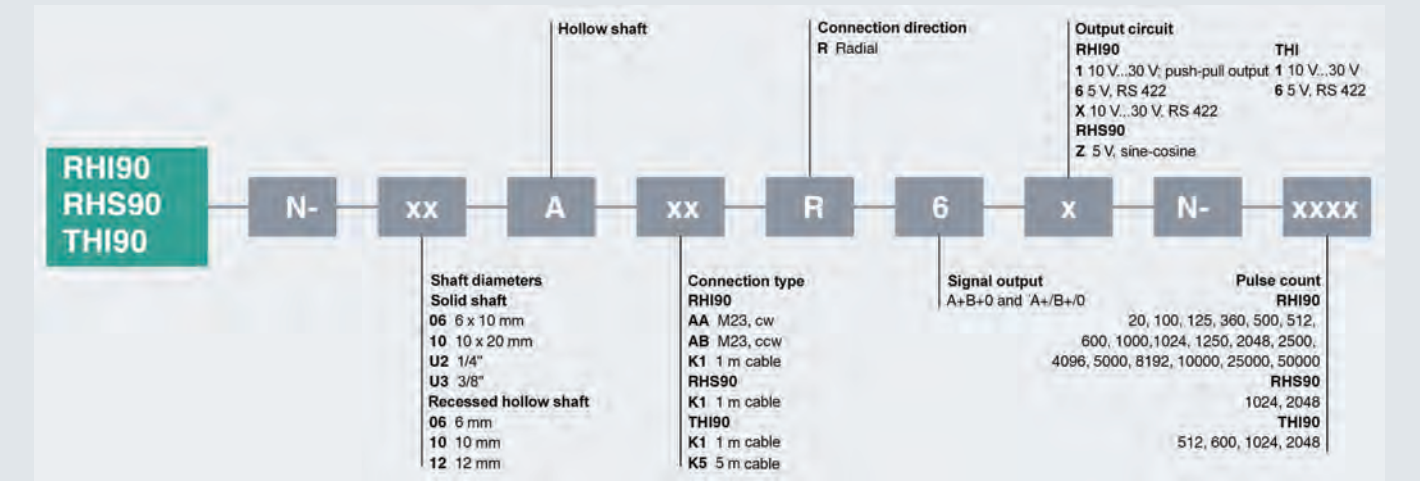
Stainless Steel for Safe Use with Foods
In the food industry and the chemical and pharmaceutical industries, there are strict requirements in terms of hygiene, easy cleaning and resistance to aggressive substances. The stainless steel sheath of this rotary encoder meets these requirements exactly. It is also resistant to temperature shocks and can be cleaned with high-pressure devices. These features support high machine availability and thus smooth processes.

Accessories	
9203	Mounting bracket
MBT-36ALS	Sprung mounting bracket
MBT-36ALS120	Spring arm
9401/9402	Spring steel coupling
9404	Spring disk coupling
9408	Double-loop coupling
9409	Bellows coupling
9410	Precision coupling
9460	Stainless steel bellows coupling
CW	Helix coupling
Example: 9404 10*10 (D1*D2 coupling)	

RHI90, RHS90, and THI90 Series

Standard Technical Data	
Scanning method	Optical
Output type	Push-pull, RS422, or sine-cosine
Pulse count	Max. 50000 pulses
Connection type	Plug, cable
Housing Design	Ø 90 mm
Shaft type	Hollow shaft
Rotational speed	Max. 3500 rpm
Degree of protection	IP54/IP65
Operating temperature	-20 °C ... 70 °C
UL	■

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.



Highlights

- High process reliability even in environments subject to EMC interference through protection against wave currents
- Use in highly dynamic applications with backlash-free connection of the shaft
- Accommodation of large shaft diameters
- Compact housing design for use in confined spaces
- Fast and easy installation with threaded pins (60° set screws)

Brief Description

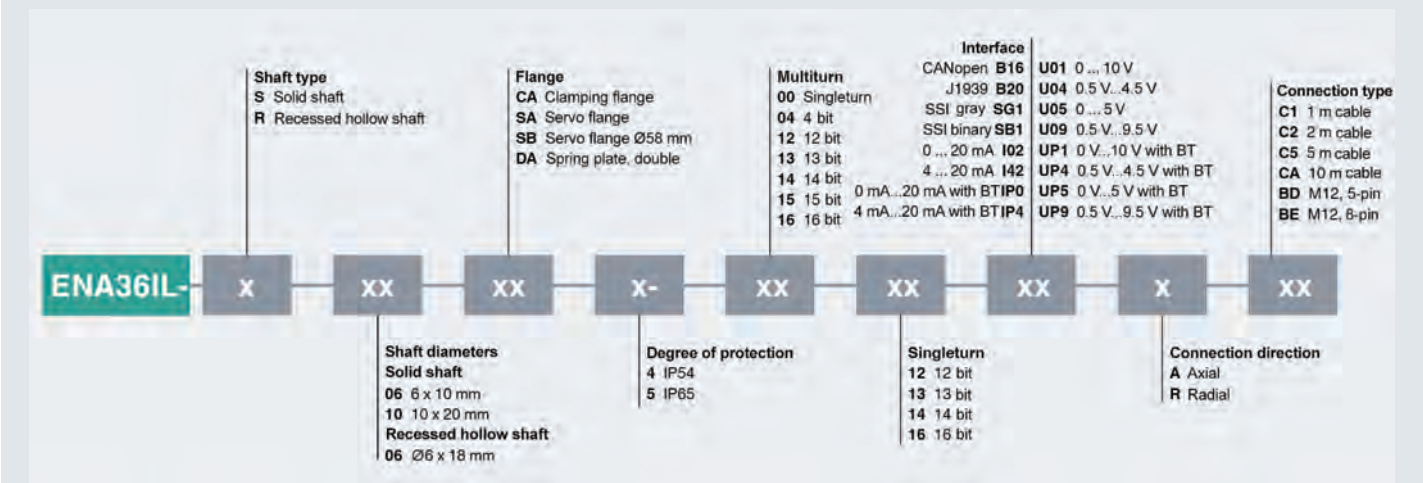
Special Housing Design for Secure Process Flows
The encoder can accommodate both very small and large drive shafts from 16 mm to 45 mm. It impresses with its comparatively small outer diameter, which permits installation in confined spaces. A hollow shaft version with a flat surface on both sides ensures a positive and backlash-free connection, and it also prevents slippage and twisting of the shafts. This makes the rotary encoder ideally suited for dynamic applications. In addition, the high immunity to interference prevents the failure of the rotary encoder even in environments with high electromagnetic loads.

Accessories	
9416	Single-ended female cordset
9416L	Single-ended female cordset

ENA36IL Series

Standard Technical Data	
Scanning method	Magnetic
Output type	Analog, CANopen, J1939, SSI
Singleturn	Up to 16 bit
Multiturn	Up to 16 bit
Connection technology	Plug, cable
Housing design	Ø 36 mm
Shaft type	Solid and recessed hollow shaft
Rotational speed	Max. 12000 rpm
Degree of protection:	IP54/IP65
Operating temperature:	-40 °C…85 °C (plug)/-30 °C…70 °C (cable)
UL	■

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.



Highlights

- Magnetic rotary encoder technology with Hall effect sensor for highly dynamic processes
- Very high resolution and absolute accuracy of <0.1° for high-precision applications
- Compact housing design for confined spaces
- Wear-free technology allows a long service life and reduces maintenance demands

Brief Description

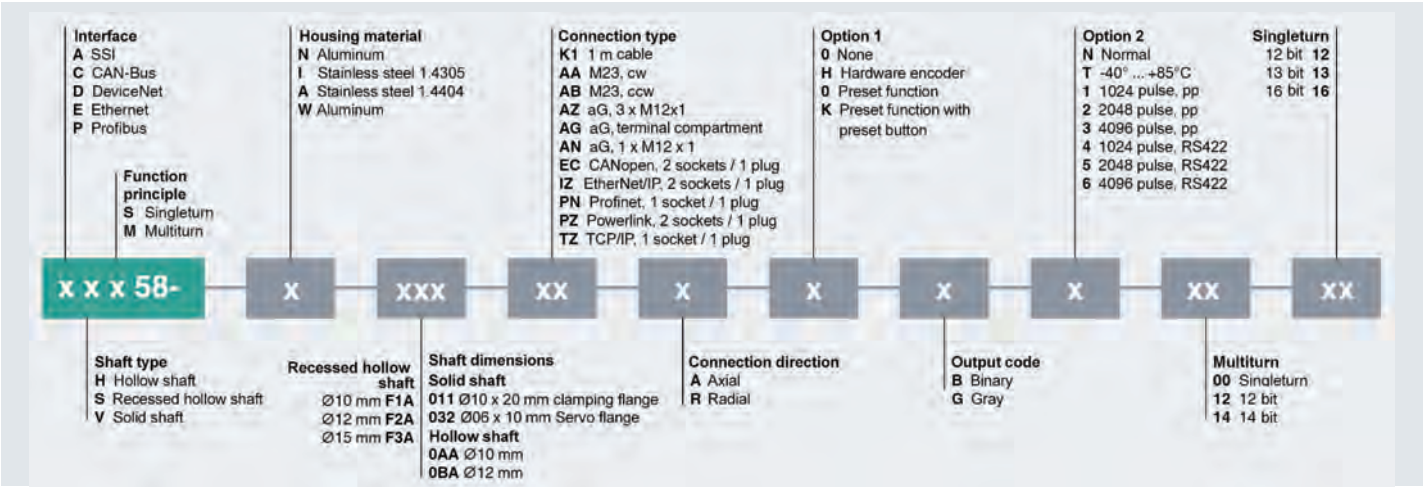
Accuracy for Precise Applications
With a total resolution of up to 32 bits and an accuracy of < 0.1°, the encoder is the ideal solution for dynamic applications where precise positioning is important. Its consistently robust technology makes it completely insensitive to shocks and vibrations. An ideal sensor in robotics, for example, but also in drive technology for speed monitoring.

Accessories	
9401/9402	Spring steel coupling
9404	Spring disk coupling
9408	Double-loop coupling
9409	Bellows coupling
9410	Precision coupling
9460	Stainless steel bellows coupling
CW	Helix coupling
Example: 9404 10*10 (D1*D2 coupling)	

58 mm Series Optical Rotary Encoder

Standard Technical Data	
Scanning method	Visual
Output type	Analog, CANopen, J1939, SSI, PROFIBUS, ProfiNET, EtherNet IP, Powerlink,TCP/IP, EtherCAT
Singleturn	Up to 16 bit
Multiturn	Up to 14 bit
Connection type	Plug, cable
Housing design	Ø 58 mm
Shaft type	Solid, recessed hollow, and hollow shaft
Rotational speed	Max. 12000 rpm
Degree of protection	IP65 or IP66/67
Operating temperature	-40 °C ... 85°C
UL	■

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.



Highlights

- Very high resolution and accuracy of up to 0.01° for precise and dynamic applications
- Flexible system integration via standard fieldbus interfaces
- Simplified installation and maintenance via removable bus cover
- The corrosion-resistant design opens up a wide variety of applications, even in extreme conditions

Brief Description

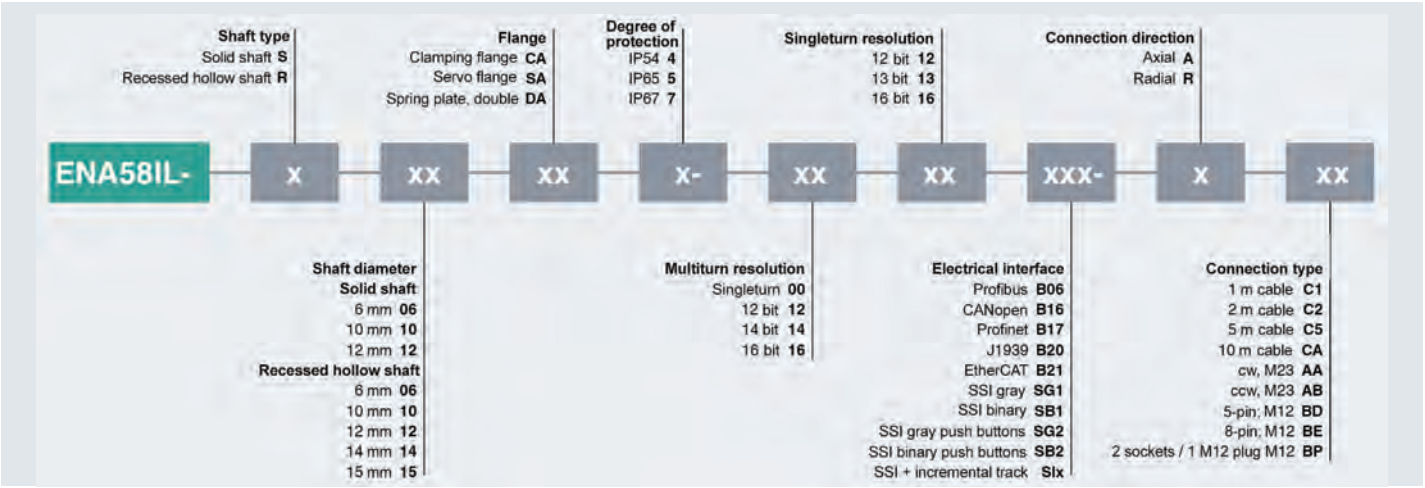
Versatile and Highly Precise
The features of this rotary encoder speak for themselves: A total resolution of up to 30 bits, a wide range of flange, shaft and connection versions, and all common fieldbus interfaces. It is not only flexible for integration into any system environment, the removable bus cover also allows easy handling during installation and maintenance in the field. Its high degree of flexibility and a comprehensive range of accessories allow specific adaptation to a wide range of applications.

Accessories	
9401/9402	Spring steel coupling
9404	Spring disk coupling for servo flange
9408	Double-loop coupling
9409	Bellows coupling
9410	Precision coupling
9460	Stainless steel bellows coupling
CW	Helix coupling
Example: 9404 10*10 (D1*D2 coupling)	

ENA58IL Series

Standard Technical Data	
Scanning method	Magnetic
Output type	Analog, CANopen, J1939, SSI, EtherCAT, ProfiNET, PROFIBUS
Singleturn	Up to 16 bit
Multiturn	Up to 16 bit
Connection type	Plug, cable
Housing design	Ø 58 mm
Shaft type	Solid and recessed hollow shaft
Rotational speed	Max. 12000 rpm
Operating temperature	-40 °C ... 85°C
UL	■

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.



Highlights

- First magnetic rotary encoder technology with Hall effect sensor for highly dynamic processes
- Very high resolution and absolute accuracy of <0.1° for high-precision applications
- Compact design in all standard interfaces for flexible use
- Wear-free technology allows a long service life and reduces maintenance demands
- The corrosion-resistant design opens up a wide variety of applications, even in extreme conditions

Brief Description

Robust Performance

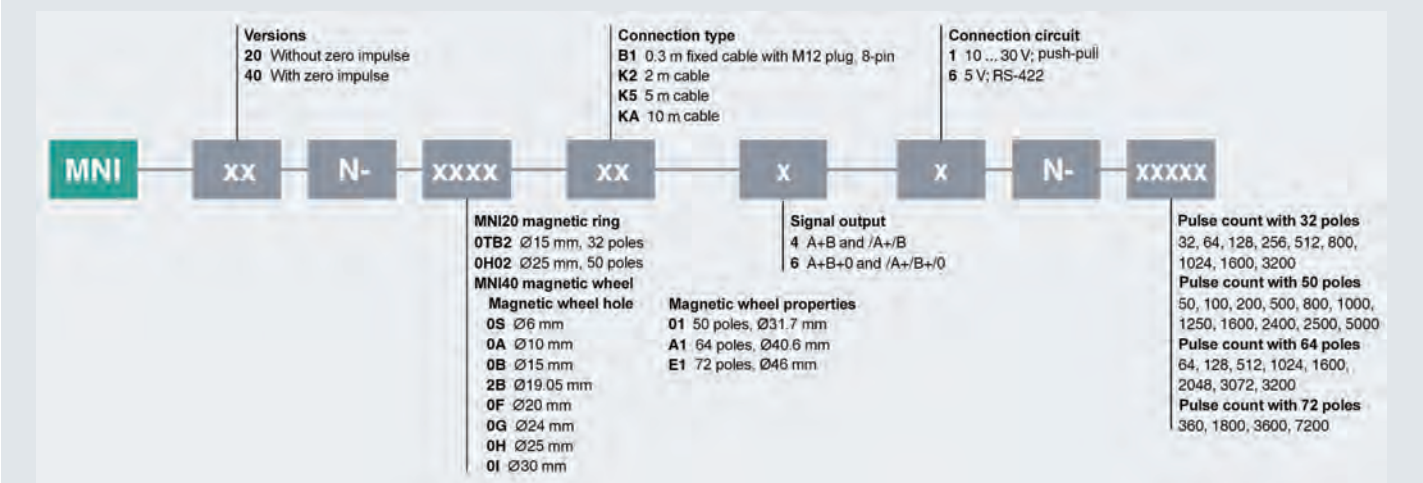
With a diameter of 58 mm, the magnetic rotary encoder is ideal for use in numerous industrial applications. It is available with both a solid and a hollow shaft and thus ensures optimal adaptation to numerous applications. With its high total resolution of up to 32 bits and high resistance to shock and vibration, it also sets a new bar for the industry standard.

Accessories	
9203	Mounting bracket
MBT-36ALS	Sprung mounting bracket
MBT-36ALS120	Spring arm
9401/9402	Spring steel coupling
9404	Spring disk coupling
9408	Double-loop coupling
9409	Bellows coupling
9410	Precision coupling
9460	Stainless steel bellows coupling
CW	Helix coupling
Example: 9404 10*10 (D1*D2 coupling)	

MNI20 and MNI40 Series

Standard Technical Data	
Scanning method	Magnetic, noncontact
Output type	Push-pull or RS-422
Pulse count	Max. 10000 pulses
Connection technology	Cable, fixed cable with plug
Rotational speed	Max. 30000 rpm
Degree of protection	IP67/IP68/IP69K
Operating temperature	-40 °C ... 100 °C
UL	■

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.



Highlights

- Assistance function and LED indicator for simplified installation and testing
- Quality assurance provided by full self-diagnosis, including for the magnetic wheel
- Resistant to dirt, thermal and mechanical shocks, and high-pressure cleaners
- Efficient solution with long service life at high rotational speed and temperature
- Variant with magnetic ring allows the cable to be guided through the hollow shaft
- Reliable functionality even with large shaft play or large bearing gap
- Also suitable for heavy-duty applications

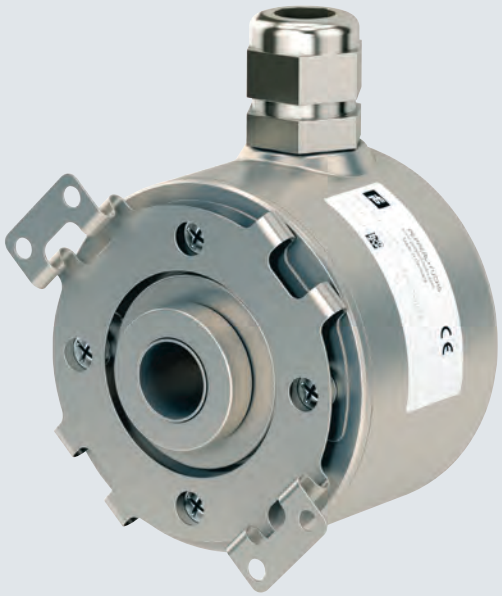
Brief Description

Noncontact and Wear-Free
Robust technology, reliable continuous function and easy installation—these are the main features of the special technology of the bearing-free incremental rotary encoder. The bearing-free rotary encoder is available in versions with a magnetic ring or magnetic wheel. With a noncontact connection between the sensor and the magnetic wheel, the rotary encoder eliminates the need for ball bearings. This guarantees a long service life, even at high rotational speeds up to 30000 rpm. Accommodating significantly larger hollow shaft diameters than with conventional rotary encoder solutions is also possible.

Special Rotary Encoder

Impressive Performance in Extreme Conditions

Beyond the industry standard, there are many extreme environments that demand especially robust designs. For these areas, Pepperl+Fuchs offers an optimized portfolio of durable rotary encoder solutions and highly informed practical knowledge.



Safety Rotary Encoders

The certified safety rotary encoders make a decisive contribution to the safety of a machine or plant. They are based on innovative technical concepts, complemented by the use of existing communication paths. This supports the safety category certification up to SIL 3/PL e.

Typical Applications

- Plants in major industries with areas of application that come under the auspices of Machinery Directive 2006/42/EC
- Positioning of turntable ladders, e.g., on fire trucks
- Positioning of hangers on monorail conveyors

Your Benefits at a Glance

- Ensuring safety to protect man, machinery, and the environment
- Reduction of safety-related downtimes
- Continuous plant operation during servicing or conversions

Offshore Rotary Encoders

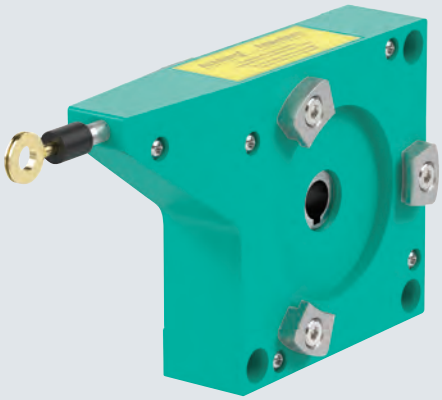
Specifically designed for use in marine environments and in especially cold environments, these rotary encoders resist shocks, vibrations, high humidity and temperatures down to –40 °C.

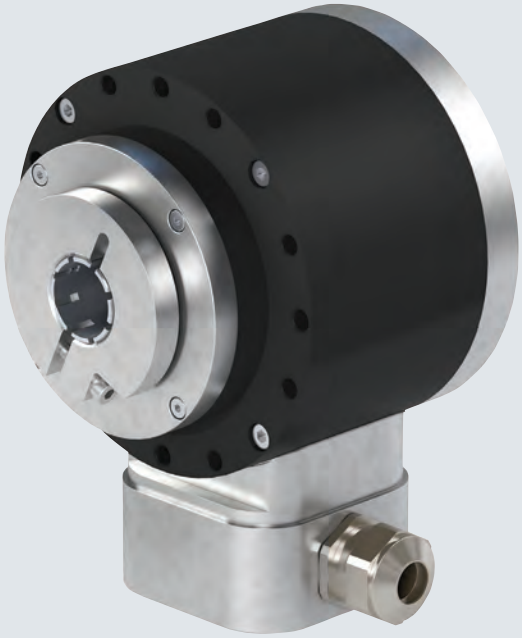
Typical Applications

- Offshore and shipbuilding: Wind turbines on the high seas, gantry systems or spreaders
- Renewable energies: Rotation monitoring of the nacelle and blades of wind turbines, speed monitoring of generators
- Mobile equipment: Use in portal cranes and lift trucks

Your Benefits at a Glance

- Extremely resistant to high humidity and corrosion due to special housing coating
- Total immunity for environments exposed to especially high EMC loads
- Long service life due to robust sensor construction with special shaft construction and high degree of protection (IP69K)





Cable Pulls

The cable pull portfolio is characterized by a modular product architecture and enables the perfect coordination of cable pulls, rotary encoders and accessory components. It ranges from the decidedly compact design to the extremely robust version for almost every application area.

Typical Applications

- Linear distance measurement, e.g., in scissor lift tables, cranes, and stacker cranes

Your Benefits at a Glance

- Wide range of versions with measuring lengths up to 60 m—from especially compact designs up to the robust heavy-duty version
- Various housing materials from plastic to anodized aluminum for extreme operating conditions
- Comprehensive accessories such as rope mounts, attachments and guide pulleys allow flexible use in any environment

Heavy-Duty Rotary Encoder

Designed for the harshest outdoor use, these versions resist heat, cold, dirt, extreme vibration, strong shocks and electromagnetic interference. The heavy-duty rotary encoders also provide reliable resistance to increased forces and extremely high shaft loads.

Typical Applications

- Steel and rolling mills, sawmills
- Outdoor lifting equipment
- Mobile equipment: Construction machinery such as cranes, crane vehicles, excavators, rollers and lifting vehicles

Your Benefits at a Glance

- Extremely robust and shock-resistant rotary encoders with high
  immunity to interference for environments with EMC loads
- Can be used in the most adverse conditions due to the highest degree of protection IP69K and especially resistant housing materials
- Increased service life due to wear-free technology and absorption of large shaft loads up to 400 N (axial) and 300 N (radial)

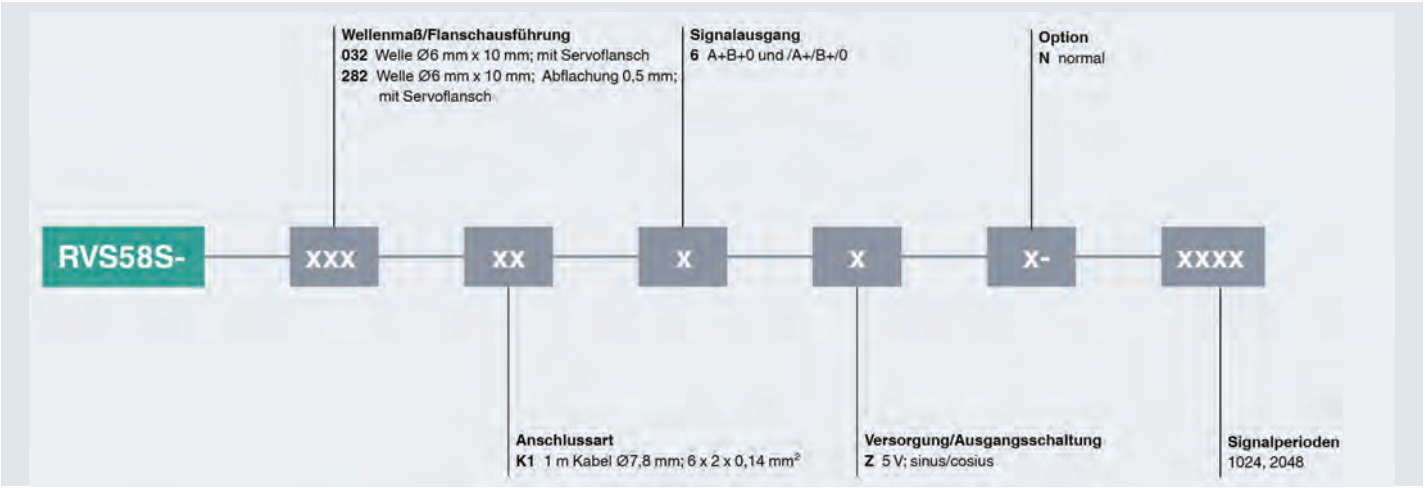
Special Rotary Encoders

Contents

RVS58S Series

Standard Technical Data	
Scanning method	Optical
Output type	Sine/Cosine
Pulse count	1024 or 2048
Connection type	Cable
Housing design	Ø 58 mm
Shaft type	Solid shaft
Rotational speed	Max. 12000 rpm
Degree of protection	IP65
Operating temperature	-20 – 80°C
SIL	3
TÜV	■
UL	■

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.



Highlights

- Ensuring safety to protect man, machinery, and the environment
- Continuous plant operation during servicing or conversions
- Reduction of safety-related downtimes
- Monitoring of: safe standstill, safe speed, and safe direction of rotation
- Elimination of mechanical safety devices
- Minimization of safety areas

Brief Description

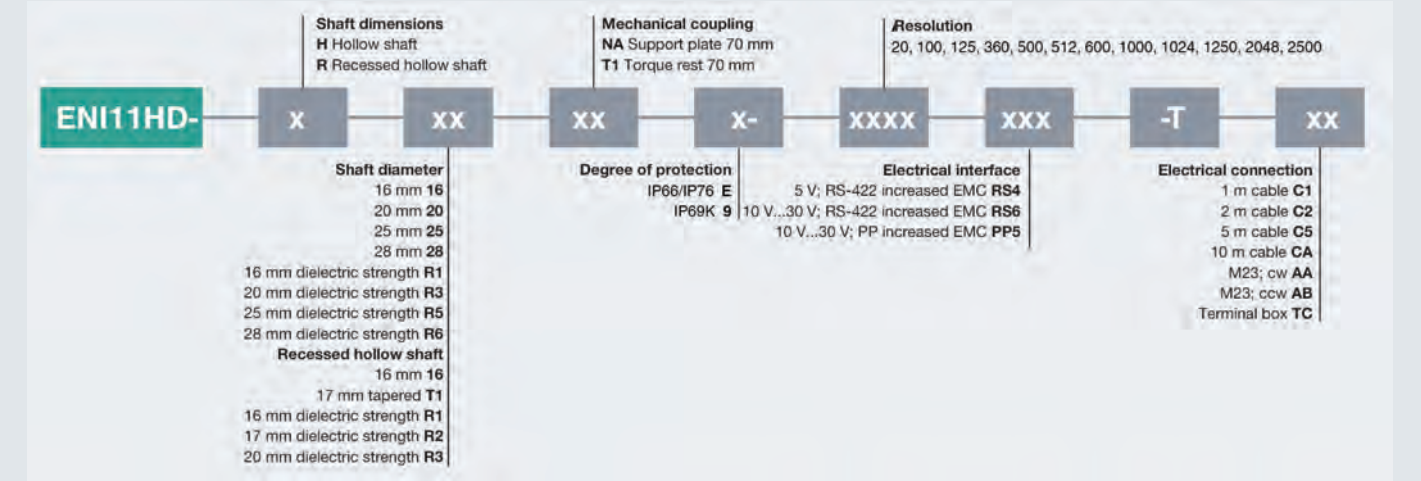
Protection against Hazards in the Process Flow
The encoder has a sine-cosine interface and provides 1024 or 2048 signal periods. It is able to detect malfunctions and communicate safely. This allows machines to be put into safe condition and avoids hazards for operating personnel. If required, an extended temperature range of up to 115 °C is also possible.

Accessories	
9203	Mounting bracket
MBT-36ALS	Sprung mounting bracket
MBT-36ALS120	Spring arm
9401/9402	Spring steel coupling
9404	Spring disk coupling
9408	Double-loop coupling
9409	Bellows coupling
9410	Precision coupling
9460	Stainless steel bellows coupling
CW	Helix coupling
Example: 9404 10*10 (D1*D2 coupling)	

ENI11HD Series

Standard Technical Data	
Scanning method	Optical
Output type	Push-pull or RS-422
Pulse count	Max. 2500 pulses
Connection type	Cable, plug
Housing design	Ø 110 mm
Shaft type	Recessed hollow and hollow shaft
Rotational speed	Max. 3000 rpm
Degree of protection	IP66/IP67 and IP69K
Operating temperature	-40 °C ... 80 °C

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.



Highlights

- High failure reliability due to protection against shaft currents
- Extremely easy installation and maintenance due to a 4 x 90° swiveling junction box
- Long service life due to extremely high resistance to vibrations and shocks
- Can be used even in adverse environmental conditions due to the high degree of protection from IP66/IP67 and IP69K
- Reliable immunity for environments exposed to particularly high EMC loads
- High dielectric strength at wave currents up to 2.5 kV

Brief Description

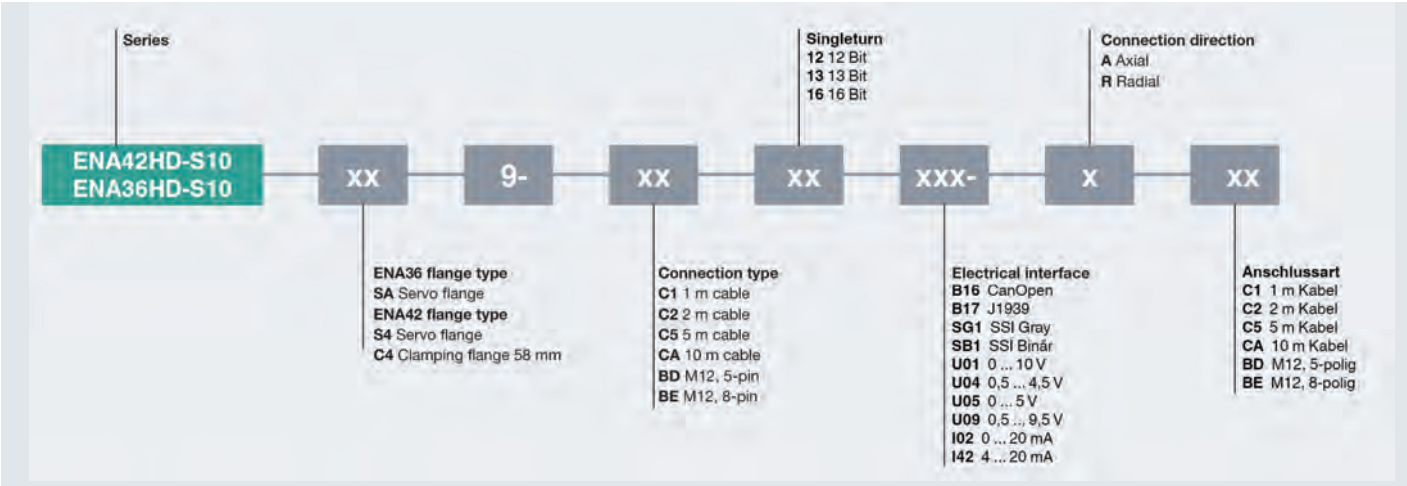
Completely Flexible and Reliable
Comprehensive protection against wave currents and high EMC loads, and extreme vibration and shock resistance make this heavy-duty rotary encoder a highly robust component that guarantees optimum process reliability and a minimum risk of failure. The terminal box, which can be rotated by 4x 90°, simplifies handling and enables quick and flexible installation and replacement of the cable in the field.

Accessories	
9416	Single-ended female cordset
9416L	Single-ended female cordset
ACC-ROD-ENI11HD-070	Articulated arm, 70 mm
ACC-ROD-ENI11HD-120	Articulated arm, 120 mm
ACC-SET-ENI11HD-DISMOUNTING	Dismounting set for ENI11HD rotary encoder
ACC-SET-ENI11HD-EARTH	Grounding kit for ENI11HD rotary encoder
ACC-SET-ENI11HD-GASKET	Seal insert set for cable glands
ACC-SET-ENI11HD-R16	Mounting accessory for 16-mm recessed hollow shaft

ENA36HD and ENA42HD Series

Standard Technical Data	
Scanning method	Magnetic
Output type	Analog, CANopen, J1939, SSI
Singleturn	Up to 16 bit
Multiturn	Up to 16 bit
Connection type	Plug, cable
Housing design	Ø 36 mm or Ø 42 mm
Shaft type	Solid shaft
Rotational speed	Max. 6000 rpm
Degree of protection	IP68/IP69K
Operating temperature	-40 °C ... 85 °C
Shaft load	Ø36: Axial/Radial: 180 N Ø42: Axial/Radial: 270 N
UL	■

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.



Highlights

- Rugged design ensures long service life under extreme operating conditions
- Optimized for mobile equipment and offshore applications with stainless steel housing and IP69K degree of protection
- Compact housing design for confined spaces
- Wear-free technology for high reliability

Brief Description

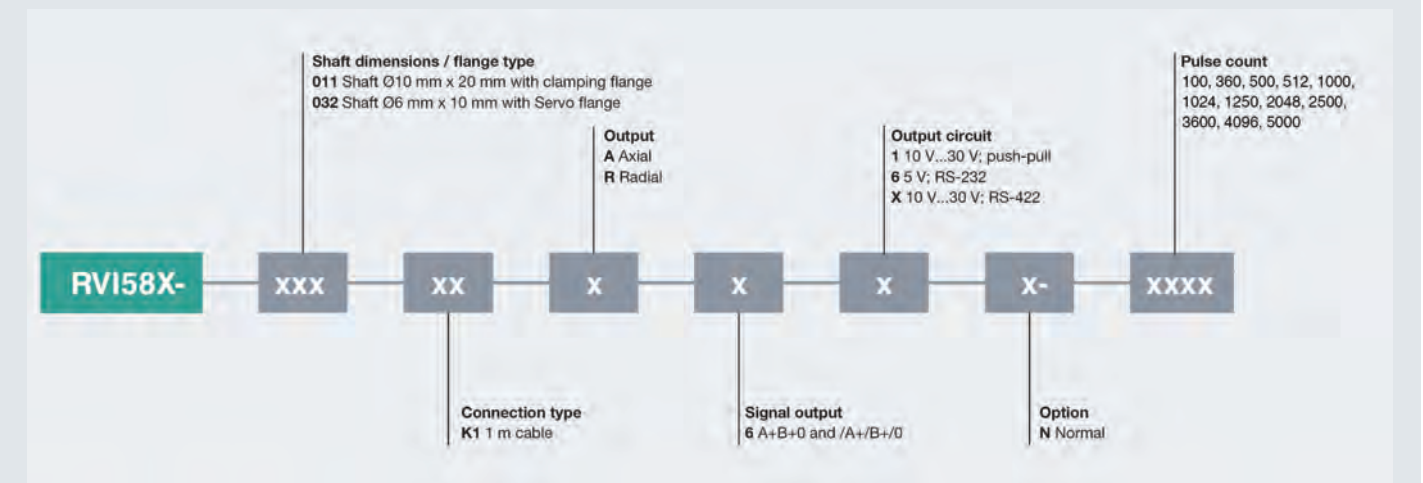
Rugged Design for Increased Service Life
These two sensors combine compact dimensions with simple mounting. The robust housing construction is also able to cope with high shaft loads. The sensors are also resistant to continual shocks and vibrations. The accuracy of up to 1° provides the best conditions for the exact positioning of moving tools on lifting or crane systems. This is true even in offshore and other adverse environments.

Accessories	
9401/9402	Spring steel coupling
9404	Spring disk coupling
9408	Double-loop coupling
9409	Bellows coupling
9410	Precision coupling
9460	Stainless steel bellows coupling
CW	Helix coupling
Example: 9404 10*10 (D1*D2 coupling)	

RVI58X and RSI58X Series

Standard Technical Data	
Scanning method	Optical
Output type	Push-pull or RS-422
Pulse count	Max. 5000 pulses
Connection technology	Cable
Housing design	Ø 58 mm
Shaft type	Solid shaft and recessed hollow shaft
Rotational speed	Max. 6000 rpm
UL	■

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.



Highlights

- Can be used in hazardous, potentially explosive atmospheres with gases or dusts
- Compact housing design for confined spaces
- High signal accuracy with up to 5000 pulses
- Flexible application and mounting options
- Can be used for longer cable lengths via RS-422 electrical interface with 10 to 30 V supply voltage

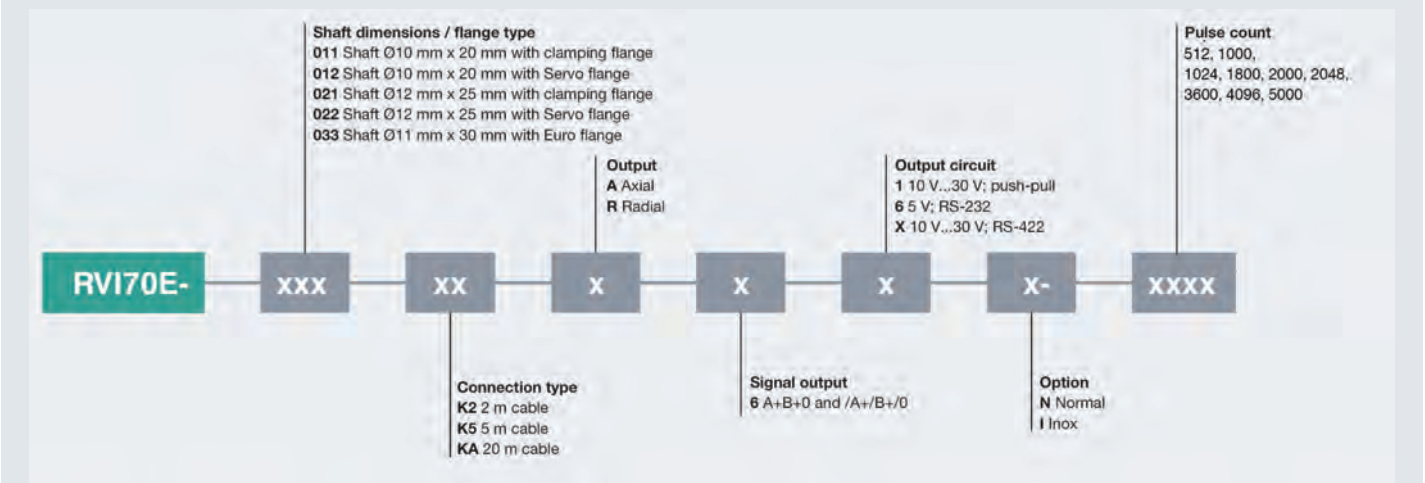
Brief Description

Compact and Flexible
This incremental rotary encoder delivers up to 5000 pulses per revolution through either a push-pull output or an RS-422 interface. Despite its design for explosion-hazardous areas, it is no larger than the corresponding standard version. This makes it ideal for integration in plants with limited space. Due to its 58 mm standard housing, it is also ideally suited for retrofitting a machine for use in Ex zones.

RVI70E Series

Standard Technical Data	
Scanning method	Optical
Output type	Push-pull or RS-422
Pulse count	Max. 5000 pulses
Connection type	Cable
Housing design	Ø 70 mm
Shaft type	Solid shaft and recessed hollow shaft
Degree of protection	IP66/IP67
Rotational speed	Max. 6000 rpm
ATEX	■

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.



Highlights

- Global certification: ATEX, IECEx, KOSHA, NEPSI
- Robust bearing design ensures a long service life and reduced maintenance
- Compact housing design, ideal for confined spaces
- Suitable for use in demanding environments thanks to a high degree of protection and a sea water-resistant housing
- Large range of applications due to extended temperature range of -40 °C to 70 °C and high rotational speeds
- Wide range of variants for easy adaptation to any application

Brief Description

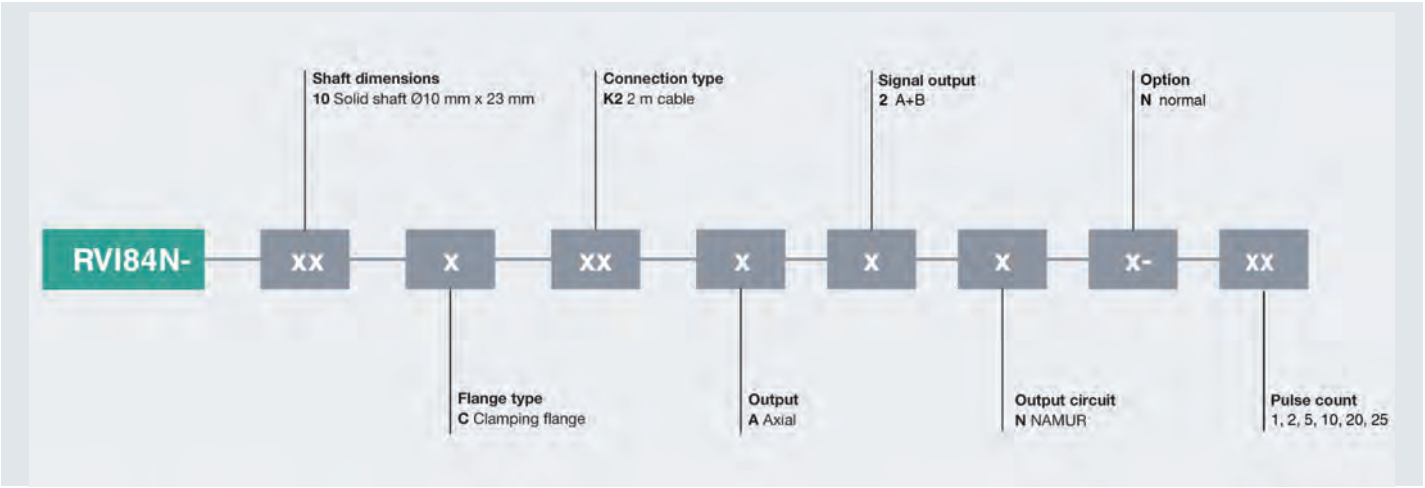
Suitable for Any Climate

The Ex rotary encoder with ATEX, IECEx, Ex-NEPSI and KOSHA certification offers more than just a high degree of protection. With its seawater-resistant housing, it is also suitable for use in offshore applications. The high rotational speed of 6000 rpm with an extended temperature range from –40 °C to 70 °C allows reliable deployment even under extreme climatic conditions. The compact housing design ensures efficient use of space. The rotary encoder is certified for explosion-hazardous areas (Group II) and for firedamp-sensitive mines (Group I).

RVI84 Series

Standard Technical Data	
Scanning method	Visual
Output type	NAMUR
Pulse count	1, 2, 5, 10, 20, 25
Connection type	Cable
Housing design	Ø 78 mm
Shaft type	Solid shaft
Degree of protection	IP65
Rotational speed	Max. 3000 rpm

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.



Highlights

- Safe for use in a hazardous, potentially explosive atmosphere with gases (Zone 1)
- Robust housing design for increased service life and reduced maintenance
- NAMUR interface according to DIN EN 60947-5-6

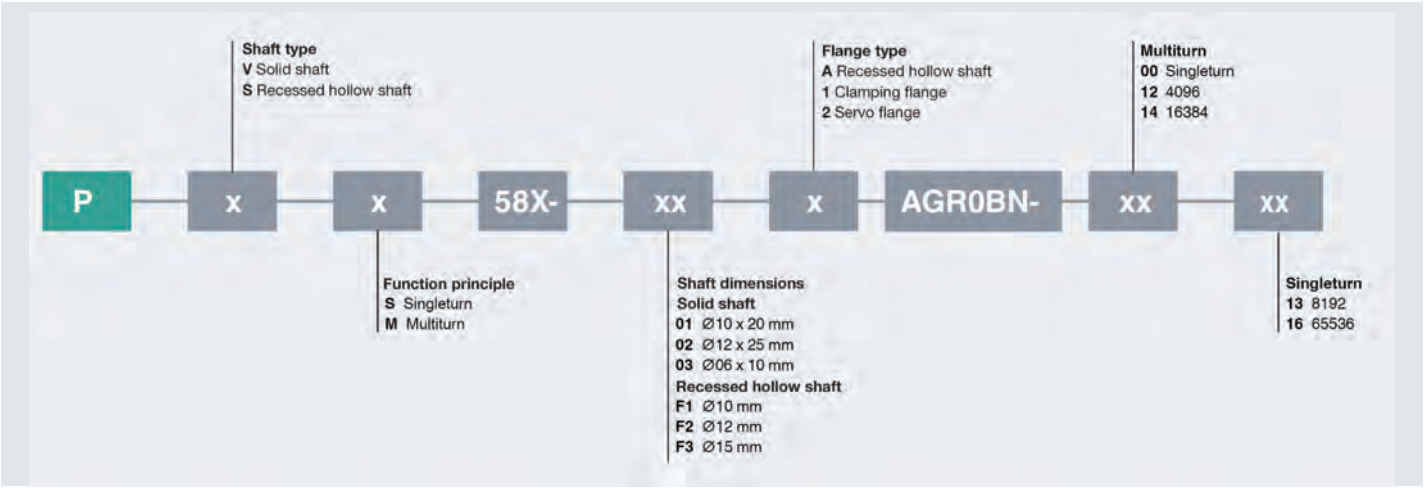
Brief Description

Safe Process Flows
The sensor is mainly used in the chemical industry, for example in painting and drying plants or in sewage treatment plants and power plants. These are areas in which a potentially explosive atmosphere can form as a mixture of air and flammable gases, vapors or mists. The rotary encoder with solid shaft offers a resolution of 25 pulses at a speed of up to 3000 rpm. Its robust housing design ensures a long service life and thus reduces maintenance costs. As a device for explosion protection Zone 1, it is equipped with the intrinsically safe NAMUR interface according to DIN EN 60947-5-6.

58X Series PROFIBUS

Standard Technical Data	
Scanning method	Optical
Output type	PROFIBUS
Singleturn	Up to 16 bit
Multiturn	Up to 14 bit
Connection technology	Detachable housing cover
Housing design	Ø 58 mm
Shaft type	Solid and recessed hollow shaft
Rotational speed	Max. 6000 rpm
Degree of protection	IP64
Operating temperature	-30 °C to 55 °C
UL	■

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.



Highlights

- Can be used in hazardous, potentially explosive atmospheres with gases or dusts
- Simplified system integration with removable bus cover
- Compact housing design for confined spaces
- High total resolution at up to 30 bits
- Flexible mounting with a wide range of application and mounting options

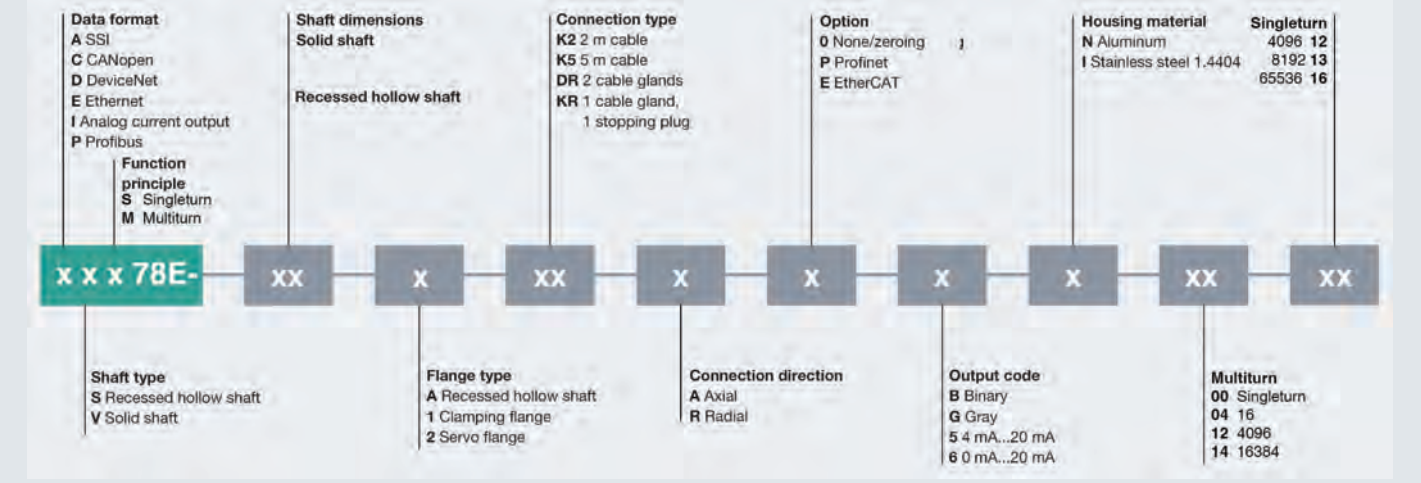
Brief Description

Simple Commissioning and Maintenance
The PROFIBUS interface of the sensor enables easy mounting on the shaft and provides a total resolution of up to 30 bits. Thanks to the compact housing design, the rotary encoder can be mounted flexibly even if space is limited. A removable bus hood also facilitates installation and reduces maintenance costs.

78E Series

Standard Technical Data	
Scanning method	Optical
Output type	Analog, CANopen, DeviceNet, Ethernet, PROFIBUS
Singleturn	Up to 16 bit
Multiturn	Up to 14 bit
Connection technology	Cable, cable gland
Housing design	Ø 78 mm
Shaft type	Solid and recessed hollow shaft
Rotational speed	Max. 3000 rpm
Degree of protection	IP66
Operating temperature	-40 °C ... 70 °C

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.



Highlights

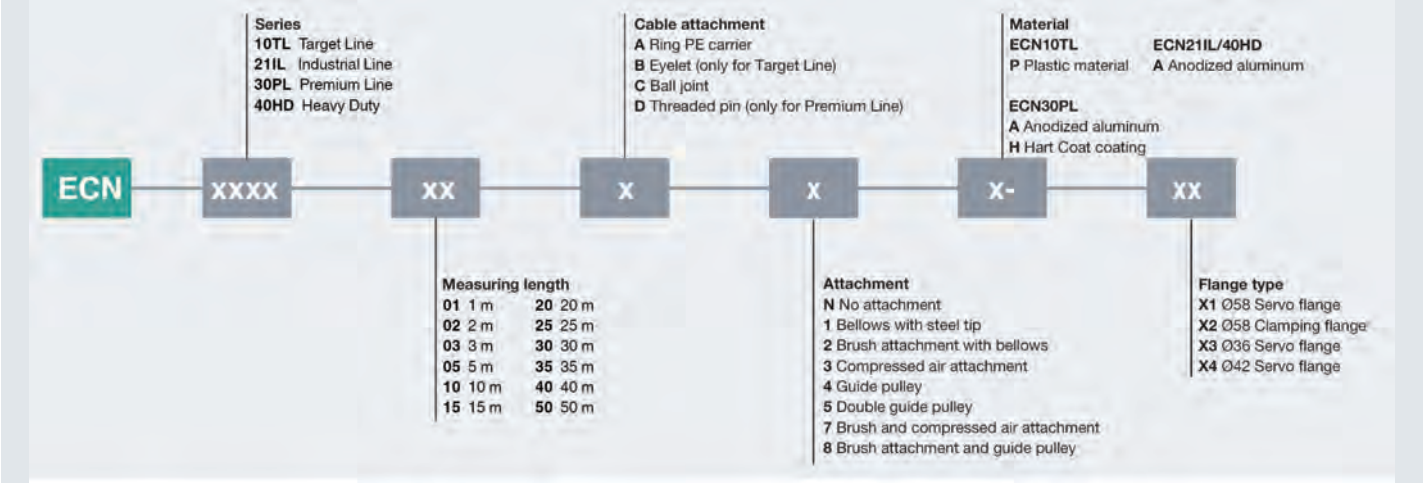
- Removable connection cover: flexible mounting and cabling on-site
- Simple maintenance: separation of the cable and rotary encoder means there is no need to replace the entire device
- ATEX, IECEx, and Ex NEPSI certification for worldwide use in Zone 1/Zone 21
- Wide range of variants for easy adaptation to any application
- Specially developed for the offshore sector
- Robust design for use in extreme conditions

Brief Description

Flexible Mounting and Cabling
The sensor is suitable for speeds of up to 3000 rpm and is designed for a temperature range of -40 °C to 70 °C. It complies with protection type Ex d and meets the international ATEX, IECEx and Ex-NEPSI requirements for gases according to Zones 1 and 2, and for dusts according to Zones 21 and 22. The modular design with removable connection hood facilitates installation and maintenance. With the fieldbus versions, bus coding can be freely programmed directly on-site. The rotary encoder is certified for explosion-hazardous areas (Group II) and firedamp-sensitive mines (Group I).

Cable Pulls

For detailed data and description, see the datasheet. Further products can be found online at www.pepperl-fuchs.com.



EC*10TL

- Most affordable version
- Solid and lightweight plastic design
- Flat housing design for confined spaces
- Coupling-free adaptation for precise information feedback

EC*21IL

- Rugged aluminum drum housing
- Compact design
- Bellows with steel tip for increased protection and to prevent ice formation

EC*30PL

- Rugged aluminum drum housing (optional: Hart Coat coating)
- Drum movement when cable retracted using threaded spindle for high measurement accuracy
- Versatile attachments – suitable for every application
- Very low hysteresis

EC*40HD

- For extremely harsh weather and environmental conditions
- Open cable pull system simplifies easy cleaning

Brief Description

The range of cable-pull rotary encoders from Pepperl+Fuchs is characterized by a modular product architecture. It offers a wide range of versions for almost any application area. Optimally matched components guarantee a long service life and ensure reliable processes for linear distance measurement and positioning.

Accessories	
ACC-PUL-ECN-SEP2	Guide pulley
ACC-PUL-ECN-SEP4	Guide pulley

Rotary Encoder Accessories

Only perfectly coordinated connection and mounting technology ensures optimum integration of a rotary encoder. The comprehensive range of accessories from Pepperl+Fuchs supplies all the necessary components for a perfect ready-to-install solution.

Brief Description

Mounting Accessories for Rotary Encoders with Hollow and Recessed Hollow Shafts
To connect the rotary encoder and motor shaft, you will be provided with stator couplings, torque spring plates, and torque rests.

Mounting Accessories for Rotary Encoders with Solid Shaft
Shaft couplings, mounting and eccentric clamping elements, mounting brackets and domes, and adapter flanges ensure that the rotary encoder is adapted safely and stays firmly in place.

Electrical Connection
For optimal connection of the rotary encoder, you will be provided with the appropriate single-ended female cordset, connector and connecting cable.

Measuring Wheels
Equipped for any surface with measuring wheels in various sizes, coatings, and running surface textures.

Evaluation
Various counters are available for visualizing rotary encoder signals such as display, pre-selection, and counters.

Cable Pull Accessories
The comprehensive range of accessories for cable suspensions, cable pull attachments, and guide pulleys enables consistently reliable measurement results with an increased service life even under difficult environmental conditions.