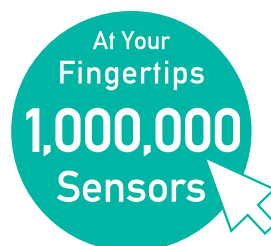




SENSORS FOR AUTONOMOUS MOBILE ROBOTS

Over 50 Years Experience



The One Stop Encoder Shop

BENEFITS



High Precision

IXARC Rotary Encoders are designed to provide up to 16 Bit resolution in both magnetic and optical sensing technologies; and up to 16384 PPR for incremental encoders; TILTIX Inclinometers offer a static accuracy level of 0.1° over a wide temperature range.

- > Absolute Encoders with 16 Bit Resolution
- > Incremental Encoders with Any PPR up to 16384
- > Inclinometers with 0.1° Accuracy and 0.01° Resolution
- > Dynamic Inclinometer for Positioning during Movements and Vibrations

Functional Safety

Safety encoders offer the advantages of increased personnel safety and also serve to minimize the risk of machine malfunction. IXARC safety encoders are certified to Safety Integrity Level 2 (SIL 2) and Performance Level d (PL d). Additionally, POSITAL also offers redundant encoders which can reach a safety level of PL d, Cat. 3.

- > Certified Safety Level (SIL 2, PL d)
- > Redundant Encoder Designs
- > Wide Range of Electrical Interfaces

Robust Design

Both encoders and inclinometers are available in heavy duty designs with a protection class of up to IP69K. Stainless steel versions are also available. Encoders can withstand shaft loads of up to 300N and offer a shock resistance of up to 300g. Most products cover a temperature range from -40°C to +85°C.

- > Different Housing Materials Available
- > High Protection up to IP 68/69K,
- > Up to 300N load and up to 300g shock

Energy Harvesting – No Battery

POSITAL's Wiegand energy harvesting system is at the core of most POSITAL Multiturn encoders. It eliminates the need for backup batteries. At any rotational speed, even the slowest, the Wiegand system generates powerful voltage pulses with each complete revolution. These pulses supply enough power to the electronics, even when the external power supply is unavailable.

- > Multiturn Without Battery – No Maintenance
- > Self Powered Magnetic Sensing
- > Proven in Absolute Encoders since 2007



PRODUCTS



High Precision IXARC Rotary Encoders

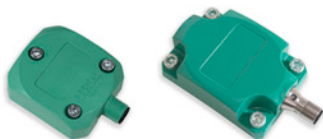
Motion control applications – ranging from factory automation to mobile machinery – require accurate, real-time information about the location of mechanical components. The IXARC line of rotary encoders provide precise and reliable measurement of the angular positions of joints, drive shafts, pulleys, etc. A comprehensive offering ranging from simple analog and incremental to sophisticated Fieldbus and Industrial Ethernet interfaces, are made available in both industry standard and unique problem-solving package styles.

- > Thousands of Absolute and Incremental Encoders with up to 16 Bit Resolution
- > Large Variety of Electrical Interfaces
- > Broad selection of Package & Mounting Styles

Precise Industrial TILTIX Inclinometers

The accurate measurement of tilt or inclination is very important for motion control and safety systems. Relying on MEMS technology and gravity for their measurement, these sensors have no exposed moving parts, resulting in easy installation, along with high levels of environmental protection and durability.

- > High Accuracy of 0.1° and Resolution of 0.01°
- > Measurement Range ±80° (Dual Axis) or 360° (Single Axis)



Multiturn Kit Encoders Without Battery

POSITAL's kit encoders offer a wide multiturn range without the need for a battery or gear systems. They are very compact, cost efficient and available with open source electrical interfaces like BiSS-C or BiSS Line (RS485) and SSI. One Cable Technology is also supported. An integrated auto-calibration function eliminates the need for complex production equipment. Low sensitivity to dust and moisture enables assembly in a normal factory setting.

- > Multiturn Without Battery or Gear
- Multiple Open Source Interfaces: BiSS-C,
- > BiSS Line, RS485, SSI

Versatile LINARIX Sensors

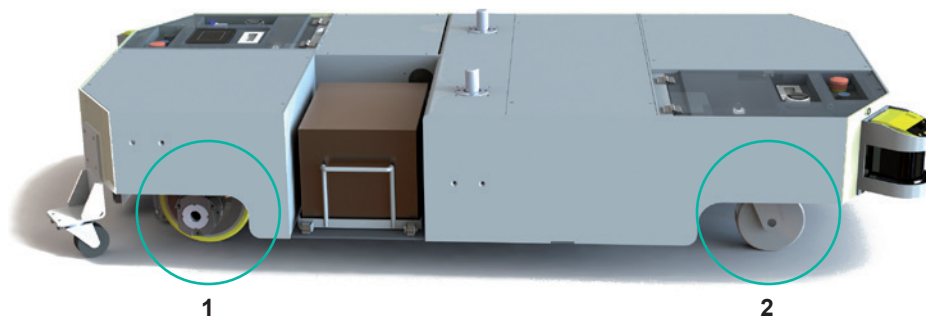
Many applications require linear motion to be monitored for system control or to ensure safety. With lengths ranging from 1 m to 15 m (3' to 45'), LINARIX draw wire sensors are available in many configurations to meet application requirements. Options include a wide variety of outputs (including analog, Fieldbus and Ethernet variants), heavy duty housings and compact designs.

- > Position Measurement with Resolutions up to 2µm and Range up to 15m
- > Wide Variety of Draw Wire Package Sizes and Styles to Accommodate Applications Ranging from Light/Instrument Duty to Harsh



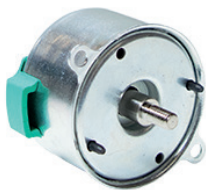
AUTONOMOUS MOVING PLATFORM

While previously limited in application just a decade ago, today Automated Guided Vehicles (AGVs) or Autonomous Mobile Robots (AMRs) are widely employed in manufacturing production & assembly plants, logistics warehousing facilities, and in agricultural crop fields, to name just a few. Given the broad range of working environments and varied tasks, designing efficient and effective mobile platforms for each unique application can also present varied challenges. However, the benefits of fully autonomous vehicles and robots include increased productivity, error avoidance and safety. There are at least two common sub-systems to most self-driving platform designs:



1. Steering System

Mechanical and electrical integration of the encoder into platform steering system can present considerable challenges, depending on steering system design requirements and spatial envelope constraints. Whether new steering system design or retrofit to existing vehicle chassis, POSITAL IXARC encoders, Kit encoders, and other innovative designs afford workable form & fit economies, along with required signal function and performance



Kit Absolute Encoders

- > Battery and Gear-Free Multiturn Solid and Hub Shaft
- > Singleturn Resolution up to 17 Bit
- > Compact Design: 22 mm or 36 mm in Diameter
- > Open Source Interfaces: SSI, BiSS-C, BiSS Line

2. Driving System

As with their steering systems, AGV and AMR drive systems commonly have similar encoder requirements; both electrically and mechanically. Additionally, an encoder of functional safety design is increasingly being specified for drive system feedback, when the AGV or AMR paths and human walking paths intersect



IXARC Rotary Encoders

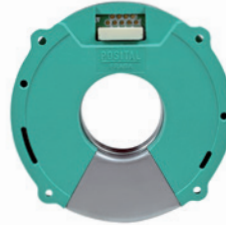
- > Up to 16 Bit Resolution per Revolution for Absolute Encoders and 16384 PPR for Incremental Encoders
- > Up to 180N Axial / Radial Shaft Load
- > Redundant and Safety Designs Available

DIVERSIFIED HANDLING



Robotic Arm Positioning

- > Synchronization of Robotic Arm and Moving Platform
- > High Precision Absolute Position Feedback
- > No Maintenance Required



Hollow Shaft Kit Absolute Encoders

- > Battery and Gear-Free Multiturn Hollow Shaft
- > Resolution up to 19 Bit, Accuracy $\pm 0,02^\circ$
- > Non Contact Measurement – No Mechanical Wear



Lift Position Measurement

- > A Real-Time Lift Position Feedback
- > User Defined Programmability
- > Reliable Draw Wire Adapter



LINARIX Draw Wire Sensors

- > Up to 15 m Measurement Range
- > Available in All Common Electrical Interfaces
- > Rugged Construction



Platform Tilt Measurement

- > A Reliable Dynamic Reference Surface
- > Exposure to Outdoor Weather Conditions
- > Accurate and Responsive Measurement



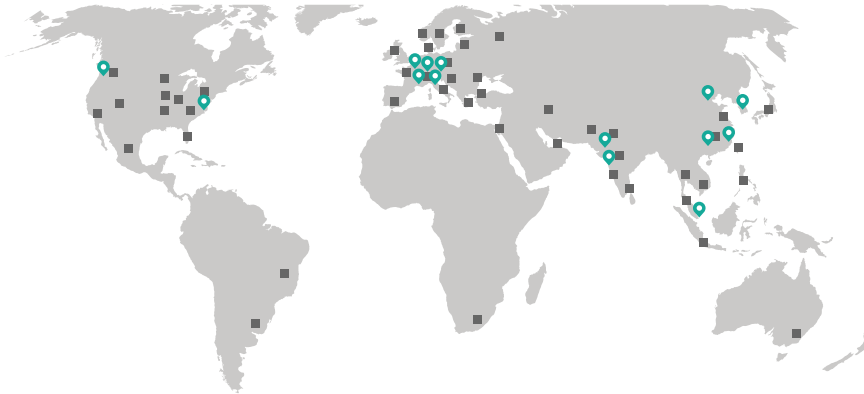
TILTIX Inclinometers

- > 0.1 High Accuracy Measuring
- > Acceleration Compensation Available
- > Up to IP68/69k Protection





OVER 50 YEARS EXPERIENCE WITH POSITION SENSORS



FRABA Group

FRABA is a group of enterprises focused on providing advanced products for the motion control and industrial automation markets. POSITAL has been a leading manufacturer of industrial rotary encoders for over 50 years and has expanded its business to tilt and linear motion sensors. FRABA group is also an innovator in product design and manufacturing processes and a pioneer of Industry 4.0.

Production

POSITAL products are manufactured in advanced production facilities. The computer-guided semiautomated production system tracks each device from order, through assembly and testing, to final delivery. Even with hundred thousands of unique configurations available, standard products are ready to ship within five working days of receiving an order.

History

FRABA Group dates back to 1918, when its predecessor, Franz Baumgartner elektrische Apparate GmbH, was established in Cologne/Germany to manufacture relays. In 1973 FRABA introduced one of the first non-contact, absolute Multiturn encoders. Since then, the company has played a trend-setting role in the development of rotary encoders and other sensor products.

Service

POSITAL's unique online product finder is providing access to a huge variety of solutions without requiring specialized knowledge. Many hundred thousand specific datasheets are available in 11 languages and easy to browse. The traditional practice of customization has been replaced by this new approach to a large extent. Furthermore, experienced engineers are available in Europe, North America and Asia at different locations to support the large global network of distributors and customers within their time zone and in many languages.

Join Our Network!



www.posital.com

Cologne (EMEA) – Hamilton (Americas) – Singapore (APAC) – Shanghai (China)