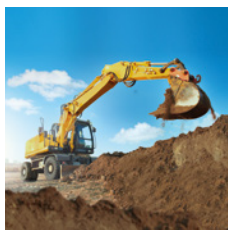




SENSOR SOLUTIONS FOR MOBILE AUTOMATION

CONSTRUCTION MACHINES, CRANE & LIFTING TECHNOLOGY



Rotary
Linear
Inclination
Speed

COMPANY PROFILE

DYNAMIC & INNOVATIVE

Our measuring technologies are successfully represented world-wide and in the entire mechanical engineering sector. Approx. **60 representatives** ensure direct contact technical support for our customers, both nationally and internationally. Our **5 successful subsidiaries** in the USA, China, Singapore, Switzerland and Italy strengthen the global presence of SIKO GmbH.



Into the future with a vision

Graduated Industrial Engineer Horst Wandres, son of the company founder, has led the company into the future with a vision since 1990.

Sven Wischnewski was appointed to the Executive Board in August 2014 for reinforcement.

Already today, Buchenbach and Bad Krozingen are consistently setting the course for the coming decades.

Products and Solutions

SIKO specializes in high-quality products and solutions for industry, mechanical engineering and mobile machines:

Linear sensors: Bearingless linear encoders (MagLine), draw-wire encoders and position sensors for hydraulic cylinders

Rotary sensors: Bearingless rotary encoders (MagLine), encoders and inclination sensors

Positioning systems: Mechanical and electronic position indicators and positioning drives

Customized solutions



SIKO MILESTONES

THEN & NOW

1963

The first product idea: a handwheel with an integrated analogue indicator. Dr.-Ing. Günther Wandres founded SIKO GmbH.



1978

First geared potentiometer for position detection is developed. The start into the electronic absolute rotary position measurement.



1982

The electronic era of position measurement technology begins; Electronic displays and the first electronic hollow shaft encoders are developed.



1992

Introduction of the measuring principle (MagLine) and draw-wire encoders.



2009

Safety first: Development of the first redundant safety draw-wire encoder with analog interface.



2010

Introduction of the first MEMS-based inclination sensor for applications in mobile machines and renewable energies.



2016

Introduction of a new draw-wire encoder for stroke measurement in hydraulic cylinders as well as the first absolute safety rotary encoder with PLd.



2020

Introduction of the first MEMS-based safety inclination sensor with PLd. Robust and with temperature compensation.



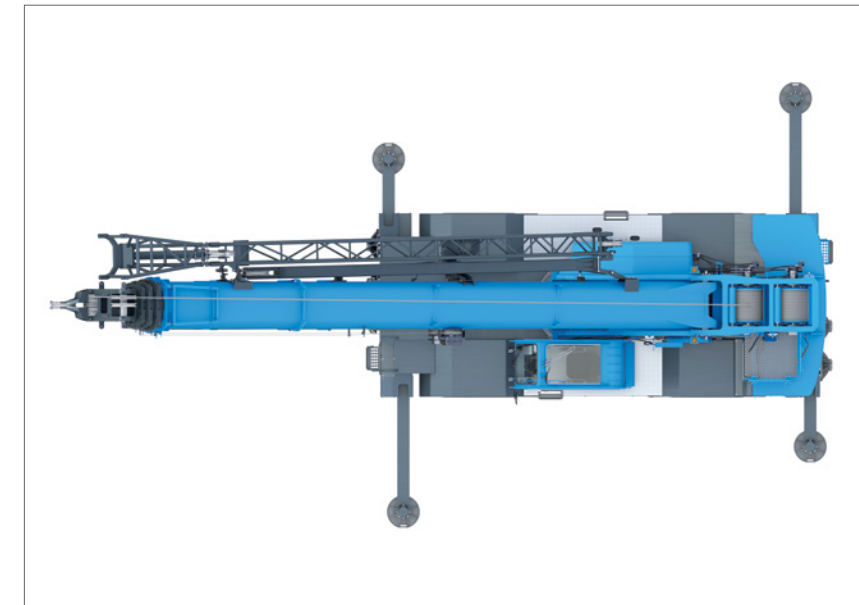
2025

Introducing the world's smallest safe multiturn absolute rotary encoder for mobile machines with PLd and SIL2.



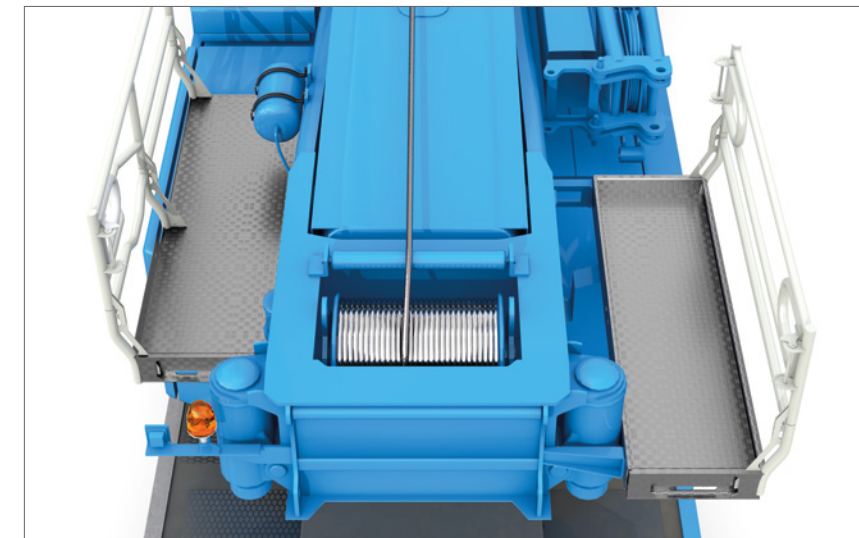
SENSOR SOLUTIONS FOR CRANE & LIFTING TECHNOLOGY

Whether it's a mobile crane, aerial work platform, or telescopic loader, in crane and lifting technology, safe stability and the safe movement of heavy loads are always essential. In order to move these loads safely and ensure the protection of people and the environment at all times, smart sensors are required that reliably detect critical information and transmit it to the controller.



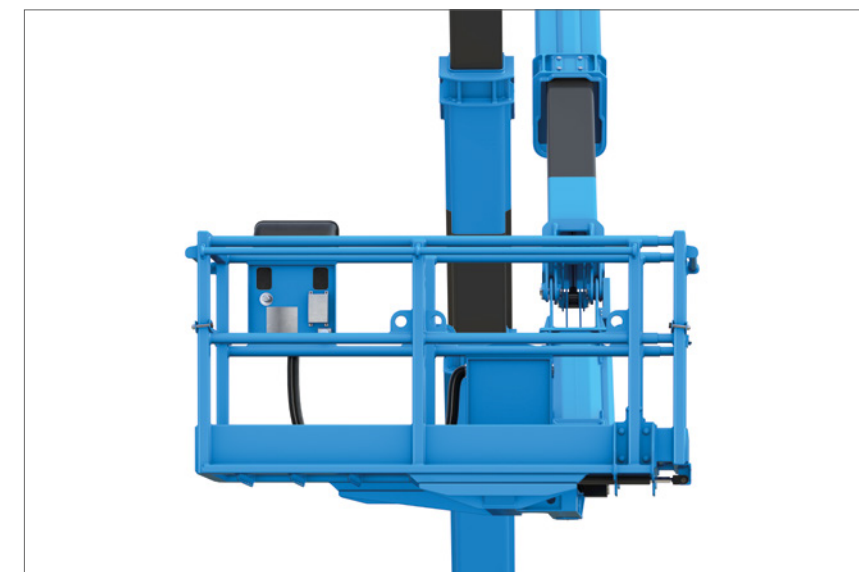
Variable outrigger movement thanks to exact position detection

Draw-wire encoders for the exact measurement of the position of the outrigger or directly integrated in the hydraulic cylinder ensure a secure stability and added flexibility on construction sites. Particularly suitable: safe sensors up to Performance Level d (PLd).



Position and speed detection of winch systems

Safe lifting and lowering is essential, especially when moving heavy loads. Intelligent and robust encoders measure the absolute position and speed of the cable winch – safe, robust, precise.

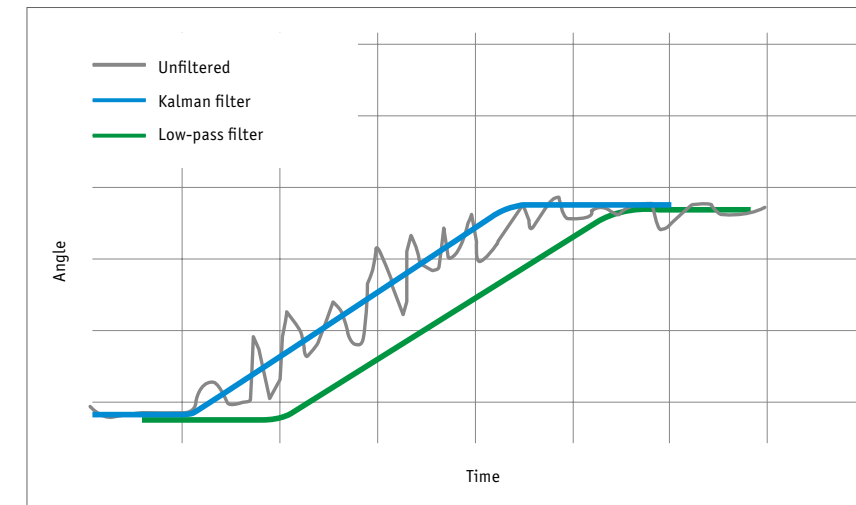
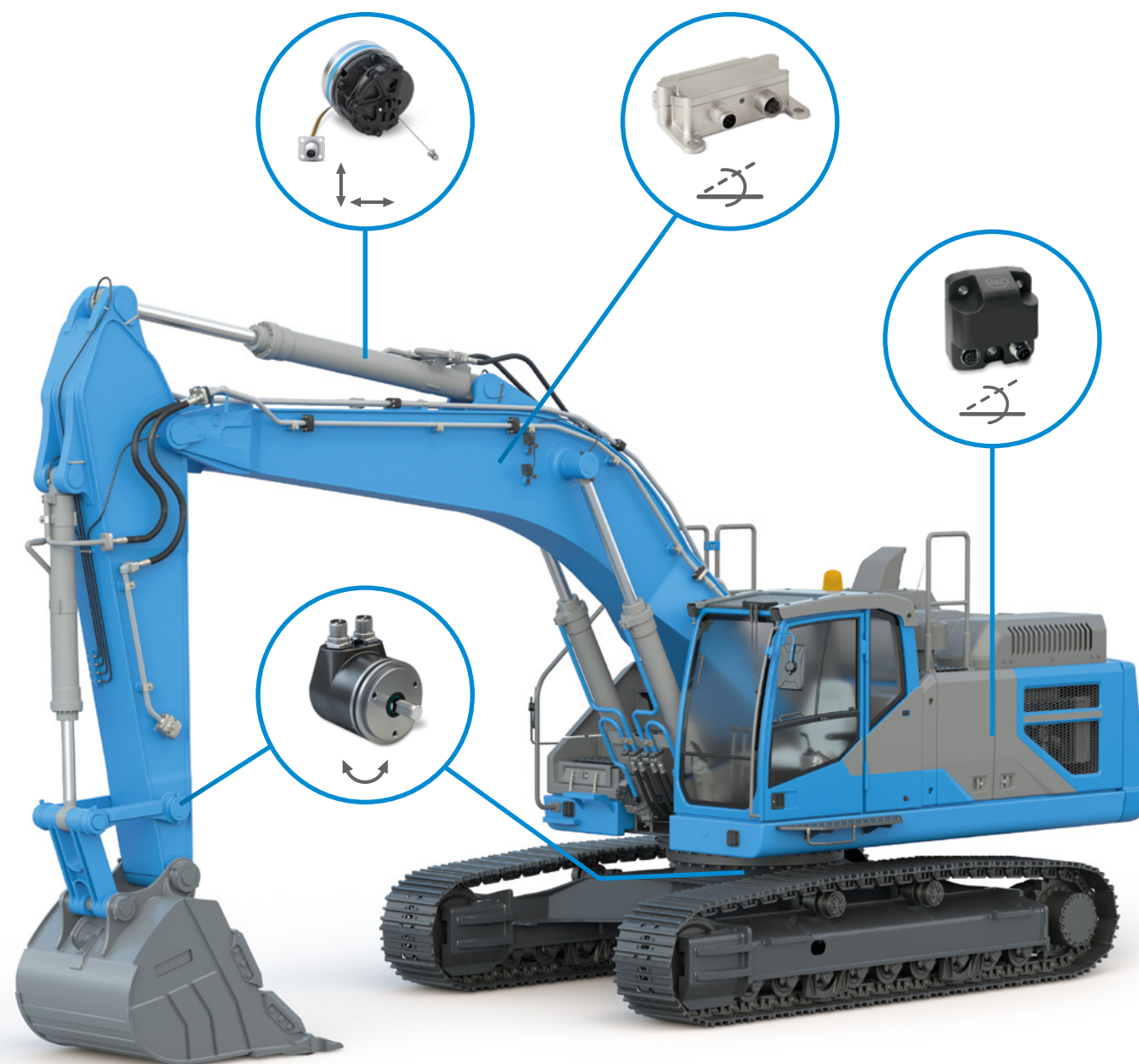


When safety counts! Inclination detection of the basket

Safety inclinometers ensure safety in the passenger basket. High temperature stability and precise inclination detection over the entire measuring range protect people and machine.

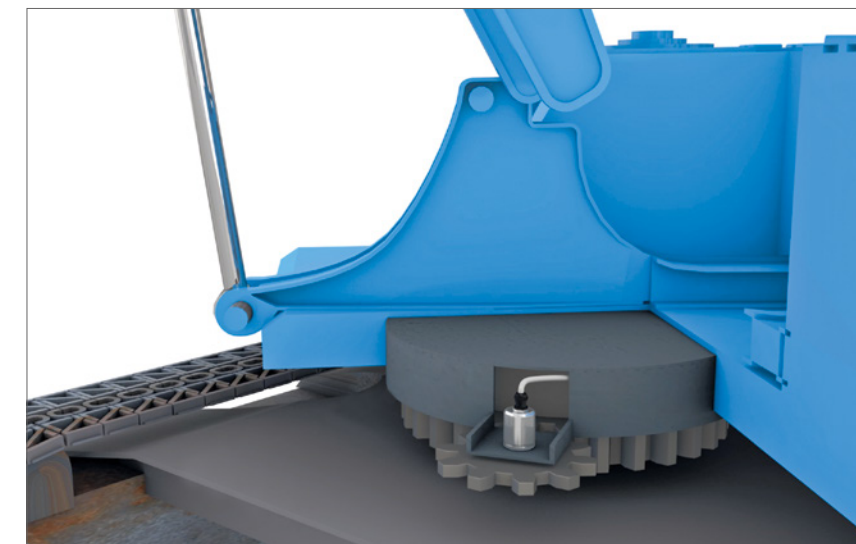
SENSOR SOLUTIONS FOR EARTH MOVING EQUIPMENT

Construction machines must provide maximum performance with optimum precision and efficiency as smoothly as possible. Rely on the robust and sustainable sensors from SIKO to increase efficiency sustainably and further to optimize and automate working processes.



Innovative algorithms for stable measurement values

Thanks to the intelligent sensor fusion the inclination sensors always deliver stable and reliable measurement values even in dynamic applications with high interferences.



Safe detection of slewing ring position

The SIKO safety encoders are ideally suited for the implementation of load moment limiting systems and safety functions such as "virtual walls".

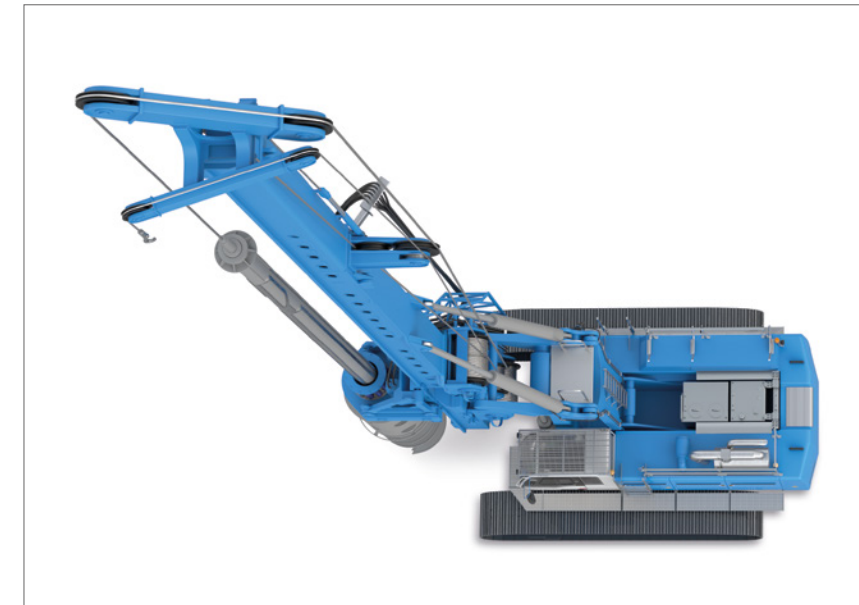
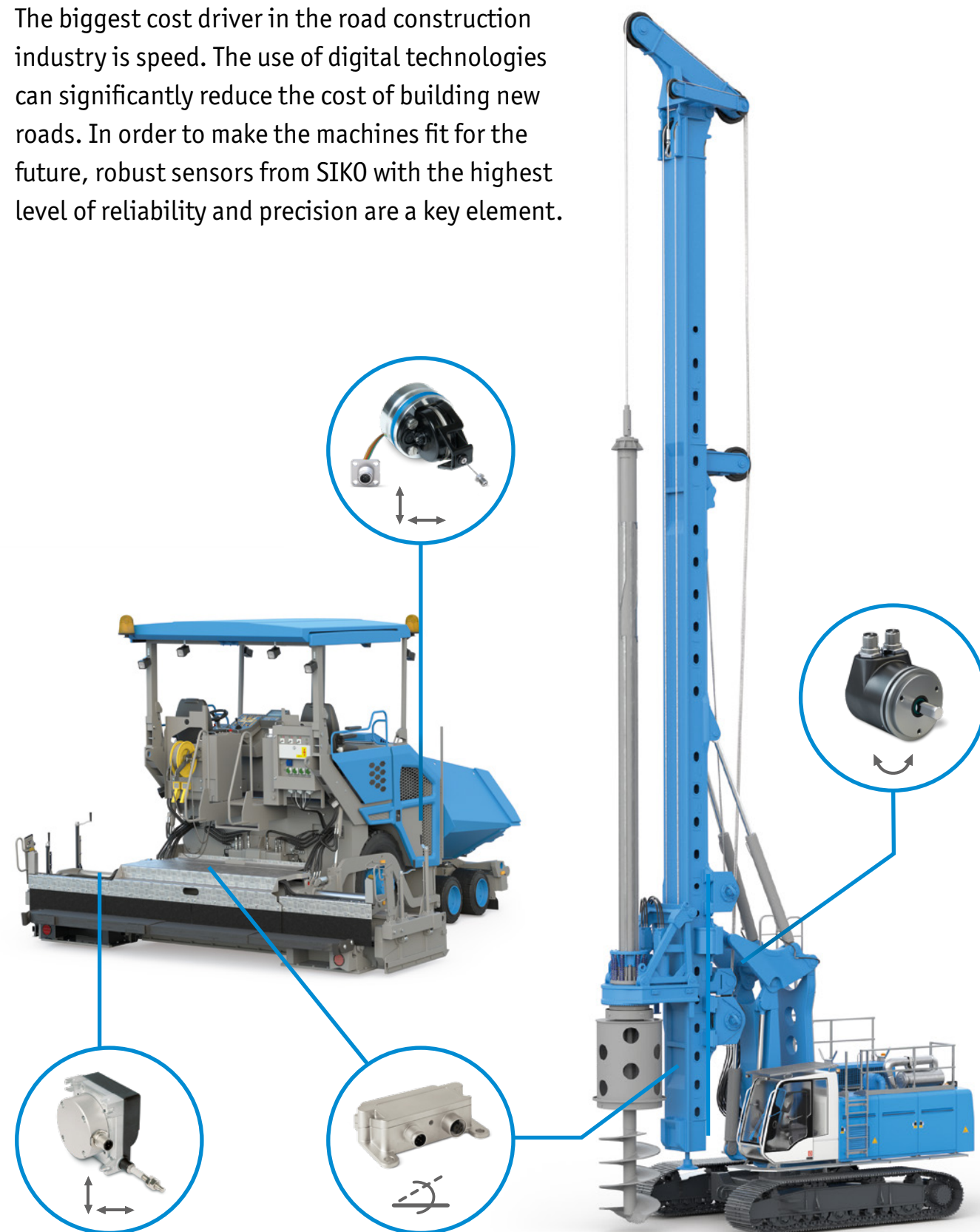
Perfectly protected: integrated position sensors

Integrated position sensor for position and speed measurement in hydraulic cylinders. Ideally protected against dirt and rockfall.



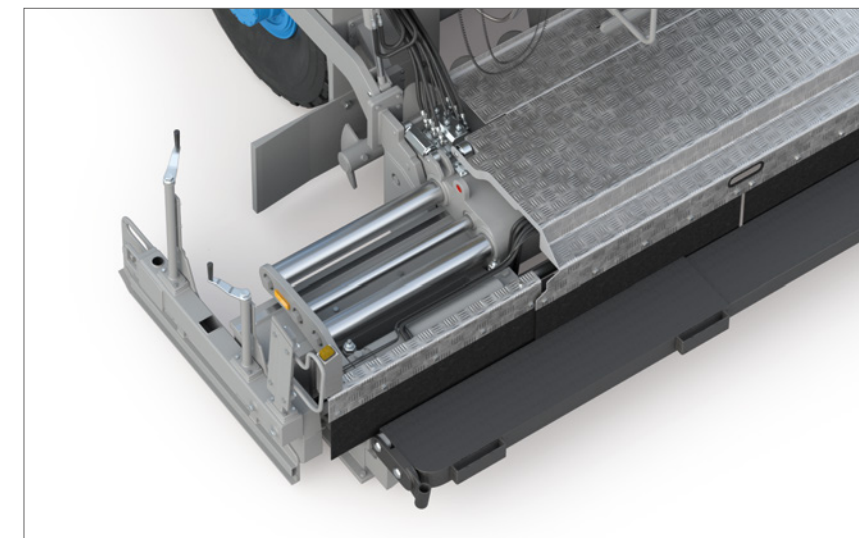
SENSOR SOLUTIONS FOR ROAD & DEEP DRILLING MACHINERY

The biggest cost driver in the road construction industry is speed. The use of digital technologies can significantly reduce the cost of building new roads. In order to make the machines fit for the future, robust sensors from SIKO with the highest level of reliability and precision are a key element.



Everything vertical, or what? Sensors for deep drilling!

No matter whether drilling rigs, duty-cycle cranes or in piling rigs. Sensors in this area of application must be robust and work reliably! Rotary encoders, bearingless rotary encoders and inclination sensors are important parts of assistance systems such as the "virtual wall" or the automatic mast alignment.



Position detection of the screeds

Screeds are the heart of each paver. The desired pave width can be automatically adjusted with draw-wire encoders or measuring systems integrated into the cylinder.



Automatic leveling

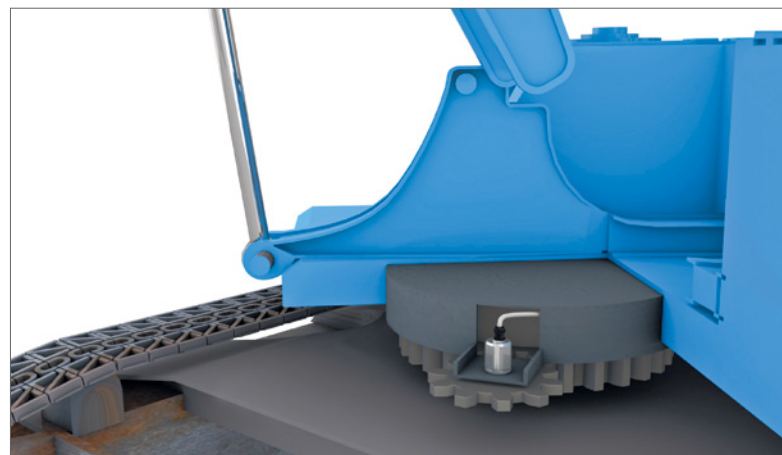
Robust sensors for height measurement in the leveling cylinders as well as dynamically compensated inclination sensors for detecting lateral inclination are the basis for profile-accurate and efficient paving on any surface.

SAFE POSITION SENSORS

PROTECTION FOR PEOPLE & MACHINE

SIKO safety sensors are suitable for use in applications up to **performance level d (PLd)**. In addition, the sensors meet the requirements of a variety of machine-specific **C standards**, such as EN12999 (loader cranes), EN280 (Aerial working platforms), ANSI 92.20 (MWEF), and much more. Of course, all safety data and comprehensive documentation are available to set up your entire system in accordance with the standards.

ROTARY

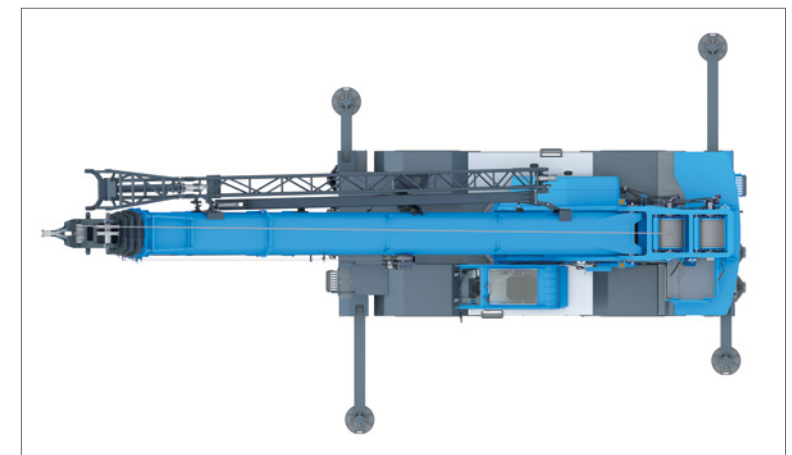


Reliable detection of slewing ring positions

SIKO safety rotary encoders are ideally suited for the implementation of load moment limitation and safety functions such as a "virtual wall".

FUNCTIONAL SAFETY

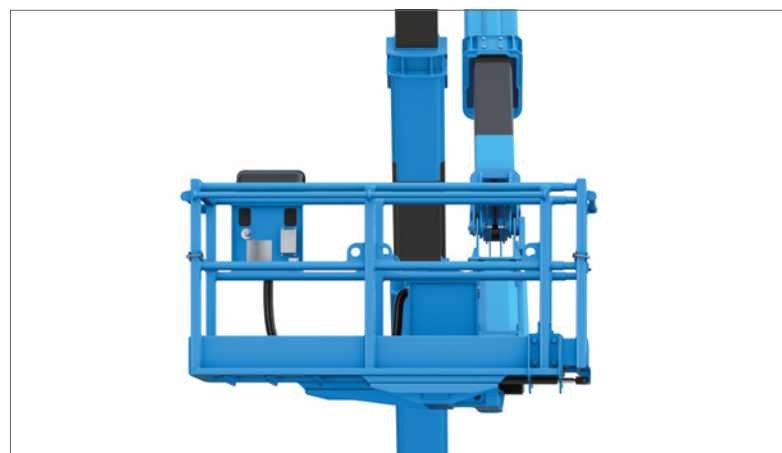
LINEAR



Variable support base thanks to exact position detection

Reliable draw-wire encoders for exact position measurement of the outriggers or directly integrated into the hydraulic cylinder ensure safe positioning and increased flexibility on construction sites.

INCLINATION



When safety matters! Tilt detection of the work basket

Safety inclination sensors ensure safety in the working basket! High temperature stability and exact inclination measurement protect people and the environment.

SPEED



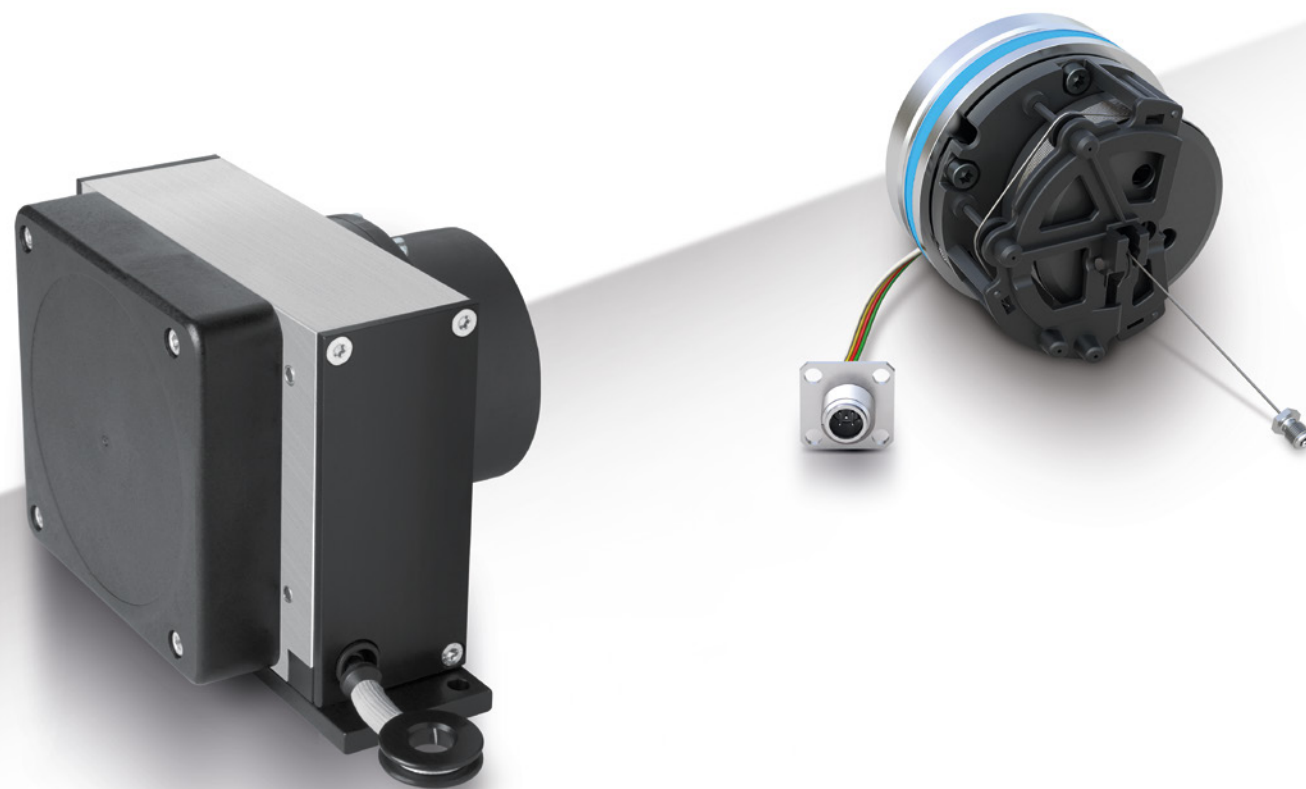
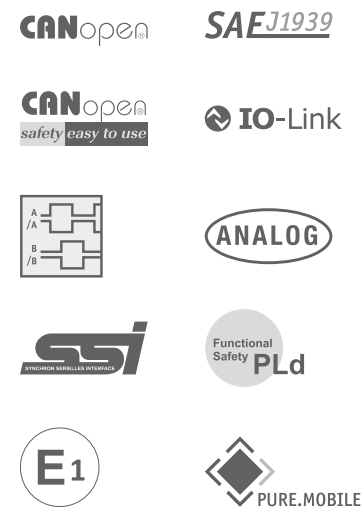
Reliable and efficient navigation with SIKO safety sensors

For driverless transport vehicles, such as Automated Guided Vehicles (AGV), Autonomous Mobile Robots (AMR) and Industrial Mobile Robots (IMR), to operate both efficiently and safely, protective fields must be optimally adapted to the driving situation. The compact safety rotary encoders and redundant bearingless encoders from SIKO help to reliably detect the steering angle, direction of travel and speed.

SENSOR SOLUTIONS

LINEAR SENSORS

Draw-wire encoders are an easy-to-install solution for linear position and speed measurement. Even under the most adverse environmental conditions, our customers have been relying on our proven SIKO draw-wire encoders "since the beginning of the 1990s." As a worldwide innovation since 2015, they can also be integrated directly into hydraulic cylinders!

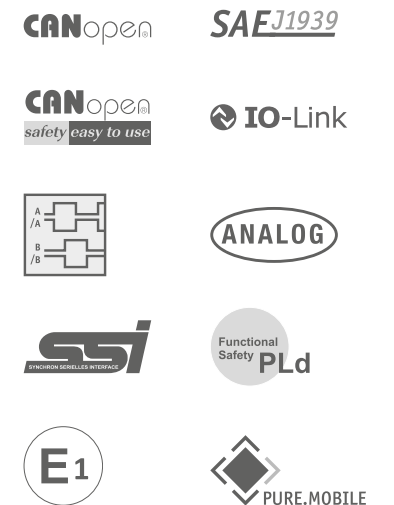
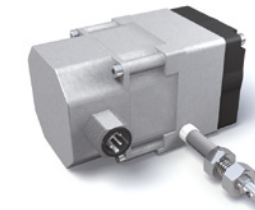


DRAW-WIRE ENCODERS

The robust SIKO draw-wire encoders have been specially developed for tough use in mobile machines, thanks to decades of experience. Their compact design makes them ideal for use in construction machinery as well as in crane and lifting technology.

Specifications & advantages

- Measuring range from 600 ... 15000 mm
- Temperature range from -40 °C ... +85 °C
- Robust even under wet and dirty conditions
- Safety versions for applications up to Performance Level d (PLd)
- Protection class up to IP6K9K
- Very compact design
- Optionally available with integrated inclination sensor

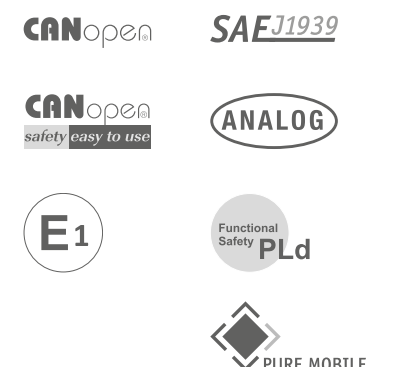
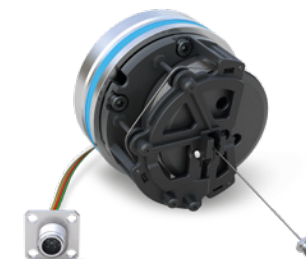


POSITION SENSORS FOR HYDRAULIC CYLINDERS

Position sensors based on the proven draw-wire principle for demanding and safety-critical applications in the area of mobile hydraulics, industrial hydraulics, telescopic cylinders or piston accumulators.

Specifications & advantages

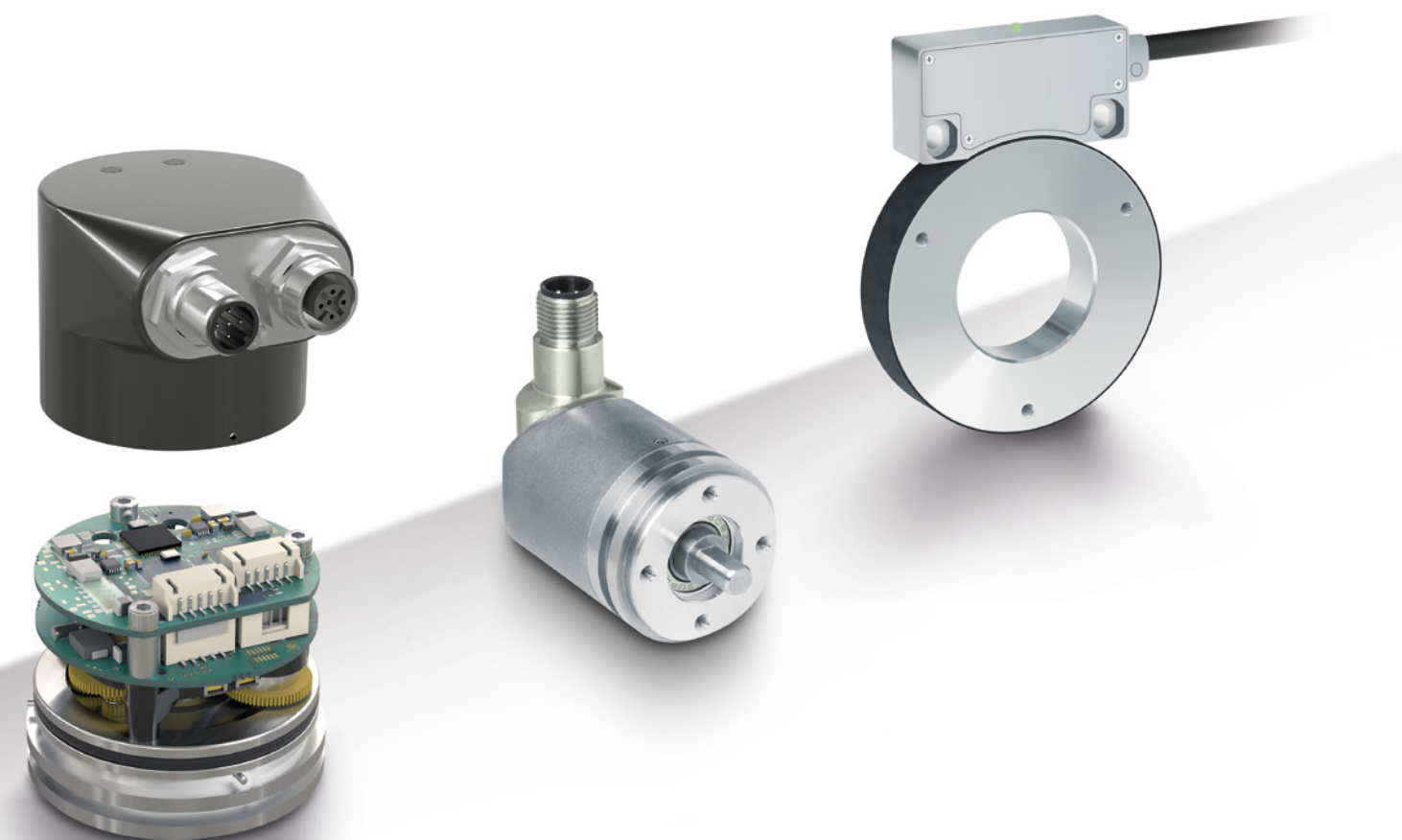
- Absolute detection of the cylinder position
- Measuring range up to 5.000 mm
- No drilling of the piston required
- Can also be used in telescopic cylinders & piston accumulator
- Safety versions for applications up to Performance Level d (PLd)



SENSOR SOLUTIONS

ROTARY SENSORS

In addition to position and angle measurement, SIKO's rotary encoders offer a wide range of different features and thus can be flexibly adapted to your needs. Whether for heavy-duty, safety or onshore/offshore applications, the sensors convince with their robustness, reliability and safety.

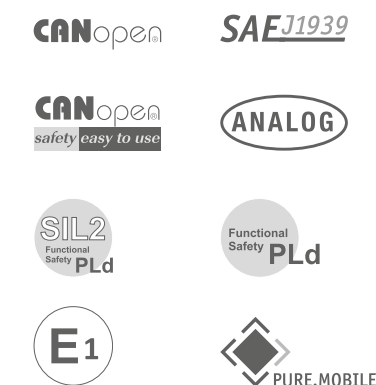


ROTARY ENCODERS

The compact and extremely robust rotary encoders are the perfect solution for accurate and reliable position measurement. Thanks to their unique design, the sensors are suitable for harsh use in safety-critical applications.

Specifications & advantages

- Absolute battery less measuring system
- Single- and multiturn version
- High shock and vibration resistance
- Protection class up to IP6K9K
- Safety version up to SIL2 and Performance Level d (PLd)
- E1 (UN ECE R10) certification
- Sensors for Offshore applications available



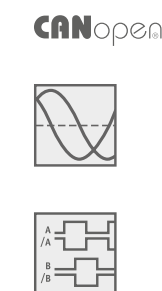
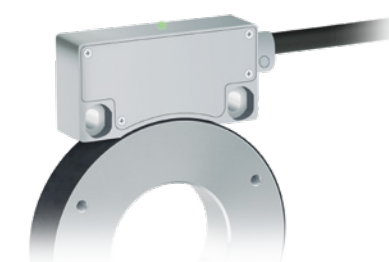
BEARINGLESS ENCODERS

MAGLINE

The bearingless encoder solutions are the perfect alternative to rotary encoders, especially if position needs to be measured precisely and reliably, even in applications with limited installation space.

Specifications & advantages

- Absolute wear-free measuring system
- High system accuracy and reproducibility
- Flexible integration into overall system
- Safety versions for applications up to Performance Level d (PLd)



SENSOR SOLUTIONS

INCLINATION SENSORS

Compared to other rotary encoders, inclination sensors measure the angle in relation to the earth's gravitational force. The fields of application of inclination sensors are diverse. Since no mechanical components are used, inclination sensors are almost wear- and maintenance free. In addition, inclination sensors can also be mounted outside the pivot point, which simplifies integration into the overall system.

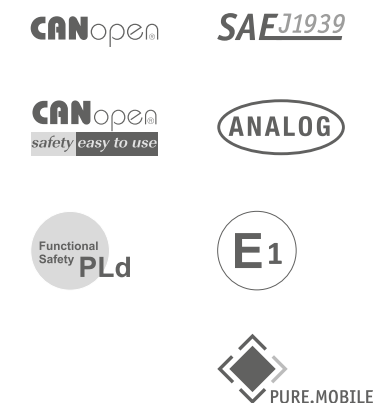


STATIC INCLINATION SENSORS

If inclinations need to be measured with precision and, above all, reliability, even under harsh environmental conditions, SIKO inclination sensors offer the perfect solution.

Specifications & advantages

- 1 and 2 axis version available
- Safety versions for applications up to Performance Level d (PLd)
- Protection class up to IP6K9K
- Temperature compensated
- E1 (UN ECE R10) conform
- Configurable low pass filter



DYNAMIC INCLINATION SENSORS

Thanks to innovative sensor fusion, you get precise and stable inclination values even in dynamic applications. This is possible by combining acceleration and inclination values using new filter algorithms.

Specifications & advantages

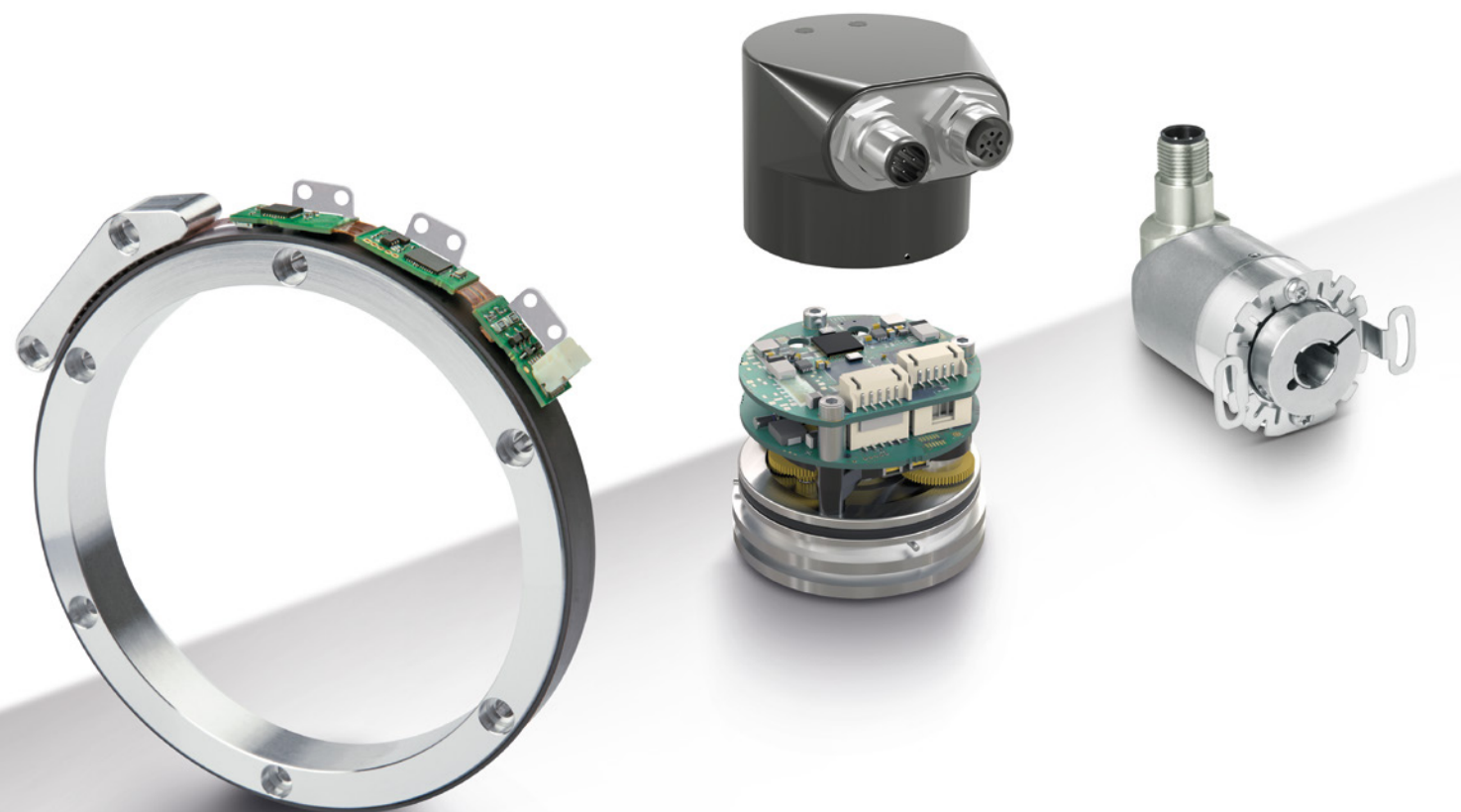
- Measured values for all three spatial axes
- Configurable filter algorithms (Kalman, Butterworth and "critically damped")
- Protection class up to IP6K9K
- Temperature compensated
- E1 (UN ECE R10) certified
- Safety version up to SIL2 and Performance Level d (PLd)
- Measurement of Euler angle and pitch & roll



SENSOR SOLUTIONS

SPEED MEASUREMENT

The rotary encoders and bearingless encoders offer an effective and easy-to-use solution for measuring velocity, speed and direction of travel. Highly integrable in drive systems or easily adaptable as rotary encoders, these encoders are available in different heavy-duty and safety versions.



ROTARY ENCODERS

We offer a large selection of rotary encoders for the precise detection of speed and direction of travel. From cost-effective incremental encoders to high-resolution absolute encoders.

Specifications & advantages

- Incremental or absolute encoders
- Temperature range from -40 °C ... +85 °C
- Safety version up to SIL2 and Performance Level d (PLd)
- Very compact design
- Hollow shaft or solid shaft version
- Speeds up to 12000 rpm
- Optionally available with E1 approval (UN ECE R10)



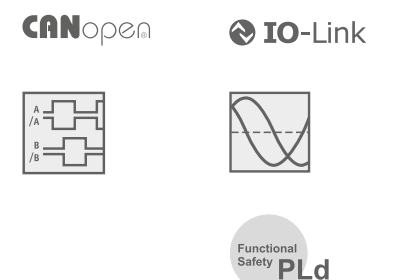
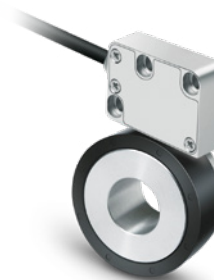
BEARINGLESS ENCODERS

MAGLINE

The bearingless encoder solutions are the perfect alternative to rotary encoders, especially, if position and speed have to be measured precisely and reliably even in applications with limited installation space.

Specifications & advantages

- Wear-free technology
- Insensitive to dust, wood chips, moisture, oils, grease etc.
- Robust against shock and vibration
- Protection class up to IP6K9K
- High system accuracy



We are available for you.

Regardless of whether it is locally ...

Are you looking for a representative in your area? Our website will help you. At www.siko-global.com you can find current contact details of a German SIKO representation in your area via your zip code. Or give us a call, we will be happy to provide you with the appropriate contact details.

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SIKO Italia S.r.l.



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