Kübler

NEW
2015

- Position and Motion Sensors
- Functional Safety
- Transmission Technology
- Counters and Process Devices

pulses for automation

Our Pulses for Innovations

The Kübler Group belongs today to the leading specialists worldwide in the fields of position and motion sensors, functional safety, counting and process technology and transmission technology.

Founded in the year 1960 by Fritz Kübler, the family business is now led by the next generation of Gebhard and Lothar Kübler.

Ten international group members and distributors in more than 50 countries offer local product know-how, service and advice throughout the world.

Innovative product and sector solutions, as well as solutions for functional safety and a high level of service, are the reasons behind our global success.

The strict focus on quality ensures the highest levels of reliability and a long service life for our products in the field.

Over 450 dedicated people worldwide make this success possible and ensure that customers can continue to place their trust in our company.

Kübler Service for worldwide Planning Reliability

Sample and repair service

We manufacture samples of special designs or according to customer specification within shortest time. We carry out repair work reliably within a maximum of 5 days.

Kübler online – www.kuebler.com

- Up-to-date product and company information
- Product finder – the selection tool that helps you finding quickly the suitable product
- Download service for CAD data, software, operating instructions, certificates and catalogues
- You will find comprehensive information about the basic technical knowledge relating to our products on our homepage: www.kuebler.com/basics

FS Safety services

- Adapted service packages
- Individual customer solutions

10 by 10

We will manufacture and deliver 10 encoders within 10 working days (365 days a year - with the exception of 24th Dec. until 2nd Jan.)

48 h express service

We can process your order within 48 hours; we can ship stock items the same day.

- Simplified orders
- Calculable delivery
- Flexible use of small batch sizes

Tailor-made solutions – Kübler Design System (KDS) OEM products and systems (OPS)

We develop jointly with our customers product and engineering solutions for customer-specific products, integrated drive solutions, up to complete systems (sensors, electronics and mechanics).

Service-center / Technical hotline

Whatever your needs, advice, analysis or support for the installation, Kübler is present on site all over the world with its service center.

Kübler Germany	+49 7720 3903 952	Kübler Turkey	+90 216 999 9791
Kübler France	+33 3 89 53 45 45	Kübler China	+86 10 8471 0818
Kübler Italy	+39 026 423 345	Kübler India	+91 8600 147 280
Kübler Poland	+48 61 84 99 902	Kübler USA	+1 855 583 2537

Our Product Portfolio

Position and Motion Sensors

- Incremental and Absolute Encoders
- Linear Measuring Technology
- Inclinometers
- Connection Technology

Transmission Technology

- Slip Rings
- Optical Fibre Signal Transmission Modules
- Cables, Connectors and pre-assembled Cordsets

Functional Safety

- Encoders certified up to SIL3/Ple
- Modules for safe Drive Monitoring
- Adapted Service Packages
- Connection Technology

Counters and Process Devices

- Pulse Counters and Preset Counters
- Hour Meters and Timers
- Frequency Meters and Tachometers
- Combination Time and Energy Meters
- Position Displays
- Process Displays and Controllers for Temperature, Analog Signals and Strain-Gauge
- Setpoint Adjuster

We offer Solutions for the following Industries:

DRIVE   LIFT   MOBILE   CRANES   STEEL   PACKAGING   SOLAR   WIND
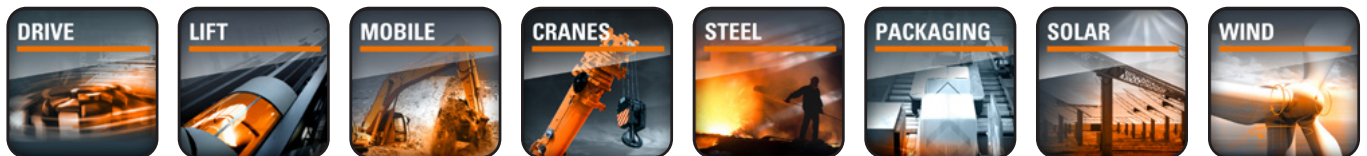
The high performance level and reliability of the Kübler products are based on our long experience in these demanding application sectors. Learn more about our application-specific solutions under:

www.kuebler.com/industries

New for 2015

Compact and cost-effective
Sendix Base KI40 encoders

Performance up - cost down. The optical incremental Sendix Base KI40 encoders combine both high efficiency and as well as parts of the sophisticated Sendix technology, thereby setting new standards for cost-sensitive applications. Their broad service range opens up many application fields.
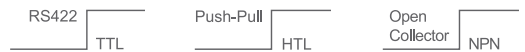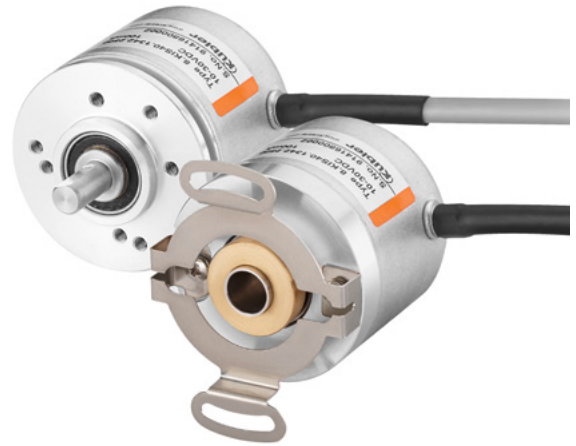
RS422		Push-Pull		Open Collector	
	TTL		HTL		NPN

Characteristics and advantages at a glance

- Robust Safety-Lock™ bearing design
  - ► They withstand installation errors, shocks and vibrations
- Optical sensors, max. resolution 2500 pulses/revolution
  - ► High accuracy and 100 % resistant to magnetic fields
- Aluminum housing, high protection level IP64 and wide temperature range of -20°C ... +70°C
  - ► Wide field of application, reliable in harsh environments
- Short-circuit resistant outputs and polarity protection of the supply voltage
  - ► Protection against installation errors
- Compact size of only ø 40 mm
  - ► Suitable for tight installation spaces and small machines

Scan the QR code for further information

Applications

Requirements for sensors are different all over the world. But they have one in common: they must be compact and cost-effective. The incremental Sendix Base KI40 encoders meet these requirements. Thanks to their compact construction, they suit ideally for tight installation spaces.

The Sendix Base KI40 encoders demonstrate their abilities in the following application examples: small printing machines, plastic processing machines, textile machines, automatic gates, packaging machines, cutting and welding plants, and small drives or stepper motors.

www.kuebler.com/sendix_base_ki40_en

Robust and reliable
Sendix 5006 / 5026 stainless steel encoders

For harsh environments. Their sturdy stainless steel housing (V2A) and their high protection level ensure the extreme robustness of the Sendix 5006 / 5026 incremental encoders. High-quality seals and a wide temperature range are further features ensuring highest reliability in harsh environments. These stainless steel encoders suit especially for use in the food processing industry, which places high hygienic demands on the sensors.

RS422 — TTL   Push-Pull — HTL

Characteristics and advantages at a glance

- Sturdy stainless steel housing and connector, high-quality seals
  - ► Resists aggressive chemical detergents, ensure additional protection in case of high hygiene requirements
- Wide temperature range and high IP66 / IP67 protection level
  - ► Reliable in harsh environments, can be cleaned with high pressure water jet and chemicals
- Robust Safety-Lock™ bearing design
  - ► They withstand installation errors, shocks and vibrations

Scan the QR code for further information

Applications

Ideal for the food and beverage area: the incremental encoders Sendix 5006 / 5026 are used for positioning and speed monitoring. The robust construction and the stainless steel housing (V2A) ensure reliable operation.

They demonstrate further strengths in the following applications: dairy industry, pharmacy, labeling machines for the food processing industry, chemical process engineering and in the general machinery and plant construction.

www.kuebler.com/sendix_50x6_en

Robust and accurate
Sendix 5814 / 5834 SinCos encoders

Highly interpolable. The incremental Sendix 5814 / 5834 SinCos encoders are predestined for regulation tasks in the drive technology. These optical encoders ensure consistently high signal quality in spite of temperature fluctuations, shocks and vibrations in harsh environments, allowing high interpolation up to 16 bits.

Characteristics and advantages at a glance

- Robust housing, optical sensors
  - ► Direct attachment to the motor, magnetic field-insensitive
- High signal quality and high interpolation
  - ► Therefore high regulation accuracy
- Wide temperature range and high protection level IP67
  - ► Reliability for all motor application areas even in harsh environmental conditions
- Robust Safety-Lock™ bearing design
  - ► They withstand installation errors, shocks and vibrations

Scan the QR code for further information

Applications

The drives technology requires the encoders to measure even smallest movements, creep speed or very slow approach or braking movements with highest accuracy and without dead time or delay. To that purpose, the incremental Sendix encoders with SinCos interface provide highly interpolable SinCos differential signals with $U = 1\ V_{pp}$.

Other strengths of the incremental Sendix encoders appear among others in the following applications: standard motors, geared motors, large motors.

www.kuebler.com/sendix_58x4_en

Fully digital and bidirectional
Sendix absolute encoders with BiSS interface

Easy integration. The Open Source interface BiSS realises a bidirectional isochronous communication between drive, inverter and sensor. The position and status feedback is transmitted in real time, faster than in standard fieldbus and Ethernet systems. Motor data and maintenance information can be saved in the encoder and read out.

Characteristics and advantages at a glance

- Singleturn resolution up to max. 21 bits
  - ► Faster positioning, plant performance increase
- Cost-efficient and not proprietary / Open Source
  - ► Independent and flexible
- Motor feedback ability
  - ► No interruption in position transmission
- Fast and easy implementation
  - ► Free of cost BiSS IPs on processors and FPGAs

Singleturn resolution up to 21 bits
new

Scan the QR code for further information

Applications

Until now, the direct drive branch was using singleturn absolute encoders with an additional SinCos incremental track. The Sendix absolute encoders with BiSS interface are the future fully digital solution and prove their technological advance in the following application examples: gearless drives, lift technology and packaging machines.

Cost-efficient and robust
Sendix M36 multiturn encoders

Energy Harvesting Technology. This technology makes the Sendix M36 multiturn encoders particularly robust, reliable and cost-efficient. Moreover, the high IP67 protection level ensures reliable outdoor operation. Its compact size of only 36 mm allows easy installation even in narrow spaces.

CANopen   SSI   Analog output

Characteristics and advantages at a glance

- Robust Safety-Lock™ bearing design
  - ► They withstand installation errors, shocks and vibrations
- High IP67 protection level
  - ► Offers high safety and suits harsh environments
- Reliable: purely magnetic scanning
  - ► Insensitive to dust and condensation
- Cost-efficient: multiturn Energy Harvesting Technology
  - ► Less mechanical components, no battery

Scan the QR code for further information

Applications

In mobile automation, in addition to technical requirements, also the increasing cost pressure plays a significant role.
The magnetic Sendix M36 multiturn encoders, with their rugged construction and the Energy Harvesting Technology, meet these requirements.

The Sendix M36 multiturn encoders are used for example in the following applications: construction machinery, mobile cranes and tower cranes, medical technology and wind power plants.

www.kuebler.com/sendix_m36_en
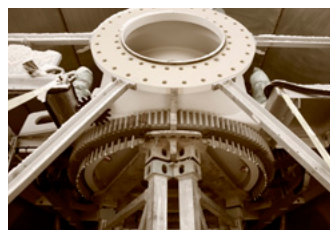
Extremely robust
Sendix M36R multiturn encoders with increased mechanics

Confident in case of hardship. The magnetic Sendix M36R multiturn encoders, with their compact construction of only 42 mm, are ideally suited for harsh environments. Special features include an extremely robust structure, a very high protection as well as a high bearing load. For highest robustness and seawater resistance a stainless steel version is available.

CANopen   SSI   Analog output

Characteristics and advantages at a glance

- Extrem robust Safety-Lockplus™ bearing design
  - ► They withstand installation errors, shocks and vibrations, suitable for harsh environments
- Very high load capacity of shaft and shock resistant
  - ► Prevention of machine downtime due to high reliability
- Reliable: only magnetic scanning + protection level IP66, IP67 and IP69k
  - ► Resistent to environmental conditions
- Stainless steel version V4A
  - ► Ideally suited for offshore plants
- Cost-efficient: multiturn Energy Harvesting Technology
  - ► No mechanical gear, no battery

Scan the QR code for further information

Applications

The extremely robust version of the Sendix M36R multiturn encoder is constantly exposed to high strain in harsh environments. Due to their distinctive features nothing stands in the way of a reliable application.

The Sendix M36R multiturn encoders are used for example in the following applications: construction machinery, mobile cranes and tower cranes, wind power plants and offshore plants.

www.kuebler.com/sendix_m36r_en

Standardized and simple
Sendix F58 Modbus encoders

Intelligent Scan Technology™. The optical absolute Sendix F58 multiturn encoders are now available also with Modbus (RTU) interface. Thanks to the available standard interface, these encoders are easy to implement in many controls. Their rugged construction, a through hollow shaft reaching 15 mm and a 32 bit total resolution ensure the suitability of these encoders for many different applications.

Characteristics and advantages at a glance

- Up-to-date Modbus performances
  - ► Therefore more efficient operation of machines and plants
- Robust Safety-Lock™ bearing design
  - ► They withstand installation errors, shocks and vibrations
- High IP67 protection level
  - ► Offers high safety and suits harsh environments
- Flexible: many various connection and mounting techniques
  - ► The right solution for every application, easy start-up

Scan the QR code for further information

Applications

The Intelligent Scan Technology™ combines cost efficiency, robustness and speed. Thanks to the standard Modbus (RTU) interface and other features such as for example the through hollow shaft, the absolute Sendix F58 encoders suit for large drives.

They also demonstrate their abilities in the following application examples: general automation technology, packaging machines, wind/solar power plants and drive technology.

www.kuebler.com/sendix_f58_modbus_en

Efficient and reliable
Sendix F58 EtherNet/IP encoders

Better performance. The optical absolute singleturn and multiturn Sendix F58 EtherNet/IP encoders were designed for time sensitive applications. Their distinctive features help not only with the machine's performance as well as uptime, but also contribute to time and cost savings.

Characteristics and advantages at a glance

- Robust Safety-Lock™ bearing design
  - ► Protection against installation errors, shocks and vibrations
- 5x faster position value transfer that the usual market encoder ➜ RPI time of 1 ms
  - ► Ideal for time sensitive applications, no extra effort for „CIP Motion"
- Fast and easy commissioning, configuration possible through cyclic services
  - ► Cost and time saving
- Fast start-up of the encoder in under 500 ms
  - ► Higher plant-performance as well as availability, less cost-intensive interruptions
- Device Level Ring (DLR) ring redundancy of the network with two network reports
  - ► In case of ring structure interruption the functionality will be maintained

Scan the QR code for further information

Applications

Industrial Ethernet is increasingly imposing itself as the new communication standard in automation technology. The goal is to create a vertical integration – that is to say: only one core computer, from the control level up to the industrial production plants – that will be able to control any devices.

The Sendix F58 EtherNet/IP encoders demonstrate their abilities in the following application examples: automotive production, logistics, metal-working, textile, printing and packaging machines.

Fast and simple
Sendix PROFINET IO encoders

The real-time encoders. The absolute singleturn and multiturn Sendix PROFINET IO encoders support the Isochronous Real-Time-Mode (IRT) and are therefore ideal for real-time applications. The Fast Start Up (FSU) allows now to start up a system in well less than a second.

Characteristics and advantages at a glance

- Isochronous Real-Time-Mode (IRT)
  - ► Ideal for real-time applications
- Fast Start Up (FSU) - System start-up in less than one second
  - ► This reduces cost-intensive stoppages (repeated start-up times)
- Easy firmware update to extend the features of the encoder
  - ► Dismounting the encoder is therefore no more necessary
- Media Redundancy Protocol (MRP)
  - ► The functionality is maintained in the case of an interruption of the ring structure

Scan the QR code for further information

Applications

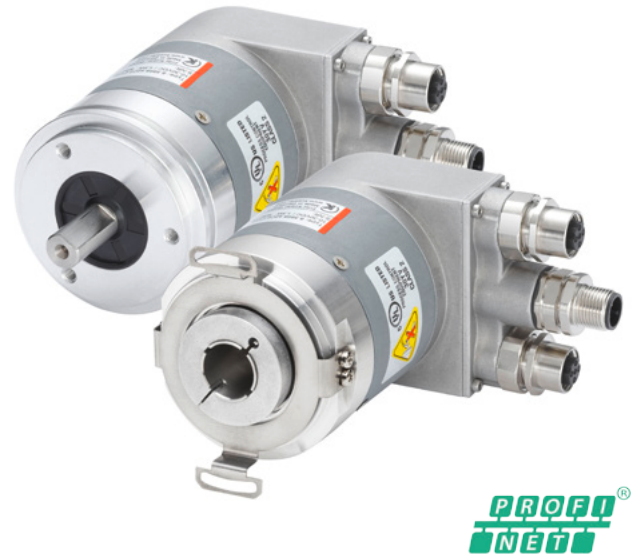Industrial Ethernet is increasingly imposing itself as the communication standard in automation technology. The goal is to create a vertical integration – that is to say: only one core computer, from the control level up to the industrial production plants – that will be able to control any device.

A minimal cycle time of < 1 ms is the prerequisite for this. The Sendix PROFINET IO encoders demonstrate their abilities in the following application examples: metal-working machines, slitting and winding machines, automotive production.

www.kuebler.com/profinet_en
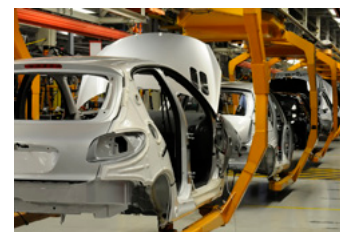
The fastest of their kind
Sendix EtherCAT encoders

Second generation. The absolute singleturn and multiturn Sendix EtherCAT encoders – with a position update within 62.5 µs – are currently the fastest encoders on the market.
The use of CoE (CAN over Ethernet) allows many standardized fieldbus functionalities.

Characteristics and advantages at a glance

- Minimal cycle time: position update within 62.5 µs
  ► Realization of highly dynamic systems and increase of plant performance
- CoE (CAN over Ethernet)
  ► Standardized functionality from the fieldbus area
- Integration of the latest EtherCAT stack by Beckhoff
  ► The use of the most up-to-date EtherCAT features is possible
- Dynamic mapping
  ► Customer or application-specific optimization is possible
- EtherCAT conformance tested
 ► Problem-free integration in standard EtherCAT environments
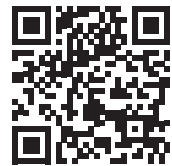
Scan the QR code for further information

Applications

Industrial Ethernet is increasingly imposing itself as the communication standard in automation technology. The goal is to create a vertical integration – that is to say: only one core computer, from the control level up to the industrial production plants – that will be able to control any device.

A minimal cycle time of < 1 ms is the prerequisite for this. The Sendix EtherCAT encoders demonstrate their abilities in the following application examples: wood processing machines, printing machines, automotive industry and conveyor technology.
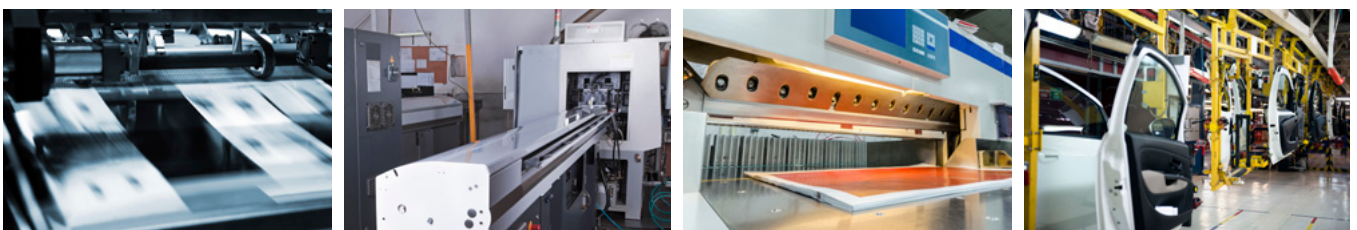
International and safe
Sendix ATEX / IECEx 70xx encoders

Explosion protection. The Sendix ATEX / IECEx encoders of the series 70xx are suitable for explosive atmospheres.

Thanks to the explosion-proof enclosure made of sea water-resistant aluminium and a high protection level, these encoders are approved for zones 1, 2, 21 and 22. Their compact construction, with a diameter of only 70 mm allows easy mounting even where space is tight.
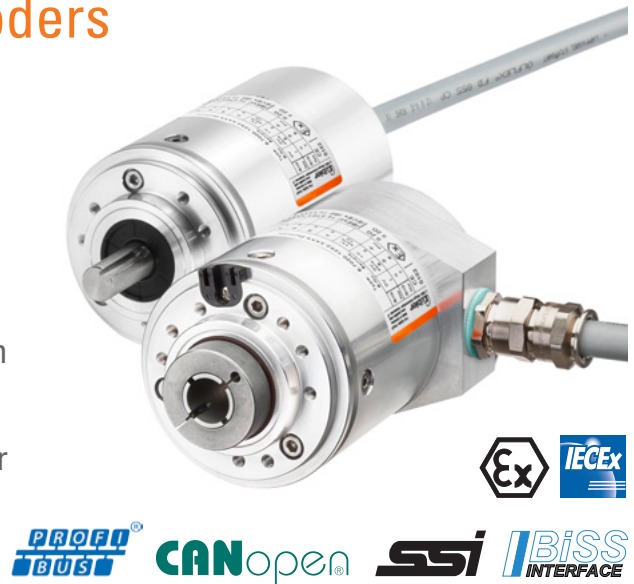
Characteristics and advantages at a glance

- ATEX and IECEx certification
  ► Highest safety in explosives atmospheres
- Robust construction: explosion-proof enclosure, sea water-resistant aluminium
  ► Reliable, shock and vibration-resistant
- Small mounting depth and compact cable outlet
  ► Easy mounting in narrow installation spaces
- High IP67 protection level
  ► Offers high safety and suits harsh environments

Scan the QR code for further information

Applications

In explosive atmospheres, high plant availability and best protection possible for men and environment have highest priority. Strict protection provisions place great demands on the measuring devices - the Sendix ATEX / IECEx encoder has been tested and certified pursuant to these provisions.

With regard to safety and reliability, this encoder shows its abilities in a wide range of applications such as, for example: mining, chemical industry, offshore plants, painting plants and process automation.

www.kuebler.com/sendix_70xx_en

Safe for mining!
Sendix ATEX / IECEx 71xx encoders

With mining certification. The Sendix ATEX / IECEx encoders with M2 mining certification suit for explosive atmospheres in mines (both surface and underground). Their sturdy stainless steel housing and high IP67 protection level ensure highest robustness and reliability. The Sendix ATEX / IECEx are available both in incremental and absolute versions.

Characteristics and advantages at a glance

- ATEX / IECEx certification for M2 mining applications
  - ► Highest safety in explosives atmospheres
- Sturdy stainless steel housing, robust Safety-Lock™ bearing design
  - ► Reliable protection, they withstand installation errors, shocks and vibrations
- Small mounting depth and compact cable outlet
  - ► Easy mounting in narrow installation spaces
- High IP67 protection level
  - ► Offers high safety and suits harsh environments

Scan the QR code for further information

Applications

In explosive atmospheres, high plant availability and best protection possible for men and environment have highest priority. Strict protection regulations place great demands on the sensors.

The Sendix ATEX/IECEx encoders are tested and certified in compliance with these regulations. Therefore they are predestined for use in mining applications.

Measuring range 360°
Inclinometer IS40, 1-dimensional

Analog interface. With its compact construction, the inclinometer IS40 suits for smallest installation spaces. Its robust design, its high protection level and its wide temperature range ensure reliable use in harsh environments.

Analog
output

Characteristics and advantages at a glance

- Robust: high protection level IP68 / IP69k, wide temperature range -30°C...+70°C
  - ► Reliable in harshest environments
- Current or voltage interface
  - ► Flexible adaptation to the controller
- Accessories: teach adapter
  - ► For easy setting of the measuring range
- Common connection technology: M12 connector
  - ► Easy and fast installation

Scan the QR
code for further
information

Applications

Inclinometers are in charge of tasks such as position monitoring e.g. of a swivel arm up to the measurement of the horizontal position of an operator basket.

They therefore can be used in the vehicle technology, in the crane and lifting equipment or in commercial vehicles. Inclinometers are also integrated in the tracking systems of solar power plants.

www.kuebler.com/is40_en

Measuring range 360°
Inclinometer IS60, 1-dimensional

CANopen interface. The inclinometer IS60 stands out through easy configuration and start-up. Resistant against temperature fluctuations, shocks and vibrations. Ideal for outdoor applications.

Characteristics and advantages at a glance

- Internal permanent memory used to save all settings
  - ► Only one programming operation
- Parametrizable vibration suppression
  - ► Filters unwanted vibrations that might affect the measurement
- Common connection technology: 2x M12 connectors for CAN in/out
  - ► Easy and fast installation
- Robust: high protection level IP68 / IP69k, wide temperature range -40°C...+80°C
  - ► Reliable in harshest environments

Scan the QR code for further information

Applications

Inclinometers are in charge of tasks such as position monitoring e.g. of a swivel arm up to the measurement of the horizontal position of an operator basket.

They therefore can be used in the vehicle technology, in the crane and lifting equipment or in commercial vehicles. Inclinometers are also integrated in the tracking systems of solar power plants.

Absolute and contactless
Magnetic measuring system Limes LA10 / BA1

Contactless. With a high resolution of 1 µm and optional SinCos signal, the absolute linear magnetic measuring system Limes LA10 / BA1 is predestined for use in the linear drive technology. The rugged construction and the high protection level allow accurate measurements in harsh environments.

CANopen®   **SSI**   Sin Cos

Characteristics and advantages at a glance

- High resolution - 1 µm / measuring length max. 8 m
  - ► Accurate absolute positioning
- Compact design / easy installation
  - ► For tight installation spaces, saves installation time
- Interfaces: SSI, CANopen and additional SinCos signals
  - ► Suitable for drive positioning and regulation
- Contactless magnetic absolute measuring technology
  - ► No wear, no referencing moves required

Scan the QR code for further information

Applications

Compact - accurate - simple. The absolute linear magnetic measuring system Limes LA10 / BA1 stand out with a compact design, accurate sensors and simple commissioning. It suits particularly for applications requiring accurate position information and a precise regulation of the linear axis.

The measuring system Limes LA10 / BA1 show these and further strengths for example in the following applications: packaging and injection moulding machines, electrical linear motors and medical technology.
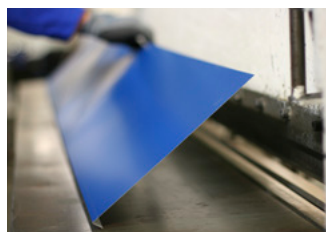
Absolute and contactless
Magnetic measuring system Limes LA50 / BA5

Contactless. The absolute linear magnetic measuring system Limes LA50 / BA5 with a resolution of up to 10 µm is suitable for general linear automation tasks. It is characterised by the position change detection even after a power shutdown and by a large distance between the sensor and the magnetic tape. The integrated LED warns in case of a weak magnetic field and helps in the same time to ensure an error-free installation.

CANopen   SSi

Characteristics and advantages at a glance

- Resolution - 10 µm / measuring length max. 20 m
  - ► Accurate absolute positioning
- Position changes are detected even after a power shutdown
  - ► Therefore no referencing move required any more
- Large distance between the sensor and the magnetic tape (1.5 mm)
  - ► Insensitive with respect to mounting tolerances
- Contactless magnetic absolute measuring technology
  - ► No wear, resistant against dust and dirt
- Warning signals via LED
 - ► Easy and error-free commissioning

Scan the QR code for further information

Applications

Robust - versatile - simple. The absolute linear magnetic measuring system Limes LA50 / BA5 suit any application in the general linear drive technology, thanks to its compact and rugged die-cast zinc housing, the various interfaces and the easy commissioning.

The measuring system Limes LA50 / BA5 shows its strengths in the following application examples: conveyor technology, wood and metal processing machines, packaging machines as well as medical technology.

www.kuebler.com/limes_la50_en
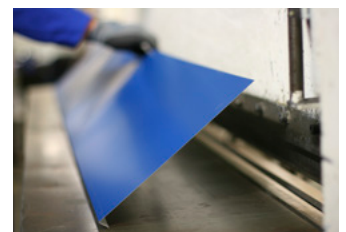
Miniaturized and simple
Draw wire encoder A30

Cost-effective. The draw wire encoder A30 with analog output is particularly suitable for applications with low motion speeds.

Its miniaturized construction simplifies the installation when space is tight.

Analog
output

Characteristics and advantages at a glance

- Compact and cost-effective
  ► Economical solution for short measuring lengths
- Standardized interfaces: potentiometer, voltage or current output
  ► Universal use
- Max. speed 0.8 m/s, max. measuring length 0.6 m
  ► Ideal for applications with low requirements

Scan the QR code for further information

Applications

The exact control and monitoring of positions in a wide range of applications require highly accurate position detection.
The sensors used to that purpose must at the same time be cost-efficient and durable, and have the highest repeatability possible.

With these features, the draw wire encoder A30 shows its strengths among others in the following applications: storage system technology, conveyor technology, medical technology, testing technology.

Compact and accurate
Draw wire encoder A41

Mobile-Robust. The draw wire encoder A41 meets especially the requirements of the mobile automation. With its compact construction and rugged housing, they are intended in particular for this application.
The draw wire encoder A41 equipped with absolute multiturn encoders supplies highly accurate and exact position information.

CANopen   SSi   BiSS INTERFACE

Characteristics and advantages at a glance

- Compact draw wire encoders with absolute multiturn encoder
  - ► High-performance and small dimensions
- Robust construction: rugged die-cast zinc housing and stainless steel measuring wire
  - ► Ideal for applications in harsh environments
- Max. speed 1 m/s, max. measuring length 2 m
  - ► The performance you need for your application

Scan the QR code for further information

Applications

The exact control and monitoring of positions in a wide range of applications require highly accurate position detection.
The sensors used to that purpose must at the same time be cost-efficient, have a robust structure and the highest repeatability possible.

With these features, the draw wire encoder A41 shows its strengths among others in the following applications: elevating tables, construction machinery, medical technology, mobile cranes.
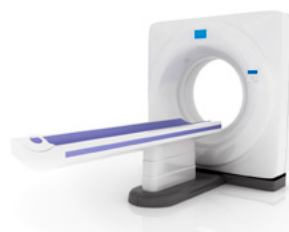
Slim and flexible
Draw wire encoder B75

Mobile-Robust. With its robust construction, the draw wire encoder B75 is predestined for outdoor use. The draw wire mechanics can be equipped with an analog sensor, incremental or absolute Sendix encoders.
The design of this draw wire encoder allows flexible installation possibilities.

Characteristics and advantages at a glance

- Slim, compact construction with variable mounting possibilities
  - ► Simple and individual mounting, suitable for restricted installation space
- Low-wear wire exit, rugged die-cast zinc housing
  - ► Ideal for applications with average speeds in harsh environments
- Draw wire mechanics with analog sensor or encoder
  - ► Flexible adaptation depending on the application
- Max. speed 0.8 m/s, measuring length max. 3 m
  - ► The performance you need for your application

Scan the QR code for further information

Applications

The exact control and monitoring of positions in a wide range of applications require highly accurate position detection: the sensors used to that purpose must at the same time be cost-efficient, have a robust structure and the highest measurement repetition rate possible.

With these features, the draw wire encoder B75 shows its strengths among others in the following applications: fire engines, work and rescue platforms, mobile cranes, storage system technology.
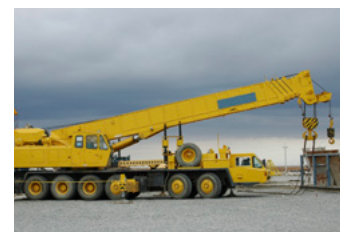
Powerful and compact
Double SSI display type 575

Two in one. The two freely scalable counting inputs (SSI or TTL) with max. 1 MHz per channel allow displaying a maximum of 5 measured values. Its 4 different count functions, such as simple count, difference count and total count and separate displays make it a universal device. 6 or 8-digit display for a resolution of up to max. 32 bits (SSI).

Characteristics and advantages at a glance

- 5 measured values: counter 1 and 2, display of values calculated from counters 1 and 2, min./max. display
  - ► This allows scaling, displaying and processing total values
- 4 fast transistor outputs
  - ► Monitoring of various limit values, including trailing values
- Serial interface, analog output (optional)
  - ► For further processing of the measured values in a higher-level system
- Master or slave ability
  - ► Can be operated as main or secondary display with a max. input frequency of 1 MHz

Scan the QR code for further information

Applications

The double display type 575 monitors and controls limit values or forwards scaled measured values. It can be used e.g. for valve control in gas power plant turbines, for total length measurement in 2-arm mobile cranes, monitoring of two lock gates, differential display for gap measurement in metal, plastic or wire machines, blade adjustment in turbines, pitch adjustment in wind turbines, positioning in processing machines (wood, metal, glass), ice resurfacing machines, harbor cranes and filling level displays in tanks.
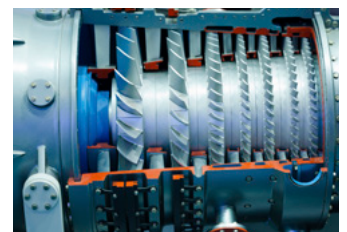
Robust and safe
Sendix SIL encoders

Safety. With their interfaces and incremental SinCos tracks, the certified incremental and absolute Sendix SIL encoders are ideally suited for safe applications. Together with the certified mechanical mounting solutions, their robust construction and their high protection level ensure reliable and individual operation even in harsh environments.

SIL2 Functional Safety **PLd**   **SIL3** Functional Safety **PLe**

SSI   BiSS INTERFACE   SinCos

Characteristics and advantages at a glance

- Certified encoders from SIL2/PLd up to SIL3/PLe
  ► Simple safety assessment for electrical components
- Certified mechanical mounting solutions
  ► Flexible and easy, safe mechanical interfaces
- Robust Safety-Lock™ bearing design, high protection level IP67
  ► They withstand installation errors, shocks and vibrations, suitable for harsh environments
- Optical sensors
  ► 100 % magnetic field-resistant, high signal quality

Scan the QR code for further information

Applications

Focus is set on functional safety. Machines and plants that fall within the scope of Machinery Directive 2006/42/EC must meet the high requirements regarding personal protection. The safe interaction between the plant and the user is made possible thanks to certified Sendix SIL encoders.

The measurement of the safe rotary speed, speed and position is one of the strengths of these encoders, which demonstrate their abilities in the following application examples: cranes, stage technology, machinery and plant engineering, steel industry, wind power plants, logistics and conveyor technology.
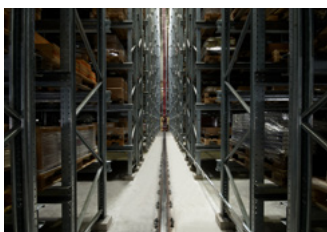
Explosion-proof and certified
Sendix SIL ATEX / IECEx encoders

Extremely safe. The certified incremental and absolute Sendix SIL encoders with explosion protection are suitable for explosive atmospheres and comply with all Functional Safety requirements.
In addition, the extraordinary robustness of the Sendix SIL encoders ensures further protection. Extra strong bearings in Safety-Lock™ design give these encoders a high resistance to vibrations and installation errors.

SIL2 PLd   **SIL3 PLe**

Ex   IECEx   SSI   BiSS INTERFACE   Sin Cos

Characteristics and advantages at a glance

- In one device: certification from SIL2/PLd up to SIL3/PLe, ATEX and IECEx
  - ► Highest safety in explosive atmospheres
- Robust Safety-Lock™ bearing design, pressurized encapsulation
  - ► They withstand installation errors, shocks and vibrations
- High IP67 protection level and sea water-resistant aluminium housing
  - ► Suitable for particularly harsh environments
- Reduced installation depth and compact cable outlet
  - ► Easy installation in restricted mounting space

Scan the QR code for further information

Applications

More safety would not be possible. For the first time, functional safety and explosion protection are combined in one encoder. In explosive industries, high plant availability and the best protection possible for men and for the environment have highest priority.

With regard to safety and reliability, the Sendix SIL encoders show their abilities in the following application examples: mining, chemical industry, offshore plants.

Simple and flexible
Safety-M modular, basic modules SMBD

Digital inputs / outputs. As compact safety controllers with AS-i master functionality, the basic modules of the Safety-M modular range measure the speed and the position. The status LED located on the front side allows for easy local diagnostics.
In-depth diagnostics and free programming of the modules are possible thanks to the SafeMonitor software.

Characteristics and advantages at a glance

- Removable chip card
  - ► Configuration data is saved, no loss of data in case of device replacement
- Safe cross-communication with other basic modules
  - ► Unrestricted safe communication among modules, suitable for extended projects
- Integrated safety functions for drive monitoring (SS1, SOS, SLS, SSM)
  - ► Easy and fast commissioning thanks to pre-programmed software blocks
- Comprehensive library for pre-configured safety sensors and command devices
  - ► Usual connections possible, simplified programming

Scan the QR code for further information

Applications

Machine and plant manufacturers are increasingly using safety technology to ensure safe interaction between machines and men. This leads to new requirements and machine concepts.
The basic modules of the Safety-M modular range impress with their important functions; they are easy to implement.

These modules are used in the following applications: machine and plant engineering, cranes, steel works, wind power plants, stage technology and storage and conveyor technology.

Communicative and flexible
Safety-M modular, basic modules SMBU/SMBS

Integrated Gateway. The basic modules of the Safety-M modular range are available as gateways with the usual standard and safe fieldbus/Industrial Ethernet interfaces.
As compact safety controllers with AS-i master functionality, they measure the speed and the position. The plain text display and the status LEDs allow for easy local diagnostics.

Characteristics and advantages at a glance

- Removable chip card
  ► Configuration data is saved, no loss of data in case of device replacement
- Gateway functionality
  ► Access to all data of the basic and expansion modules via fieldbus / Industrial Ethernet
- SafeMonitor software
  ► In-depth diagnostics and free programming of the modules possible
- Safe cross-communication with other basic modules
  ► Unrestricted safe communication among modules, suitable for extended projects

Scan the QR code for further information

Applications

Machine and plant manufacturers are increasingly using safety technology to ensure safe interaction between machines and men. This leads to new requirements and machine concepts.
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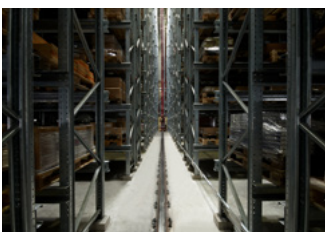
Incremental and absolute
Safety-M modular, expansion modules
EMAI/EMAA

Axis expansion. The expansion modules of the Safety-M modular series connected with standard or certified Sendix SIL encoders ensure safe position and motion monitoring.
Up to two axes can be connected to one module.
Easy integration in existing rotational speed feedbacks of plants or machines is possible.

Characteristics and advantages at a glance

- Speed teach-in is possible thanks to a front-side button
  ► Easy use of the actual speed
- Removable chip
  ► Configuration data is saved, no loss of data in case of device replacement
- Integrated safety functions for drive monitoring (SS1, SS2, SOS, SLS, SDI, SLA, SSM, SCA, …)
  ► Easy and fast start-up thanks to ready-to-use software modules
- In-depth encoder monitoring with a diagnostic degree reaching 99 %
  ► The encoder therefore achieves safety level SIL3/PLe

Scan the QR code for further information

Applications

Machine and plant manufacturers are increasingly using safety technology to ensure safe interaction between machines and men. This leads to new requirements and machine concepts.
The expansion modules of the Safety-M modular range impress with important functions; they are easy to implement.

These modules are used in the following applications: machine and plant engineering, cranes, steel works, wind power plants, stage technology and storage and conveyor technology.
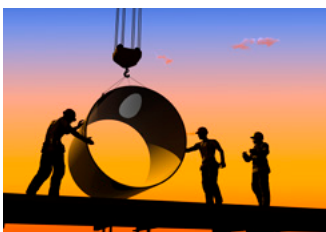
Versatile and safe
Safety-M modular, expansion modules
EMIO

Inputs / outputs. The expansion modules of the Safety-M modular series can be connected with safe sensors such as light barriers, laser scanners and emergency stop switches.
The different expansion modules are available with up to 2 relays, 16 safe inputs and 8 standard outputs.

Characteristics and advantages at a glance

- Cross-circuit monitoring
  - ► Early detection of errors during wiring
- Removable chip
  - ► Configuration data is saved, no loss of data in case of device replacement
- Status LED on the front side
  - ► Simple local diagnostics
- Variety of modules: the suitable module for every safe input signal
 - ► Standard modules, modules for electrical cabinets and safe and decentralized modules

Scan the QR code for further information

Applications

Machine and plant manufacturers are increasingly using safety technology to ensure safe interaction between machines and men. This leads to new requirements and machine concepts.
The expansion modules of the Safety-M modular range impress with important functions; they are easy to implement.

These modules are used in the following applications: machine and plant engineering, cranes, steel works, wind power plants, stage technology and storage and conveyor technology.
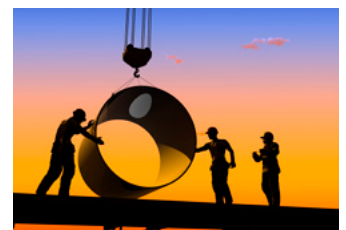
Fast and simple
Safety-M compact, basic module
SMC1

Speed monitoring. The compact basic module of the Safety-M compact series is a complete speed monitoring device in the smallest space possible. The removable operating and diagnostic display (OLED) ensures easy parameterizing. The safe inputs and outputs and the integrated signal splitter allow the integration in existing safety circuits as well as the retrofitting of old machines.

SIL3
Functional Safety
PLe

Characteristics and advantages at a glance

- Connection of incremental encoders (SinCos, TTL / RS422 and HTL / Push-pull / proximity switches)
  - ► This allows a versatile realization of drive safety functions
- Integrated signal splitter
  - ► No complex and expensive external wiring – easy forwarding to the controller / frequency converter
- Local diagnostics
  - ► Thanks to the front-side status LED and to the removable OLED touch screen with plain text display
- 1 analog output 4 ... 20 mA
 - ► Fast internal signal conversion of the speed into analog values

Scan the QR code for further information

Applications

Machine and plant manufacturers are increasingly using safety technology to ensure safe interaction between machines and men. This leads to new requirements and machine concepts. The compact basic module of the Safety-M compact range impresses with important functions; it is easy to implement.

These modules are used in the following applications: machine and plant engineering, cranes, steel works, wind power plants, stage technology and storage and conveyor technology.

www.kuebler.com/safety
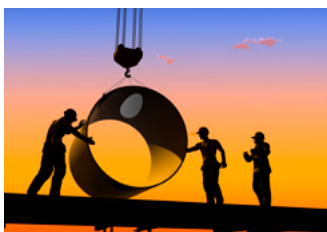
It's good to feel safe
Safety Services

Service packages. The intelligent combination of Sendix SIL encoders and Safety-M modules, which allows a simple implementation of safe drive monitoring, is supplemented with four graduated service packages. These include a risk assessment, the elaboration of a safety concept, the start-up / validation of the plant up to the safety retrofitting.

Scope of the various service packages

- Risk Assessment Package: Research for relevant directives and standards, risk analysis, documentation
- Safety Concept Package: Risk Assessment Package + selection of the safety components
- Start-up / Validation Package: Installation and acceptance of the components, functional test of the plant, documentation
- Safety Retrofit Package: All packages + mechanical and electrical installation of the components

  ► Avoids cost-intensive errors
  ► The customer obtains, without great efforts, a safe plant and a legally compliant documentation
  ► The whole from one single source: short communication channels, only one contact person

Scan the QR code for further information

Applications

Safety is - not least since the EU Machinery Directive 2006/42/EC - an "integral part of the construction of plants." Not only a safe plant, but also the safety of man must be guaranteed. Here, the Sendix SIL products combined with the graduated service packages can provide for help.

Application areas of the functional safety can be found for example in the following applications: machinery and plant engineering, cranes, steel, wind, stage technology, logistics and conveyor technology.

www.kuebler.com/safety

Compact and low-maintenance
Slip ring SR060E

New generation of slip rings. The slip ring SR060E has been developed especially for the packaging industry. The smooth and straight surfaces allow easy cleaning and therefore meet the requirements of the food processing industry.

Thanks to innovative contact materials, this slip ring does not require oiling any more. A particularly long service life is ensured.

Characteristics and advantages at a glance

- High load current transmission, up to 20A
  - ► Shorter and faster temperature control e.g. of sealing rollers
- IP64 protection level
  - ► Easy cleaning with a damp cloth or a water jet
- Innovative contact material silver/precious metal
  - ► Vacuum cleaning is sufficient, no contact oil required, long service life
- 10 times longer maintenance intervals (100 million revolutions) than with conventional gold/gold wire slip rings
  - ► Less machine standstills, increased productivity

Scan the QR code for further information

Applications

On packaging devices, slip rings are in charge of the rotary transmission of currents, signals or data between stationary and rotating platforms. The SR060E is designed for up to 3 load and 2 signal transmissions and shows its strengths in many different applications:

from the heating and monitoring of the sealing rollers in blister or tubular bag machines (or Flow Pack) to the use in balancing devices and indexing tables.

www.kuebler.com/sr060e_en
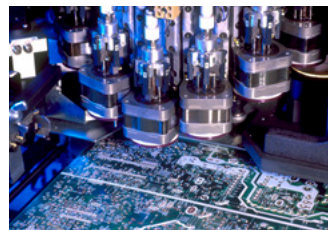
Non-contact and maintenance-free
Slip ring SRI085

New inductive technology. The slip ring SRI085 has been developed for the packaging industry. Signal transmission takes place without contact thanks to the innovative inductive technology. The slip ring is therefore maintenance-free, with a long service life.

The modular system ensures a product tailored individually to the application.

Characteristics and advantages at a glance

- Non-contact signal transmission
  - ► No plant standstill, no abrasion dust
- Modular system
  - ► Tailored to the application, flexible combination of load and signal channels
- Max. protection level IP64
  - ► Easy cleaning with a damp cloth or a water jet
- 3 x PT100 and max. 6 load channels, max. 25 A
  - ► Therefore shorter cycle times are possible

Scan the QR code for further information

Applications

On packaging devices, slip rings are in charge of the rotary transmission of currents, signals or data between stationary and rotating platforms. The SRI085 is designed for up to 6 load and 3 signal transmissions and shows its strengths in many different applications, such as for example: from the heating and monitoring of the sealing rollers in tubular bag machines (or Flow Pack) up to the use in indexing tables or textile machines.

Flexible and cost-efficient
Slip ring SR085B

New generation of slip rings. The slip ring SR085B stands out with its flat construction and reduced length. The advantage of this compact size becomes particularly obvious during its easy installation in restricted mounting spaces. This bearingless modular system can be extended with individual transmission channels. The innovative contact materials ensure a long service life and high reliability.

Characteristics and advantages at a glance

- Compact design: flat construction and reduced length
  - ► Easy installation in restricted mounting spaces (from a mounting depth of 33 mm)
- Flexible and bearingless modular system
  - ► Customer-specific and cost-efficient product for slow-rotating applications up to 200 min^{-1}
- Touch-protected system: protection level IP40
  - ► No penetration of foreign matter possible

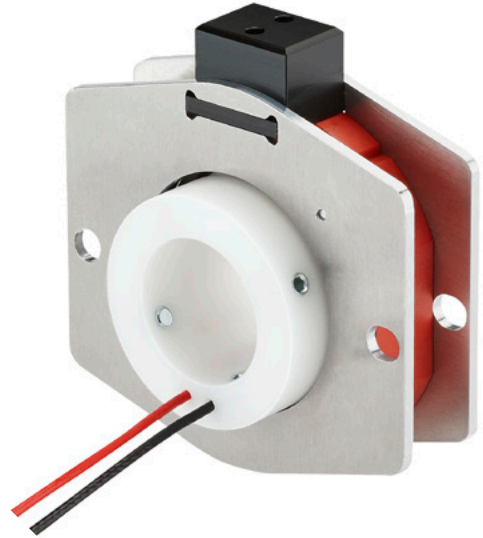Scan the QR code for further information

Applications

Slip rings are in charge of the rotary transmission of currents, signals or data between stationary and rotating platforms.

The SR085B is designed for up to 10 transmission channels and shows its strengths in many different applications such as for example: revolving doors, indexing tables.

www.kuebler.com/sr085b_en

Simple and absolute
Optical fiber modules, LWLA

For tough signal transmission.

The optical fiber modules are predestined for reliable signal transmission in interference-prone areas. Signal transmission takes place through a glass fiber cable that can transmit absolute values over distances reaching 2000 m. A status LED on the front side ensures easy function monitoring.

Characteristics and advantages at a glance

- Transmission up to a 99 bit resolution possible with a glass fiber
  - ► Easy settings with rotary switches, easy connection of any SSI absolute encoder
- SSI clock frequency max. 1 MHz
  - ► This allows fast transmission
- Compact design, width 19 mm and DIN rail mounting
  - ► Fast and simple installation

Scan the QR code for further information

Applications

Extremely strong electromagnetic fields or too long distances lead to communication errors. The users need a simple and cost-efficient solution. Kübler offers here a reliable and fast transmission thanks to its optical fiber modules.

The optical fiber modules are used in the following applications: Process technology, automation technology, high-voltage plants, cranes, heavy industry, wind power plants, drive technology and rolling mills.
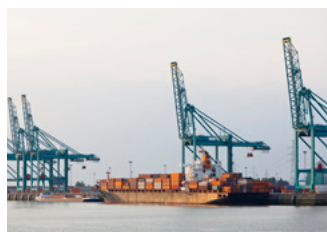
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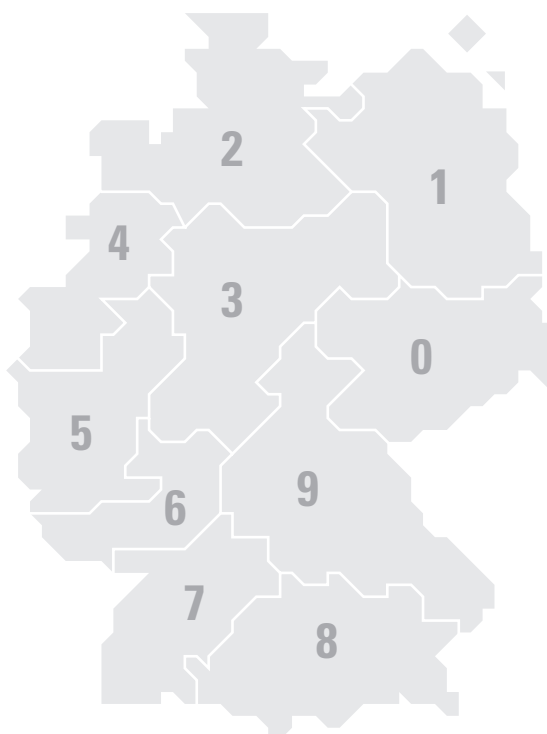www.distrelec.de

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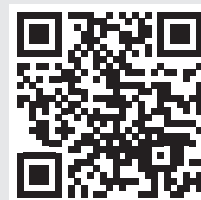92240 Hirschau
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