













Motor Feedback Systems
Bearingless Encoders
Encoders
Shaft Copying System
Inclinometers
Linear Measuring Technology
Functional Safety
Slip Rings
Counters and Process Devices

## **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.

Eleven 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 480 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



### 2/inne

#### 24 one delivery promise

Manufacturing in 24 hours. For orders placed on working days before 9 AM, the product will be ready for dispatch on that same day. 24one is limited to 20 pieces per delivery.



### 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.



## **Sample Service**

We manufacture samples of special designs or according to customer specification within shortest time.



### **Safety Services**

- Adapted service packages
- Individual customer solutions



## 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.



## **Technical Support**

Kübler' applications team is present on site all over the world for advice, analysis and support.

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## **Our Product Portfolio**



#### **Position and Motion Sensors**

- · Incremental and absolute encoders
- · Fieldbus and Industrial Ethernet encoders
- Bearingless encoders
- Explosion protected encoders ATEX / IECEx
- · Linear magnetic measuring systems
- · Draw-wire encoders
- · Inclinometers
- · Connection technology

## Transmission Technology

- Slip rings, modular system
- Slip rings, bearingless modular system
- Slip rings, contactless transmission
- Slip rings, compact and low-maintenance
- · Slip rings, Ethernet transmission
- · Slip rings, high current
- Optical fiber signal transmission modules
- Cables, connectors and pre-assembled cordsets

#### **Functional Safety**

- · Certified incremental and absolute encoders
- Certified explosion-protected encoders ATEX / IECEx
- · Modules for safe drive monitoring
- · Safe fieldbus gateways
- · Safe speed monitors
- 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:

















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:

## **NEW FOR 2018**

Position and Motion Sensors	
<ul> <li>Solutions for Drive Technology</li> <li>Motor Feedback System for Servo Motors – Sendix S3674 / S3684</li> <li>Bearingless Encoders</li> <li>Encoders for Asynchronous Motors – Sendix F5888M Motor-Line</li> </ul>	P. 4 P. 6 P. 9
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Safe Speed Control – Safety-M Compact SMC1, SMC2	P. 19
Transmission Technology	
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## MOTOR FEEDBACK SYSTEMS FOR SERVO MOTORS

Sendix S36 Motor-Line





## **ROBUST DESIGN**

Its robust construction makes the Sendix S36 Motor-Line particularly shock and vibrationresistant.

### **Mechanical robustness**

- Latest mechanical gear technology
- Robust bearing structure in Safety-Lock™ Design
- Reliable connector technology
- Torque-proof stator coupling
- Wide temperature range

+ Premium quality perceptible in everyday operation. The robust design ensures reliable and perfect operation of your motors

even in harshest environments

## **Electronic robustness**

- Blue LED technology for accurate scanning and long service life
- Phased Array Sensor technology

## **COMPACT**

Consistent size of only 36 mm for:

- All singleturn and multiturn variants
- All medium and high power ranges with a resolution ≤ 2048 ppr SinCos or ≤ 24 bits fully digital

High-resolution and compact. Possibility to standardize the attachment between the encoder and the motor, and thus to reduce the number of motor variants. This saves space and costs.

#### **HIGH SIGNAL QUALITY**

The use of the Phased Array Sensor technology allows achieving a resolution ≤ 2048 ppr SinCos or ≤ 24 bits fully digital, ensuring in addition high signal quality also in the event of shocks and vibrations.

+ Performance increase thanks to the high resolution. The controlled servo motor shows a more stable operating behavior and produces less heat.

### **ALL INTERFACES**

An encoder platform with all classical and all open source interfaces for the Single Cable Solution.

+ From now on, you and your customers will have maximum flexibility when selecting your preferred electrical interfaces.

## **FUNCTIONAL SAFETY**

Certified Motor Feedback System, from the sensors, through the mechanics, up to the electrical interface.

+ Safe speed monitoring and fast acceptance for the certification of the complete system.

















## **SHAPING THE FUTURE WITH KÜBLER**

New Single Cable Solutions for the drive technology. So far, the interface was the limiting factor. This will change in the future thanks to the open source and fully digital

BiSS Line and SCS open link interfaces for Motor Feedback Systems. They will allow enormous cost advantages and offer the possibility of developing smart motor concepts.



## **Single Cable Solution**

The Sendix S36 Motor-Line will in the future offer both the open source BiSS Line and SCS open link interfaces.



### **ANALYTICS FOR SMART MOTOR**

Functions such as the electronic data sheet (EDS), saving customer-specific user data and the connection of additional sensors such as for example temperature sensors are available for the analytics.

(+) A permanent condition monitoring of the motor allows detecting and correcting faults at an early stage. This leads to higher plant availability and performance improvement.

# Analytics

IIoT

**Condition Monitoring Smart Motor** 

Predictive Maintenance

## **COMPACT INTEGRATION**

## Bearingless encoders. Incremental and absolute.

Thanks to their contactless measuring principle, the magnetic bearingless encoders are at the same time wear-free and robust. They ensure faultless continuous operation of your motors. Their compact design is particularly suitable for tight installation spaces. Unlike encoders with bearings, they allow a large hollow shaft up to  $\emptyset$  390 mm. This ensures perfect integration of the bearingless encoders in any motor concept.



- Space and costs savings
- Faultless continuous operation of your motors
- Sensor solution scalable thanks to different magnetic ring sizes
- Optimal mounting solution in smallest installation spaces



## **INCREMENTAL BEARINGLESS ENCODERS**

**Ideal for accurate rotary speed measurement.** Resolution of up to 16,000 pulses per revolution and available as HTL or TTL variants. Easy and fast installation thanks to various shaft mounting possibilities such as press-fit, hub screw or screwed flange. Large mounting tolerance between the magnetic ring and the sensor head.



## Suitable for shaft diameters ≤ 35 mm

RLI20 RLI50 with zero pulse

Resolution ≤ 3,600 ppr



# Suitable for shaft diameters ≤ 390 mm

RLI200 RLI500 with zero pulse

Resolution ≤ 16,000 ppr



## ABSOLUTE BEARINGLESS ENCODERS RLA50 Ideal for accurate position and angle measurement.

Resolution of up to 16,000 measuring steps per revolution and available as SSI or CANopen variants. Additional incremental signals for highly dynamic drives.



## **SMART BEARINGLESS ENCODERS**

Reduce system costs. Increase robustness. Save installation space.

Kübler will find, together with you, the suitable solution that will allow making your motors even more compact both today and in the future. You will thus reduce your system costs and obtain an individually integrated sensor solution. The Smart Technology provides evaluated data for Condition Monitoring and Predictive Maintenance.



## **YOUR BENEFIT**

- 100% integration in the motor
- Slim motor design
- High assembly tolerance
- Accurate control
- Ready for the Smart Motor

## THE SUITABLE SOLUTION FOR EVERY APPLICATION

### **RLI – PERFORMANCE**

The smart bearingless encoder

## **Smart Technology:**

- The digital signal processing with active signal errors correction ensures <u>highest signal quality</u>
- Integrated digital signal filters and electronic nameplate with user memory
- Adjustable line number and application-specifically programmable filters
- Possibility for Condition Monitoring and Predictive Maintenance

### FOR HIGH-PERFORMANCE APPLICATIONS

- Very high resolution reaching 2,000,000 ppr
- Direct digital output of position, speed and acceleration
- Highest signal quality over the whole speed range from 0 to 12,000 rpm
- Digital interface SPI, RS485 and BiSS

## RLI – STANDARD

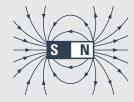
#### FOR STANDARD APPLICATIONS

- Resolution up to 16,000 ppr
- High signal quality

## **RLI - BASE**

### FOR SIMPLE APPLICATIONS

- Resolution up to 500 ppr
- Low signal quality requirements



INTERFERENCE FIELDS – NO PROBLEM. KÜBLER SHIELDING TECHNOLOGY.

Electromagnetically actuated brakes generate strong magnetic fields, which make the operation of a bearingless magnetic encoder in their immediate proximity impossible. A shielding method calculated by FEM manages to shield the interference field of the brake at 100 % in the area of the sensor.



## **FLATTEST MULTITURN ENCODER**

Sendix F5888M Motor-Line Encoder

For drive technology. An extremely low profile of only 43 mm and a through hollow shaft of max. 15 mm characterize the optical Sendix F5888M Motor-Line encoder. This opens up new possibilities for motor dimensions as well as installation in tight spaces. Kübler encoders and motors — a perfect match.







Characteristics	Your Benefits
Rugged bearing construction with Safety-Lock™ design	<ul><li>Resistant to installation errors, shock, and vibrations</li></ul>
Low profile of 43 mm, tangential cable outlet	Influences the motor length, suitable for tight installation spaces, easy installation
Through hollow shaft to max. 15 mm and A- and B-side clamping	<ul> <li>Suitable for common drive shafts for gear motors, flexible installation</li> </ul>
A variety of electrical interfaces	► Flexible connection to a frequency inverter
CANopen with additional 2048 ppr incremental track	Two-in-one: Absolute positioning and rotational speed measurement, cost-optimized solution

## **Applications**

Both incremental and absolute encoders are used in gear motors. One of the benefits of incremental encoders is their low profile. The Sendix F5888M Motor-Line encoder achieved this low profile in a compact design.

Thanks to this low profile, these multiturn encoders continue to demonstrate their strengths in the following applications: standard motors, gear motors, and large motors.









## **SINCOS SIGNALS FOR DIRECT DRIVES**

Sendix 5834 Motor-Line Encoders

**Efficient**. The optical incremental Sendix 5834 Motor-Line encoders have been designed especially for use in direct drives. Their resolution reaching 2048 ppr SinCos signals guarantees best drive control.

The stator or expanding coupling ensures optimal and reliable connection between the encoder and the drive.





Characteristics	Your Benefits
Stator or expanding coupling, tangential cable outlet, conical shaft	Easy and optimal installation/integration, reliable connection with the drive shaft
Resolution of 1024 ppr or 2048 ppr SinCos signals	The very high signal quality allows further interpolation. This guarantees optimal drive control.
Rugged bearing construction with Safety-Lock™ design	► Resistant to installation errors, shock, and vibrations
PCB connectors	► Flexible connection, cost-optimized solution

### **Applications**

Direct drives are used in the elevator technology for their high torque at low rotation frequencies and their smooth and silent operation.

This leads to specific requirements for the used encoders: short control cycles with high resolution and reliability.

Exactly these characteristics make the incremental Sendix 5834 Motor-Line encoders the ideal solution for direct drives.









THE STANDARD FOR DIRECT DRIVES

Sendix 5873 Motor-Line Encoders

**Powerful.** The optical Sendix 5873 Motor-Line singleturn encoders are specifically designed to be mounted onto gearless motors. The 21 bit fully digital high-resolution or 17 bit + 2048 ppr SinCos ensures optimum drive control. Simple plug-and-play start-up.











Characteristics	Your Benefits
Stator or expanding coupling, tangential cable outlet, tapered shaft	Easy, perfect installation, reliable connection to the drive shaft
Plug-and-play incl. electronic data sheet and the option to set the measurement system to a predefined setpoint	► Quick and easy start-up
Actual value ≤ 1μs, resolution 21 bit fully digital, short control cycles	► Increased drive control efficiency
Rugged bearing construction with Safety-Lock™ design	► Resistant to installation errors, shock, and vibrations
PCB connectors	► Flexible connection, cost-optimized solution

## **Applications**

Because direct drives have a high torque coupled with low rotary frequencies and smooth, quiet running properties they are ideally suited for use in elevator technology.

This technology requires encoders to have specific benefits: short control cycles, high resolution, and reliability.

These characteristics make the Motor-Line version of the optical Sendix 5873 encoders the ideal solution for direct drives.









## **ABSOLUTE SHAFT COPYING SYSTEM**

LEB, Measuring Length up to 392 m

Absolute position measurement. LEB is an extremely robust, compact and non-contact measuring system. Elevator car absolute position values are measured slip-free with a resolution of 1 mm and a traverse speed of 5 m/s. Additional components such as magnetic switches are no longer needed. Especially the easy mounting reduces installation time, thus contributing to overall costs reduction.







Characteristics	Your Benefits
Absolute positioning	<ul> <li>Elimination of additional sensors in the elevator shaft (magnetic switches) – reduction of installation time and of overall costs</li> </ul>
	<ul><li>Highest elevator availability - no referencing required in case of power failure</li></ul>
Slip-free measuring system	Direct measurement on the elevator car - always the right positioning
Measuring length up to 392 m	Suitable for 99.9 % of all buildings worldwide
Robust stainless steel tape	Reliable and long service life
Mounting kit	<ul><li>Simple mounting, reduction of installation time</li></ul>

### **Applications**

Specially developed for the elevator car position acquisition, this measuring system based on a contactless technology contributes to the smooth operation of elevator plants. The absolute position measurement allows doing without many additional components such as magnetic switches.

Installation work is therefore reduced contributing, in addition to the drop in costs for additional components, to overall costs reduction.











## SAFE SHAFT COPYING SYSTEM

LES, Fulfills EN81-20/21/50 Requirements

Absolute position measurement. LES is an extremely robust, compact and contactless SIL3 certified measuring system. Elevator car absolute position values are measured slip-free with a resolution of 1 mm and a traverse speed of 5 m/s. Additional components such as magnetic switches are no longer needed. Especially the easy mounting reduces installation time, thus contributing to overall costs reduction.





**RS485** 

Characteristics	Your Benefits
Absolute positioning	<ul> <li>Elimination of additional sensors in the elevator shaft (magnetic switches) – reduction of installation time and of overall costs</li> <li>Highest elevator availability - no referencing required in case of power failure</li> </ul>
SIL3/PLe certified by TÜV	<ul> <li>Performs safety functions according to EN81-20/21/50 in conjunction with a safe elevator control / evaluation unit</li> <li>Simplifies the complete elevator certification</li> </ul>
Slip-free measuring system	Direct measurement on the elevator car - always the right positioning
Measuring length up to 392 m	Suitable for 99.9 % of all buildings worldwide
Mounting kit	<ul><li>Simple mounting, reduction of installation time</li></ul>

## **Applications**

In conjunction with a safe elevator control / evaluation unit, this SIL3 certified measuring system for safe elevator car position determination allows realizing numerous safety functions required by standard EN81-20/21/50. The absolute position measurement allows doing without many additional components such as magnetic switches.

Installation work is therefore reduced contributing, in addition to the drop in costs for additional components, to overall costs reduction. In addition, the SIL3 certification simplifies the certification of the complete elevator.











## **UNWAVERING ACCURACY**

## Inclinometers IN81 / IN88

Rugged and versatile. These inclinometers were specially designed for outdoor use. The rugged housing, high protection level and wide temperature range reinforce their reliability. Their low profile facilitates simple and flexible installation. The special feature of the IN81 / IN88 is its high precision, which remains stable even in harsh environments and during temperature fluctuations. The result is a consistent and optimum measurement for your system.









Characteristics	Your Benefits
Rugged: Aluminum housing, protection level IP67 / IP69k, temperature range from -40°C to +85°C	► Ideally suited for outdoor use, long service life, high availability
Accurate: stable and highly accurate – resolution 0.01°	► Precise measurements in all environments
2-dimensional inclinations in the measurement range of $\pm 85^\circ$ or 1-dimensional inclinations up to $360^\circ$	No restrictions; your application determines the measurement range
Configurable filter settings	► Perfectly adapted to your application
Stack assembly for redundancy optional	► Easy installation, space-saving

## **Applications**

Inclinometers are primarily used outdoors. This is where sensitive sensor technology meets harsh conditions: shock, vibrations, and changing weather conditions. The inclinometers IN81 / IN88 stands up to the test and demonstrates its capabilities in the following applications:

measurement of the horizontal position of an operator basket on firetrucks or working platforms, levelling of agricultural and forestry vehicles, dynamic measurement of the set-up angle of the boom on tunnel and mining construction machinery, and the solar industry.









## **EXTREMELY RUGGED AND EFFICIENT**

Draw Wire Encoders D120, Measuring Range 3...10 m

For outdoor applications. The new draw wire encoders D120 are especially reliable and durable thanks to their extremely rugged design, high protection level (IP69k), and wide temperature range. The extensive selection of housing and wire types, wide measurement range and various interfaces reflect flexibility and adaptability. An additional highlight is the possibility of redundancy.



Characteristics	Your Benefits
Various designs: open, closed housing or housing with perforated plate cover	The right level of durability for every application ensures reduced downtimes
Protection level to IP69k, wide temperature range from -40°C to +85°C	► Reliable and durable outdoor use
A variety of stable wire types (from 0.5 to 1.5 mm) and wire fastenings (clip, M4 screw thread and ring)	► Flexible and ideal integration into your application
Excellent linearity up to $\pm 0.1~\%$	► High performance and cost savings
Potentiometer, 0 5 V, 0 10 V, 4 20 mA, CANopen interfaces	Common interfaces suitable for your application
Redundant version available	► High system availability

## **Applications**

Sensors reach their limits in outdoor applications. In addition to maximum durability and precision, they must also be cost-effective. The new draw wire systems now unite these demands in a single device.

Special housing, wire and fastening types ensure reliability and durability in demanding applications with wide measurement ranges – all at very economical prices.









## LENGTH AND INCLINATION MEASUREMENT

## Draw Wire Encoder C100, Measuring Length up to 5 m

With integrated inclinometer. Its robust design and its high IP67 protection level make the draw wire encoder C100 a particularly reliable device. It can be mounted easily and optimally in any application.

Ranging from the integrated inclinometer up to the relay output, many additional options are available. In order to increase plant availability, this draw wire encoder offers the possibility to integrate a redundant system in its very compact housing.









Characteristics	Your Benefits
Measuring length up to 5 m	The suitable measuring length for every application
Integrated inclinometer (optionally redundant)	Cost, space and installation work saving
Redundant sensors	► For even higher plant availability
Different types of sensors (analog, incremental, CANopen, relay output, switch output)	The right sensor for every need – simple selection and fast installation
Linearity up to ±0.1 % of the measuring range	► High accuracy at economic prices
High protection level IP67 and wide temperature range from -40°C +85°C	► Reliability and long service life for outdoor applications

### **Applications**

Automated approach and position measurement for load monitoring are increasingly important functions in mobile machinery. The new draw wire encoder C100, qualified as « mobile-robust », has been especially developed for these applications.

The sensors must in the same time be cost-effective, with a robust construction and show the best repeatability possible. Kübler's draw wire encoders demonstrate their strengths, among others, in the following applications:

lift table, telescopic masts, supports and general automation technology.









## LENGTH AND INCLINATION MEASUREMENT

## Draw Wire Encoder D125, Measuring Length up to 10 m

With integrated inclinometer. Its robust design and its high IP67 protection level make the draw wire encoder D125 a particularly reliable device. It can be mounted easily and optimally in any application.

Ranging from the integrated inclinometer up to the CANopen output, many additional options are available. In order to increase plant availability, this draw wire encoder offers the possibility to integrate a redundant system in its very compact housing.









Characteristics	Your Benefits
Measuring length from 6 10 m.	The suitable measuring length for every application
Integrated inclinometer (optionally redundant)	► Cost, space and installation work saving
Redundant sensors	► For even higher plant availability
Different types of sensors (analog, CANopen)	The right sensor for every need – simple selection and fast installation
Linearity up to $\pm 0.5\%$ of the measuring range	► High accuracy at economic prices
High protection level IP67 and wide temperature range from $-40^{\circ}\text{C} \dots +85^{\circ}\text{C}$	► Reliability and long service life for outdoor applications

### **Applications**

Automated approach and position measurement for load monitoring are increasingly important functions in mobile machinery. The new draw wire encoder D125, qualified as « mobile-robust », has been especially developed for these applications.

The sensors must in the same time be cost-effective, with a robust construction and show the best repeatability possible. Kübler's draw wire encoders demonstrate their strengths, among others, in the following applications:

lift table, telescopic masts, supports and general automation technology.









## PERFECT INTERACTION

Length Measuring Kit – Limes Kit TB

Focus on your application. Design your own length measuring kit with spring arm, encoder, measuring wheel (pulley) and belt. Take advantage of the unlimited measurement range, free selection of sensors and simple, flexible mounting options. The Limes Kit TB ensures conistent measurement despite mounting tolerances or irregularities.



Characteristics	Your Benefits
Stable and temperature-resistant plastic belts	Your application determines the measuring length. You will achieve reliable and consistent results with no restrictions
Encoder (incremental or absolute) and interface options are included	<ul> <li>Rugged sensor technology and high accuracy, the right interface for your application</li> </ul>
Adjustable encoder spring arm	Easy installation and consistently reliable measurement
Kit system	<ul> <li>Cost-efficient solution, easily adaptable to your specific application</li> </ul>

### **Applications**

Current measuring systems can sometimes hit their limits. This can have various reasons. Either the measuring length is limited, the design is too large, or the system itself is too costly. The length measuring kit Limes Kit TB from Kübler is easily adaptable to your application. You determine your needs.

The result is an ideal solution with the highest quality at a fair price. The kit is already being used in numerous applications: textile machines, intralogistics, the glass industry, and cranes.









## **QUICK AND EASY**

## Safety-M compact SMC1, SMC2

Speed monitoring. The compact basic modules of the Safety-M compact series are complete speed monitors in a small design. The removable operating and diagnostics display (OLED) allows easy configuration. Integration into existing safety circuits and upgrading of old machines is possible through the secure inputs/outputs and integrated signal splitter.





Characteristics	Your Benefits
Connection of incremental encoders (SinCos, TTL/RS422 and HTL/push-pull/proximity switch)	► This results in a versatility in drive safety functions
Integrated signal splitter	No complex, external cable routing – simple routing to the controller/frequency inverter
Local diagnosis	With status LED on the front panel and removable OLED touchscreen with plain language display
1 analog output 4 20 mA	Fast internal signal conversion of the speed into analog values

### **Applications**

In order to guarantee safe interaction between man and machine, system and machine engineers are utilizing more and more safety technology. This results in new requirements and machine concepts. The compact base module of the Safety-M compact series impresses with critical functions and is easy to implement.

The modules are used in the following applications: machine and system engineering, cranes, steelworks, wind turbines, stage technology, and storage and conveyor technology.









## **CONTACTLESS GIGABIT ETHERNET TRANSMISSION**

## Slip Ring SR160 with integrated Sendix Encoder

All in one device. Two separate channels 100 Mbps Ethernet or one channel 1 Gbps Ethernet allow transmitting in parallel loads up to 40 A. Media, switching signals or fieldbuses can be freely combined and are transmitted durably and maintenance-free thanks to reliable technologies.

The integration of our Sendix encoders provides additional position information.



Characteristics	Your Benefits
Contactless data transmission, 2 channels 100 Mbps Ethernet or 1 channel 1 Gbps	<ul> <li>E.g. possibility of separate transmission of data and safety functionalities, high data rates</li> </ul>
Integration of encoder and general sensor systems	Condition Monitoring - supply of additional functions such as position, temperature, humidity, etc.
Parallel transmission of load, signal and data, media flow in air or hydraulic models	Ensures high variability and flexibility
Multitude of connector and cable connections available	► Quick and easy installation
Designed for the highest adaptability	► We create a solution specifically tailored to your needs

## **Applications**

Slip rings take over the rotating transmission of currents, signals, or data between stationary and rotating platforms. Slip rings must be reliable despite their exposure to harsh environments.

The SR160 slip ring is suited for these applications: fairground rides, filling systems, labelling machines, sealing machines, automatic revolving transfer machines, construction machinery.









## **POWERFUL AND RUGGED**

## Slip Ring SR250H

High current up to 100 A. The SR250H slip ring transmits loads up to 100 A, signals and data for powerful drives in parallel. The rugged modular design and a variety of connection options ensure flexibility and reliability. Innovative contact technology ensures that the slip ring is particularly low-maintenance and durable. Custom solutions are no problem for the SR250H – contact us!



Characteristics	Your Benefits
Rugged stainless steel housing, high protection level (up to IP67), and high-quality seals	Reliable in harsh environments, resistant to chemical cleaning agents
Load transmission up to 100 A	Optimum supply of powerful drives
Parallel transmission of load, signal and data, media flow in air or hydraulic models	► Ensures high variability and flexibility
Multitude of connector and cable connections available	► Quick and easy installation
Designed for the highest adaptability	► We create a solution specifically tailored to your needs

## **Applications**

Slip rings take over the rotating transmission of currents, signals, or data between stationary and rotating platforms. Slip rings must be reliable despite their exposure to harsh environments.

The SR250H slip ring is ideally suited for these applications: filling systems, labelling machines, sealing machines, automatic revolving transfer machines, construction machinery, cranes.









## SIGNAL CONVERTERS PORTFOLIO

## Frequency Divider, Level Converter, Signal Converters and Splitters

**Efficient.** The signal converter portfolio includes various devices that allow adapting signals to the most various applications.

Frequency divider: f (kHz) ► f (Hz)

Level converter: HTL ► TTL; TTL ► HTL

Signal converter: SinCos ► HTL / TTL; SSI ► HTL / TTL;

f (kHz) ► Analog; SSI ► Analog

Signal splitters: SinCos ► 2x SinCos, 2x TTL / HTL;

2x TTL / HTL ► 2x TTL / HTL



Analog

**RS232** 





Characteristics	Your Benefits
Efficient: they convert frequencies or signals with clock frequencies of up to 1 MHz	<ul> <li>Adaptation to the application control, which is not able to process the provided sensor signal directly</li> </ul>
DIN rail mounting with plug-in screw terminals and standard connectors. Compact design.	Simple modular mounting. Easy module replacement if other levels are required.
Programming via interface, USB or DIL switches	► Highest adaptability for every application
Level converter with galvanic isolation	► No transmission of interference pulses

#### **Applications**

Frequency adaptation for older and slower controls used with fast sensors.

Level conversion to allow using sensor signals for different terminals.

Signal converters to use sensor signals for given control inputs, e.g. SSI ► Analog.

Signal splitting and separation by a signal splitter to allow using one sensor on 2 controls.









## SIMPLE AND VERSATILE

## Multifunctional Display / Control Devices 570T, 571T, 573T

**Touchscreen**. A benefit of these new multifunctional devices is their user friendliness using simple plain language programming with resistive touchscreen. All metering, measuring and control tasks, such as pulse sensing for quantity, position, frequency, and time (571T). SSI signals for position measurement/control (570T) as well as processing of standard signal inputs and transmitters (573T).







Characteristics	Your Benefits
Plain language programming, touchscreen (color switching), no instruction manual required	► Easy and quick start-up — saves costs and time
Four fast transistor and/or two relay switch outputs	<ul> <li>Flexible programming of switching states, adapted to your application</li> </ul>
High analog output resolution of up to 16 bit	<ul> <li>Preparation of measured values as standard signal inputs for further processing</li> </ul>
Available RS232 interface	Support for the commissioning or control of your application
Modular design and order number (switch outputs, analog output, and/or interface)	► The device only includes the necessary functions

## **Applications**

The displays monitor and control limits or transmit scaled measured values. For example: valve control for gas turbines, measurement of the total length of multilevel crane systems, monitoring of lock gates, blade adjustment for turbines, pitch adjustment for wind turbines, positioning of processing

machines (wood, metal, glass), ice surface processing machines, level indicators in tank systems. Flow monitoring in production systems, dwell time of parts in ovens, for example, beyond the frequency measurement (reciprocal), speed measurement from the run time.









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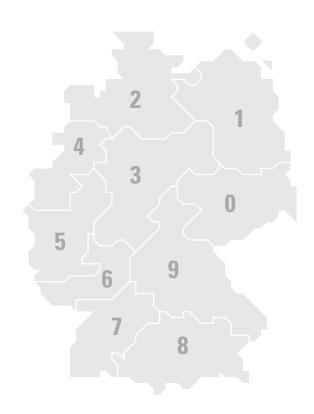
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