













- Position and Motion Sensors
- Functional Safety
- Transmission Technology
- 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.

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 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



24one

24one 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
- 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 2016

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More flexibility – more performance Sendix 5000 / 5020 incremental encoders

Flexibility redefined. The successful Sendix 5000 / 5020 family has been technically optimized and completed with further order options, making them the ideal solution for even more applications. Particular highlight: **24one** delivery promise.



The extra flexibility

- + More flange, coupling and shaft variants
 - ► For optimal mounting on the application shaft
- + More connector and cable length variants and new: cables with fitted connector
 - ► The options "cable + connector" with various cable length and connector options guarantee safe and error-free connection of the connector
- + More pulse number variants
 - ► No compromise for positioning tasks
- + More options for particular environmental conditions
 - Salt spray-tested surface protection, stainless steel housing (series Sendix 5006 / 5026), Ex protection zone 2/22
- + Many practical and smart details
 - Undetachable clamping ring on hollow shaft encoders thanks to a shoulder on the shaft
 - ► Tangential cable outlet saves space, cable exit possible at any angle (not only radially and axially)

The extra performance and robustness

- + Optical sensors
 - ► Highest accuracy and 100% resistant to magnetic fields
- + Robust and stable Safety-Lock™ bearing structure
 - ► Allows mounting errors guaranteed long service life
- + Wider operating temperature range and more IP protection
 - ► Working temperatures up to -40°C with IP67 and IP66 for use outdoors and in cold stores
 - ► High working temperatures up to +85°C allow high application speeds
- + Higher shock and vibration resistance
 - Long service life and high reliability
- + Higher permissible shaft loads
 - Longer service life, in particular for applications with measuring wheels or belts
- + Isolation inserts for hollow shaft encoders
 - ► Protection against shaft currents together with thermal insulation can be used also as reduction inserts









240ne

ONE DAY. ONE MILLION VARIANTS.

YOUR ENCODER.

INDIVIDUAL SAME-DAY MANUFACTURING FOR INCREMENTAL ENCODER FAMILY SENDIX 5000 / 5020.

Maximum flexibility – minimum lead time.

The encoder you need, manufactured for you within 24h!

The unique variant diversity of the Sendix 5000/5020 incremental encoders family will always allow you to find the optimal encoder for your application and to receive it within shortest time.

24one delivery promise

This free of charge service increases your flexibility. Your configured incremental encoder will be manufactured and made ready for dispatch the same day. As they are comparable with variants kept in stock available on the market, you will not have to accept any compromises.

Your benefits at a glance

- + Optimal encoder for your application
- More flexibility thanks to minimum manufacturing time
- + More planning security
- + In case of emergency, you reduce machine standstill to a minimum

We offer for all encoders configured with the underlined preferential options our free of charge 24one delivery promise. Orders placed on working days before 9AM CET are manufactured and ready for dispatch the same day. The 24one delivery promise is limited to 20 pieces per delivery.





Scan the QR code and configure your encoder

Cost-effective in compact size of ø 40 mm 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. Designed for simple applications, these encoders are suitable for many fields of application.



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
 - ► Suitable for industrial 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.









Cost-effective in standard size of ø 58 mm

Sendix Base KI50 encoders

Focused on the essential.

High cost-efficiency and parts of the mature Sendix technology are combined in the optical incremental encoders Sendix Base KI50. Designed for medium and large-size machines and motors.



Characteristics and advantages at a glance

- Robust Safety-Lock™ bearing design
 - ► They withstand installation errors, shocks and vibrations
- Optical sensors, max. resolution 5000 pulses/revolution
 - ► High accuracy and 100 % resistant to magnetic fields
- Robust housing, high protection level IP65 and wide temperature range of -20°C ... +70°C
 - ► Suitable for industrial environments
- Short-circuit resistant outputs and polarity protection of the supply voltage
 - Protection against installation errors
- Through hollow shaft up to max. 15 mm
 - ► Suitable for drives with large shafts and large 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 cost-effective. The incremental Sendix Base KI50 encoders meet these requirements.

The Sendix Base KI50 encoders demonstrate their strengths in the following applications:

General automation technology, factory automation, drive technology, logistics and conveyor technology.









Cost-efficient and robust Sendix M36 multiturn encoders

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









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.









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.









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.









Robust and compact Draw wire system with Sendix M36 encoder

Reliable operation. Many draw wire systems of Kübler's extensive draw wire systems portfolio can now be combined with the compact magnetic Sendix M36 multiturn encoder. The analog variant of the Sendix M36 is significantly more compact than usual analog sensors.

Thanks to the freely scalable measuring range, the flexible connection to the application is ensured.









Characteristics and advantages at a glance

- Versatile draw wire systems portfolio with measuring ranges from 0.3 m up to 42.5 m
 - ► The suitable performance for your application
- · Magnetic multiturn encoder Sendix M36 in a robust and compact construction of only 36 mm
 - ► Suitable for tight mounting spaces, identical size for the analog, SSI und CANopen variants
- Cost-efficient and reliable thanks to the Energy Harvesting Technology
 - ► No mechanical gear, no battery



Scan the QR code for further information

Applications

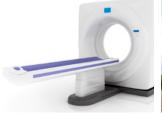
The precise control and monitoring of positions in various applications requires accurate position measurement. The sensors used for this purpose should in the same time be cost-effective, have a robust construction and offer the highest repeatability possible.

With these features, Kübler's draw wire systems demonstrate their strengths among others in the following applications:

Lifting tables, construction machinery, medical technology, mobile cranes.









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
 - ► 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:

 $\label{lem:condition} Automotive\ production, logistics, metal-working, textile,\ printing\ and\ packaging\ machines.$





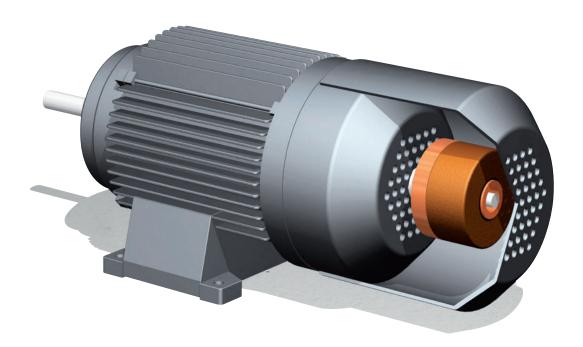




Sendix encoders for asynchronous motors

Asynchronous motors are the all-rounders amongst electrical drives.

For every requirement there is a drive and for every drive there is a suitable Kübler encoder. Whether as a fan motor in a small 63 size, or as a geared motor in a 225 size, asynchronous motors place special demands on encoders, above all when it comes to mechanical and electrical ruggedness. Because of their robust technology Sendix encoders prove themselves, especially in harsh environmental conditions.



Application-specific requirements

Mounting Especially during the mounting of encoders the mechanics can be

overloaded. This can lead to the encoder being prematurely damaged, so

that the average service life is not reached.

Motor options If a motor next to the encoder is to be equipped with further sensors,

then the motor shaft must be fed through the encoder.

Temperature range When using asynchronous motors extremely high temperature ranges

can occur, which place increased demands on the sensors and on the $% \left(1\right) =\left(1\right) \left(1\right)$

way they are mounted.

Magnetic fields Both the motor and the electromagnetic brakes create stray magnetic

fields, which can affect the sensors.

Flattest multiturn encoder Sendix F5883 Motor-Line

For the drive technology. The optical Sendix F5883 multiturn encoder in the Motor-Line version stands out particularly because of its reduced overall depth of only 43 mm with a through hollow shaft up to 15 mm. This opens up new possibilities when dimensioning the motors and for installation in tight mounting spaces. Its technical features make the F5883M the ideal device for use in geared motors.







RS422

Push-Pull

Characteristics and advantages at a glance

- Robust bearing structure in Safety-Lock™ Design
 - Resistant to installation errors, shocks and vibrations
- · Reduced overall depth of 43 mm, tangential cable outlet
 - ► Influences motor length, suits for tight mounting spaces, simple installation
- Through hollow shaft up to max. 15 mm and clamping on the A and B side
 - ► Suitable for usual drive shafts for geared motors, flexible installation
- Many different electrical interfaces
 - ► Flexibility for the connection with the frequency converter



Scan the QR code for further information

Applications

Geared motors can use both incremental and absolute encoders. Their reduced mounting depth is one of the advantages of the incremental encoders. With the new Motor-Line version Sendix F5883 multiturn encoder, Kübler developed a correspondingly compact construction.

Thanks to their flat design, the Sendix encoders of the Motor-Line version can demonstrate their strengths in the following applications:

Standard motors, geared motors and large-sized motors.





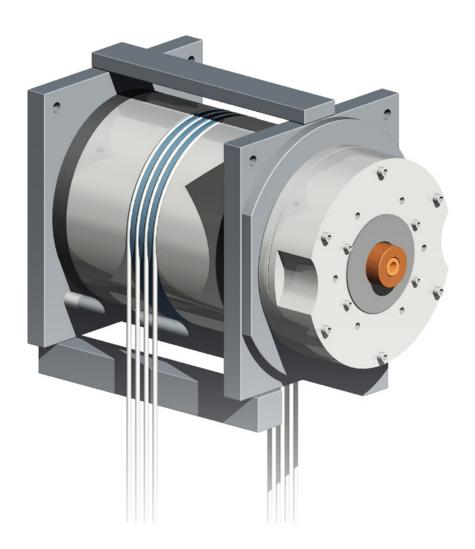




Sendix encoders for gearless drives

Flexibility is the main characteristic of the encoders for gearless drives. They provide the suitable encoder technology, the optimal mechanical mounting, but also the electrical interface.

The drive and/or the system determine the choice of the suitable encoder.



BiSS – the predestined interface for direct drives

- Fully-digital and bidirectional. Possibility to set the absolute measuring system to a predefined position value.
- Open Source not proprietary.
- Position and status available in real time.
- Motor data and maintenance information can be stored in and retrieved from the encoder.
- Condition Monitoring through register communication.



The standard for gearless drives

Sendix 5873 Motor-Line encoders

Efficient. The optical Sendix 5873 singleturn encoders in Motor-Line version have been designed especially for use in gearless drives. Their high fully digital resolution of 21 bits or 17 bits + 2048 ppr SinCos ensures best control of the drive.

Easy commissioning thanks to Plug-and-Play.











Characteristics and advantages at a glance

- Stator or expanding coupling, tangential cable outlet, conical shaft
 - ► Easy and optimal installation/integration, reliable connection with the drive shaft
- Plug-and-Play including electronic data sheet and possibility of setting the measuring system to a
 predefined position value
 - ► Easy and fast commissioning
- Data up-to-dateness of the position value ≤ 1µs, resolution 21 bits fully digital, short control cycles
 - ► More efficiency for drive regulation
- Robust bearing structure in Safety-Lock™ design
 - ► Resistant to installation errors, shocks and vibrations



Scan the QR code for further information

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 outstanding reliability.

Exactly these characteristics make the optical Sendix 5873 encoder in its Motor-Line version the ideal solution for gearless drives.









Functional Safety



Kübler's extensive product portfolio of rotary and linear position and motion sensors, with the matching safe encoder evaluation devices, provides the basis for safe application-specific drive solutions. However, safe single components alone do not ensure a safe global application. Legally compliant safety already begins when planning the machine, and this is why the Kübler Service technicians and engineers offer a wide range of supports both for the plant manufacturer and for the operator.

Encoders for Functional Safety

The matter Functional Safety Technology is simplified by the certified encoders of the Sendix SIL family, which includes both incremental, absolute and ATEX / IECEx encoders.

Functional Safety has become an integral part of mechanical engineering. With a view to machinery Directive 2006/42/EC, Kübler also provides MTTF values for its standard encoders.

This allows the user to perform his own calculations in compliance with standard EN ISO 13849-1.



Safety modules

The safe encoder evaluation devices of the Safety-M family include single compact, standalone devices for simple applications as well as modular extendable compact controllers that can be connected via a gateway to any higher-level control system.

This allows realizing flexible safety release circuits integrating a safe speed and position monitoring to achieve simple machine safety. Kübler's technical safety solutions meet all high safety and reliability requirements.



Safety services

Operators of machines or plants can be exposed to increased hazard potentials. These potentials can be mitigated with suitable protective equipment and safety measures.

Safety Services by Kübler will support you with custom-tailored service packages during the whole service life cycle of your machine / plant.



Analog and safe

Safety-M modular, expansion modules EMIO.SAI

Analog inputs. The EMIO.SAI expansion modules of the Safety-M modular series are suitable for the monitoring of analog sensors.

They process safely voltage, current and temperature signals, allowing their use in many different applications.







Characteristics and advantages at a glance

- Monitoring of min./max. values or measuring ranges
 - ► For torque, force sensors or pressure monitoring
- · Removable chip
 - ► Configuration data is saved, no data loss in case of device replacement
- · Status LED on the front side
 - ► Easy local diagnostics
- Pt100 temperature signals (-200°C...+850°C)
 - ► For safe temperature monitoring, e. g. max. temperature for touch protection



Scan the QR code for further information

Applications

Machine and plant manufacturers are increasingly using safety technology to ensure safe interaction between man and machine. This leads to the emergence of new requirements and machine concepts. The expansion modules of the Safety-M modular series convince through important functions and are easy to implement.

These modules are used in the following applications: Cranes, wind power plants, machine and plant engineering, rides and packaging technology.









Ethernet transmissionSlip ring SR120

Three chamber system. The slip ring SR120 is ideal for applications requiring high transmission rates. The three chamber system allows parallel transmission of signals, load, data and Ethernet. Various connection possibilities and a robust and modular design ensure flexible and reliable operation. Thanks to its proven contact technology, this slip ring requires very little maintenance and boasts a particularly long service life.





Characteristics and advantages at a glance

- · Robust: aluminum or stainless steel housing, high IP64 protection level, high-quality seals
- ► Reliable operation in harsh environments, no penetration of liquids
- · Transmission of fieldbus, Ethernet and video signals
 - ► Reliable thanks to interference-proof transmission
- Up to 20 channels (load and current), media lead-through in air or hydraulic version
 - ► Ensures high versatility and flexibility at the same time
- · Wide variety of connector and cable connections available
 - ► Fast and easy installation



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. Being exposed to harsh environments, the slip rings must ensure reliable operation.

The slip ring SR120 is used for example in the following applications: Industrial automation, bottling plants, labeling machines and video surveillance systems.









Robust and flexibleSlip ring SR160

Solutions. The slip ring SR160 is perfectly suited for use in bottling plants and labeling machines. Its robust modular design and many various connection possibilities allow creating an individual product. The innovative contact technology ensures long operation with very little maintenance.



Characteristics and advantages at a glance

- · Robust: aluminum or stainless steel housing
 - ► Reliable operation in harsh environments, withstands chemical cleaning agents
- · High IP65 protection level, high-quality seals
 - ► No penetration of liquids
- Up to 20 channels (load and current), media lead-through in air or hydraulic version
 - ► Ensures high versatility and flexibility at the same time
- · Wide variety of connector and cable connections available
 - ► Fast and easy installation



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. Being exposed to harsh environments, the slip rings must ensure reliable operation.

The slip ring SR160 is predestined for the following applications: Bottling plants and labeling machines.









Powerful and compactDouble 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.









Battery powered

Pulse and time preset counter type 901

Service life 8 years. The reworked pulse preset counter 901 has been supplemented by the time preset counter function and is therefore the perfect replacement for electromechanical preset counters. Fitted with a wide-range 12 ... 250 V AC/DC (electrically separated) counting and reset input or, as a new version, with NPN inputs, this device can count, display and process pulses or times autonomously thanks to internal lithium cells.





Characteristics and advantages at a glance

- · Adding or subtracting counting modes
 - For displaying produced quantities or times, as well as remaining quantities and times
- Now with extended temperature range from -20° ... +65°
 - For use also in harsh industrial environments
- · Wide-range counting and reset input
 - Replacement for counters with many different voltage variants
- Programmable time units, decimal point
 - ► For the acquisition in the required unit
- Very simple preset setting and operating structure
 - ► Can be installed and operated without prior knowledge



Scan the QR code for further information

Applications

Counting and control of quantities and production operations (e. g. number of punches or cuts) on production machines (e. g. row counters for knitting machines), packaging units and operating times (e. g. monitoring of service times for filter or oil

replacement), processing times (e. g. dwell time in hardening or baking ovens), pulse generator (e. g. for pasture fences, autonomous).









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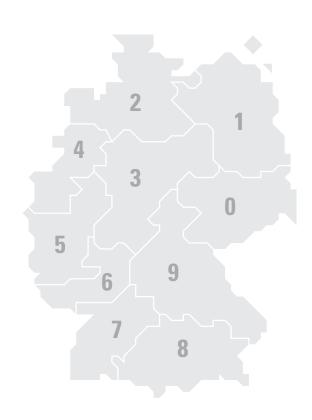
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