

## КАТАЛОГ

MEASUREMENT



EVALUATION



TRANSMISSION



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## Our pulses for innovations



The Kübler Group is one of the world's leading manufacturers and specialists for encoders and sensors to measure position, motion, and inclination, as well as slip rings for transmitting power, signals, and data.

The portfolio of premium products is rounded off by counters, process devices, and reliable speed monitors to record and evaluate various measured variables.

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

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.

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

Over 500 dedicated people worldwide make this success possible and ensure that customers can continue to place their trust in our company.





## Product portfolio – Made in Germany



### MEASUREMENT

Rotary speed and position detection, linear position, and speed measurement as well as inclination angle detection.

- Encoders
- Bearingless encoders
- Motor Feedback Systems
- Linear measuring systems
- Shaft copying systems
- Inclometers

### TRANSMISSION

Reliable and interference-free transmission of power, signals, and data. Communication between control system and sensors.

- Slip rings
- Slip rings, customized solutions
- Signal converters and optical fiber modules
- Cables and connectors

### EVALUATION

Recording of quantities, counting of units of any kind, and reliable speed and position recording for functional safety.

- Displays and counters
- Process devices
- Safe speed monitors up to SIL3/PLe

We offer solutions for the following industries:



# MEASUREMENT



## ENCODERS

from page 8



## BEARINGLESS ENCODERS

from page 20



## MOTOR FEEDBACK SYSTEMS FOR SERVO MOTORS

from page 22

### **With Kübler you can reliably record every movement in your application.**

From rotary speed measurement and position detection to linear position and speed detection for lengths up to 42.5 m, and even the angle of inclination. Kübler sensors are the result of the highest quality awareness, careful material selection, and the guiding principle of always offering you added value. Our sensors are used in a variety of industries, creating trust worldwide with high performance, robustness, and long service life. Find the right sensor solution for your application.



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SYSTEMS**  
from page 24



**SHAFT COPYING  
SYSTEMS**  
from page 30



**INCLINOMETERS**  
from page 32



## Encoders

### Speed measurement and position detection using incremental and absolute encoders.

Choose the perfect encoder for your application from a variety of sizes and ordering options. The Sendix encoder – made in Germany – is the result of the highest quality awareness and careful selection of materials. It has proved its value in many industries as a robust and precise sensor technology. Design your plants, machines, or motors with Kübler. Your application is our priority: Your modifications and special solutions are implemented flexibly and quickly. We look forward to your challenge.



### Find the right Kübler accessories



Cables, connectors and pre-assembled cordsets



Fixing components for hollow shaft encoders:  
spring element, torque stop, stator coupling,  
tether arm, isolation insert



Fixing components for shaft encoders:  
flange, robust bearing unit, bearing box



Connection of motor and encoder:  
coupling, flexible shaft coupling



SSI displays, safe speed monitors



## Incremental encoders

|                                                                                     |                                                                                                                                  | Ø Dimensions in mm [inch] | Magnetic (accuracy ±1°) | Optical (accuracy ≤ ±0.015°) | Resolution max. in ppr | Push-pull | RS422 | SinCos | Open Collector | Ø Hollow shaft max. in mm [inch] | Speed max. in min <sup>-1</sup> | Temperature range in °C [°F]  | Protection max. | Type of connection                  | Power supply in V DC                            | Pulse frequency max. in kHz | RoHS compliant | Approvals                               |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|---------------------------|-------------------------|------------------------------|------------------------|-----------|-------|--------|----------------|----------------------------------|---------------------------------|-------------------------------|-----------------|-------------------------------------|-------------------------------------------------|-----------------------------|----------------|-----------------------------------------|
|    | Miniature, optical<br><b>2400</b> (shaft)<br><b>2420</b> (hollow shaft)                                                          | 24<br>[0.94]              | –                       | •                            | 1.024                  | •         | –     | –      | –              | 6                                | 12.000                          | -20 ... +85<br>[-4 ... +185]  | IP64            | cable                               | 5 ... 24<br>8 ... 30                            | 160                         | •              | cUL <sub>US</sub>                       |
|    | Miniature, magnetic<br><b>2430</b> (shaft)<br><b>2440</b> (hollow shaft)                                                         | 24<br>[0.94]              | •                       | –                            | 256                    | –         | •     | –      | –              | 6                                | 12.000                          | -20 ... +85<br>[-4 ... +185]  | IP64            | cable                               | 5                                               | 300                         | •              | –                                       |
|    | Compact, optical<br><b>Sendix Base KIS40</b> (shaft)<br><b>Sendix Base KIH40</b> (hollow s.)                                     | 40<br>[1.57]              | –                       | •                            | 2.560                  | •         | •     | –      | •              | 8                                | 4.500                           | -20 ... +70<br>[-4 ... +158]  | IP64            | cable                               | 5 ... 30<br>10 ... 30                           | 250                         | •              | cUL <sub>US</sub>                       |
|    | Compact, optical<br><b>3610</b> (shaft)<br><b>3620</b> (hollow shaft)                                                            | 36<br>[1.43]              | –                       | •                            | 2.500                  | •         | •     | –      | –              | 8                                | 12.000                          | -20 ... +85<br>[-4 ... +185]  | IP64            | cable<br>M12                        | 5 ... 18<br>8 ... 30                            | 300                         | •              | cUL <sub>US</sub>                       |
|  | Standard, optical<br><b>Sendix 5000</b> (shaft)<br><b>Sendix 5020</b> (hollow shaft)<br><b>24one</b> <sup>1)</sup>               | 58<br>[2.28]              | –                       | •                            | 5.000                  | •         | •     | –      | •              | 15<br>15.87                      | 12.000                          | -40 ... +85<br>[-40 ... +185] | IP67            | cable<br>M12<br>M23<br>MIL<br>Sub-D | 5 ... 30<br>10 ... 30                           | 300                         | •              | cUL <sub>US</sub><br>Ex <sub>2/22</sub> |
|  | Standard, optical<br><b>Sendix Base KIS50</b> (shaft)<br><b>Sendix Base KIH50</b> (hollow s.)                                    | 58<br>[2.28]              | –                       | •                            | 5.000                  | •         | •     | –      | •              | 15                               | 6.000                           | -20 ... +70<br>[-4 ... +158]  | IP65            | cable<br>M12<br>M23                 | 5 ... 30<br>4.7 ... 30<br>5 ... 30<br>10 ... 30 | 300                         | •              | CE                                      |
|  | Standard, optical<br>high temperature<br><b>5803</b> (shaft)<br><b>5823</b> (hollow shaft)                                       | 58<br>[2.28]              | –                       | •                            | 5.000                  | •         | •     | –      | –              | 12                               | 12.000                          | -20 ... +110<br>[-4 ... +230] | IP65            | cable<br>M23<br>MIL                 | 5 ... 10<br>10 ... 30                           | 300                         | •              | cUL <sub>US</sub>                       |
|  | Standard, optical<br>sine wave output + reference signal<br><b>5804</b> (shaft)<br><b>5824</b> (hollow shaft)                    | 58<br>[2.28]              | –                       | •                            | 5.000                  | –         | –     | •      | –              | 12                               | 12.000                          | -20 ... +85<br>[-4 ... +185]  | IP65            | cable<br>M23                        | 5 ... 10<br>10 ... 30                           | 180                         | •              | cUL <sub>US</sub>                       |
|  | Standard, optical<br>sine wave output,<br>highly interpolable<br><b>Sendix 5814</b> (shaft)<br><b>Sendix 5834</b> (hollow shaft) | 58<br>[2.28]              | –                       | •                            | 1.024<br>and<br>2.048  | –         | –     | •      | –              | 15                               | 12.000                          | -40 ... +90<br>[-40 ... +194] | IP67            | cable<br>M12                        | 5 ... 10<br>10 ... 30                           | 400                         | •              | cUL <sub>US</sub>                       |
|  | Standard, optical<br>Motor-Line<br><b>Sendix 5834</b> (tapered shaft)                                                            | 58<br>[2.28]              | –                       | •                            | 1.024<br>and<br>2.048  | –         | –     | •      | –              | 10<br>tap.<br>shaft              | 12.000                          | -40 ... +90<br>[-40 ... +194] | IP67            | cable<br>PCB<br>connector           | 5 ... 10<br>10 ... 30                           | 400                         | •              | cUL <sub>US</sub>                       |

1) 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.



## Incremental encoders

|                                                                                     |                                                                                                                            | Ø Dimensions in mm [inch] | Magnetic (accuracy ±1°) | Optical (accuracy ≤ ±0.015°) | Resolution max. in ppr | Push-pull | RS422 | SinCos | Open Collector | Ø Hollow shaft max. in mm [inch] | Speed max. in min <sup>-1</sup> | Temperature range in °C [°F]  | Protection max. | Type of connection  | Power supply in V DC       | Pulse frequency max. in kHz | RoHS compliant | Approvals                                                                             |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|---------------------------|-------------------------|------------------------------|------------------------|-----------|-------|--------|----------------|----------------------------------|---------------------------------|-------------------------------|-----------------|---------------------|----------------------------|-----------------------------|----------------|---------------------------------------------------------------------------------------|
|    | Standard, optical<br>sine wave output, SIL2 / PLd<br><b>Sendix 5814FS2</b> (shaft)<br><b>Sendix 5834FS2</b> (hollow shaft) | 58<br>[2.28]              | –                       | •                            | 1.024<br>and<br>2.048  | –         | –     | •      | –              | 14                               | 12.000                          | -40 ... +90<br>[-40 ... +194] | IP67            | cable<br>M12<br>M23 | 5<br>10 ... 30             | 400                         | •              |    |
|    | Standard, optical<br>sine wave output, SIL3 / PLe<br><b>Sendix 5814FS3</b> (shaft)<br><b>Sendix 5834FS3</b> (hollow shaft) | 58<br>[2.28]              | –                       | •                            | 1.024<br>and<br>2.048  | –         | –     | •      | –              | 14                               | 12.000                          | -40 ... +90<br>[-40 ... +194] | IP67            | cable<br>M12<br>M23 | 5<br>10 ... 30             | 400                         | •              |    |
|   | Standard, optical<br>high resolution<br><b>5805</b> (shaft)<br><b>5825</b> (hollow shaft)                                  | 58<br>[2.28]              | –                       | •                            | 36.000                 | •         | •     | –      | –              | 12                               | 12.000                          | -20 ... +105<br>[-4 ... +221] | IP65            | cable<br>M23        | 5<br>10 ... 30             | 800                         | •              |   |
|  | Standard, optical<br>stainless-steel<br><b>Sendix 5006</b> (shaft)<br><b>Sendix 5026</b> (hollow shaft)                    | 58<br>[2.28]              | –                       | •                            | 5.000                  | •         | •     | –      | –              | 15                               | 6.000                           | -40 ... +85<br>[-40 ... +185] | IP67            | cable<br>M12        | 5<br>5 ... 30<br>10 ... 30 | 300                         | •              |  |
|  | Standard, optical<br>ATEX / IECEx – zone 1/21<br><b>7000</b> (shaft)<br><b>7020</b> (hollow shaft)                         | 70<br>[2.76]              | –                       | •                            | 5.000                  | •         | •     | –      | –              | 14                               | 6.000                           | -40 ... +60<br>[-40 ... +140] | IP67            | cable               | 5<br>5 ... 30<br>10 ... 30 | 300                         | •              |  |
|  | Standard, optical<br>ATEX / IECEx – mining<br><b>7100</b> (shaft)<br><b>7120</b> (hollow shaft)                            | 70<br>[2.76]              | –                       | •                            | 5.000                  | •         | •     | –      | –              | 14                               | 6.000                           | -40 ... +60<br>[-40 ... +140] | IP67            | cable               | 5<br>5 ... 30<br>10 ... 30 | 300                         | •              |  |

## Incremental encoders

|                                                                                    |                                                                     | Ø Dimensions in mm [inch] | Magnetic (accuracy ±1°) | Optical (accuracy ≤ ±0.015°) | Resolution max. in ppr | Push-pull | RS422 | SinCos | Open Collector | Ø Hollow shaft max. in mm [inch] | Speed max. in min <sup>-1</sup> | Temperature range in °C [°F]   | Protection max. | Type of connection                | Power supply in V DC       | Pulse frequency max. in kHz | RoHS compliant | Approvals               |
|------------------------------------------------------------------------------------|---------------------------------------------------------------------|---------------------------|-------------------------|------------------------------|------------------------|-----------|-------|--------|----------------|----------------------------------|---------------------------------|--------------------------------|-----------------|-----------------------------------|----------------------------|-----------------------------|----------------|-------------------------|
|   | Large hollow shaft, optical<br><b>A020</b> (hollow shaft)           | 100<br>[3.94]             | –                       | •                            | 5.000                  | •         | •     | •      | –              | 42                               | 3.000                           | -40 ... +70<br>[-40 ... +140]  | IP65            | cable<br>M12<br>M23               | 5<br>5 ... 30<br>10 ... 30 | 300                         | •              | cUL <sub>US</sub>       |
|   | Large hollow shaft, optical<br>robust<br><b>A02H</b> (hollow shaft) | 100<br>[3.94]             | –                       | •                            | 5.000                  | •         | •     | •      | –              | 42                               | 6.000                           | -40 ... +80<br>[-40 ... +176]  | IP65            | cable<br>M12<br>M23<br>MIL        | 5<br>5 ... 30<br>10 ... 30 | 300                         | •              | cUL <sub>US</sub><br>GL |
|  | Heavy Duty, optical<br><b>Sendix H120</b> (hollow shaft)            | 100<br>[3.94]             | –                       | •                            | 5.000                  | •         | •     | –      | –              | 28                               | 6.000                           | -40 ... +100<br>[-40 ... +212] | IP67            | cable <sup>1)</sup><br>M12<br>M23 | 5<br>10 ... 30             | 300                         | •              | –                       |

1) With terminal box.

# Absolute encoders Singleturn

|                                                                                     |                                                                                                        | Ø Dimensions in mm [inch] | Magnetic (accuracy ±1°) | Optical (accuracy ≤ ±0.015°) | Resolution max. in bit | SSI | BISS<br>INTERFACE | Analog<br>output                       | IO-Link | Additional incremental track | Speed max. in min <sup>-1</sup> | Temperature range in °C [°F]  | Protection max. | Type of connection | Power supply in V DC   | RoHS compliant | Approvals    |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|---------------------------|-------------------------|------------------------------|------------------------|-----|-------------------|----------------------------------------|---------|------------------------------|---------------------------------|-------------------------------|-----------------|--------------------|------------------------|----------------|--------------|
|    | Miniature, magnetic<br><b>2450</b> (shaft)<br><b>2470</b> (hollow shaft)                               | 24<br>[0.94]              | •                       | –                            | 12                     | •   | –                 | –                                      | –       | –                            | 12.000                          | -20 ... +85<br>[-4 ... +185]  | IP64            | cable              | 5                      | •              | –            |
|    | Compact, magnetic<br><b>Sendix M3651A</b> (shaft)<br><b>Sendix M3671A</b> (hollow shaft)               | 36<br>[1.43]              | •                       | –                            | 12                     | –   | –                 | 4 ... 20 mA<br>0 ... 10 V<br>0 ... 5 V | –       | –                            | 6.000                           | -40 ... +85<br>[-40 ... +185] | IP67            | cable<br>M12       | 10 ... 30<br>15 ... 30 | •              | E1<br>cUL US |
|    | Compact, magnetic<br><b>Sendix M3653A</b> (shaft)<br><b>Sendix M3673A</b> (hollow shaft)               | 36<br>[1.43]              | •                       | –                            | 14                     | •   | –                 | –                                      | –       | –                            | 6.000                           | -40 ... +85<br>[-40 ... +185] | IP67            | cable<br>M12       | 10 ... 30              | •              | cUL US       |
|  | <b>new</b><br>Compact, magnetic<br><b>Sendix M3658A</b> (shaft)<br><b>Sendix M3678A</b> (hollow shaft) | 36<br>[1.43]              | •                       | –                            | 14                     | –   | –                 | –                                      | •       | –                            | 6.000                           | -40 ... +85<br>[-40 ... +185] | IP67            | M12                | 18 ... 30              | •              | cUL US       |
|  | <b>new</b><br>Compact, magnetic<br>robust<br><b>Sendix M3651AR</b> (shaft)                             | 36<br>[1.43]              | •                       | –                            | 12                     | –   | –                 | 4 ... 20 mA<br>0 ... 10 V<br>0 ... 5 V | –       | –                            | 4.000                           | -40 ... +85<br>[-40 ... +185] | IP69k           | cable<br>M12       | 10 ... 30<br>15 ... 30 | •              | E1<br>cUL US |
|  | <b>new</b><br>Compact, magnetic<br>robust<br><b>Sendix M3653AR</b> (shaft)                             | 36<br>[1.43]              | •                       | –                            | 14                     | •   | –                 | –                                      | –       | –                            | 4.000                           | -40 ... +85<br>[-40 ... +185] | IP69k           | cable<br>M12       | 10 ... 30              | •              | cUL US       |
|  | Compact, optical<br><b>Sendix F3653</b> (shaft)<br><b>Sendix F3673</b> (hollow shaft)                  | 36<br>[1.43]              | –                       | •                            | 17                     | •   | •                 | –                                      | –       | Sin Cos<br>RS422             | 12.000                          | -40 ... +90<br>[-40 ... +194] | IP67            | cable<br>M12       | 5<br>10 ... 30         | •              | cUL US       |
|  | Standard, magnetic<br><b>Sendix M5851A</b> (shaft)                                                     | 58<br>[2.28]              | •                       | –                            | 12                     | –   | –                 | 4 ... 20 mA<br>0 ... 10 V<br>0 ... 5 V | –       | –                            | 4.000                           | -40 ... +85<br>[-40 ... +185] | IP65            | cable<br>M12       | 10 ... 30<br>15 ... 30 | •              | E1<br>cUL US |
|  | Standard, magnetic<br><b>Sendix M5853A</b> (shaft)                                                     | 58<br>[2.28]              | •                       | –                            | 14                     | •   | –                 | –                                      | –       | –                            | 4.000                           | -40 ... +85<br>[-40 ... +185] | IP65            | cable<br>M12       | 10 ... 30              | •              | cUL US       |
|  | <b>new</b><br>Standard, magnetic<br><b>Sendix M5858A</b> (shaft)                                       | 58<br>[2.28]              | •                       | –                            | 14                     | –   | –                 | –                                      | •       | –                            | 4.000                           | -40 ... +85<br>[-40 ... +185] | IP65            | M12                | 18 ... 30              | •              | cUL US       |

## Absolute encoders Singleturn

|                                                                                     |                                                                                                                | Ø Dimensions in mm [inch] | Magnetic (accuracy ±1°) | Optical (accuracy ≤ ±0.015°) | Resolution max. in bit | SSI | BISS<br>INTERFACE | Parallel interface | Additional incremental track | Speed max. in min <sup>-1</sup> | Temperature range in °C [°F]  | Protection max. | Type of connection        | Power supply in V DC          | RoHS compliant | Approvals                                                                                                                                                                      |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|---------------------------|-------------------------|------------------------------|------------------------|-----|-------------------|--------------------|------------------------------|---------------------------------|-------------------------------|-----------------|---------------------------|-------------------------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | Standard, optical<br>parallel, highspeed<br><b>5852</b> (shaft)<br><b>5872</b> (hollow shaft)                  | 58<br>[2.28]              | –                       | •                            | 14                     | –   | –                 | •                  | –                            | 12.000                          | -20 ... +85<br>[-4 ... +185]  | IP66            | cable<br>M23              | 5<br>10 ... 30                | •              |                                                                                             |
|    | Standard, optical<br><b>Sendix 5853</b> (shaft)<br><b>Sendix 5873</b> (hollow shaft)                           | 58<br>[2.28]              | –                       | •                            | 21                     | •   | •                 | –                  | Sin Cos<br>RS422             | 12.000                          | -40 ... +90<br>[-40 ... +194] | IP67            | cable<br>M12<br>M23       | 5<br>10 ... 30                | •              |                                                                                             |
|    | Standard, optical<br>Motor-Line<br><b>Sendix 5873</b> (Konuswelle)                                             | 58<br>[2.28]              | –                       | •                            | 21                     | •   | •                 | –                  | SinCos<br>RS422              | 12.000                          | -40 ... +90<br>[-40 ... +194] | IP65            | cable<br>PCB<br>connector | 5<br>10 ... 30<br>4.5 ... 5.5 | •              |                                                                                             |
|  | Standard, optical<br>SIL2/PLd<br><b>Sendix 5853FS2</b> (shaft)<br><b>Sendix 5873FS2</b> (hollow shaft)         | 58<br>[2.28]              | –                       | •                            | 17                     | •   | •                 | –                  | Sin Cos                      | 12.000                          | -40 ... +90<br>[-40 ... +194] | IP67            | cable<br>M23              | 5<br>10 ... 30                | •              | <br> |
|  | Standard, optical<br>SIL3/PLe<br><b>Sendix 5853FS3</b> (shaft)<br><b>Sendix 5873FS3</b> (hollow shaft)         | 58<br>[2.28]              | –                       | •                            | 17                     | •   | •                 | –                  | Sin Cos                      | 12.000                          | -40 ... +90<br>[-40 ... +194] | IP67            | cable<br>M23              | 5<br>10 ... 30                | •              | <br> |
|  | Standard, optical<br>ATEX/IECEx – zone 1/21<br><b>Sendix 7053</b> (shaft)<br><b>Sendix 7073</b> (hollow shaft) | 70<br>[2.76]              | –                       | •                            | 17                     | •   | •                 | –                  | –                            | 6.000                           | -40 ... +60<br>[-40 ... +140] | IP67            | cable                     | 10 ... 30                     | •              | <br> |
|  | Standard, optical<br>ATEX/IECEx – mining<br><b>Sendix 7153</b> (shaft)<br><b>Sendix 7173</b> (hollow shaft)    | 70<br>[2.76]              | –                       | •                            | 17                     | •   | •                 | –                  | –                            | 6.000                           | -40 ... +60<br>[-40 ... +140] | IP67            | cable                     | 10 ... 30                     | •              | <br> |



Absolute encoders  
Singleturn  
Fieldbus

|                                                                                     |                                                                                                                                                                             | Ø Dimensions in mm [inch] | Magnetic (accuracy ±1°) | Optical (accuracy ≤ ±0.015°) | Resolution max. in bit | CANopen | SAE J1939 | PROFIBUS | Speed max. in min <sup>-1</sup> | Temperature range in °C [°F]  | Protection max. | Type of connection  | Power supply in V DC | RoHS compliant | Approvals              |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-------------------------|------------------------------|------------------------|---------|-----------|----------|---------------------------------|-------------------------------|-----------------|---------------------|----------------------|----------------|------------------------|
|    | Compact, magnetic<br><b>Sendix M3658A</b> (shaft)<br><b>Sendix M3678A</b> (hollow shaft)                                                                                    | 36<br>[1.43]              | •                       | –                            | 14                     | •       | •         | –        | 6.000                           | -40 ... +85<br>[-40 ... +185] | IP67            | cable<br>M12        | 10 ... 30            | •              | CE<br>UL <sub>US</sub> |
|    | Compact, magnetic,<br>robust<br><b>Sendix M3658AR</b> (shaft)                                                                                                               | 36<br>[1.43]              | •                       | –                            | 14                     | •       | •         | –        | 4.000                           | -40 ... +85<br>[-40 ... +185] | IP69k           | cable<br>M12        | 10 ... 30            | •              | CE<br>UL <sub>US</sub> |
|    | Compact, optical<br><b>Sendix F3658</b> (shaft)<br><b>Sendix F3678</b> (hollow shaft)                                                                                       | 36<br>[1.43]              | –                       | •                            | 16                     | •       | –         | –        | 12.000                          | -40 ... +85<br>[-40 ... +185] | IP67            | cable               | 10 ... 30            | •              | CE<br>UL <sub>US</sub> |
|  | Standard, optical<br><b>Sendix 5858</b> (shaft)<br><b>Sendix 5878</b> (hollow shaft)<br> | 58<br>[2.28]              | –                       | •                            | 16                     | •       | –         | •        | 9.000                           | -40 ... +85<br>[-40 ... +185] | IP67            | cable<br>M12<br>M23 | 10 ... 30            | •              | CE<br>UL <sub>US</sub> |
|  | Standard, magnetic<br><b>Sendix M5858A</b> (shaft)                                                                                                                          | 58<br>[2.28]              | •                       | –                            | 14                     | •       | •         | –        | 4.000                           | -40 ... +85<br>[-40 ... +185] | IP65            | cable<br>M12        | 10 ... 30            | •              | CE<br>UL <sub>US</sub> |
|  | Standard, optical<br>ATEX/IECEx – zone 1/21<br><b>Sendix 7058</b> (shaft)<br><b>Sendix 7078</b> (hollow shaft)                                                              | 70<br>[2.76]              | –                       | •                            | 16                     | •       | –         | •        | 6.000                           | -40 ... +60<br>[-40 ... +140] | IP67            | cable               | 10 ... 30            | •              | Ex<br>IECEx            |
|  | Standard, optical<br>ATEX/IECEx – mining<br><b>Sendix 7158</b> (shaft)<br><b>Sendix 7178</b> (hollow shaft)                                                                 | 70<br>[2.76]              | –                       | •                            | 16                     | •       | –         | •        | 6.000                           | -40 ... +60<br>[-40 ... +140] | IP67            | cable               | 10 ... 30            | •              | Ex<br>IECEx            |

# Absolute encoders Singleturn Industrial Ethernet

|                                                                                    |                                                                                                                 | Ø Dimensions in mm [inch] | Magnetic (accuracy ±1°) | Optical (accuracy ≤ ±0.015°) | Resolution max. in bit        | EtherCAT <sup>®</sup><br>Conformance tested | PROFINET <sup>®</sup> | PowerLine <sup>®</sup> | EtherNet/IP <sup>®</sup> | Speed max. in min <sup>-1</sup> | Temperature range in °C [°F]  | Protection max. | Type of connection | Power supply in V DC | RoHS compliant | Approvals                                                                                               |
|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|---------------------------|-------------------------|------------------------------|-------------------------------|---------------------------------------------|-----------------------|------------------------|--------------------------|---------------------------------|-------------------------------|-----------------|--------------------|----------------------|----------------|---------------------------------------------------------------------------------------------------------|
|   | Standard, optical<br><b>Sendix 5858</b> (shaft)<br><b>Sendix 5878</b> (hollow shaft)                            | 58<br>[2.28]              | –                       | •                            | 16                            | •                                           | •                     | –                      | –                        | 9.000                           | -40 ... +85<br>[-40 ... +185] | IP67            | M12                | 10 ... 30            | •              | c                    |
|   | Standard, optical<br>electronic singleturn<br><b>Sendix F5858</b> (shaft)<br><b>Sendix F5878</b> (hollow shaft) | 58<br>[2.28]              | –                       | •                            | 19                            | –                                           | •                     | –                      | •                        | 9.000                           | -40 ... +80<br>[-40 ... +176] | IP67            | M12                | 10 ... 30            | •              | c                    |
|  | Standard, optical<br><b>Sendix S5858</b> (shaft)<br><b>Sendix S5878</b> (hollow shaft)                          | 58<br>[2.28]              | –                       | •                            | 15 (safe)<br>24<br>(non safe) | –                                           | •                     | •                      | –                        | 9.000                           | -40 ... +80<br>[-40 ... +176] | IP67            | M12                | 10 ... 30            | •              | c <br>SIL3<br>PL e |

# Absolute encoders Multiturn

|                                                                                     |                                                                                                             | Ø Dimensions in mm [inch] | Magnetic (accuracy ±1°) | Optical (accuracy ≤ ±0.015°) | Resolution max. in bit ST+MT | SSI | BISS<br>INTERFACE | Analog<br>output                       | IO-Link | Additional incremental track | Speed max. in min <sup>-1</sup> | Temperature range in °C [°F]  | Protection max. | Type of connection  | Power supply in V DC   | RoHS compliant | Approvals                                                                             |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|---------------------------|-------------------------|------------------------------|------------------------------|-----|-------------------|----------------------------------------|---------|------------------------------|---------------------------------|-------------------------------|-----------------|---------------------|------------------------|----------------|---------------------------------------------------------------------------------------|
|    | Compact, magnetic electronic multiturn<br><b>Sendix M3661</b> (shaft)<br><b>Sendix M3681</b> (hollow shaft) | 36<br>[1.43]              | •                       | –                            | 12+16                        | –   | –                 | 4 ... 20 mA<br>0 ... 10 V<br>0 ... 5 V | –       | –                            | 6.000                           | -40 ... +85<br>[-40 ... +185] | IP67            | cable<br>M12        | 10 ... 30<br>15 ... 30 | •              |    |
|    | Compact, magnetic electronic multiturn<br><b>Sendix M3663</b> (shaft)<br><b>Sendix M3683</b> (hollow shaft) | 36<br>[1.43]              | •                       | –                            | 14+24                        | •   | –                 | –                                      | –       | –                            | 6.000                           | -40 ... +85<br>[-40 ... +185] | IP67            | cable<br>M12        | 10 ... 30              | •              |    |
|    | Compact, magnetic electronic multiturn<br><b>Sendix M3668</b> (shaft)<br><b>Sendix M3688</b> (hollow shaft) | 36<br>[1.43]              | •                       | –                            | 14+18                        | –   | –                 | –                                      | •       | –                            | 6.000                           | -40 ... +85<br>[-40 ... +185] | IP67            | M12                 | 18 ... 30              | •              |    |
|  | Compact, magnetic robust, electronic multiturn<br><b>Sendix M3661R</b> (shaft)                              | 36<br>[1.43]              | •                       | –                            | 12+16                        | –   | –                 | 4 ... 20 mA<br>0 ... 10 V<br>0 ... 5 V | –       | –                            | 4.000                           | -40 ... +85<br>[-40 ... +185] | IP69k           | cable<br>M12        | 10 ... 30<br>15 ... 30 | •              |  |
|  | Compact, magnetic robust, electronic multiturn<br><b>Sendix M3663R</b> (shaft)                              | 36<br>[1.43]              | •                       | –                            | 14+24                        | •   | –                 | –                                      | –       | –                            | 4.000                           | -40 ... +85<br>[-40 ... +185] | IP69k           | cable<br>M12        | 10 ... 30              | •              |  |
|  | Compact, optical electronic multiturn<br><b>Sendix F3663</b> (shaft)<br><b>Sendix F3683</b> (hollow shaft)  | 36<br>[1.43]              | –                       | •                            | 17+24                        | •   | •                 | –                                      | –       | SinCos<br>RS422              | 12.000                          | -40 ... +90<br>[-40 ... +194] | IP67            | cable<br>M12        | 5<br>10 ... 30         | •              |  |
|  | Standard, optical mechanical multiturn<br><b>Sendix 5863</b> (shaft)<br><b>Sendix 5883</b> (hollow shaft)   | 58<br>[2.28]              | –                       | •                            | 19+12                        | •   | •                 | –                                      | –       | SinCos<br>RS422              | 12.000                          | -40 ... +90<br>[-40 ... +194] | IP67            | cable<br>M12<br>M23 | 5<br>10 ... 30         | •              |  |
|  | Standard, magnetic electronic multiturn<br><b>Sendix M5861</b> (shaft)                                      | 58<br>[2.28]              | •                       | –                            | 12+16                        | –   | –                 | 4 ... 20 mA<br>0 ... 10 V<br>0 ... 5 V | –       | –                            | 4.000                           | -40 ... +85<br>[-40 ... +185] | IP65            | cable<br>M12        | 10 ... 30<br>15 ... 30 | •              |  |
|  | Standard, magnetic electronic multiturn<br><b>Sendix M5863</b> (shaft)                                      | 58<br>[2.28]              | •                       | –                            | 14+24                        | •   | –                 | –                                      | –       | –                            | 4.000                           | -40 ... +85<br>[-40 ... +185] | IP65            | cable<br>M12        | 10 ... 30              | •              |  |
|  | Standard, magnetic electronic multiturn<br><b>Sendix M5868</b> (shaft)                                      | 58<br>[2.28]              | •                       | –                            | 14+18                        | –   | –                 | –                                      | •       | –                            | 4.000                           | -40 ... +85<br>[-40 ... +185] | IP65            | M12                 | 18 ... 30              | •              |  |

# Absolute encoders Multiturn

|                                                                                     |                                                                                                                                        | Ø Dimensions in mm [inch] | Magnetic (accuracy ±1°) | Optical (accuracy ≤ ±0.015°) | Resolution max. in bit ST+MT | SSI             | BiSS<br>INTERFACE | Analog<br>output | Additional incremental track | Speed max. in min <sup>-1</sup> | Temperature range in °C [°F]  | Protection max. | Type of connection  | Power supply in V DC | RoHS compliant | Approvals                                                                                                                                                                      |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-------------------------|------------------------------|------------------------------|-----------------|-------------------|------------------|------------------------------|---------------------------------|-------------------------------|-----------------|---------------------|----------------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | Standard, optical<br>electronic multiturn<br><b>Sendix F5863</b> (shaft)<br><b>Sendix F5883</b> (hollow shaft)                         | 58<br>[2.28]              | –                       | •                            | 17 +24                       | •               | •                 | –                | SinCos<br>RS422              | 12.000                          | -40 ... +85<br>[-40 ... +185] | IP67            | cable<br>M12<br>M23 | 5<br>10 ... 30       | •              | c                                                                                           |
|    | Standard, optical<br>Motor-Line<br>electronic multiturn<br><b>Sendix F5883M</b> (hollow shaft)                                         | 58<br>[2.28]              |                         | •                            | 17 +24                       | •               | –                 | –                | SinCos<br>RS422              | 9.000                           | -40 ... +85<br>[-40 ... +185] | IP65            | cable               | 5<br>10 ... 30       | •              | c                                                                                           |
|    | Standard, optical<br>mechanical multiturn<br>SIL2 / PLd<br><b>Sendix 5863FS2</b> (shaft)<br><b>Sendix 5883FS2</b> (hollow shaft)       | 58<br>[2.28]              | –                       | •                            | 17 +12                       | •               | •                 | –                | SinCos                       | 12.000                          | -40 ... +90<br>[-40 ... +194] | IP67            | cable<br>M23        | 5<br>10 ... 30       | •              | c <br>SIL2<br>PLd                                                                           |
|   | Standard, optical<br>mechanical multiturn<br>SIL3 / PLe<br><b>Sendix 5863FS3</b> (shaft)<br><b>Sendix 5883FS3</b> (hollow shaft)       | 58<br>[2.28]              | –                       | •                            | 17 +12                       | •               | •                 | –                | SinCos                       | 12.000                          | -40 ... +90<br>[-40 ... +194] | IP67            | cable<br>M23        | 5<br>10 ... 30       | •              | c <br>SIL3<br>PLe                                                                         |
|  | Standard, optical<br>mechanical multiturn<br>ATEX/IECEx – zone 1/21<br><b>Sendix 7063</b> (shaft)<br><b>Sendix 7083</b> (hollow shaft) | 70<br>[2.76]              |                         | •                            | 17 +12                       | •               | •                 | –                | –                            | 6.000                           | -40 ... +60<br>[-40 ... +140] | IP67            | cable               | 10 ... 30            | •              | <br> |
|  | Standard, optical<br>mechanical multiturn<br>ATEX/IECEx – mining<br><b>Sendix 7163</b> (shaft)<br><b>Sendix 7183</b> (hollow shaft)    | 70<br>[2.76]              |                         | •                            | 17 +12                       | •               | •                 | –                | –                            | 6.000                           | -40 ... +60<br>[-40 ... +140] | IP67            | cable               | 10 ... 30            | •              | <br> |
|  | Large hollow shaft<br><b>AX</b>                                                                                                        | –                         | • <sup>1)</sup>         | • <sup>1)</sup>              | 17 + 24                      | • <sup>1)</sup> | • <sup>1)</sup>   | • <sup>1)</sup>  | • <sup>1)</sup>              | 4.500                           | –                             | IP64            | • <sup>1)</sup>     | • <sup>1)</sup>      | •              | –                                                                                                                                                                              |

1) Depends on the encoder used.

Absolute encoders  
Multiturn  
Fieldbus

|                                                                                     |                                                                                                                                     | Ø Dimensions in mm [inch] | Magnetic (accuracy ±1°) | Optical (accuracy ≤ ±0.015°) | Resolution max. in bit ST+MT | CANopen | CANopen LIFT | SAE J1939 | PROFIBUS | Modbus | Speed max. in min <sup>-1</sup> | Temperature range in °C [°F]  | Protection max. | Type of connection    | Power supply in V DC | RoHS compliant | Approvals                                                                             |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-------------------------|------------------------------|------------------------------|---------|--------------|-----------|----------|--------|---------------------------------|-------------------------------|-----------------|-----------------------|----------------------|----------------|---------------------------------------------------------------------------------------|
|    | Compact, magnetic electronic multiturn<br><b>Sendix M3668</b> (shaft)<br><b>Sendix M3688</b> (hollow shaft)                         | 36<br>[1.43]              | •                       | –                            | 14 + 29                      | •       | –            | •         | –        | –      | 6.000                           | -40 ... +85<br>[-40 ... +185] | IP67            | cable<br>M12          | 10 ... 30            | •              |    |
|    | Compact, magnetic, robust, electronic multiturn<br><b>Sendix M3668R</b> (shaft)                                                     | 36<br>[1.43]              | •                       | –                            | 14 + 29                      | •       | –            | •         | –        | –      | 4.000                           | -40 ... +85<br>[-40 ... +185] | IP69k           | cable<br>M12          | 10 ... 30            | •              |    |
|    | Compact, optical electronic multiturn<br><b>Sendix F3668</b> (shaft)<br><b>Sendix F3688</b> (hollow shaft)                          | 36<br>[1.43]              | –                       | •                            | 16 + 16                      | •       | –            | –         | –        | –      | 12.000                          | -40 ... +85<br>[-40 ... +185] | IP67            | cable                 | 10 ... 30            | •              |    |
|  | Standard, optical mechanical multiturn<br><b>Sendix 5868</b> (shaft)<br><b>Sendix 5888</b> (hollow shaft)                           | 58<br>[2.28]              | –                       | •                            | 16 + 12                      | •       | •            | –         | •        | –      | 9.000                           | -40 ... +85<br>[-40 ... +185] | IP67            | cable<br>M12<br>Sub-D | 10 ... 30            | •              |  |
|  | Standard, magnetic electronic multiturn<br><b>Sendix M5868</b> (shaft)                                                              | 58<br>[2.28]              | •                       | –                            | 14 + 29                      | •       | –            | •         | –        | –      | 4.000                           | -40 ... +85<br>[-40 ... +185] | IP65            | cable<br>M12          | 10 ... 30            | •              |  |
|  | Standard, optical electronic multiturn<br><b>Sendix F5868</b> (shaft)<br><b>Sendix F5888</b> (hollow shaft)                         | 58<br>[2.28]              | –                       | •                            | 16 + 16                      | •       | –            | –         | –        | •      | 12.000                          | -40 ... +80<br>[-40 ... +176] | IP67            | cable<br>M12          | 10 ... 30            | •              |  |
|  | Standard, optical Motor-Line electronic multiturn<br><b>Sendix F5888M</b> (hollow shaft)                                            | 58<br>[2.28]              | –                       | •                            | 19 + 24                      | •       | –            | –         | –        | –      | 9.000                           | -40 ... +85<br>[-40 ... +185] | IP65            | cable                 | 10 ... 30            | •              |  |
|  | Standard, optical mechanical multiturn<br>ATEX/IECEx – zone 1/21<br><b>Sendix 7068</b> (shaft)<br><b>Sendix 7088</b> (hollow shaft) | 70<br>[2.76]              | –                       | •                            | 16 + 12                      | •       | –            | –         | •        | –      | 6.000                           | -40 ... +60<br>[-40 ... +140] | IP67            | cable                 | 10 ... 30            | •              |  |
|  | Standard, optical mechanical multiturn<br>ATEX/IECEx – mining<br><b>Sendix 7168</b> (shaft)<br><b>Sendix 7188</b> (hollow shaft)    | 70<br>[2.76]              | –                       | •                            | 16 + 12                      | •       | –            | –         | •        | –      | 6.000                           | -40 ... +60<br>[-40 ... +140] | IP67            | cable                 | 10 ... 30            | •              |  |



Absolute encoders  
Multiturn  
Industrial Ethernet

|                                                                                     |                                                                                                                | Ø Dimensions in mm [inch] | Magnetic (accuracy ±1°) | Optical (accuracy ≤ ±0.015°) | Resolution max. in bit ST+MT             | EtherCAT <sup>®</sup><br>Conformance tested | PROFINET <sup>®</sup> | PowerLine | EtherNet/IP <sup>®</sup> | Speed max. in min <sup>-1</sup> | Temperature range in °C [°F]  | Protection max. | Type of connection | Power supply in V DC | RoHS compliant | Approvals                                                                                                 |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|---------------------------|-------------------------|------------------------------|------------------------------------------|---------------------------------------------|-----------------------|-----------|--------------------------|---------------------------------|-------------------------------|-----------------|--------------------|----------------------|----------------|-----------------------------------------------------------------------------------------------------------|
|    | Standard, optical<br>mechanical multiturn<br><b>Sendix 5868</b> (shaft)<br><b>Sendix 5888</b> (hollow shaft)   | 58<br>[2.28]              | —                       | •                            | 16 +12                                   | •                                           | •                     | —         | —                        | 9.000                           | -40 ... +85<br>[-40 ... +185] | IP67            | M12                | 10 ... 30            | •              | c  US                  |
|                                                                                     |                               |                           |                         |                              |                                          |                                             |                       |           |                          |                                 |                               |                 |                    |                      |                |                                                                                                           |
|    | Standard, optical<br>electronic multiturn<br><b>Sendix F5868</b> (shaft)<br><b>Sendix F5888</b> (hollow shaft) | 58<br>[2.28]              | —                       | •                            | 16 +16                                   | —                                           | •                     | —         | •                        | 12.000                          | -40 ... +80<br>[-40 ... +176] | IP67            | M12                | 10 ... 30            | •              | c  US                  |
|                                                                                     |                              |                           |                         |                              |                                          |                                             |                       |           |                          |                                 |                               |                 |                    |                      |                |                                                                                                           |
|  | Standard, optical<br>electronic multiturn<br><b>Sendix S5868</b> (shaft)<br><b>Sendix S5888</b> (hollow shaft) | 58<br>[2.28]              | —                       | •                            | 15 (safe)<br>24<br>(non safe)<br>+<br>12 | —                                           | •                     | •         | —                        | 9.000                           | -40 ... +80<br>[-40 ... +176] | IP67            | M12                | 10 ... 30            | •              | c  US<br>STL3<br>PLe |
|                                                                                     |                             |                           |                         |                              |                                          |                                             |                       |           |                          |                                 |                               |                 |                    |                      |                |                                                                                                           |



## Bearingless encoders

### Reliable speed measuring with magnetic sensor solution.

Bearingless encoders are the perfect alternative to bearing mounted encoders, due to their compact design and easy mounting options on almost any shaft diameter. Bearingless encoders from Kübler are already used today in drive and elevator technology, for asynchronous motors or external rotor motors, or in generators, large motors, and wind turbines. Our smart technology is available for the highest signal quality. Digital real-time signal processing compensates for possible signal errors and optimizes drive control. Design your plants, machines, or motors with Kübler!




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Find the right Kübler accessories



Cables, connectors and pre-assembled cordsets



Position displays



Magnetic rings in different diameters

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## Bearingless encoders Magnetic Incremental

Bearingless encoders  
Magnetic  
Incremental

|                                                                                     |                                                                                    | Distance sensor head/<br>magnetic ring max. in mm          | Pole distance magnetic ring in mm | Hollow shaft max. in mm ["] | Resolution max. in ppr | Accuracy max. | Speed max. in min <sup>-1</sup> | Push-Pull<br>HTL | RS422<br>TTL | Temperature range in °C [°F] | Protection max.               | Type of connection | Power supply in V DC | Pulse frequency max. in kHz | RoHS compliant |   |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------|-----------------------------------|-----------------------------|------------------------|---------------|---------------------------------|------------------|--------------|------------------------------|-------------------------------|--------------------|----------------------|-----------------------------|----------------|---|
| new                                                                                 |   | <b>RIM200</b> (hollow shaft)                               | 1                                 | 2                           | 390                    | 999.999       | ±0.02°                          | 12.000           | •            | •                            | -25 ... +85<br>[-13 ... +185] | IP68/<br>IP69k     | cable                | 4.8 ... 26.4                | 250            | • |
| new                                                                                 |   | <b>RIM500</b> (hollow shaft)                               | 2                                 | 5                           | 350                    | 999.999       | ±0.02°                          | 12.000           | •            | •                            | -25 ... +85<br>[-13 ... +185] | IP68/<br>IP69k     | cable                | 4.8 ... 26.4                | 250            | • |
| new                                                                                 |   | <b>RIM2000</b> (hollow shaft)<br>Programmable in the field | 1                                 | 2                           | 390                    | 999.999       | ±0.02°                          | 12.000           | •            | •                            | -25 ... +85<br>[-13 ... +185] | IP68/<br>IP69k     | cable                | 4.8 ... 26.4                | 250            | • |
| new                                                                                 |  | <b>RIM5000</b> (hollow shaft)<br>Programmable in the field | 2                                 | 5                           | 350                    | 999.999       | ±0.02°                          | 12.000           | •            | •                            | -25 ... +85<br>[-13 ... +185] | IP68/<br>IP69k     | cable                | 4.8 ... 26.4                | 250            | • |
|  |                                                                                    | <b>Programming unit</b><br>For programming in the field    |                                   |                             |                        |               |                                 |                  |              |                              |                               |                    |                      |                             |                |   |



## Motor Feedback Systems for servo motors

**A constant dimension of 36.5 mm means enormous benefits for you.**

With requirements from industry and many years of experience in drive technology, Kübler presents its new product family of Motor Feedback Systems. Kübler has developed its Motor Feedback Systems in close cooperation with prominent manufacturers of servo motors and converters. They are based on a unique platform that offers a multitude of possibilities and benefits for servo motors. From the reduction in number of motor variants and the standardization of the mechanical connection between encoder and drive to cost savings along the entire value chain. You also get maximum flexibility when selecting the electrical interfaces.

Motor Feedback Systems

|                                                                                   |                                                                                                       | ø Dimensions in mm [inch] | Optical (accuracy ≤ ±0.015°) | Resolution max. in bit | RS485<br>S <sub>1</sub> U <sub>2</sub> Cos 1) | BiSS<br>INTERFACE | Speed max. in min <sup>-1</sup> | Temperature range in °C [°F]    | Protection max. | Type of connection    | Power supply in V DC | RoHS compliant |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------|------------------------------|------------------------|-----------------------------------------------|-------------------|---------------------------------|---------------------------------|-----------------|-----------------------|----------------------|----------------|
|  | Singleturn Motor-Line compact, optical / magnetic<br><b>Sendix S3674</b><br>(hub shaft/tapered shaft) | 36                        | •                            | 24 ST                  | •                                             | •                 | 12.000                          | -40 ... +120<br>[-40 ... + 248] | IP40            | PCB connector, radial | 5<br>7 ... 30        | •              |
|                                                                                   | Multiturn Motor-Line compact, optical / magnetic<br><b>Sendix S3684</b><br>(hub shaft/tapered shaft)  | 36                        | •                            | 24 ST<br>+ 12 MT       | •                                             | •                 | 12.000                          | -40 ... +120<br>[-40 ... + 248] | IP40            | PCB connector, radial | 5<br>7 ... 30        | •              |



## Linear measuring technology

### Linear position and speed measurement realized with different technologies.

Whether incremental or absolute – Kübler offers both magnetically robust and optically precise measuring solutions. Our portfolio ranges from a large selection of draw-wire encoders and magnetic length measuring systems to measuring wheel systems and SIL3 certified shaft copying systems. Kübler always provides you with the optimum sensor technology for your application. That's why we have countless ordering options and the readiness to realize modifications and special solutions for you.

#### Find the right Kübler accessories



Cables, connectors and pre-assembled cordsets



For draw-wire encoders:  
guide pulley, extension wire



For magnetoc measuring systems:  
displays



Accessories for measuring wheel systems:  
O-rings, mounting brackets



System components for measuring wheel systems:  
measuring wheels, encoder spring arms, rack and pinion



## Draw-wire encoders

|                                                                                     |                | Measuring length max. in m | Dimensions mechanics<br>in mm [inch]<br>Depth depending on sensor type | Linearity max.<br>[±% of measuring range] | Traverse speed max. in m/s | Wire diameter in mm [inch] | Temperature range in °C [°F]  | Protection (sensor) max. | Compatible with<br>Sensix encoder | Interchangeable installation | Absolute digital | Absolute analog | Incremental | Redundant sensors | Integrated inclinometer | Type of connection  |
|-------------------------------------------------------------------------------------|----------------|----------------------------|------------------------------------------------------------------------|-------------------------------------------|----------------------------|----------------------------|-------------------------------|--------------------------|-----------------------------------|------------------------------|------------------|-----------------|-------------|-------------------|-------------------------|---------------------|
| <b>Performance Line</b>                                                             |                |                            |                                                                        |                                           |                            |                            |                               |                          |                                   |                              |                  |                 |             |                   |                         |                     |
|    | <b>A50</b>     | 1.25                       | 50 x 50<br>[1.97 x 1.97]                                               | ±0.02                                     | 10                         | 0.5                        | -20 ... +85<br>[-4...+185]    | IP65                     | •                                 | –                            | •                | •               | •           | –                 | –                       | cable<br>M12        |
|    | <b>B80</b>     | 3                          | 80 x 80<br>[3.15 x 3.15]                                               | ±0.02                                     | 10                         | 0.5                        | -20 ... +85<br>[-4...+185]    | IP65                     | •                                 | •                            | •                | •               | •           | –                 | –                       | cable<br>M12<br>M23 |
|    | <b>C120</b>    | 6                          | 120 x 120<br>[4.72 x 4.72]                                             | ±0.02                                     | 10                         | 0.5                        | -20 ... +85<br>[-4...+185]    | IP65                     | •                                 | •                            | •                | •               | •           | –                 | –                       | cable<br>M12<br>M23 |
|   | <b>D135</b>    | 42.5                       | 135 x 135<br>[5.32 x 5.32]                                             | ±0.02                                     | 10                         | 0.5                        | -20 ... +85<br>[-4...+185]    | IP65                     | •                                 | •                            | •                | •               | •           | –                 | –                       | cable<br>M12<br>M23 |
| <b>Robust Line</b>                                                                  |                |                            |                                                                        |                                           |                            |                            |                               |                          |                                   |                              |                  |                 |             |                   |                         |                     |
|  | <b>C60</b>     | 4                          | 60 x 60<br>[2.36 x 2.36]                                               | ±0.1                                      | 3                          | 1                          | -40 ... +85<br>[-40...+185]   | IP69k                    | –                                 | –                            | •                | •               | •           | •                 | –                       | cable<br>M12        |
|  | <b>D120</b>    | 10                         | 120 x 120<br>[4.72 x 4.72]                                             | ±0.1                                      | 3                          | 1.5                        | -40 ... +85<br>[-40...+185]   | IP69k                    | –                                 | –                            | •                | •               | •           | •                 | –                       | cable<br>M12        |
| <b>Compact Line</b>                                                                 |                |                            |                                                                        |                                           |                            |                            |                               |                          |                                   |                              |                  |                 |             |                   |                         |                     |
|  | <b>A30</b>     | 0.6                        | 30 x 30<br>[1.18 x 1.18]                                               | ±0.35                                     | 0.8                        | 0.36                       | -10 ... +80<br>[+14 ... +176] | IP50                     | –                                 | –                            | –                | •               | –           | –                 | –                       | cable               |
|  | <b>A40/A41</b> | 2                          | 41 x 41<br>[1.61 x 1.61]                                               | ±0.25                                     | 1                          | 0.45                       | -10 ... +80<br>[+14 ... +176] | IP65                     | •                                 | –                            | •                | •               | •           | –                 | –                       | cable<br>M12<br>M23 |
|  | <b>B75</b>     | 3                          | 75 x 75<br>[2.95 x 2.95]                                               | ±0.2                                      | 0.8                        | 0.6                        | -40 ... +85<br>[-40...+185]   | IP65                     | •                                 | •                            | •                | •               | •           | •                 | –                       | cable<br>M12<br>M23 |
|  | <b>C105</b>    | 6                          | 105 x 85<br>[4.13 x 3.35]                                              | ±0.2                                      | 3                          | 0.6                        | -20 ... +85<br>[-4...+185]    | IP65                     | •                                 | •                            | •                | •               | •           | •                 | –                       | cable<br>M12<br>M23 |
| <b>Base Line</b>                                                                    |                |                            |                                                                        |                                           |                            |                            |                               |                          |                                   |                              |                  |                 |             |                   |                         |                     |
|  | <b>C100</b>    | 5                          | 100 x 100<br>[3.94 x 3.94]                                             | ±0.5                                      | 1                          | 0.9                        | -40 ... +85<br>[-40...+185]   | IP67                     | –                                 | –                            | •                | •               | •           | •                 | •                       | M12                 |
|  | <b>D125</b>    | 10                         | 125 x 125<br>[4.92 x 4.92]                                             | ±0.5                                      | 1                          | 0.9                        | -40 ... +85<br>[-40...+185]   | IP67                     | –                                 | –                            | •                | •               | •           | •                 | •                       | M12                 |

## Magnetic length measuring systems Incremental

|                                                                                     |                                                                                                  | Distance sensor head/<br>magnetic band max. in mm | Pole distance magnetic band in mm | Resolution max. in $\mu\text{m}$ | Speed max. in m/s | Accuracy in $\mu\text{m}$<br>for measuring length 1 m | Measuring length max. in m | Push-Pull<br>HTL | RS422<br>TTL | Temperature range in $^{\circ}\text{C}$ [ $^{\circ}\text{F}$ ] | Protection max. | Type of connection | Power supply in V DC     | RoHS compliant |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|---------------------------------------------------|-----------------------------------|----------------------------------|-------------------|-------------------------------------------------------|----------------------------|------------------|--------------|----------------------------------------------------------------|-----------------|--------------------|--------------------------|----------------|
|    | <b>Limes LI20/B1</b><br>(sensor head/magnetic band)                                              | 1                                                 | 2                                 | 10                               | 25                | 35                                                    | 70                         | •                | •            | -20 ... +85<br>[-4 ... +185]                                   | IP68/<br>IP69k  | cable              | 4.8 ... 26<br>4.8 ... 30 | •              |
|    | <b>Limes LI50/B2</b><br>(sensor head/magnetic band)                                              | 2                                                 | 5                                 | 5                                | 16                | 35                                                    | 70                         | •                | •            | -20 ... +85<br>[-4 ... +185]                                   | IP68/<br>IP69k  | cable              | 4.8 ... 26<br>4.8 ... 30 | •              |
|    | <b>Limes LI200/B1</b> <sup>1)</sup><br>(sensor head/magnetic band)                               | 1                                                 | 2                                 | 0.25                             | 40                | 35                                                    | 70                         | •                | •            | -20 ... +85<br>[-4 ... +185]                                   | IP68/<br>IP69k  | cable              | 4.8 ... 26.4             | •              |
|   | <b>Limes LI500/B2</b> <sup>1)</sup><br>(sensor head/magnetic band)                               | 2                                                 | 5                                 | 1.00                             | 40                | 35                                                    | 70                         | •                | •            | -20 ... +85<br>[-4 ... +185]                                   | IP68/<br>IP69k  | cable              | 4.8 ... 26.4             | •              |
|  | <b>Limes LI2000/B1</b> <sup>1)</sup><br>(sensor head/magnetic band)<br>Programmable in the field | 1                                                 | 2                                 | 0.25                             | 40                | 35                                                    | 70                         | •                | •            | -20 ... +85<br>[-4 ... +185]                                   | IP68/<br>IP69k  | cable              | 4.8 ... 26.4             | •              |
|  | <b>Limes LI5000/B2</b> <sup>1)</sup><br>(sensor head/magnetic band)<br>Programmable in the field | 2                                                 | 5                                 | 1.00                             | 40                | 35                                                    | 70                         | •                | •            | -20 ... +85<br>[-4 ... +185]                                   | IP68/<br>IP69k  | cable              | 4.8 ... 26.4             | •              |
|  | <b>Programming unit</b><br>For programming in the field                                          |                                                   |                                   |                                  |                   |                                                       |                            |                  |              |                                                                |                 |                    |                          |                |

1) Planned availability as of Q3/2024.

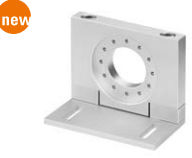
## Magnetic length measuring systems Absolute

|                                                                                     |                                                      | Distance sensor head/<br>magnetic band max. in mm | Pole distance magnetic band in mm | Resolution max. in $\mu\text{m}$ | Speed max. in m/s | Accuracy in $\mu\text{m}$<br>for measuring length 1 m | Measuring length max. in m | Incremental SinCos | Absolute SSI/BiSS | Absolute fieldbus | Temperature range in $^{\circ}\text{C}$ [ $^{\circ}\text{F}$ ] | Protection max. | Type of connection | Power supply in V DC | RoHS compliant |
|-------------------------------------------------------------------------------------|------------------------------------------------------|---------------------------------------------------|-----------------------------------|----------------------------------|-------------------|-------------------------------------------------------|----------------------------|--------------------|-------------------|-------------------|----------------------------------------------------------------|-----------------|--------------------|----------------------|----------------|
|  | <b>Limes LA10/BA1</b><br>(sensor head/magnetic band) | 2                                                 | 1                                 | 1                                | 10                | 30                                                    | 8                          | •                  | •                 | •                 | -10 ... +70<br>[+14 ... +158]                                  | IP64            | M12                | 10 ... 30            | •              |
|  | <b>Limes LA50/BA5</b><br>(sensor head/magnetic band) | 1.5                                               | 5                                 | 10                               | 4                 | 170                                                   | 20                         | –                  | •                 | •                 | -10 ... +70<br>[+14 ... +158]                                  | IP40            | cable              | 10 ... 30            | •              |

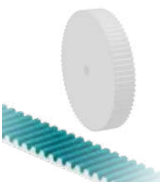
## Measuring wheel systems

| Measuring wheel systems                                                             |                                               | Spring force max. [N] | Spring travel max. [mm] | Flexible encoder mounting in 30° steps | Recommended incremental encoders | Recommended absolute encoders | Circumference measuring wheel |        |    |        |     | Surfaces measuring wheel |         |        |        |            |        |               |
|-------------------------------------------------------------------------------------|-----------------------------------------------|-----------------------|-------------------------|----------------------------------------|----------------------------------|-------------------------------|-------------------------------|--------|----|--------|-----|--------------------------|---------|--------|--------|------------|--------|---------------|
|                                                                                     |                                               |                       |                         |                                        |                                  |                               | 100 mm                        | 200 mm | 6" | 300 mm | 12" | 500 mm                   | Knurled | Smooth | Nubbed | Corrugated | O-ring | Double O-ring |
| Compact Line                                                                        |                                               |                       |                         |                                        |                                  |                               |                               |        |    |        |     |                          |         |        |        |            |        |               |
|    | <b>MWE11</b><br>Smallest size                 | 10                    | 10                      | –                                      | 2400                             | –                             | •                             | –      | –  | –      | –   | –                        | •       | •      | –      | –          | –      | –             |
|    | <b>MWE21</b><br>Adjustable preload            | 20                    | 16                      | •                                      | KIS40<br>3610                    | M366x<br>F366x                | –                             | •      | •  | –      | –   | –                        | •       | •      | –      | –          | •      | –             |
|   | <b>MWE31</b><br>Internal springs              | 15                    | 10                      | •                                      | KIS40<br>3610                    | M366x<br>F366x                | –                             | •      | •  | –      | –   | –                        | •       | •      | –      | –          | •      | –             |
| Performance Line                                                                    |                                               |                       |                         |                                        |                                  |                               |                               |        |    |        |     |                          |         |        |        |            |        |               |
|  | <b>MWE41</b><br>Internal springs              | 25                    | 10                      | •                                      | KIS50<br>5000<br>5805            | M586x<br>F586x<br>586x        | –                             | •      | –  | •      | •   | •                        | •       | •      | •      | •          | •      | •             |
|  | <b>MWE61</b><br>Highest contact force         | 40                    | 80                      | •                                      | KIS50<br>5000<br>5805            | M586x<br>F586x<br>586x        | –                             | •      | –  | •      | •   | •                        | •       | •      | •      | •          | •      | •             |
|  | <b>MWE62</b><br>Double measuring wheel system | 40                    | 80                      | •                                      | KIS50                            | –                             | –                             | •      | –  | •      | •   | •                        | •       | •      | •      | •          | •      | •             |

Measuring wheel systems  
System components  
Spring arms, spring bracket

|                                                                                     |                                                                                     | Spring force max. [N] | Spring travel max. [mm] | For encoder<br>Clamping flange / shaft | Circumference<br>Measuring wheel |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------|-------------------------|----------------------------------------|----------------------------------|
| <b>Compact Line</b>                                                                 |                                                                                     |                       |                         |                                        |                                  |
|    | <b>MWE20</b><br>Spring arm<br>Adjustable contact force<br>Flexible mounting options | 20                    | 16                      | ø 36 or 40 mm / ø 6 mm                 | 200 mm<br>6"                     |
|    | <b>MWE30</b><br>Spring bracket<br>Compact design<br>Internal springs                | 15                    | 10                      | ø 36 or 40 mm / ø 6 mm                 | 200 mm                           |
| <b>Performance Line</b>                                                             |                                                                                     |                       |                         |                                        |                                  |
|   | <b>MWE40</b><br>Spring bracket<br>Compact design<br>Internal springs                | 25                    | 10                      | ø 58 mm / ø 10 mm                      | 300 mm<br>12"                    |
|  | <b>MWE60</b><br>Spring arm<br>Highest contact force, adjustable                     | 40                    | 80                      | ø 58 mm / ø 10 mm                      | 200, 300, 500 mm<br>12"          |

# Measuring wheel systems System components Measuring wheels

|                                                                                     |                                                                                                                                                                           | Circumference / ø / width [mm] |                        |                        |                         |                                 |                                |                                 | Suitable for |      |         |       |                        |                  |                          |                      |                                               |                                        |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|------------------------|------------------------|-------------------------|---------------------------------|--------------------------------|---------------------------------|--------------|------|---------|-------|------------------------|------------------|--------------------------|----------------------|-----------------------------------------------|----------------------------------------|
|                                                                                     |                                                                                                                                                                           | 200 ±0.2 / Ø 63.7 / 5.5        | 200 ±0.2 / Ø 63.7 / 12 | 300 ±0.2 / Ø 95.5 / 12 | 500 ±1.0 / Ø 159.2 / 25 | 6" (152.4 ±0.2) / Ø 48.38 / 5.5 | 6" (152.4 ±0.2) / Ø 48.38 / 12 | 12" (304.8 ±0.2) / Ø 97.02 / 12 | Cardboard    | Wood | Textile | Paper | Plastic (PVC, PE, ...) | Painted surfaces | Carpet, cables, nonwoven | Rubber, soft plastic | Wire, greased metals, steel profiles, leather | Greased metals, glass, floor coverings |
|    | Diamond knurl (aluminum)                                                                                                                                                  | •                              | •                      | •                      | •                       | •                               | •                              | •                               | •            | •    | •       | –     | –                      | –                | –                        | •                    | –                                             | –                                      |
|    | Plastic (polyurethane) smooth                                                                                                                                             | •                              | •                      | •                      | •                       | •                               | –                              | •                               | •            | •    | •       | •     | •                      | •                | –                        | –                    | •                                             | –                                      |
|    | Single O-ring (NBR70)                                                                                                                                                     | •                              | •                      | •                      | –                       | •                               | –                              | •                               | •            | •    | •       | •     | •                      | •                | –                        | –                    | –                                             | –                                      |
|    | Double O-ring (NBR70)                                                                                                                                                     | –                              | •                      | •                      | –                       | –                               | –                              | •                               | •            | •    | •       | •     | •                      | •                | –                        | –                    | –                                             | –                                      |
|  | Tufted rubber (polyurethane)                                                                                                                                              | –                              | •                      | •                      | •                       | –                               | –                              | •                               | •            | •    | •       | •     | •                      | –                | •                        | –                    | –                                             | –                                      |
|  | Plastic (polyurethane) corrugated                                                                                                                                         | –                              | •                      | •                      | •                       | –                               | –                              | •                               | •            | •    | •       | •     | •                      | •                | –                        | –                    | –                                             | •                                      |
|  | Pinion with rack<br>• 100 % slip-free<br>• For encoder shaft 6 mm [0.24"] and 10 mm [0.39"]<br>• Rack 1 m [3.94"], stackable<br>• Pitch circumference = 50 mm [1.97"]     |                                |                        |                        |                         |                                 |                                |                                 |              |      |         |       |                        |                  |                          |                      |                                               |                                        |
|  | Belt pulley with Toothed belt<br>• 100 % slip-free<br>• For encoder size ø 58 mm [2.28"]<br>• Toothed belt up to 100 m [32.8']<br>• Pitch circumference = 360 mm [14.14"] |                                |                        |                        |                         |                                 |                                |                                 |              |      |         |       |                        |                  |                          |                      |                                               |                                        |



## Shaft copying systems

### **Absolute positioning of the elevator car for travel heights up to 392 m.**

The contactless absolute measuring system for shaft copying – also called shaft information or positioning system – has an extremely compact, very robust design. In addition to the sensor, which detects the position of the elevator car 100 % slip-free, it also includes the appropriate evaluation unit, a so-called Position Supervisor Unit (PSU). The safe system therefore consists of a SIL3-certified sensor and a suitable evaluation unit. This enables elevator and safety functions to be implemented in accordance with EN 81-20/21/50.

Find the right Kübler accessories



Coded band



Mounting kit consisting of:  
rail mounting, snap hook, tension spring, car mounting, mounting material



Configuration strips for LES03



EMC shield terminal



## Shaft copying systems

### Sensors

|                                                                                    |                                                                      | Measuring length max.<br>in m | Traverse speed max.<br>in m/s | SIL3 | EN 81 | ASME | Absolute | Resolution max. in mm | Dimensions in mm [inch]               | CANopen Lift (DS417) | CAN | SSI | RS485 | Protection level | Type of connection | Approvals                    |
|------------------------------------------------------------------------------------|----------------------------------------------------------------------|-------------------------------|-------------------------------|------|-------|------|----------|-----------------------|---------------------------------------|----------------------|-----|-----|-------|------------------|--------------------|------------------------------|
| <b>Ants Base</b>                                                                   |                                                                      |                               |                               |      |       |      |          |                       |                                       |                      |     |     |       |                  |                    |                              |
|   | <b>Ants LEB02</b><br>Absolute position detection                     | 392                           | 8                             | –    | •     | –    | •        | 1                     | 126 x 55 x 37<br>[4.96 x 2.71 x 1.46] | •                    | –   | •   | •     | IP54             | cable<br>Sub-D     |                              |
| <b>Ants Safe</b>                                                                   |                                                                      |                               |                               |      |       |      |          |                       |                                       |                      |     |     |       |                  |                    |                              |
|   | <b>Ants LES02</b><br>Safe position detection                         | 392                           | 12                            | •    | •     | –    | •        | 0.5                   | 126 x 55 x 37<br>[4.96 x 2.71 x 1.46] | –                    | •   | –   | –     | IP54             | cable              | SIL3<br>EN 81                |
|   | <b>Ants LES02D</b><br>Safe, redundant<br>position detection Dual CAN | 392                           | 12                            | •    | •     | •    | •        | 0.5                   | 126 x 55 x 37<br>[4.96 x 2.71 x 1.46] | –                    | •   | –   | –     | IP54             | cable<br>RJ45      | SIL3<br>EN 81<br>ASME<br>A17 |
|  | <b>Ants LES03</b><br>Safe position and speed detection               | 392                           | 12                            | •    | •     | –    | •        | 0.5                   | 126 x 55 x 37<br>[4.96 x 2.71 x 1.46] | –                    | •   | –   | –     | IP54             | cable              | SIL3<br>EN 81                |

## Shaft copying systems

### Safe systems

**SIL3**  
Functional Safety  
**EN 81**

Shaft copying systems

Safe systems

SIL3

Functional Safety

EN 81

|                                      |                                                                                     | Realizable elevator and safety functions                                                           |                    |                     |                         |               |                                         |                                               |                       |                                                       |                                                 |                                           |                                                    |                                                                       |                                                         |                                     |                                              |                      |                                               |                                       |                             |                                                                |  |
|--------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|--------------------|---------------------|-------------------------|---------------|-----------------------------------------|-----------------------------------------------|-----------------------|-------------------------------------------------------|-------------------------------------------------|-------------------------------------------|----------------------------------------------------|-----------------------------------------------------------------------|---------------------------------------------------------|-------------------------------------|----------------------------------------------|----------------------|-----------------------------------------------|---------------------------------------|-----------------------------|----------------------------------------------------------------|--|
|                                      |                                                                                     | Absolute position feedback                                                                         | Final limit switch | Retardation control | Unintended Car Movement | Door bridging | Two redundant signals for the door zone | Door zone signalization in case of evacuation | Overspeed pretripping | Triggering electromech. safety gear in case overspeed | Status control of electromechanical safety gear | Reset control of electromech. safety gear | Triggering safety gear in case of upwards movement | Triggering safety gear in case of activating emergency braking switch | Inspection limit switch within reduced shaft head / pit | Shield Modus: ensuring refuge space | Triggering switch for opening safety circuit | Reset device control | Refuge space during scaffoldless installation | Functional safety already from wiring | Overspeed during inspection | Safe configuration management for accelerated approval process |  |
| <div> <div></div> <div></div> </div> | <b>Safe-System LES02 / PSU02</b><br>Safety functions according to<br>EN 81-20/21/50 | •                                                                                                  | •                  | •                   | •                       | •             | •                                       | –                                             | •                     | –                                                     | –                                               | –                                         | –                                                  | –                                                                     | •                                                       | –                                   | –                                            | –                    | –                                             | •                                     | •                           | –                                                              |  |
|                                      | <div>new</div> <div> <div></div> <div></div> </div>                                 | <b>Safe-System LES03 / SGT02</b><br>Electronic overspeed governor                                  | •                  | –                   | –                       | –             | –                                       | –                                             | –                     | •                                                     | •                                               | •                                         | •                                                  | •                                                                     | •                                                       | •                                   | •                                            | •                    | •                                             | •                                     | •                           | •                                                              |  |
|                                      | <div>new</div> <div> <div></div> <div></div> </div>                                 | <b>Safe-System LES03 / SGT02 / PSU02</b><br>Safety functions with electronic<br>overspeed governor | •                  | •                   | •                       | •             | •                                       | •                                             | •                     | •                                                     | •                                               | •                                         | •                                                  | •                                                                     | •                                                       | •                                   | •                                            | •                    | •                                             | •                                     | •                           | •                                                              |  |

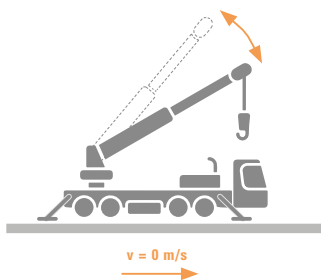


## Inclinometers

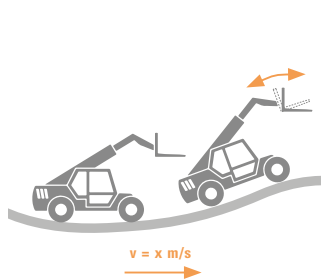
### Precise and reliable measuring – even in harsh environments.

The right solution for every application. Whether static or dynamic applications, Kübler offers the right sensor technology for both 1-axis and 2-axis inclination measurement. Compared to alternative measuring systems, inclinometers offer more flexibility and degrees of freedom in system design, as the sensor does not require a mechanical connection to a shaft or rotary axis. The advantage: simple installation and fewer sources of error. The sensors can be individually adapted to the respective application using simple tools.

#### Static applications



#### Dynamic applications



#### Find the right Kübler accessories



Cables, connectors and pre-assembled cordsets



Teach adapter



IO-Link Master USB



Parameterization software for FDT/10DD

## Inclinometers 1- and 2-axis measurement

|                                                                                     |                                                                                                                                                                         | Measuring angle max.,<br>1-dimensional | Measuring angle max.,<br>2-dimensional | Accuracy max. | Resolution max. | Analog<br>output | PNP/NPN | IO-Link           | CANopen           | SAE J1939 | Modbus | Parameterization via Easy Teach | Parameterization via FDT/IODD | Dimensions in mm [inch] | Temperature range in °C [°F] | Protection max. | Type of connection | RoHS compliant | Approvals                                                                                                                                                                           |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|----------------------------------------|---------------|-----------------|------------------|---------|-------------------|-------------------|-----------|--------|---------------------------------|-------------------------------|-------------------------|------------------------------|-----------------|--------------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>For static applications</b>                                                      |                                                                                                                                                                         |                                        |                                        |               |                 |                  |         |                   |                   |           |        |                                 |                               |                         |                              |                 |                    |                |                                                                                                                                                                                     |
|    | <br><b>IN61</b><br>Analog outputs,<br>plastic housing                                  | 360°                                   | ±85°                                   | ±0.2°         | 16 bit          | •                | –       | (•) <sup>1)</sup> | –                 | –         | –      | •                               | •                             | 71.6<br>x 62.6<br>x 20  | -40 ... +85<br>[-40... +185] | IP68/<br>IP69k  | M12                | •              | c  US                                                                                            |
|    | <br><b>IN62</b><br>2 switching outputs,<br>plastic housing                             | 360°                                   | ±85°                                   | ±0.2°         | 16 bit          | –                | •       | (•) <sup>1)</sup> | –                 | –         | –      | –                               | •                             | 71.6<br>x 62.6<br>x 20  | -40 ... +85<br>[-40... +185] | IP68/<br>IP69k  | M12                | •              | c  US                                                                                            |
|    | <br><b>IN68</b><br>IO-Link interface<br>(CANopen) <sup>1)</sup> ,<br>plastic housing   | 360°                                   | ±85°                                   | ±0.2°         | 0.01°           | –                | –       | •                 | (•) <sup>2)</sup> | –         | –      | –                               | •                             | 71.6<br>x 62.6<br>x 20  | -40 ... +85<br>[-40... +185] | IP68/<br>IP69k  | M12                | •              | c  US                                                                                            |
|                                                                                     | <br><b>IN81</b><br>Analog outputs,<br>metal housing                                  | 360°                                   | ±85°                                   | ±0.2°         | 12 bit          | •                | –       | –                 | –                 | –         | –      | •                               | –                             | 80<br>x 60<br>x 23      | -40 ... +85<br>[-40... +185] | IP67/<br>IP69k  | M12                | •              | <br>c  US |
|                                                                                     | <br><b>IN88</b><br>Fieldbus interface,<br>metal housing                              | 360°                                   | ±85°                                   | ±0.2°         | 0.01°           | –                | –       | –                 | •                 | •         | •      | –                               | –                             | 80<br>x 60<br>x 23      | -40 ... +85<br>[-40... +185] | IP67/<br>IP69k  | M12                | •              | <br>c  US |
| <b>For dynamic applications</b>                                                     |                                                                                                                                                                         |                                        |                                        |               |                 |                  |         |                   |                   |           |        |                                 |                               |                         |                              |                 |                    |                |                                                                                                                                                                                     |
|  | <br><b>IN71</b><br>Analog outputs,<br>plastic housing                                | 360°                                   | ±85°                                   | ±0.2°         | 16 bit          | •                | –       | (•) <sup>1)</sup> | –                 | –         | –      | •                               | •                             | 71.6<br>x 62.6<br>x 20  | -40 ... +85<br>[-40... +185] | IP68/<br>IP69k  | M12                | •              | c  US                                                                                          |
|  | <br><b>IN72</b><br>2 switching outputs,<br>plastic housing                           | 360°                                   | ±85°                                   | ±0.2°         | 16 bit          | –                | •       | (•) <sup>1)</sup> | –                 | –         | –      | –                               | •                             | 71.6<br>x 62.6<br>x 20  | -40 ... +85<br>[-40... +185] | IP68/<br>IP69k  | M12                | •              | c  US                                                                                          |
|  | <br><b>IN78</b><br>IO-Link interface<br>(CANopen) <sup>1)</sup> ,<br>plastic housing | 360°                                   | ±85°                                   | ±0.2°         | 0.01°           | –                | –       | •                 | (•) <sup>2)</sup> | –         | –      | –                               | •                             | 71.6<br>x 62.6<br>x 20  | -40 ... +85<br>[-40... +185] | IP68/<br>IP69k  | M12                | •              | c  US                                                                                          |

1) IO-Link communication for parameterization via FDT/IODD with corresponding software (e.g. PACTware).

2) Planned availability as of Q3/2024.

# TRANSMISSION

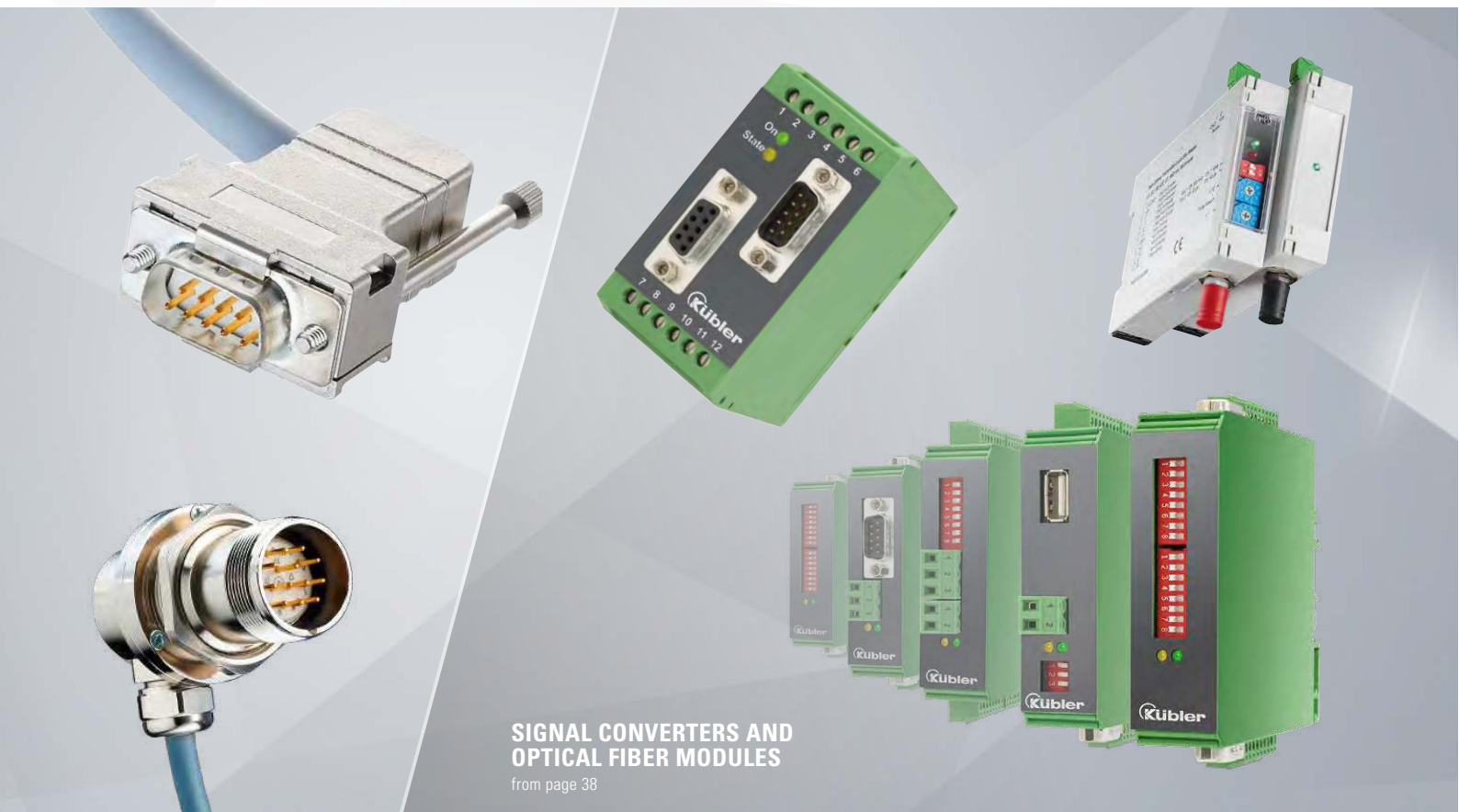


**SLIP RINGS**  
from page 36

**CABLES AND  
CONNECTORS**  
from page 40

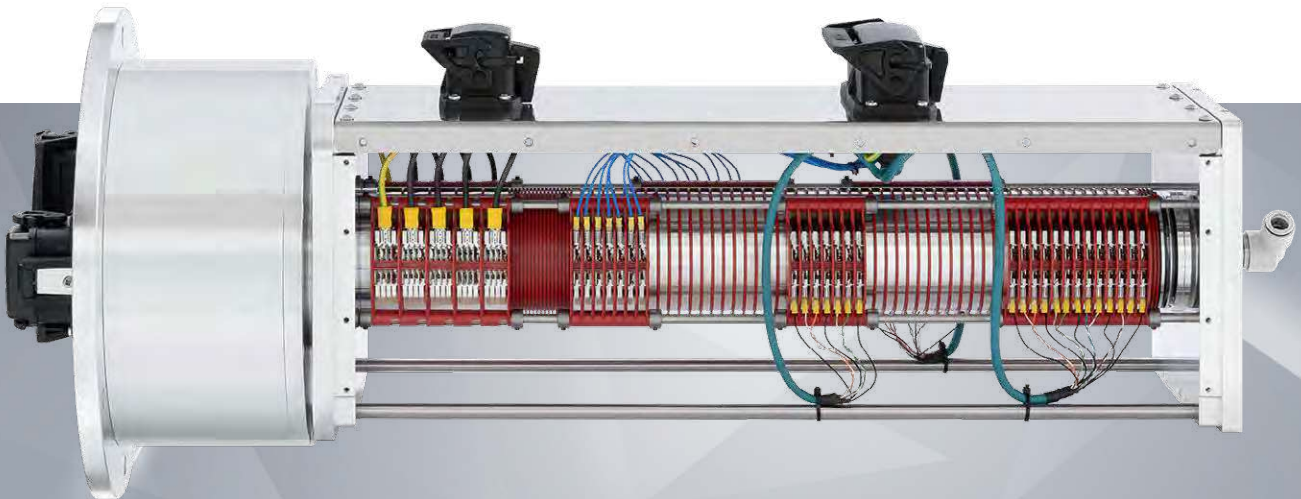
**With Kübler you can always reliably transmit power, signals, and data.**

The increasing degree of automation and the increasing networked communication demand trouble-free and reliable transmission. Kübler offers high-quality slip rings that transmit power, signals, data, and other media from stationary to rotating platforms. A broad portfolio of signal converters as well as suitable cable and plug connectors round off this offer. Find the right solution for your application.



**SIGNAL CONVERTERS AND  
OPTICAL FIBER MODULES**  
from page 38





## Slip rings

### Slip ring platform with Gigabit transmission

Due to the increasing networking of all components of a plant / machine and the associated complexity of machine controllers through to the implementation of Industry 4.0 / IIoT concepts such as Condition Monitoring, the demand for high-end data transmission is increasing. Following this trend, Kübler has developed a new, future-proof slip ring platform, which on the one hand is equipped with reliable „high-end“ transmission technology in a maximum compact design and on the other hand has a 1 Gbit module. This operates without further electronic components and thus enables interference-free, reliable and direct transmission.



In addition to the transmission of electrical currents as well as pneumatic and hydraulic, other functions for speed, position, vibration or temperature monitoring can be integrated into the slip ring concept. Such as Kübler incremental and absolute encoders or bearingless encoders.



## Slip rings

|                           |                                                                                     |                                                                                                                                                                                                                                                                                                                                                      | Power (load) | Signal/data<br>(analog/digital) | Pneumatics | Hydraulics | N° of channels max. | Ø Hollow shaft max. in mm | Load max.               | Protection max. | Speed max. in min <sup>-1</sup> | Temperature range<br>max. in °C [°F] |
|---------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------------------------|------------|------------|---------------------|---------------------------|-------------------------|-----------------|---------------------------------|--------------------------------------|
| <b>Base Line</b>          |                                                                                     |                                                                                                                                                                                                                                                                                                                                                      |              |                                 |            |            |                     |                           |                         |                 |                                 |                                      |
| <b>new</b>                |    | <b>Dimension 60 mm</b><br>compact, slim, low-maintenance,<br>standardized with a wide range of<br>options for 24/7 operation<br>New: Version with M12 connector                                                                                                                                                                                      | •            | •                               | –          | –          | 3 load<br>2 signal  | 25                        | 240 V<br>20 A           | IP64            | 500                             | 0 ... +75<br>[+32 ... +167]          |
|                           |    | <b>Dimension 60 mm, with UL approval</b><br>compact, slim, low-maintenance,<br>standardized with a wide range of<br>options for 24/7 operation                                                                                                                                                                                                       | •            | •                               | –          | –          | 3 load<br>2 signal  | 25                        | 240 V<br>16 A           | IP64            | 500                             | 0 ... +45<br>[+32 ... +113]          |
|                           |    | <b>Dimension 85 mm</b><br>modular, wide range of variants,<br>extreme service life, especially<br>for 24/7 operation                                                                                                                                                                                                                                 | •            | •                               | •          | •          | max. 20             | 30                        | 400 V<br>20 A<br>(25 A) | IP64            | 800                             | -35 ... +85<br>[-31 ... +185]        |
| <b>new</b>                |  | <b>Dimension 85 mm,<br/>for Industrial Ethernet up to 100 Mbit/s</b><br>modular, wide range of variants,<br>extreme service life, especially<br>for 24/7 operation<br><br><br> | •            | •                               | •          | •          | max. 20             | 30                        | 400 V<br>20 A<br>(25 A) | IP64            | 800                             | -35 ... +85<br>[-31 ... +185]        |
| <b>Industrial Line</b>    |                                                                                     |                                                                                                                                                                                                                                                                                                                                                      |              |                                 |            |            |                     |                           |                         |                 |                                 |                                      |
|                           |  | <b>Dimension 120 mm</b><br>customer-specific structure with a<br>modular construction, supports all<br>common fieldbuses<br>up to 1 Gbit/s<br><br>                                                                                                                | •            | •                               | •          | •          | on<br>request       | 25                        | 400 V<br>20 A<br>(25 A) | IP65            | 300                             | -35 ... +85<br>[-31 ... +185]        |
|                           |  | <b>Dimension 160 mm</b><br>customer-specific design with an<br>individual interface layout, up to<br>3 paths for gigabit<br>fieldbuses<br><br>                                                                                                                    | •            | •                               | •          | •          | on<br>request       | on<br>request             | 400 V<br>50 A           | IP67            | 150                             | -35 ... +85<br>[-31 ... +185]        |
|                           |  | <b>Dimension 250 mm and larger</b><br>100% customer-specific,<br>condition monitoring, integration<br>of sensor systems<br><br>                                                                                                                                   | •            | •                               | •          | •          | on<br>request       | on<br>request             | 1000 V<br>150 A         | IP67            | 150                             | -35 ... +85<br>[-31 ... +185]        |
| <b>Pancake slip rings</b> |                                                                                     |                                                                                                                                                                                                                                                                                                                                                      |              |                                 |            |            |                     |                           |                         |                 |                                 |                                      |
|                           |  | <b>Pancake slip rings</b><br>customer-specific design,<br>large hollow shaft,<br>extremely flat design                                                                                                                                                                                                                                               | •            | •                               | –          | –          | on<br>request       | on<br>request             | 60 VDC<br>5 A           | IP00            | 60                              | 0 ... +75<br>[+32 ... +167]          |





## Signal converters and optical fiber modules

### **Error-free and reliable signal transmission.**

Signal converters in various models and fiber optic modules enable reliable communication – with a wide variety of interfaces – between controllers and sensors. In addition to encoders, linear sensors, and inclinometers from Kübler, these products are a suitable addition to the overall range of sensors. Take advantage of the new possibilities for a comprehensive overall concept from a single source.

## Signal converters

|                                                                                     |                                          | Input signals                                      | Output signals                                       | Control inputs | Power supply in V DC | Encoder supply in V DC | Types of connection               | Protection max. | Working temperature max. in °C [°F] |
|-------------------------------------------------------------------------------------|------------------------------------------|----------------------------------------------------|------------------------------------------------------|----------------|----------------------|------------------------|-----------------------------------|-----------------|-------------------------------------|
|    | Level converter<br><b>PW 1D-1D</b>       | incremental<br>HTL/TTL/RS422                       | incremental<br>HTL/TTL/RS422                         | –              | 5 ... 30             | 5 ... 30               | screw terminals,<br>Sub-D         | IP20            | 0 ... +45<br>[+32 ... +113]         |
|    | Signal splitter<br><b>SP 1SC-2SC2D</b>   | SinCos                                             | SinCos,<br>incremental<br>HTL/TTL/RS422              | –              | 17 ... 30            | 5.2<br>5 ... 30        | screw terminals,<br>Sub-D         | IP20            | 0 ... +45<br>[+32 ... +113]         |
|    | Signal splitter<br><b>SP 2D-2D</b>       | incremental<br>HTL/TTL/RS422                       | incremental<br>HTL/TTL/RS422                         | 2              | 12 ... 30            | 5.2<br>10 ... 28       | screw terminals                   | IP20            | -20 ... +60<br>[-4 ... +140]        |
|   | Signal converter<br><b>SK 1A-1S1D2RS</b> | analog                                             | incremental<br>HTL/TTL/RS422,<br>RS232/RS485,<br>SSI | 4              | 12 ... 30            | –                      | screw terminals,<br>Sub-D,<br>USB | IP20            | 0 ... +45<br>[+32 ... +113]         |
|  | Signal converter<br><b>SK 1SC-1D</b>     | SinCos                                             | incremental<br>HTL/TTL/RS422                         | –              | 18 ... 30            | 5.2                    | screw terminals,<br>Sub-D         | IP20            | 0 ... +45<br>[+32 ... +113]         |
|  | Signal converter<br><b>SK 1S-1P</b>      | SSI                                                | parallel                                             | –              | 18 ... 36<br>5<br>12 | –                      | screw terminals,<br>Sub-D         | IP20            | 0 ... +50<br>[+32 ... +122]         |
|  | Signal converter<br><b>SK 1S1D-1A2RS</b> | incremental<br>HTL/TTL/RS422,<br>SSI               | analog,<br>RS232/RS485                               | 1              | 18 ... 30            | 5.5                    | screw terminals,<br>Sub-D         | IP20            | 0 ... +60<br>[+32 ... +140]         |
|  | Frequency divider<br><b>FT 1D-1D</b>     | incremental<br>HTL differential /<br>HTL/TTL/RS422 | incremental<br>HTL differential /<br>HTL/TTL/RS422   | –              | 9 ... 30             | 5.5                    | screw terminals                   | IP20            | 0 ... +60<br>[+32 ... +140]         |

Optical fiber modules  
(LWL)

|                                                                                     |                                                    | Interface    | Transmission distance<br>in m | Input frequency in kHz | Temperature range<br>in °C [°F] | Power supply in V DC | Power consumption<br>in W |
|-------------------------------------------------------------------------------------|----------------------------------------------------|--------------|-------------------------------|------------------------|---------------------------------|----------------------|---------------------------|
|  | Optical fiber module,<br>incremental<br><b>LWL</b> | RS422<br>HTL | 2.000                         | 400                    | -10 ... +60<br>[+14 ... +140]   | 5<br>10 ... 30       | 2                         |
|  | Optical fiber module,<br>absolute<br><b>LWL.A</b>  | SSI          | 2.000                         | 1000                   | -10 ... +70<br>[+14 ... +158]   | 5<br>10 ... 30       | 1                         |

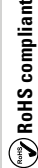


## Cables and connectors

### **The right connection technology for every application.**

Cables and connectors play a decisive role in the reliable operation of your systems, machines, or motors. High-quality and adaptable – this is what Kübler cables and connectors stand for. A comprehensive product range is available for selection, from cables as unassembled yard ware and self-assembly connectors such as M12, M23, MIL, Sub-D or RJ45, through to pre-assembled cable sets such as printed circuit board connectors.

Cables,  
unprepared,  
cut to length

| Cables,<br>unprepared,<br>cut to length                                             |                  | PVC cable | PUR cable | TPE cable | Cross section in mm <sup>2</sup>                                                                                                                                                             | Cable diameter in mm                                                       |  |  |  |  |  | Parallel, Parallel Highspeed |  |  | SAE J1939 |  |  | For ATEX zone 2/22 |  |
|-------------------------------------------------------------------------------------|------------------|-----------|-----------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------|-------------------------------------------------------------------------------------|
|                                                                                     |                  |           |           |           |                                                                                                                                                                                              |                                                                            |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                              |                                                                                     |                                                                                     |           |                                                                                     |                                                                                     |                    |                                                                                     |
|    | 2 core + shield  | —         | •         | —         | 2 x 0.34                                                                                                                                                                                     | appr. 7.6                                                                  | —                                                                                 | —                                                                                 | —                                                                                 | —                                                                                   | —                                                                                   | —                            | •                                                                                   | —                                                                                   | —         | —                                                                                   | —                                                                                   | —                  | •                                                                                   |
|    | 5 core + shield  | •         | •         | —         | 5 x 0.14<br>5 x 0.75                                                                                                                                                                         | appr. 4.7<br>appr. 7.5                                                     | —                                                                                 | —                                                                                 | —                                                                                 | —                                                                                   | —                                                                                   | —                            | —                                                                                   | •                                                                                   | •         | •                                                                                   | •                                                                                   | —                  | •                                                                                   |
|    | 6 core + shield  | •         | —         | —         | 3 x 2 x 0.25                                                                                                                                                                                 | appr. 6.2                                                                  | —                                                                                 | —                                                                                 | —                                                                                 | —                                                                                   | —                                                                                   | —                            | —                                                                                   | •                                                                                   | —         | —                                                                                   | —                                                                                   | —                  | •                                                                                   |
|   | 8 core + shield  | —         | •         | —         | 8 x 0.14<br>3 x 2 x 0.14 + 2 x 0.5                                                                                                                                                           | appr. 5.5<br>appr. 7.4                                                     | •                                                                                 | •                                                                                 | —                                                                                 | —                                                                                   | —                                                                                   | —                            | —                                                                                   | —                                                                                   | —         | —                                                                                   | —                                                                                   | —                  | •                                                                                   |
|  | 10 core + shield | —         | •         | —         | 4 x 2 x 0.25 + 2 x 1                                                                                                                                                                         | appr. 7.9                                                                  | •                                                                                 | •                                                                                 | —                                                                                 | —                                                                                   | —                                                                                   | —                            | —                                                                                   | —                                                                                   | —         | —                                                                                   | —                                                                                   | —                  | •                                                                                   |
|  | 12 core + shield | •         | •         | •         | 10 x 0.14 [AWG25] + 2 x 0.5 [AWG20]<br>12 x 0.14 [AWG25]<br>6 x 2 x 0.14 [AWG25]<br>5 x 2 x 0.14 [AWG25] + 2 x 0.5 [AWG20]<br>6 x 2 x 0.14 [AWG25]<br>4 x 0.1 [AWG27] + 4 x 2 x 0.14 [AWG25] | appr. 6.9<br>appr. 6.7<br>appr. 7.5<br>appr. 8.5<br>appr. 7.3<br>appr. 5.8 | •                                                                                 | •                                                                                 | •                                                                                 | —                                                                                   | —                                                                                   | —                            | —                                                                                   | —                                                                                   | —         | —                                                                                   | •                                                                                   | •                  |                                                                                     |
|  | 18 core + shield | •         | —         | —         | 18 x 0.14 [AWG25]                                                                                                                                                                            | appr. 7.8                                                                  | —                                                                                 | —                                                                                 | —                                                                                 | —                                                                                   | —                                                                                   | •                            | —                                                                                   | —                                                                                   | —         | —                                                                                   | —                                                                                   | —                  | •                                                                                   |

## Connectors, self-assembly

|                                                                                     |       | N° of pins | Housing        | Connection technology | Cable diameter Ø in mm | Straight connector | Right angle connector | Wall/panel lead-through | For fieldbus | For ATEX zone 2/22 | For ATEX zone 1/21 |
|-------------------------------------------------------------------------------------|-------|------------|----------------|-----------------------|------------------------|--------------------|-----------------------|-------------------------|--------------|--------------------|--------------------|
|    | M12   | 4/5/8/12   | Metal, Plastic | Screw terminals       | 6 - 8                  | •                  | •                     | •                       | •            | •                  | •                  |
|    | M23   | 12/17      | Metal          | Solder pins           | 5.5 - 10.5             | •                  | •                     | •                       | —            | —                  | —                  |
|    | MIL   | 7/10       | Metal          | Solder pins           | 5 - 8                  | •                  | —                     | —                       | —            | —                  | —                  |
|   | RJ45  | 8          | Plastic        | Crimp connection      | 4.5 - 8                | •                  | —                     | —                       | •            | —                  | —                  |
|  | Sub-D | 9          | ABS metallized | Solder pins           | 3.5 - 8.6              | —                  | •                     | —                       | —            | —                  | —                  |

## Cordsets, pre-assembled

|                                                                                                                      | PVC cable | PUR cable | TPE cable | Optical fiber | Straight connector | Right angle connector | For incremental encoders | For absolute SSI / BiSS encoders | For fieldbus | For analog interfaces |
|----------------------------------------------------------------------------------------------------------------------|-----------|-----------|-----------|---------------|--------------------|-----------------------|--------------------------|----------------------------------|--------------|-----------------------|
|  with M12 connector                 | •         | •         | —         | —             | •                  | •                     | •                        | •                                | •            | •                     |
|  with M23 connector                 | •         | •         | •         | —             | •                  | —                     | •                        | •                                | —            | •                     |
|  with PCB connector                 | •         | —         | —         | —             | —                  | —                     | •                        | •                                | —            | —                     |
|  Simplex patch cable optical fiber | —         | —         | —         | •             | •                  | —                     | •                        | •                                | —            | —                     |
|  with RJ45 connector              | —         | •         | —         | —             | —                  | —                     | —                        | —                                | •            | —                     |
|  with Sub-D connector             | •         | •         | —         | —             | —                  | •                     | •                        | •                                | •            | —                     |



# EVALUATION



**DISPLAYS AND  
COUNTERS**  
from page 46

**PROCESS DEVICES**  
from page 60

**Display, control, monitor and count – accurately and reliably with Kübler.**

Kübler is known worldwide in the field of counting technology. Our electromechanical, electronic, and pneumatic displays and counters prove their value in many industries. Electronic process devices for recording, controlling, and monitoring processes round off this product variety. For functional safety we offer compact speed monitors. No matter which product you choose, each one is manufactured with the highest quality consciousness and precision. Find the right solution for your application.



**SAFE SPEED MONITORS**  
from page 64



## Displays and counters

### Electronic, electromechanical or pneumatic recording, control and evaluation.

Discover the world of displays and counters. We have been developing and manufacturing counting technology for the whole world for over 60 years. In addition to the high quality of our products, the variety of options for accurately and reliably recording times, frequencies, energy, and positions as well as controlling processes is particularly impressive. Every display, every meter stands for optimum readability – in all environments. Count with us – count on Kübler.

Find the right Kübler accessories



Adapter front bezel



Sealing cover, transparent cover



Front bezel, mounting frame



Socket boxes, DIN rail mount



Gaskets

Further accessories such as an enclosure blind, terminal cover, base-mount socket, mounting support, adapter and anti-vibration set

Pulse counters  
electronic

|                                                                                     |                                                                                              | Pulse | Time | Frequency | Tachometer | Position | Serial interface (SI) | Fieldbus (FB) | Presets:<br>o = optocoupler; r = relay | Reset manual | Reset electrical | Programmable            | Display | Number of digits         | Dimensions front in mm [inch] | Panel cut-out in mm [inch] | Depth in mm [inch]            | Temperature range in °C [°F]  | Protection max. | Power supply | RoHS compliant                                                                                                                                                              | Approvals                                                                                                                                                               |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-------|------|-----------|------------|----------|-----------------------|---------------|----------------------------------------|--------------|------------------|-------------------------|---------|--------------------------|-------------------------------|----------------------------|-------------------------------|-------------------------------|-----------------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LCD pulse counters                                                                  |                                                                                              |       |      |           |            |          |                       |               |                                        |              |                  |                         |         |                          |                               |                            |                               |                               |                 |              |                                                                                                                                                                             |                                                                                                                                                                         |
|    | <b>Codix 130</b><br>adding or subtracting,<br>AC/DC                                          | •     | –    | –         | –          | –        | –                     | –             | •                                      | •            | –                | LCD                     | 8       | 48 x 24<br>[1.89 x 0.94] | 45 x 22.2<br>[1.77 x 0.87]    | 47.7<br>[1.88]             | -10 ... +60<br>[+14 ... +140] | IP65                          | batt.           | •            |       |                                                                                                                                                                         |
|                                                                                     | <b>Codix 131</b><br>count direction or<br>difference counter, AC/DC                          | •     | –    | –         | –          | –        | –                     | –             | •                                      | •            | –                | LCD                     | 8       | 48 x 24<br>[1.89 x 0.94] | 45 x 22.2<br>[1.77 x 0.87]    | 47.7<br>[1.88]             | -10 ... +60<br>[+14 ... +140] | IP65                          | batt.           | •            |       |                                                                                                                                                                         |
|                                                                                     | <b>Codix 132</b><br>count direction, AC                                                      | •     | –    | –         | –          | –        | –                     | –             | –                                      | •            | •                | –                       | LCD     | 8                        | 48 x 24<br>[1.89 x 0.94]      | 45 x 22.2<br>[1.77 x 0.87] | 47.7<br>[1.88]                | -10 ... +60<br>[+14 ... +140] | IP65            | batt.        | •                                                                                                                                                                           |   |
|    | <b>Codix 140</b><br>adding<br>0...9999999                                                    | •     | –    | –         | –          | –        | –                     | –             | •                                      | •            | –                | LCD                     | 7       | 48 x 24<br>[1.89 x 0.94] | 45 x 22.2<br>[1.77 x 0.87]    | 47.7<br>[1.88]             | -20 ... +65<br>[-4 ... +149]  | IP65                          | DC              | •            | –                                                                                                                                                                           |                                                                                                                                                                         |
| LCD service counter                                                                 |                                                                                              |       |      |           |            |          |                       |               |                                        |              |                  |                         |         |                          |                               |                            |                               |                               |                 |              |                                                                                                                                                                             |                                                                                                                                                                         |
|   | <b>Codix 142</b><br>service counter<br>0...9999999                                           | •     | –    | –         | –          | –        | –                     | 1o            | •                                      | •            | •                | LCD                     | 7       | 48 x 24<br>[1.89 x 0.94] | 45 x 22.2<br>[1.77 x 0.87]    | 47.7<br>[1.88]             | -20 ... +65<br>[-4 ... +149]  | IP65                          | DC              | •            | –                                                                                                                                                                           |                                                                                                                                                                         |
| LED pulse counters                                                                  |                                                                                              |       |      |           |            |          |                       |               |                                        |              |                  |                         |         |                          |                               |                            |                               |                               |                 |              |                                                                                                                                                                             |                                                                                                                                                                         |
|  | <b>Codix 520</b><br>adding                                                                   | •     | –    | –         | –          | –        | –                     | –             | •                                      | •            | •                | LED                     | 6       | 48 x 24<br>[1.89 x 0.94] | 45 x 22.2<br>[1.77 x 0.87]    | 59<br>[2.32]               | -20 ... +65<br>[-4 ... +149]  | IP65                          | DC              | •            |   |                                                                                                                                                                         |
|                                                                                     | <b>Codix 521</b><br>6 count modes                                                            | •     | –    | –         | –          | •        | –                     | 1o            | •                                      | •            | •                | LED                     | 6       | 48 x 24<br>[1.89 x 0.94] | 45 x 22.2<br>[1.77 x 0.87]    | 59<br>[2.32]               | -20 ... +65<br>[-4 ... +149]  | IP65                          | DC              | •            |   |                                                                                                                                                                         |
|                                                                                     | <b>Codix 524</b><br>multifunctional                                                          | •     | •    | •         | •          | •        | –                     | 1o            | •                                      | •            | •                | LED                     | 6       | 48 x 24<br>[1.89 x 0.94] | 45 x 22.2<br>[1.77 x 0.87]    | 59<br>[2.32]               | -20 ... +65<br>[-4 ... +149]  | IP65                          | DC              | •            |   |                                                                                                                                                                         |
|                                                                                     | <b>Codix 52U</b><br>with dual functions<br>in 4 combinations                                 | •     | •    | •         | •          | –        | –                     | –             | •                                      | •            | •                | LED                     | 6       | 48 x 24<br>[1.89 x 0.94] | 45 x 22.2<br>[1.77 x 0.87]    | 59<br>[2.32]               | -20 ... +65<br>[-4 ... +149]  | IP65                          | DC              | •            |   |                                                                                                                                                                         |
|                                                                                     | <b>Codix 52P + Frequency</b><br>6 count modes                                                | •     | –    | •         | •          | •        | –                     | –             | •                                      | •            | •                | LED                     | 6       | 48 x 24<br>[1.89 x 0.94] | 45 x 22.2<br>[1.77 x 0.87]    | 59<br>[2.32]               | -20 ... +65<br>[-4 ... +149]  | IP65                          | DC              | •            |   |                                                                                                                                                                         |
|                                                                                     | <b>Codix 52T / 52C</b><br>2 totalizers with separate<br>scaling;<br>52C with separate inputs | •     | –    | –         | –          | –        | –                     | –             | •                                      | •            | •                | LED                     | 6       | 48 x 24<br>[1.89 x 0.94] | 45 x 22.2<br>[1.77 x 0.87]    | 59<br>[2.32]               | -20 ... +65<br>[-4 ... +149]  | IP65                          | DC              | •            |   |                                                                                                                                                                         |
|  | <b>Codix 540</b><br>adding                                                                   | •     | –    | –         | –          | –        | –                     | –             | •                                      | •            | •                | LED                     | 6       | 96 x 48<br>[3.78 x 1.89] | 92 x 45<br>[3.62 x 1.77]      | 83<br>[3.27]               | -20 ... +65<br>[-4 ... +149]  | IP65                          | AC/DC           | •            |   |                                                                                                                                                                         |
|                                                                                     | <b>Codix 541</b><br>6 count modes                                                            | •     | –    | –         | –          | •        | –                     | 1o            | •                                      | •            | •                | LED                     | 6       | 96 x 48<br>[3.78 x 1.89] | 92 x 45<br>[3.62 x 1.77]      | 83<br>[3.27]               | -20 ... +65<br>[-4 ... +149]  | IP65                          | AC/DC           | •            |   |                                                                                                                                                                         |
|                                                                                     | <b>Codix 544</b><br>multifunctional                                                          | •     | •    | •         | •          | •        | –                     | 1o            | •                                      | •            | •                | LED                     | 6       | 96 x 48<br>[3.78 x 1.89] | 92 x 45<br>[3.62 x 1.77]      | 83<br>[3.27]               | -20 ... +65<br>[-4 ... +149]  | IP65                          | AC/DC           | •            |   |                                                                                                                                                                         |
|                                                                                     | <b>Codix 54U</b><br>with dual functions<br>in 4 combinations                                 | •     | •    | •         | •          | –        | –                     | –             | •                                      | •            | •                | LED                     | 6       | 96 x 48<br>[3.78 x 1.89] | 92 x 45<br>[3.62 x 1.77]      | 83<br>[3.27]               | -20 ... +65<br>[-4 ... +149]  | IP65                          | AC/DC           | •            |   |                                                                                                                                                                         |
|                                                                                     | <b>Codix 54P + Frequency</b><br>6 count modes                                                | •     | –    | •         | •          | •        | –                     | –             | •                                      | •            | •                | LED                     | 6       | 96 x 48<br>[3.78 x 1.89] | 92 x 45<br>[3.62 x 1.77]      | 83<br>[3.27]               | -20 ... +65<br>[-4 ... +149]  | IP65                          | AC/DC           | •            |   |                                                                                                                                                                         |
| LCD modules                                                                         |                                                                                              |       |      |           |            |          |                       |               |                                        |              |                  |                         |         |                          |                               |                            |                               |                               |                 |              |                                                                                                                                                                             |                                                                                                                                                                         |
|  | <b>190</b><br>PCB mounting                                                                   | •     | –    | –         | –          | –        | –                     | –             | •                                      | –            | –                | LCD                     | 7       | 32 x 18<br>[1.26 x 0.71] | –                             | 5<br>[0.20]                | -40 ... +80<br>[-40 ... +176] | –                             | DC              | •            | –                                                                                                                                                                           |                                                                                                                                                                         |
|                                                                                     | <b>192</b><br>PCB mounting                                                                   | •     | –    | –         | –          | –        | –                     | –             | •                                      | –            | –                | LCD                     | 6       | 32 x 18<br>[1.26 x 0.71] | –                             | 5<br>[0.20]                | -40 ... +85<br>[-40 ... +185] | –                             | DC              | •            | –                                                                                                                                                                           |                                                                                                                                                                         |
| LCD touch counter                                                                   |                                                                                              |       |      |           |            |          |                       |               |                                        |              |                  |                         |         |                          |                               |                            |                               |                               |                 |              |                                                                                                                                                                             |                                                                                                                                                                         |
|  | <b>571T</b><br>multifunctional<br>(also reciprocal)<br>analog output,<br>serial interface    | •     | •    | •         | •          | •        | SS<br>FB              | 4o<br>2r      | •                                      | •            | •                | LCD<br>touch<br>3 color | 8       | 96 x 48<br>[3.78 x 1.89] | 92 x 45<br>[3.62 x 1.77]      | 120<br>[4.72]              | -20 ... +60<br>[-4 ... +140]  | IP65                          | AC/DC           | •            | –                                                                                                                                                                           |                                                                                                                                                                         |

Pulse counters  
electromechanical

|                                                                                     |                                                                        | Pulse | Time | kWh | Panel mounting | PCB mounting | Base mounting | DIN rail mounting | Reset                | Number of digits | Dimensions in mm [inch]                 | Panel cut-out in mm [inch]<br>(for front panel version) | Standard<br>temperature range in °C [°F]<br>(extended on request) | Protection max. | Supply type | RoHS compliant | Approvals  |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------|-------|------|-----|----------------|--------------|---------------|-------------------|----------------------|------------------|-----------------------------------------|---------------------------------------------------------|-------------------------------------------------------------------|-----------------|-------------|----------------|------------|
| <b>Micro counters</b>                                                               |                                                                        |       |      |     |                |              |               |                   |                      |                  |                                         |                                                         |                                                                   |                 |             |                |            |
|    | <b>K46 / K47</b><br>high shock resistance                              | •     | –    | –   | •              | •            | –             | –                 | –                    | 6 / 7            | 30 x 20<br>[1.18 x 0.79]<br>panel mount | 27 x 14<br>[1.06 x 0.55]                                | -10 ... +60<br>[+14 ... +140]                                     | IP65            | DC          | •              | CE, UL, US |
|    | <b>K66 / K67</b><br>high shock resistance,<br>magnetic field resistant | •     | –    | –   | •              | •            | –             | –                 | –                    | 6 / 7            | 30 x 20<br>[1.18 x 0.79]<br>panel mount | 27 x 14<br>[1.06 x 0.55]                                | -10 ... +60<br>[+14 ... +140]                                     | IP65            | DC          | •              | –          |
|    | <b>K04 / K05</b><br>high shock resistance                              | •     | –    | –   | •              | •            | –             | –                 | –                    | 4 / 5            | 26 x 15<br>[1.02 x 0.59]<br>panel mount | 24 x 13<br>[0.94 x 0.51]                                | -10 ... +60<br>[+14 ... +140]                                     | IP65            | AC/DC       | •              | CE, UL, US |
|    | <b>K06 / K07 / AK07</b><br>high shock resistance                       | •     | –    | –   | •              | •            | •             | –                 | –                    | 6 / 7            | 32 x 15<br>[1.26 x 0.59]<br>panel mount | 30 x 13<br>[1.18 x 0.51]                                | -10 ... +60<br>[+14 ... +140]                                     | IP65            | AC/DC       | •              | CE, UL, US |
|   | <b>SK07</b><br>high shock resistance,<br>for DIN rail                  | •     | –    | –   | –              | –            | •             | •                 | –                    | 7                | 30 x 65<br>[1.18 x 2.56]                | –                                                       | -10 ... +60<br>[+14 ... +140]                                     | IP50            | AC/DC       | •              | CE, UL, US |
| <b>Mini counters</b>                                                                |                                                                        |       |      |     |                |              |               |                   |                      |                  |                                         |                                                         |                                                                   |                 |             |                |            |
|  | <b>W15</b><br>also in DIN format<br>48 x 24 mm [1.89 x 0.94"]          | •     | –    | –   | •              | –            | –             | –                 | manual               | 5                | from 34 x 23<br>[1.34 x 0.91]           | from 31 x 20<br>[1.22 x 0.79]                           | -10 ... +50<br>[+14 ... +122]                                     | IP40            | AC/DC       | •              | –          |
|  | <b>W16 / W17</b><br>also in DIN format<br>48 x 24 mm [1.89 x 0.94"]    | •     | –    | –   | •              | •            | –             | –                 | –                    | 6 / 7            | from 34 x 23<br>[1.34 x 0.91]           | from 31 x 20<br>[1.22 x 0.79]                           | -10 ... +50<br>[+14 ... +122]                                     | IP41            | AC/DC       | •              | –          |
| <b>Robust counters</b>                                                              |                                                                        |       |      |     |                |              |               |                   |                      |                  |                                         |                                                         |                                                                   |                 |             |                |            |
|  | <b>Bk14</b><br>very long service life                                  | •     | –    | –   | •              | –            | –             | –                 | manual               | 4                | from 37 x 28<br>[1.46 x 1.10]           | from<br>33.3 x 25<br>[1.31 x 0.98]                      | -10 ... +60<br>[+14 ... +140]                                     | IP40<br>IP41    | AC/DC       | •              | –          |
|  | <b>B16 / B18</b><br>very long service life                             | •     | –    | –   | •              | –            | –             | • <sup>1)</sup>   | manual<br>(only B16) | 6 / 8            | from 50 x 25<br>[1.97 x 0.98]           | 50 x 25<br>[1.31 x 0.87]                                | -10 ... +60<br>[+14 ... +140]                                     | IP40<br>IP41    | AC/DC       | •              | –          |
|  | <b>Mk14 / Mk16</b><br>very long service life                           | •     | –    | –   | •              | –            | –             | –                 | manual<br>electrical | 4 / 6            | from 37 x 26<br>[1.46 x 1.02]           | from 33.3 x 22<br>[1.46 x 1.02]                         | -10 ... +45<br>[+14 ... +113]                                     | IP40<br>IP41    | AC/DC       | •              | –          |
| <b>Dual function counters</b>                                                       |                                                                        |       |      |     |                |              |               |                   |                      |                  |                                         |                                                         |                                                                   |                 |             |                |            |
|  | <b>HC77</b><br>combination<br>hour meter<br>and totalizer              | •     | •    | –   | •              | –            | –             | –                 | –                    | 2 x 7            | from 48 x 48<br>[1.89 x 1.89]           | 45 x 45<br>[1.77 x 2.78]<br>ø 50.5<br>[1.99]            | -15 ... +50<br>[+5 ... +122]                                      | IP65            | AC/DC       | •              | CE, UL, US |
|  | <b>SHC77</b><br>combination<br>hour meter<br>and totalizer             | •     | •    | –   | –              | –            | –             | •                 | –                    | 2 x 7            | 48.5 x 61.5<br>[1.91 x 2.42]            | –                                                       | -15 ... +50<br>[+5 ... +122]                                      | IP52            | AC/DC       | •              | CE, UL, US |

1) With mounting frame.



Pulse counters  
pneumatic

|                                                                                                                             | Panel mounting | PCB mounting | Base mounting | DIN rail mounting | Reset                         | Number of digits | Panel cut-out in mm [inch]<br>(for front panel version) | Signal                                          | Protection max. | Count frequency max. in Hz | RoHS compliant |
|-----------------------------------------------------------------------------------------------------------------------------|----------------|--------------|---------------|-------------------|-------------------------------|------------------|---------------------------------------------------------|-------------------------------------------------|-----------------|----------------------------|----------------|
|  <b>PMk14 / PMk16 / PMk18</b><br>Totalizer | •              | –            | –             | –                 | manual<br>(PMk 14,<br>PMk 16) | 4/6/8            | 33.3x22<br>[1.31 x 0.87]<br>48x24<br>[1.89 x 0.94]      | L signal = 1.5 ... 8 bar<br>O signal ≤ 0.15 bar | IP41            | 17 / 50                    | •              |

Preset counters  
electronic

|                                                                                     |                                                                                                                             | Pulse | Time | Frequency | Tachometer | Position | Serial interface (SI)<br>Fieldbus (FB) | Presets:<br>o = optocoupler; r = relay | Reset manual | Reset electrical | Programmable | Display                 | Number of digits | Dimensions front in mm | Panel cut-out in mm    | Depth in mm    | Temperature range in °C      | Protection max. | Power supply |  RoHS compliant | Approvals                                                                             |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-------|------|-----------|------------|----------|----------------------------------------|----------------------------------------|--------------|------------------|--------------|-------------------------|------------------|------------------------|------------------------|----------------|------------------------------|-----------------|--------------|-----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| LCD preset counters                                                                 |                                                                                                                             |       |      |           |            |          |                                        |                                        |              |                  |              |                         |                  |                        |                        |                |                              |                 |              |                                                                                                     |                                                                                       |
|  | <b>901</b><br>1 preset – pulse, time<br>(battery)                                                                           | •     | •    | –         | –          | –        | –                                      | 1r                                     | •            | •                | •            | LCD                     | 2x6              | 48x48<br>[1.89 x 1.89] | 45x45<br>[1.77 x 1.77] | 63.2<br>[2.49] | -20...+65<br>[-4 ... +149]   | IP65            | batt.        | •                                                                                                   |  |
|  | <b>Codix 907 / 908</b><br>multicolor display<br>(optional),<br>decade keyboard<br>count frequency 5 kHz                     | •     | •    | –         | –          | •        | –                                      | 1r<br>2r                               | •            | •                | •            | LCD/<br>LED<br>Look     | 2x6              | 48x48<br>[1.89 x 1.89] | 45x45<br>[1.77 x 1.77] | 91<br>[3.58]   | -10...+50<br>[-14 ... +122]  | IP65            | AC/DC        | •                                                                                                   | –                                                                                     |
|  | <b>Codix 923 / 924</b><br>multicolor display<br>(optional),<br>decade keyboard<br>count frequency 65 kHz                    | •     | •    | •         | •          | •        | –                                      | up to<br>4r<br>6o                      | •            | •                | •            | LCD/<br>LED<br>Look     | 2x6              | 48x48<br>[1.89 x 1.89] | 45x45<br>[1.77 x 1.77] | 91<br>[3.58]   | -20...+65<br>[-4 ... +149]   | IP65            | AC/DC        | •                                                                                                   |  |
| LCD touch preset counters                                                           |                                                                                                                             |       |      |           |            |          |                                        |                                        |              |                  |              |                         |                  |                        |                        |                |                              |                 |              |                                                                                                     |                                                                                       |
|  | <b>570T</b><br>SSI absolute encoder<br>display, analog output,<br>serial interface                                          | –     | –    | •         | •          | •        | SI<br>FB                               | 4o<br>2r                               | •            | •                | •            | LCD<br>touch<br>3 color | 8                | 96x48<br>[3.78 x 1.89] | 92x45<br>[3.62 x 1.77] | 120<br>[4.72]  | -20 ... +60<br>[-4 ... +140] | IP65            | AC/DC        | •                                                                                                   | –                                                                                     |
|  | <b>571T</b><br>multifunctional<br>(also reciprocal)<br>analog output,<br>serial interface                                   | •     | •    | •         | •          | •        | SI<br>FB                               | 4o<br>2r                               | •            | •                | •            | LCD<br>touch<br>3 color | 8                | 96x48<br>[3.78 x 1.89] | 92x45<br>[3.62 x 1.77] | 120<br>[4.72]  | -20 ... +60<br>[-4 ... +140] | IP65            | AC/DC        | •                                                                                                   | –                                                                                     |
| LED preset counters                                                                 |                                                                                                                             |       |      |           |            |          |                                        |                                        |              |                  |              |                         |                  |                        |                        |                |                              |                 |              |                                                                                                     |                                                                                       |
|  | <b>Codix 560</b><br>LED multifunction preset<br>counters, 14 segment LED,<br>automatic help texts,<br>opt. serial interface | •     | •    | •         | •          | •        | SS<br>FB                               | 2r                                     | •            | •                | •            | LED                     | 6                | 96x48<br>[3.78 x 1.89] | 92x45<br>[3.62 x 1.77] | 91<br>[3.58]   | -20...+65<br>[-4 ... +149]   | IP65            | AC/DC        | •                                                                                                   |  |

Preset counters  
electromechanical

|                                                                                   |                                                           | Pulse | Time | Panel mounting | PCB mounting | Base mounting | DIN rail mounting | Presets | Reset                | Number of digits | Dimensions in mm [inch]          | Panel cut-out in mm [inch]<br>(for front panel version) | Temperature range in °C [°F]   | Protection max. | Supply type | RoHS compliant |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------|-------|------|----------------|--------------|---------------|-------------------|---------|----------------------|------------------|----------------------------------|---------------------------------------------------------|--------------------------------|-----------------|-------------|----------------|
|  | <b>BVa 15</b><br>adding with preset<br>constantly visible | •     | –    | •              | –            | –             | • 1) 2)           | 1       | manual               | 2 x 5            | from<br>50 x 50<br>[1.97 x 1.97] | 50 x 50<br>[1.97 x 1.97]                                | - 10 ... +60<br>[+14 ... +140] | IP40            | AC/DC       | •              |
|  | <b>MVs 13</b><br>subtracting                              | •     | –    | •              | –            | –             | –                 | 1       | manual<br>electrical | 2 / 3            | from<br>39 x 55<br>[1.54 x 2.17] | 33.3 x 50<br>[1.31 x 1.97]                              | -10 ... +45<br>[+14 ... +113]  | IP40            | AC/DC       | •              |

1) With mounting frame G300 003.  
2) With DIN rail mount G300002.



Timers /  
Hour meters  
electronic

|                                                                                     |                                                              | Pulse | Time | Frequency | Tachometer | Position | Serial interface (SI)<br>Fieldbus (FB) | Presets:<br>o = optocoupler; r = relay | Reset manual | Reset electrical | Programmable | Display | Number of digits | Dimensions front in mm [inch] | Panel cut-out in mm [inch] | Depth in mm [inch]     | Temperature range in °C [°F] | Protection max.          | Power supply |  RoHS compliant | Approvals                                                                                                                                                                   |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------|-------|------|-----------|------------|----------|----------------------------------------|----------------------------------------|--------------|------------------|--------------|---------|------------------|-------------------------------|----------------------------|------------------------|------------------------------|--------------------------|--------------|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LCD hour meters                                                                     |                                                              |       |      |           |            |          |                                        |                                        |              |                  |              |         |                  |                               |                            |                        |                              |                          |              |                                                                                                    |                                                                                                                                                                             |
|    | <b>Codix 134</b><br>99999h59m or 99999.99h                   | –     | •    | –         | –          | –        | –                                      | –                                      | •            | •                | –            | LCD     | 7                | 48x24<br>[1.89 x 0.94]        | 45x22.2<br>[1.77 x 0.87]   | 47.7<br>[1.88]         | -10...+60<br>[-14...+140]    | IP65                     | batt.        | •                                                                                                  |       |
|                                                                                     | <b>Codix 135</b><br>9999h59m59s<br>or 9999999.9s             | –     | •    | –         | –          | –        | –                                      | –                                      | •            | •                | –            | LCD     | 8                | 48x24<br>[1.89 x 0.94]        | 45x22.2<br>[1.77 x 0.87]   | 47.7<br>[1.88]         | -10...+60<br>[-14...+140]    | IP65                     | batt.        | •                                                                                                  |       |
|    | <b>Codix 141</b><br>99999.99h                                | –     | •    | –         | –          | –        | –                                      | –                                      | •            | •                | –            | LCD     | 7                | 48x24<br>[1.89 x 0.94]        | 45x22.2<br>[1.77 x 0.87]   | 47.7<br>[1.88]         | -20...+65<br>[-4...+149]     | IP65                     | DC           | •                                                                                                  | –                                                                                                                                                                           |
| LCD service timer                                                                   |                                                              |       |      |           |            |          |                                        |                                        |              |                  |              |         |                  |                               |                            |                        |                              |                          |              |                                                                                                    |                                                                                                                                                                             |
|    | <b>Codix 143</b><br>service timer 99999.99h                  | –     | •    | –         | –          | –        | –                                      | 1o                                     | •            | •                | •            | LCD     | 7                | 48x24<br>[1.89 x 0.94]        | 45x22.2<br>[1.77 x 0.87]   | 47.7<br>[1.88]         | -20...+65<br>[-4...+149]     | IP65                     | DC           | •                                                                                                  | –                                                                                                                                                                           |
| LED timers                                                                          |                                                              |       |      |           |            |          |                                        |                                        |              |                  |              |         |                  |                               |                            |                        |                              |                          |              |                                                                                                    |                                                                                                                                                                             |
|  | <b>Codix 523</b><br>h, min, sec or<br>hh.mm.ss               | –     | •    | –         | –          | –        | –                                      | 1o                                     | •            | •                | •            | LED     | 6                | 48x24<br>[1.89 x 0.94]        | 45x22.2<br>[1.77 x 0.87]   | 59<br>[2.32]           | -20...+65<br>[-4...+149]     | IP65                     | DC           | •                                                                                                  |   |
|                                                                                     | <b>Codix 524</b><br>multifunction                            | •     | •    | •         | •          | •        | –                                      | 1o                                     | •            | •                | •            | LED     | 6                | 48x24<br>[1.89 x 0.94]        | 45x22.2<br>[1.77 x 0.87]   | 59<br>[2.32]           | -20...+65<br>[-4...+149]     | IP65                     | DC           | •                                                                                                  |   |
|  | <b>Codix 52U</b><br>with dual functions<br>in 4 combinations | •     | •    | •         | •          | –        | –                                      | –                                      | •            | •                | •            | LED     | 6                | 48x24<br>[1.89 x 0.94]        | 45x22.2<br>[1.77 x 0.87]   | 59<br>[2.32]           | -20...+65<br>[-4...+149]     | IP65                     | DC           | •                                                                                                  |   |
|                                                                                     | <b>Codix 543</b><br>h, min, sec or<br>hh.mm.ss               | –     | •    | –         | –          | –        | –                                      | 1o                                     | •            | •                | •            | LED     | 6                | 96x48<br>[3.78 x 1.89]        | 92x45<br>[3.62 x 1.77]     | 83<br>[3.27]           | -20...+65<br>[-4...+149]     | IP65                     | AC/DC        | •                                                                                                  |   |
|                                                                                     | <b>Codix 544</b><br>multifunction                            | •     | •    | •         | •          | •        | –                                      | 1o                                     | •            | •                | •            | LED     | 6                | 96x48<br>[3.78 x 1.89]        | 92x45<br>[3.62 x 1.77]     | 83<br>[3.27]           | -20...+65<br>[-4...+149]     | IP65                     | AC/DC        | •                                                                                                  |   |
|                                                                                     | <b>Codix 54U</b><br>with dual functions<br>in 4 combinations | •     | •    | •         | •          | –        | –                                      | –                                      | –            | •                | •            | •       | LED              | 6                             | 96x48<br>[3.78 x 1.89]     | 92x45<br>[3.62 x 1.77] | 83<br>[3.27]                 | -20...+65<br>[-4...+149] | IP65         | AC/DC                                                                                              | •                                                                                                                                                                           |
| LCD time modules                                                                    |                                                              |       |      |           |            |          |                                        |                                        |              |                  |              |         |                  |                               |                            |                        |                              |                          |              |                                                                                                    |                                                                                                                                                                             |
|  | <b>194</b><br>PCB mounting                                   | –     | •    | –         | –          | –        | –                                      | –                                      | –            | •                | –            | LCD     | 6                | 32x18<br>[1.26 x 0.71]        | –                          | 5<br>[0.20]            | -40...+80<br>[-40...+176]    | –                        | DC           | •                                                                                                  | –                                                                                                                                                                           |
|                                                                                     | <b>198</b><br>PCB mounting                                   | –     | •    | –         | –          | –        | –                                      | –                                      | –            | •                | –            | LCD     | 6                | 32x18<br>[1.26 x 0.71]        | –                          | 5<br>[0.20]            | -40...+85<br>[-40...+185]    | –                        | DC           | •                                                                                                  | –                                                                                                                                                                           |

Timers /  
Hour meters  
electromechanical

|                                                                                     |                                                               | Pulse | Time | kWh | Panel mounting | PCB mounting | Base mounting | DIN rail mounting | Reset  | Number of digits | Dimensions in mm [inch]                 | Panel cut-out in mm [inch]<br>(for front panel version) | Standard temperature range in °C [°F] | Protection max. | Supply type | RoHS compliant | Approvals  |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------|-------|------|-----|----------------|--------------|---------------|-------------------|--------|------------------|-----------------------------------------|---------------------------------------------------------|---------------------------------------|-----------------|-------------|----------------|------------|
| <b>Micro timers</b>                                                                 |                                                               |       |      |     |                |              |               |                   |        |                  |                                         |                                                         |                                       |                 |             |                |            |
|    | <b>HK47</b><br>high shock resistance                          | –     | •    | –   | •              | •            | –             | –                 | –      | 7                | 30 x 20<br>[1.18 x 0.79]<br>panel mount | 27 x 14<br>[1.06 x 0.55]                                | -10 ... +60<br>[+14 ... +140]         | IP65            | DC          | •              | –          |
|    | <b>HK07 / AHK07</b><br>high shock and impact resistance       | –     | •    | –   | •              | •            | •             | –                 | –      | 7                | 32 x 15<br>[1.26 x 0.59]<br>panel mount | 30 x 13<br>[1.18 x 0.51]                                | -10 ... +60<br>[+14 ... +140]         | IP65            | DC          | •              | –          |
| <b>Timers with DIN dimensions</b>                                                   |                                                               |       |      |     |                |              |               |                   |        |                  |                                         |                                                         |                                       |                 |             |                |            |
|    | <b>HK17</b><br>small dimensions                               | –     | •    | –   | •              | –            | –             | –                 | –      | 7 / 8            | from 37 x 26<br>[1.18 x 0.51]           | 33 x 22<br>[1.30 x 0.87]                                | -15 ... +50<br>[+5 ... +122]          | IP65            | AC/DC       | •              | CE, UL, US |
|    | <b>H37</b><br>also in DIN format<br>48 x 24 mm [1.89 x 0.94"] | –     | •    | –   | •              | –            | –             | • <sup>1)</sup>   | –      | 7 / 8            | from 48 x 24<br>[1.89 x 0.94]           | from 45 x 22<br>[1.89 x 0.94]                           | -15 ... +50<br>[+5 ... +122]          | IP65            | AC/DC       | •              | CE, UL, US |
|   | <b>H57</b><br>DIN format<br>48 x 48 mm [1.89 x 1.89"]         | –     | •    | –   | •              | –            | –             | –                 | –      | 7 / 8            | from 48 x 48<br>[1.89 x 1.89]           | 45 x 45<br>[1.77 x 2.78]<br>ø 60 [2.36]                 | -15 ... +50<br>[+5 ... +122]          | IP65            | AC/DC       | •              | CE, UL, US |
| <b>Timers for DIN rail mounting</b>                                                 |                                                               |       |      |     |                |              |               |                   |        |                  |                                         |                                                         |                                       |                 |             |                |            |
|  | <b>AH57</b><br>DIN format<br>48 x 48 mm [1.89 x 1.89"]        | –     | •    | –   | –              | –            | –             | •                 | –      | 7 / 8            | 48.5 x 61.5<br>[1.91 x 2.40]            | –                                                       | -15 ... +50<br>[+5 ... +122]          | IP65            | AC/DC       | •              | CE, UL, US |
|  | <b>SHK07.1</b><br>high shock resistance                       | –     | •    | –   | –              | –            | –             | •                 | –      | 7                | 30 x 65<br>[1.18 x 2.56]                | –                                                       | -10 ... +60<br>[+14 ... +140]         | IP52            | AC/DC       | •              | –          |
|  | <b>SH17</b><br>36 mm wide                                     | –     | •    | –   | –              | –            | –             | •                 | –      | 7                | 36 x 90<br>[1.42 x 3.54]                | –                                                       | -10 ... +70<br>[+14 ... +158]         | IP65            | AC/DC       | •              | –          |
| <b>Timers, round design</b>                                                         |                                                               |       |      |     |                |              |               |                   |        |                  |                                         |                                                         |                                       |                 |             |                |            |
|  | <b>HR47</b><br>opt. run indicator                             | –     | •    | –   | •              | –            | –             | –                 | –      | 7                | ø 58<br>[2.28]                          | ø 50<br>[1.31]                                          | -25 ... +80<br>[+13 ... +176]         | IP65            | AC/DC       | •              | –          |
|  | <b>HR76</b><br>high shock resistance                          | –     | •    | –   | •              | –            | –             | –                 | –      | 6                | from ø 58.7<br>[2.31]                   | ø 50.8<br>[2.00]                                        | -30 ... +65<br>[+22 ... +149]         | IP65            | AC/DC       | •              | CE, UL, US |
| <b>Robust timers</b>                                                                |                                                               |       |      |     |                |              |               |                   |        |                  |                                         |                                                         |                                       |                 |             |                |            |
|  | <b>HB26</b><br>plug-in version,<br>long service life          | –     | •    | –   | •              | –            | –             | • <sup>1)</sup>   | manual | 6                | from 50 x 25<br>[1.97 x 0.98]           | 50 x 25<br>[1.31 x 0.87]                                | -15 ... +50<br>[+5 ... +122]          | IP41            | AC/DC       | •              | –          |
|  | <b>HB27</b><br>long service life                              | –     | •    | –   | •              | –            | –             | • <sup>1)</sup>   | –      | 7                | from 50 x 25<br>[1.97 x 0.98]           | 50 x 25<br>[1.31 x 0.87]                                | -15 ... +50<br>[+5 ... +122]          | IP51            | AC/DC       | •              | –          |
| <b>Dual function counters</b>                                                       |                                                               |       |      |     |                |              |               |                   |        |                  |                                         |                                                         |                                       |                 |             |                |            |
|  | <b>HC77</b><br>combination<br>hour meter<br>and totalizer     | •     | •    | –   | •              | –            | –             | –                 | –      | 2 x 7            | from 48 x 48<br>[1.89 x 1.89]           | 45 x 45<br>[1.77 x 2.78]<br>ø 50.5<br>[1.99]            | -15 ... +50<br>[+5 ... +122]          | IP65            | AC/DC       | •              | CE, UL, US |
|  | <b>SHC77</b><br>combination<br>hour meter<br>and totalizer    | •     | •    | –   | –              | –            | –             | •                 | –      | 2 x 7            | 48.5 x 61.5<br>[1.91 x 2.40]            | –                                                       | -15 ... +50<br>[+5 ... +122]          | IP52            | AC/DC       | •              | CE, UL, US |
|  | <b>HW66M</b><br>combination<br>hour meter<br>and energy meter | –     | •    | •   | •              | –            | –             | • <sup>1)</sup>   | –      | 2 x 6            | from 48 x 48<br>[1.89 x 1.89]           | 45 x 45<br>[1.77 x 2.78]<br>ø 50<br>[1.97]              | -10 ... +55<br>[+14 ... +131]         | IP65            | AC          | •              | MID        |

1) With mounting frame.

Time preset counters  
electronic

|                                                                                     |                                                                                                                             | Pulse | Time | Frequency | Tachometer | Position | Serial interface (SI) | Fieldbus (FB) | Presets:<br>o = optocoupler; r = relay | Reset manual | Reset electrical | Programmable | Display                 | Number of digits | Dimensions front in mm | Panel cut-out in mm    | Depth in mm    | Temperature range in °C      | Protection max. | Power supply | RoHS compliant | Approvals                                                                             |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-------|------|-----------|------------|----------|-----------------------|---------------|----------------------------------------|--------------|------------------|--------------|-------------------------|------------------|------------------------|------------------------|----------------|------------------------------|-----------------|--------------|----------------|---------------------------------------------------------------------------------------|
| LCD time preset counters                                                            |                                                                                                                             |       |      |           |            |          |                       |               |                                        |              |                  |              |                         |                  |                        |                        |                |                              |                 |              |                |                                                                                       |
|    | <b>901</b><br>1 preset – pulse, time (battery)                                                                              | •     | •    | –         | –          | –        |                       |               | 1r                                     | •            | •                | •            | LCD                     | 2x6              | 48x48<br>[1.89 x 1.89] | 45x45<br>[1.77 x 1.77] | 63.2<br>[2.49] | -20 ... +65<br>[-4 ... +149] | IP65            | batt.        | •              |    |
|    | <b>Codix 907 / 908</b><br>multicolor display (optional),<br>decade keyboard,<br>count frequency 5 kHz                       | •     | •    | –         | –          | •        | –                     |               | 1r<br>2r                               | •            | •                | •            | LCD/<br>LED<br>Look     | 2x6              | 48x48<br>[1.89 x 1.89] | 45x45<br>[1.77 x 1.77] | 91<br>[3.58]   | -10 ... +50<br>[-4 ... +122] | IP65            | AC/DC        | •              | –                                                                                     |
|    | <b>Codix 923 / 924</b><br>multicolor display (optional),<br>decade keyboard,<br>count frequency 65 kHz                      | •     | •    | •         | •          | •        | –                     |               | up to<br>4r<br>6o                      | •            | •                | •            | LCD/<br>LED<br>Look     | 2x6              | 48x48<br>[1.89 x 1.89] | 45x45<br>[1.77 x 1.77] | 91<br>[3.58]   | -20 ... +65<br>[-4 ... +149] | IP65            | AC/DC        | •              |    |
| LED time preset counter                                                             |                                                                                                                             |       |      |           |            |          |                       |               |                                        |              |                  |              |                         |                  |                        |                        |                |                              |                 |              |                |                                                                                       |
|  | <b>Codix 560</b><br>LED multifunction preset<br>counters, 14 segment LED,<br>automatic help texts,<br>opt. serial interface | •     | •    | •         | •          | •        | SI<br>FB              |               | 2r                                     | •            | •                | •            | LED                     | 6                | 96x48<br>[3.78 x 1.89] | 92x45<br>[3.62 x 1.77] | 91<br>[3.58]   | -20 ... +65<br>[-4 ... +149] | IP65            | AC/DC        | •              |  |
| LCD touch time preset counter                                                       |                                                                                                                             |       |      |           |            |          |                       |               |                                        |              |                  |              |                         |                  |                        |                        |                |                              |                 |              |                |                                                                                       |
|  | <b>571T</b><br>multifunctional<br>(also reciprocal)<br>analog output,<br>serial interface                                   | •     | •    | •         | •          | •        | SI<br>FB              |               | 4o<br>2r                               | •            | •                | •            | LCD<br>touch<br>3 color | 8                | 96x48<br>[3.78 x 1.89] | 92x45<br>[3.62 x 1.77] | 120<br>[4.72]  | -20 ... +60<br>[-4 ... +140] | IP65            | AC/DC        | •              | –                                                                                     |

1) With mounting frame G300 003 or DIN rail mount G300002.

## Frequency displays Tachometers

|                                                                                     |                                                                                           | Pulse | Time | Frequency | Tachometer | Position | Serial interface (SI) | Fieldbus (FB) | Presets:<br>o = optocoupler; r = relay | Reset manual | Reset electrical | Programmable | Display                 | Number of digits | Dimensions front in mm [inch] | Panel cut-out in mm [inch] | Depth in mm [inch] | Temperature range in °C [°F]  | Protection max. | Power supply |  RoHS compliant | Approvals                                                                                                                                                                   |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|-------|------|-----------|------------|----------|-----------------------|---------------|----------------------------------------|--------------|------------------|--------------|-------------------------|------------------|-------------------------------|----------------------------|--------------------|-------------------------------|-----------------|--------------|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LCD frequency display                                                               |                                                                                           |       |      |           |            |          |                       |               |                                        |              |                  |              |                         |                  |                               |                            |                    |                               |                 |              |                                                                                                    |                                                                                                                                                                             |
|    | <b>Codix 136</b><br>in Hz                                                                 | —     | —    | •         | •          | —        | —                     | —             | —                                      | —            | —                | —            | LCD                     | 8                | 48x24<br>[1.89 x 0.94]        | 45x22.2<br>[1.77 x 0.87]   | 47.7<br>[1.88]     | -10 ... +60<br>[-14 ... +140] | IP65            | batt.        | •                                                                                                  |       |
| LED frequency displays                                                              |                                                                                           |       |      |           |            |          |                       |               |                                        |              |                  |              |                         |                  |                               |                            |                    |                               |                 |              |                                                                                                    |                                                                                                                                                                             |
|    | <b>Codix 522</b><br>1/sec or 1/min                                                        | —     | —    | •         | •          | —        | —                     | 10            | •                                      | •            | •                | •            | LED                     | 6                | 48x24<br>[1.89 x 0.94]        | 45x22.2<br>[1.77 x 0.87]   | 59<br>[2.32]       | -20 ... +65<br>[-4 ... +149]  | IP65            | DC           | •                                                                                                  |       |
|                                                                                     | <b>Codix 524</b><br>multifunctional                                                       | •     | •    | •         | •          | •        | —                     | 10            | •                                      | •            | •                | •            | LED                     | 6                | 48x24<br>[1.89 x 0.94]        | 45x22.2<br>[1.77 x 0.87]   | 59<br>[2.32]       | -20 ... +65<br>[-4 ... +149]  | IP65            | DC           | •                                                                                                  |       |
|                                                                                     | <b>Codix 52U</b><br>with dual functions<br>in 4 combinations                              | •     | •    | •         | •          | —        | —                     | —             | •                                      | •            | •                | •            | LED                     | 6                | 48x24<br>[1.89 x 0.94]        | 45x22.2<br>[1.77 x 0.87]   | 59<br>[2.32]       | -20 ... +65<br>[-4 ... +149]  | IP65            | DC           | •                                                                                                  |       |
|                                                                                     | <b>Codix 52P + Frequency</b><br>6 count modes                                             | •     | —    | •         | •          | •        | —                     | —             | •                                      | •            | •                | •            | LED                     | 6                | 48x24<br>[1.89 x 0.94]        | 45x22.2<br>[1.77 x 0.87]   | 59<br>[2.32]       | -20 ... +65<br>[-4 ... +149]  | IP65            | DC           | •                                                                                                  |       |
|  | <b>Codix 542</b><br>1/sec or 1/min                                                        | —     | —    | •         | •          | —        | —                     | 10            | •                                      | •            | •                | •            | LED                     | 6                | 96x48<br>[3.78 x 1.89]        | 92x45<br>[3.62 x 1.77]     | 83<br>[3.27]       | -20 ... +65<br>[-4 ... +149]  | IP65            | AC/DC        | •                                                                                                  |   |
|                                                                                     | <b>Codix 544</b><br>multifunctional                                                       | •     | •    | •         | •          | •        | —                     | 10            | •                                      | •            | •                | •            | LED                     | 6                | 96x48<br>[3.78 x 1.89]        | 92x45<br>[3.62 x 1.77]     | 83<br>[3.27]       | -20 ... +65<br>[-4 ... +149]  | IP65            | AC/DC        | •                                                                                                  |   |
|                                                                                     | <b>Codix 54U</b><br>with dual functions<br>in 4 combinations                              | •     | •    | •         | •          | —        | —                     | —             | •                                      | •            | •                | •            | LED                     | 6                | 96x48<br>[3.78 x 1.89]        | 92x45<br>[3.62 x 1.77]     | 83<br>[3.27]       | -20 ... +65<br>[-4 ... +149]  | IP65            | AC/DC        | •                                                                                                  |   |
|                                                                                     | <b>Codix 54P + Frequency</b><br>6 count modes                                             | •     | —    | •         | •          | •        | —                     | —             | •                                      | •            | •                | •            | LED                     | 6                | 96x48<br>[3.78 x 1.89]        | 92x45<br>[3.62 x 1.77]     | 83<br>[3.27]       | -20 ... +65<br>[-4 ... +149]  | IP65            | AC/DC        | •                                                                                                  |   |
| LCD touch frequency displays                                                        |                                                                                           |       |      |           |            |          |                       |               |                                        |              |                  |              |                         |                  |                               |                            |                    |                               |                 |              |                                                                                                    |                                                                                                                                                                             |
|  | <b>570T</b><br>SSI absolute encoder<br>display, analog output,<br>serial interface        | —     | —    | •         | •          | •        | SI<br>FB              | 4o<br>2r      | •                                      | •            | •                | •            | LCD<br>touch<br>3 color | 8                | 96x48<br>[3.78 x 1.89]        | 92x45<br>[3.62 x 1.77]     | 120<br>[4.72]      | -20 ... +60<br>[-4 ... +140]  | IP65            | AC/DC        | •                                                                                                  | —                                                                                                                                                                           |
|  | <b>571T</b><br>multifunctional<br>(also reciprocal)<br>analog output,<br>serial interface | •     | •    | •         | •          | •        | SI<br>FB              | 4o<br>2r      | •                                      | •            | •                | •            | LCD<br>touch<br>3 color | 8                | 96x48<br>[3.78 x 1.89]        | 92x45<br>[3.62 x 1.77]     | 120<br>[4.72]      | -20 ... +60<br>[-4 ... +140]  | IP65            | AC/DC        | •                                                                                                  | —                                                                                                                                                                           |

## Frequency displays Tachometers with limits

|                                                                                     | Pulse | Time | Frequency | Tachometer | Position | Serial interface (SI) | Fieldbus (FB) | Preset:<br>o = optocoupler; r = relay | Reset manual | Reset electrical | Programmable | Display                 | Number of digits | Dimensions front in mm | Panel cut-out in mm    | Depth in mm   | Temperature range in °C      | Protection max. | Power supply | RoHS compliant | Approvals |
|-------------------------------------------------------------------------------------|-------|------|-----------|------------|----------|-----------------------|---------------|---------------------------------------|--------------|------------------|--------------|-------------------------|------------------|------------------------|------------------------|---------------|------------------------------|-----------------|--------------|----------------|-----------|
| <b>LCD tachometer (with multicolor, LED look)</b>                                   |       |      |           |            |          |                       |               |                                       |              |                  |              |                         |                  |                        |                        |               |                              |                 |              |                |           |
|    | •     | •    | •         | •          | •        | —                     | —             | up to<br>4r<br>6o                     | •            | •                | •            | LCD/<br>LED<br>Look     | 2x6              | 48x48<br>[1.89 x 1.89] | 45x45<br>[1.77 x 1.77] | 91<br>[3.58]  | -20 ... +65<br>[-4 ... +149] | IP65            | AC/DC        | •              | CE<br>UL  |
| <b>LED tachometers with limits</b>                                                  |       |      |           |            |          |                       |               |                                       |              |                  |              |                         |                  |                        |                        |               |                              |                 |              |                |           |
|    | •     | •    | •         | •          | •        | SI<br>FB              | —             | 2r                                    | •            | •                | •            | LED                     | 6                | 96x48<br>[3.78 x 1.89] | 92x45<br>[3.62 x 1.77] | 91<br>[3.58]  | -20 ... +65<br>[-4 ... +149] | IP65            | AC/DC        | •              | CE<br>UL  |
| <b>LCD touch tachometers with limits</b>                                            |       |      |           |            |          |                       |               |                                       |              |                  |              |                         |                  |                        |                        |               |                              |                 |              |                |           |
|    | —     | —    | •         | •          | •        | SI<br>FB              | —             | 4o<br>2r                              | •            | •                | •            | LCD<br>touch<br>3 color | 8                | 96x48<br>[3.78 x 1.89] | 92x45<br>[3.62 x 1.77] | 120<br>[4.72] | -20 ... +60<br>[-4 ... +140] | IP65            | AC/DC        | •              | —         |
|  | •     | •    | •         | •          | •        | SI<br>FB              | —             | 4o<br>2r                              | •            | •                | •            | LCD<br>touch<br>3 color | 8                | 96x48<br>[3.78 x 1.89] | 92x45<br>[3.62 x 1.77] | 120<br>[4.72] | -20 ... +60<br>[-4 ... +140] | IP65            | AC/DC        | •              | —         |

## Position displays

|                                                                                     |                                                                                                   | Pulse | Time | Frequency | Tachometer | Position<br>(incremental = i; SSI = s; a = analog) | Serial interface (SI)<br>Fieldbus (FB) | Presets:<br>o = optocoupler; r = relay | Reset manual | Reset electrical | Programmable | Display                 | Number of digits | Dimensions front in mm | Panel cut-out in mm      | Depth in mm    | Temperature range in °C       | Protection max. | Power supply | RoHS compliant | Approvals |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|-------|------|-----------|------------|----------------------------------------------------|----------------------------------------|----------------------------------------|--------------|------------------|--------------|-------------------------|------------------|------------------------|--------------------------|----------------|-------------------------------|-----------------|--------------|----------------|-----------|
| <b>LCD position display</b>                                                         |                                                                                                   |       |      |           |            |                                                    |                                        |                                        |              |                  |              |                         |                  |                        |                          |                |                               |                 |              |                |           |
|    | <b>Codix 133</b><br>phase discriminator<br>(quadrature) x1 and x2<br>evaluation                   | —     | —    | —         | —          | i                                                  | —                                      | —                                      | •            | •                | —            | LCD                     | 8                | 48x24<br>[1.89 x 0.94] | 45x22.2<br>[1.77 x 0.87] | 47.7<br>[1.88] | -10 ... +60<br>[-14 ... +140] | IP65            | batt.        | •              | CE, UL    |
| <b>LED position displays</b>                                                        |                                                                                                   |       |      |           |            |                                                    |                                        |                                        |              |                  |              |                         |                  |                        |                          |                |                               |                 |              |                |           |
|    | <b>Codix 521</b><br>6 count modes                                                                 | •     | —    | —         | —          | i                                                  | —                                      | 1o                                     | •            | •                | •            | LED                     | 6                | 48x24<br>[1.89 x 0.94] | 45x22.2<br>[1.77 x 0.87] | 59<br>[2.32]   | -20 ... +65<br>[-4 ... +149]  | IP65            | DC           | •              | CE, UL    |
|                                                                                     | <b>Codix 524</b><br>multifunctional                                                               | •     | •    | •         | •          | i                                                  | —                                      | 1o                                     | •            | •                | •            | LED                     | 6                | 48x24<br>[1.89 x 0.94] | 45x22.2<br>[1.77 x 0.87] | 59<br>[2.32]   | -20 ... +65<br>[-4 ... +149]  | IP65            | DC           | •              | CE, UL    |
|                                                                                     | <b>Codix 52P + Frequency</b><br>6 count modes                                                     | •     | —    | •         | •          | i                                                  | —                                      | —                                      | •            | •                | •            | LED                     | 6                | 48x24<br>[1.89 x 0.94] | 45x22.2<br>[1.77 x 0.87] | 59<br>[2.32]   | -20 ... +65<br>[-4 ... +149]  | IP65            | DC           | •              | CE, UL    |
|    | <b>Codix 541</b><br>6 count modes                                                                 | •     | —    | —         | —          | i                                                  | —                                      | 1o                                     | •            | •                | •            | LED                     | 6                | 96x48<br>[3.78 x 1.89] | 92x45<br>[3.62 x 1.77]   | 83<br>[3.27]   | -20 ... +65<br>[-4 ... +149]  | IP65            | AC/DC        | •              | CE, UL    |
|                                                                                     | <b>Codix 544</b><br>multifunctional                                                               | •     | •    | •         | •          | i                                                  | —                                      | 1o                                     | •            | •                | •            | LED                     | 6                | 96x48<br>[3.78 x 1.89] | 92x45<br>[3.62 x 1.77]   | 83<br>[3.27]   | -20 ... +65<br>[-4 ... +149]  | IP65            | AC/DC        | •              | CE, UL    |
|                                                                                     | <b>Codix 54P + Frequency</b><br>6 count modes                                                     | •     | —    | •         | •          | i                                                  | —                                      | —                                      | •            | •                | •            | LED                     | 6                | 96x48<br>[3.78 x 1.89] | 92x45<br>[3.62 x 1.77]   | 83<br>[3.27]   | -20 ... +65<br>[-4 ... +149]  | IP65            | AC/DC        | •              | CE, UL    |
| <b>LCD touch SSI position displays</b>                                              |                                                                                                   |       |      |           |            |                                                    |                                        |                                        |              |                  |              |                         |                  |                        |                          |                |                               |                 |              |                |           |
|  | <b>570T</b><br>SSI absolute encoder<br>display, analog output,<br>serial interface                | —     | —    | •         | •          | s                                                  | SI<br>FB                               | 4o<br>2r                               | •            | •                | •            | LCD<br>touch<br>3 color | 8                | 96x48<br>[3.78 x 1.89] | 92x45<br>[3.62 x 1.77]   | 120<br>[4.72]  | -20 ... +60<br>[-4 ... +140]  | IP65            | AC/DC        | •              | —         |
|  | <b>571T</b><br>multifunctional<br>(also reciprocal)<br>analog output,<br>serial interface         | •     | •    | •         | •          | i                                                  | SI<br>FB                               | 4o<br>2r                               | •            | •                | •            | LCD<br>touch<br>3 color | 8                | 96x48<br>[3.78 x 1.89] | 92x45<br>[3.62 x 1.77]   | 120<br>[4.72]  | -20 ... +60<br>[-4 ... +140]  | IP65            | AC/DC        | •              | —         |
|  | <b>573T IO-Link</b><br>2 inputs (analog)<br>4 limit values,<br>analog output,<br>serial interface | —     | —    | •         | •          | a                                                  | SI<br>FB<br>IO-Link                    | 4o<br>2r                               | •            | •                | •            | LCD<br>touch<br>3 color | 8                | 96x48<br>[3.78 x 1.89] | 92x45<br>[3.62 x 1.77]   | 120<br>[4.72]  | -20 ... +60<br>[-4 ... +140]  | IP65            | AC/DC        | •              | —         |

Position displays  
with limits

|                                                                                     | Pulse | Time | Frequency | Tachometer | Position<br>(incremental = i; SSI = s; a = analog) | Serial interface (SI) | Fieldbus (FB) | Presets:<br>o = optocoupler; r = relay | Reset manual | Reset electrical | Programmable | Display                 | Number of digits | Dimensions front in mm | Panel cut-out in mm    | Depth in mm   | Temperature range in °C       | Protection max. | Power supply | RoHS compliant | Approvals |
|-------------------------------------------------------------------------------------|-------|------|-----------|------------|----------------------------------------------------|-----------------------|---------------|----------------------------------------|--------------|------------------|--------------|-------------------------|------------------|------------------------|------------------------|---------------|-------------------------------|-----------------|--------------|----------------|-----------|
| <b>LCD position preset counters (optional with multicolor, LED look)</b>            |       |      |           |            |                                                    |                       |               |                                        |              |                  |              |                         |                  |                        |                        |               |                               |                 |              |                |           |
|    | •     | •    | —         | —          | i                                                  | —                     | —             | 1r<br>2r                               | •            | •                | •            | LCD/<br>LED<br>Look     | 2x6              | 48x48<br>[1.89 x 1.89] | 45x45<br>[1.77 x 1.77] | 91<br>[3.58]  | -10 ... +50<br>[+14 ... +122] | IP65            | AC/DC        | •              | —         |
|    | •     | •    | •         | •          | i                                                  | —                     | —             | up to<br>4r<br>6o                      | •            | •                | •            | LCD/<br>LED<br>Look     | 2x6              | 48x48<br>[1.89 x 1.89] | 45x45<br>[1.77 x 1.77] | 91<br>[3.58]  | -20 ... +65<br>[-4 ... +149]  | IP65            | AC/DC        | •              | CE<br>UL  |
| <b>LED touch position preset counters</b>                                           |       |      |           |            |                                                    |                       |               |                                        |              |                  |              |                         |                  |                        |                        |               |                               |                 |              |                |           |
|    | •     | •    | •         | •          | i                                                  | SI<br>FB              | —             | 2r                                     | •            | •                | •            | LED                     | 6                | 96x48<br>[3.78 x 1.89] | 92x45<br>[3.62 x 1.77] | 91<br>[3.58]  | -20 ... +65<br>[-4 ... +149]  | IP65            | AC/DC        | •              | CE<br>UL  |
| <b>LCD touch position preset counters</b>                                           |       |      |           |            |                                                    |                       |               |                                        |              |                  |              |                         |                  |                        |                        |               |                               |                 |              |                |           |
|  | —     | —    | •         | •          | s                                                  | SI<br>FB              | —             | 4o<br>2r                               | •            | •                | •            | LCD<br>touch<br>3 color | 8                | 96x48<br>[3.78 x 1.89] | 92x45<br>[3.62 x 1.77] | 120<br>[4.72] | -20 ... +60<br>[-4 ... +140]  | IP65            | AC/DC        | •              | —         |
|  | •     | •    | •         | •          | i                                                  | SI<br>FB              | —             | 4o<br>2r                               | •            | •                | •            | LCD<br>touch<br>3 color | 8                | 96x48<br>[3.78 x 1.89] | 92x45<br>[3.62 x 1.77] | 120<br>[4.72] | -20 ... +60<br>[-4 ... +140]  | IP65            | AC/DC        | •              | —         |
|  | —     | —    | •         | •          | a                                                  | SI<br>FB<br>IO-Link   | —             | 4o<br>2r                               | •            | •                | •            | LCD<br>touch<br>3 color | 8                | 96x48<br>[3.78 x 1.89] | 92x45<br>[3.62 x 1.77] | 120<br>[4.72] | -20 ... +60<br>[-4 ... +140]  | IP65            | AC/DC        | •              | —         |



Multifunction devices  
electronic

|                                                                                     |                                                                                                                                | Pulse | Time | Frequency | Tachometer | Position | Serial interface (SI)<br>Fieldbus (FB) | Presets:<br>o = optocoupler; r = relay    | Reset manual | Reset electrical | Programmable | Display                 | Number of digits | Dimensions front in mm | Panel cut-out in mm      | Depth in mm    | Temperature range in °C   | Protection max. | Power supply | RoHS compliant | Approvals                                                                             |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|-------|------|-----------|------------|----------|----------------------------------------|-------------------------------------------|--------------|------------------|--------------|-------------------------|------------------|------------------------|--------------------------|----------------|---------------------------|-----------------|--------------|----------------|---------------------------------------------------------------------------------------|
| <b>LED multifunction displays</b>                                                   |                                                                                                                                |       |      |           |            |          |                                        |                                           |              |                  |              |                         |                  |                        |                          |                |                           |                 |              |                |                                                                                       |
|    | <b>Codix 524</b><br>multifunctional                                                                                            | •     | •    | •         | •          | •        | —                                      | 1 <sub>o</sub>                            | •            | •                | •            | LED                     | 6                | 48x24<br>[1.89 x 0.94] | 45x22.2<br>[1.77 x 0.87] | 59<br>[2.32]   | -20...+65<br>[-4...+149]  | IP65            | DC           | •              |    |
|    | <b>Codix 544</b><br>multifunctional                                                                                            | •     | •    | •         | •          | •        | —                                      | 1 <sub>o</sub>                            | •            | •                | •            | LED                     | 6                | 96x48<br>[3.78 x 1.89] | 92x45<br>[3.62 x 1.77]   | 83<br>[3.27]   | -20...+65<br>[-4...+149]  | IP65            | AC/DC        | •              |    |
| <b>LCD multifunction preset counters</b>                                            |                                                                                                                                |       |      |           |            |          |                                        |                                           |              |                  |              |                         |                  |                        |                          |                |                           |                 |              |                |                                                                                       |
|    | <b>901</b><br>1 preset – pulse, time<br>(battery)                                                                              | •     | •    | —         | —          | —        | —                                      | 1 <sub>r</sub>                            | •            | •                | •            | LCD                     | 2x6              | 48x48<br>[1.89 x 1.89] | 45x45<br>[1.77 x 1.77]   | 63.2<br>[2.49] | -20...+65<br>[-4...+149]  | IP65            | batt.        | •              |    |
|   | <b>Codix 907 / 908</b><br>multicolor display<br>(optional),<br>decade keyboard,<br>count frequency 5 kHz                       | •     | •    | —         | —          | •        | —                                      | 1 <sub>r</sub><br>2 <sub>r</sub>          | •            | •                | •            | LCD/<br>LED<br>Look     | 2x6              | 48x48<br>[1.89 x 1.89] | 45x45<br>[1.77 x 1.77]   | 91<br>[3.58]   | -10...+50<br>[+14...+122] | IP65            | AC/DC        | •              | —                                                                                     |
|  | <b>Codix 923 / 924</b><br>multicolor display<br>(optional),<br>decade keyboard,<br>count frequency 65 kHz                      | •     | •    | •         | •          | •        | —                                      | up to<br>4 <sub>r</sub><br>6 <sub>o</sub> | •            | •                | •            | LCD/<br>LED<br>Look     | 2x6              | 48x48<br>[1.89 x 1.89] | 45x45<br>[1.77 x 1.77]   | 91<br>[3.58]   | -20...+65<br>[-4...+149]  | IP65            | AC/DC        | •              |  |
| <b>LED multifunction preset counter</b>                                             |                                                                                                                                |       |      |           |            |          |                                        |                                           |              |                  |              |                         |                  |                        |                          |                |                           |                 |              |                |                                                                                       |
|  | <b>Codix 560</b><br>LED multifunction preset<br>counters,<br>14 segment LED,<br>automatic help texts,<br>opt. serial interface | •     | •    | •         | •          | •        | SI<br>FB                               | 2 <sub>r</sub>                            | •            | •                | •            | LED                     | 6                | 96x48<br>[3.78 x 1.89] | 92x45<br>[3.62 x 1.77]   | 91<br>[3.58]   | -20...+65<br>[-4...+149]  | IP65            | AC/DC        | •              |  |
| <b>LCD touch multifunction preset counter</b>                                       |                                                                                                                                |       |      |           |            |          |                                        |                                           |              |                  |              |                         |                  |                        |                          |                |                           |                 |              |                |                                                                                       |
|  | <b>571T</b><br>multifunctional<br>(also reciprocal)<br>analog output,<br>serial interface                                      | •     | •    | •         | •          | •        | SI<br>FB                               | 4 <sub>o</sub><br>2 <sub>r</sub>          | •            | •                | •            | LCD<br>touch<br>3 color | 8                | 96x48<br>[3.78 x 1.89] | 92x45<br>[3.62 x 1.77]   | 120<br>[4.72]  | -20...+60<br>[-4...+140]  | IP65            | AC/DC        | •              | —                                                                                     |
| <b>LED dual function displays</b>                                                   |                                                                                                                                |       |      |           |            |          |                                        |                                           |              |                  |              |                         |                  |                        |                          |                |                           |                 |              |                |                                                                                       |
|  | <b>Codix 52U</b><br>with dual functions<br>in 4 combinations                                                                   | •     | •    | •         | •          | —        | —                                      | —                                         | •            | •                | •            | LED                     | 6                | 48x24<br>[1.89 x 0.94] | 45x22.2<br>[1.77 x 0.87] | 59<br>[2.32]   | -20...+65<br>[-4...+149]  | IP65            | DC           | •              |  |
|                                                                                     | <b>Codix 52P + Frequency</b><br>6 count modes                                                                                  | •     | —    | •         | •          | •        | —                                      | —                                         | •            | •                | •            | LED                     | 6                | 48x24<br>[1.89 x 0.94] | 45x22.2<br>[1.77 x 0.87] | 59<br>[2.32]   | -20...+65<br>[-4...+149]  | IP65            | DC           | •              |  |
|                                                                                     | <b>Codix 52T</b><br>2 counters with separate<br>scaling                                                                        | •     | —    | —         | —          | —        | —                                      | —                                         | •            | •                | •            | LED                     | 6                | 48x24<br>[1.89 x 0.94] | 45x22.2<br>[1.77 x 0.87] | 59<br>[2.32]   | -20...+65<br>[-4...+149]  | IP65            | DC           | •              |  |
|                                                                                     | <b>Codix 52C</b><br>2 counters with separate<br>inputs and separate<br>scaling                                                 | •     | —    | —         | —          | —        | —                                      | —                                         | •            | •                | •            | LED                     | 6                | 48x24<br>[1.89 x 0.94] | 45x22.2<br>[1.77 x 0.87] | 59<br>[2.32]   | -20...+65<br>[-4...+149]  | IP65            | DC           | •              |  |
|  | <b>Codix 54U</b><br>with dual functions<br>in 4 combinations                                                                   | •     | •    | •         | •          | —        | —                                      | —                                         | •            | •                | •            | LED                     | 6                | 96x48<br>[3.78 x 1.89] | 92x45<br>[3.62 x 1.77]   | 83<br>[3.27]   | -20...+65<br>[-4...+149]  | IP65            | AC/DC        | •              |  |
|                                                                                     | <b>Codix 54P + Frequency</b><br>6 count modes                                                                                  | •     | —    | •         | •          | •        | —                                      | —                                         | •            | •                | •            | LED                     | 6                | 96x48<br>[3.78 x 1.89] | 92x45<br>[3.62 x 1.77]   | 83<br>[3.27]   | -20...+65<br>[-4...+149]  | IP65            | AC/DC        | •              |  |

## Multifunction devices Electromechanical

|                                                                                   |                                                            | Pulse | Time | kWh | Panel mounting | PCB mounting | Base mounting | DIN rail mounting | Reset | Number of digits | Dimensions in mm [inch]     | Panel cut-out in mm [inch]<br>(for front panel version) | Temperature range in °C [°F] | Protection max. | Supply type | RoHS compliant | Approvals                                                                             |
|-----------------------------------------------------------------------------------|------------------------------------------------------------|-------|------|-----|----------------|--------------|---------------|-------------------|-------|------------------|-----------------------------|---------------------------------------------------------|------------------------------|-----------------|-------------|----------------|---------------------------------------------------------------------------------------|
|  | <b>HC77</b><br>combination<br>hour meter<br>and totalizer  | •     | •    | –   | •              | –            | –             | –                 | –     | 2x7              | from 48x48<br>[1.89 x 1.89] | 45x45<br>[1.77 x 1.77]<br>ø 50.5 [1.99]                 | -15 ... +50<br>[+5...+122]   | IP65            | AC/DC       | •              | c  |
|  | <b>SHC77</b><br>combination<br>hour meter<br>and totalizer | •     | •    | –   | –              | –            | –             | •                 | –     | 2x7              | 48.5x61.5<br>[1.91 x 2.42]  | –                                                       | -15 ... +50<br>[+5...+122]   | IP52            | AC/DC       | •              | c  |

## Energy meters

|                                                                                     |                                                            | Pulse | Time | kWh | Panel mounting | PCB mounting | Base mounting | DIN rail mounting | Reset | Number of digits | Dimensions in mm [inch]     | Panel cut-out in mm [inch]<br>(for front panel version) | Temperature range in °C [°F] | Protection max. | Supply type | RoHS compliant | Approvals |
|-------------------------------------------------------------------------------------|------------------------------------------------------------|-------|------|-----|----------------|--------------|---------------|-------------------|-------|------------------|-----------------------------|---------------------------------------------------------|------------------------------|-----------------|-------------|----------------|-----------|
|  | <b>HW66M</b><br>combination hour meter<br>and energy meter | –     | •    | •   | •              | –            | –             | • <sup>1)</sup>   | –     | 2x6              | from 48x48<br>[1.89 x 1.89] | 45x45<br>[1.77 x 1.77]<br>ø 50 [1.97]                   | -10 ... +55<br>[+14...+131]  | IP65            | AC          | •              | MID       |

1) With mounting frame.



## Process devices

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Gaskets

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## Process displays

## Process controllers

|                                                                                    |                                                                                                                              | Standard signal 0...20; 4...20 mA | Standard signal 0...10; 2...10 V | Standard signal $\pm 10$ V | Serial interface (SI) Fieldbus (FB) | Input characteristic curve<br>S = control points | Presets / limit values<br>o = optocoupler; r = relay | Analog output | Display                 | Number of digits | Dimensions front in mm   | Depth in mm    | Temperature range in °C      | Protection max. | Power supply | RoHS compliant | Approvals |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|----------------------------------|----------------------------|-------------------------------------|--------------------------------------------------|------------------------------------------------------|---------------|-------------------------|------------------|--------------------------|----------------|------------------------------|-----------------|--------------|----------------|-----------|
| <b>LED process display</b>                                                         |                                                                                                                              |                                   |                                  |                            |                                     |                                                  |                                                      |               |                         |                  |                          |                |                              |                 |              |                |           |
|   | <b>Codix 534</b><br>Min / Max value detection with totalizer                                                                 | •                                 | •                                | –                          | –                                   | linear                                           | –                                                    | –             | LED                     | 5                | 48 x 24<br>[1.89 x 0.94] | 59<br>[2.32]   | -20 ... +65<br>[-4 ... +149] | IP65            | DC           | •              | CE, UL    |
| <b>LED process controller</b>                                                      |                                                                                                                              |                                   |                                  |                            |                                     |                                                  |                                                      |               |                         |                  |                          |                |                              |                 |              |                |           |
|   | <b>Codix 565</b><br>standard input signal<br>Min / Max value detection<br>2 limit values with totalizer, tare, analog output | •                                 | •                                | •                          | –                                   | 12 S                                             | 2 r                                                  | •             | LED                     | 6                | 96 x 48<br>[3.78 x 1.89] | 90.5<br>[3.56] | -20 ... +65<br>[-4 ... +149] | IP65            | AC/DC        | •              | CE, UL    |
| <b>LCD touch process controller</b>                                                |                                                                                                                              |                                   |                                  |                            |                                     |                                                  |                                                      |               |                         |                  |                          |                |                              |                 |              |                |           |
|  | <b>573T IO-Link</b><br>2 inputs<br>4 limit values, analog output, serial interface                                           | •                                 | •                                | •                          | SI<br>FB<br>IO-Link                 | 24 S                                             | 4 o<br>2 r                                           | •             | LCD<br>touch<br>3 color | 8                | 96 x 48<br>[3.78 x 1.89] | 120<br>[4.72]  | -20 ... +60<br>[-4 ... +140] | IP65            | AC/DC        | •              | –         |

## Setpoint adjusters

|                                                                                     |                                                                                                                | Display | Number of digits | Dimensions front in mm   | Depth in mm  | Temperature range in °C      | Protection max. | Power supply | RoHS compliant | Approvals |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|---------|------------------|--------------------------|--------------|------------------------------|-----------------|--------------|----------------|-----------|
| <b>LED setpoint adjuster</b>                                                        |                                                                                                                |         |                  |                          |              |                              |                 |              |                |           |
|  | <b>Codix 533</b><br>setpoint adjuster<br>0...12 V output<br>0...24 mA output<br>manual or time-based operation | LED     | 4                | 48 x 24<br>[1.89 x 0.94] | 59<br>[2.32] | -20 ... +65<br>[-4 ... +149] | IP65            | DC           | •              | CE, UL    |

Temperature displays  
Temperature controllers

|                                                                                   |                                                                                    | Temperature<br>Thermocouples | Temperature<br>Resistance thermometers<br>(RTDs) | mV/V sensors /<br>strain gauge input | Input characteristic curve<br>S = control points | Preset / limit values<br>o = optocoupler; r = relay | Analog output | Display | Number of digits | Dimensions front in mm [inch] | Depth in mm [inch] | Temperature range in °C [°F] | Protection max. | Power supply | RoHS compliant | Approvals                                                                           |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------|--------------------------------------------------|--------------------------------------|--------------------------------------------------|-----------------------------------------------------|---------------|---------|------------------|-------------------------------|--------------------|------------------------------|-----------------|--------------|----------------|-------------------------------------------------------------------------------------|
| LED temperature displays                                                          |                                                                                    |                              |                                                  |                                      |                                                  |                                                     |               |         |                  |                               |                    |                              |                 |              |                |                                                                                     |
|  | <b>Codix 531</b><br>Min / Max value detection                                      | –                            | Pt100<br>Ni100                                   | –                                    | –                                                | –                                                   | –             | LED     | 5                | 48x24<br>[1.89 x 0.94]        | 59<br>[2.32]       | -20...+65<br>[-4...+149]     | IP65            | DC           | •              |  |
|  | <b>Codix 532</b><br>Min / Max value detection                                      | J; K; N                      | –                                                | –                                    | –                                                | –                                                   | –             | LED     | 5                | 48x24<br>[1.89 x 0.94]        | 59<br>[2.32]       | -20...+65<br>[-4...+149]     | IP65            | DC           | •              |  |
| LED temperature controller                                                        |                                                                                    |                              |                                                  |                                      |                                                  |                                                     |               |         |                  |                               |                    |                              |                 |              |                |                                                                                     |
|  | <b>Codix 564</b><br>Min / Max value detection,<br>2 limit values,<br>analog output | B; E; J;<br>K; N; R;<br>S; T | Pt100<br>0...500 Ω                               | ±100 mV                              | 12 S                                             | 2 r                                                 | •             | LED     | 6                | 96x48<br>[3.78 x 1.89]        | 90.5<br>[3.56]     | -20...+65<br>[-4...+149]     | IP65            | AC/DC        | •              |  |

Strain-Gauge controllers

|                                                                                   |                                                                                                            | mV/V sensors /<br>strain gauge input | Input characteristic curve<br>S = control points | Presets / limit values<br>o = optocoupler; r = relay | Analog output | Display | Number of digits | Dimensions front in mm [inch] | Depth in mm [inch] | Temperature range in °C [°F] | Protection max. | Power supply | RoHS compliant | Approvals                                                                           |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|--------------------------------------|--------------------------------------------------|------------------------------------------------------|---------------|---------|------------------|-------------------------------|--------------------|------------------------------|-----------------|--------------|----------------|-------------------------------------------------------------------------------------|
| LED strain-gauge controller                                                       |                                                                                                            |                                      |                                                  |                                                      |               |         |                  |                               |                    |                              |                 |              |                |                                                                                     |
|  | <b>Codix 566</b><br>Min / Max value detection,<br>2 limit values with<br>totalizer, tare,<br>analog output | 1.0<br>1.5<br>2.0<br>3.0<br>3.3 mV/V | 12 S                                             | 2 r                                                  | •             | LED     | 6                | 96 x 48<br>[3.78 x 1.89]      | 90.5<br>[3.56]     | -20 ... +65<br>[-4 ... +149] | IP65            | AC/DC        | •              |  |



## Safe speed monitors

### Reliable and safe speed monitoring.

The compact base module of the Safety-M compact series is a complete speed monitor in the smallest possible space (50 mm wide). The detachable operating and diagnostic display (OLED) stands for simple parameterization. The safe inputs/outputs and integrated signal splitter allow integration into existing safety circuits and upgrade of old machines.



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Display and programming unit



Programming cable, set



EMC shield terminal for encoder cable



Cordset pre-assembled cable



Parameterization software SafeConfig



## Safety modules

### Safety-M compact

|                                                                                                                                                    | Monitoring - number of axes | Encoder systems | Safe digital input lines | Signal splitter / USB programming interface | Relay output lines | Safe digitale output lines | Analog output lines | Encoder interface  | Power supply in VDC | Module width in mm [inch] | RoHS compliant | Approvals               |
|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-----------------|--------------------------|---------------------------------------------|--------------------|----------------------------|---------------------|--------------------|---------------------|---------------------------|----------------|-------------------------|
|  Speed monitoring<br>1 axis / 1 encoder system<br><b>SMC1.1</b>   | 1                           | 1               | 4/2                      | 1                                           | 1                  | 8 / 4                      | 1<br>opt.           | SinCos             | 24                  | 50                        | •              | SIL3<br>PL <sub>e</sub> |
|  Speed monitoring<br>1 axis / 2 encoder systems<br><b>SMC2.2</b>  | 1                           | 2               | 4/2                      | 1                                           | 1                  | 8 / 4                      | 1<br>opt.           | HTL/TTL/<br>SinCos | 24                  | 50                        | •              | SIL3<br>PL <sub>e</sub> |
|  Speed monitoring<br>1 axis / 1 encoder system<br><b>SMC1.3</b>   | 1                           | 1               | 8/4                      | 1                                           | 2                  | 8 / 4                      | 1<br>opt.           | HTL/TTL            | 24                  | 50                        | •              | SIL2<br>PL <sub>d</sub> |
|  Speed monitoring<br>1 axis / 2 encoder systems<br><b>SMC2.4</b> | 1                           | 2               | 8/4                      | 1                                           | 2                  | 8 / 4                      | 1<br>opt.           | HTL/TTL            | 24                  | 50                        | •              | SIL3<br>PL <sub>e</sub> |

Incremental encoders  
for Functional Safety

|                                                                                   |                                                                                                                            | Ø Dimensions in mm [inch] | Magnetic (accuracy ±1°) | Optical (accuracy ≤ ±0.015°) | Resolution max. in ppr | Push-pull | RS422 | SinCos | Open Collector | Ø Hollow shaft max. in mm [inch] | Speed max. in min <sup>-1</sup> | Temperature range in °C [°F]  | Protection max. | Type of connection  | Power supply in V DC | Pulse frequency max. in kHz | RoHS compliant | Approvals                                              |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|---------------------------|-------------------------|------------------------------|------------------------|-----------|-------|--------|----------------|----------------------------------|---------------------------------|-------------------------------|-----------------|---------------------|----------------------|-----------------------------|----------------|--------------------------------------------------------|
|  | Standard, optical<br>sine wave output, SIL2 / PLd<br><b>Sendix 5814FS2</b> (shaft)<br><b>Sendix 5834FS2</b> (hollow shaft) | 58<br>[2.28]              | –                       | •                            | 1.024<br>and<br>2.048  | –         | –     | •      | –              | 14                               | 12.000                          | -40 ... +90<br>[-40 ... +194] | IP67            | cable<br>M12<br>M23 | 5<br>10 ... 30       | 400                         | •              | cUL <sup>US</sup><br>Ex <sup>2/22</sup><br>SIL2<br>PLd |
|  | Standard, optical<br>sine wave output, SIL3 / PLe<br><b>Sendix 5814FS3</b> (shaft)<br><b>Sendix 5834FS3</b> (hollow shaft) | 58<br>[2.28]              | –                       | •                            | 1.024<br>and<br>2.048  | –         | –     | •      | –              | 14                               | 12.000                          | -40 ... +90<br>[-40 ... +194] | IP67            | cable<br>M12<br>M23 | 5<br>10 ... 30       | 400                         | •              | cUL <sup>US</sup><br>Ex <sup>2/22</sup><br>SIL3<br>PLe |

Absolute encoders  
for Functional Safety

|                                                                                     |                                                                                                                                  | Ø Dimensions in mm [inch] | Magnetic (accuracy ±1°) | Optical (accuracy ≤ ±0.015°) | Resolution max. in bit | SSI interface | BiSS interface | Additional incremental track | Speed max. in min <sup>-1</sup> | Temperature range in °C [°F]  | Protection max. | Type of connection | Power supply in V DC | RoHS compliant | Approvals                                              |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|---------------------------|-------------------------|------------------------------|------------------------|---------------|----------------|------------------------------|---------------------------------|-------------------------------|-----------------|--------------------|----------------------|----------------|--------------------------------------------------------|
| <b>Singleturn</b>                                                                   |                                                                                                                                  |                           |                         |                              |                        |               |                |                              |                                 |                               |                 |                    |                      |                |                                                        |
|  | Standard, optical<br>SIL2 / PLd<br><b>Sendix 5853FS2</b> (shaft)<br><b>Sendix 5873FS2</b> (hollow shaft)                         | 58                        | –                       | •                            | 17                     | •             | •              | SinCos                       | 12.000                          | -40 ... +90<br>[-40 ... +194] | IP67            | cable<br>M23       | 5<br>10 ... 30       | •              | cUL <sup>US</sup><br>Ex <sup>2/22</sup><br>SIL2<br>PLd |
|  | Standard, optical<br>SIL3 / PLe<br><b>Sendix 5853FS3</b> (shaft)<br><b>Sendix 5873FS3</b> (hollow shaft)                         | 58                        | –                       | •                            | 17                     | •             | •              | SinCos                       | 12.000                          | -40 ... +90<br>[-40 ... +194] | IP67            | cable<br>M23       | 5<br>10 ... 30       | •              | cUL <sup>US</sup><br>Ex <sup>2/22</sup><br>SIL3<br>PLe |
| <b>Multiturn</b>                                                                    |                                                                                                                                  |                           |                         |                              |                        |               |                |                              |                                 |                               |                 |                    |                      |                |                                                        |
|  | Standard, optical<br>mechanical multiturn<br>SIL2 / PLd<br><b>Sendix 5863FS2</b> (shaft)<br><b>Sendix 5883FS2</b> (hollow shaft) | 58                        | –                       | •                            | 17 +12                 | •             | •              | SinCos                       | 12.000                          | -40 ... +90<br>[-40 ... +194] | IP67            | cable<br>M23       | 5<br>10 ... 30       | •              | cUL <sup>US</sup><br>Ex <sup>2/22</sup><br>SIL2<br>PLd |
|  | Standard, optical<br>mechanical multiturn<br>SIL3 / PLe<br><b>Sendix 5863FS3</b> (shaft)<br><b>Sendix 5883FS3</b> (hollow shaft) | 58                        | –                       | •                            | 17 +12                 | •             | •              | SinCos                       | 12.000                          | -40 ... +90<br>[-40 ... +194] | IP67            | cable<br>M23       | 5<br>10 ... 30       | •              | cUL <sup>US</sup><br>Ex <sup>2/22</sup><br>SIL3<br>PLe |



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