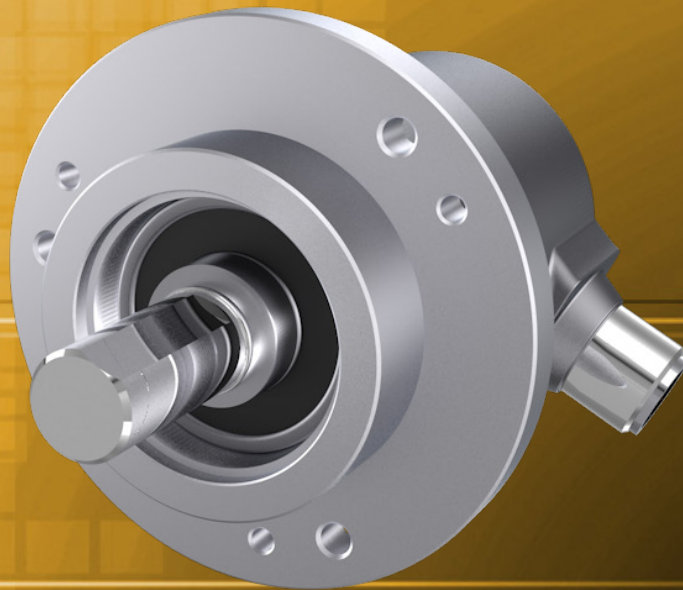


ANALOG ENCODER



Series M58

Key-Features:

- Low wear magnetic encoder without gear
- Solid shaft with diameter 6 mm or 10 mm
- Flange diameter 58 mm
- Analog output: 4...20 mA, 0...5 V, 0...10 V
- Singleturn linearity $\pm 1^\circ$
- Mechanical speed up to 4000 min⁻¹
- Protection class IP65
- Temperature range -40...+85 °C

Content:

| | |
|------------------------------|--------------|
| Technical Data |2 |
| Technical Drawing |3 |
| Electrical Connection |3 |
| Accessories |4 |
| Order Code |6 |

TECHNICAL DATA

| | | |
|---------------------------------|----------------------|---|
| Measurement range | | 16 revolutions or scalable up to 65536 revolutions |
| Linearity singleturn (at 20 °C) | [°] | ±1 |
| Repeatability (at 20 °C) | [°] | ±0.2 |
| Shaft type | | solid shaft (with flat) |
| Shaft diameter Ø x L | [mm] | 6 x 12.5 / 10 x 20 |
| Flange type | [mm] | synchro flange Ø 58 / clamping flange Ø 58 |
| Output signal | | see electrical data below |
| Connection | | cable output or connector output M12, 5 poles |
| Mechanical speed | [min ⁻¹] | 4000 (continuous: 2000) |
| Starting torque (at 20 °C) | [Nm] | <0.01 |
| Shaft load capacity | [N] | radial: 80 / axial: 40 |
| Protection class | | IP65 |
| Operating temperature | [°C] | -40...+85 |
| Temperature coefficient | [ppm/K] | <100 |
| Shock resistance | | 5000 m/s ² , 4 ms (according to EN 60068-2-27) |
| Vibration resistance | | 300 m/s ² , 10...2000 Hz (according to EN 60068-2-6) |
| Shaft material | | V2A |
| Flange material | | Aluminium |
| Housing material | | zinc die-cast |
| Weight | [g] | approx. 200 |

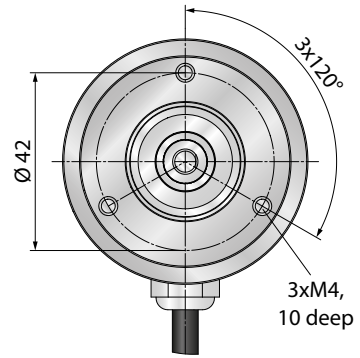
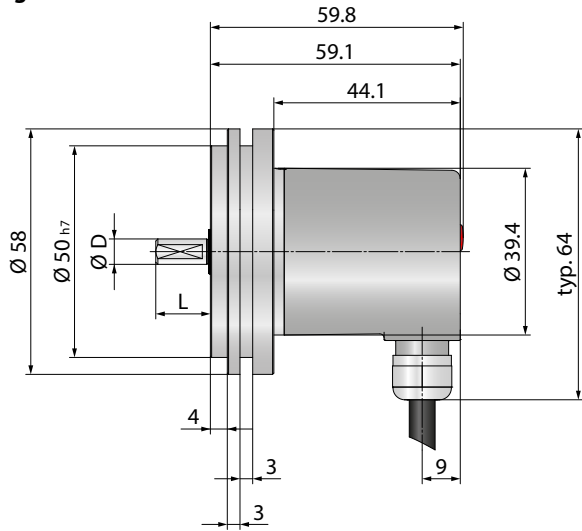
ELECTRICAL DATA

| Output signal | | 4...20 mA | 0...5 V | 0...10 V |
|------------------------------------|-------|---|--|---|
| Resolution DA converter | [bit] | 12 | 11 | 12 |
| Supply | [VDC] | 10...30 | | 15...30 |
| Current consumption (no load) | [mA] | 30 | | |
| Output load max. | [kΩ] | 0.2...1.2 (0.9 at 24 VDC) | - | - |
| Output current max. | [mA] | - | 10 | |
| Setting time | | <1 ms (R _{burden} = 0.9 kΩ, 25 °C) | | <1 ms (R _{load} = 1 kΩ, 25 °C) |
| PowerON time | [s] | <1 | | |
| Update rate | [ms] | 1 | | |
| LED (green/red) | | <ul style="list-style-type: none"> • system status • current loop interruption - input load too high • reference point display (only with factory settings) at clockwise: 0°...1° at counterclockwise: 0°...-1° • status in teach modus | <ul style="list-style-type: none"> • system status • reference point display (only with factory settings) at clockwise: 0°...1° at counterclockwise: 0°...-1° • status in teach modus | |
| Teach inputs | | level = +V for min. 1 s | | |
| Short circuit proof outputs | | yes ¹⁾ | | |
| Reverse polarity protection supply | | yes | | |
| CE compliant | | according to EMC guideline 2014/30/EU and RoHS guideline 2011/65/EU | | |

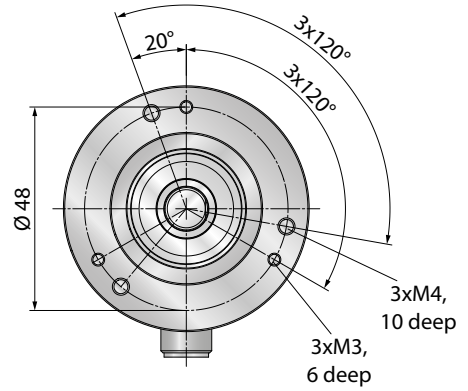
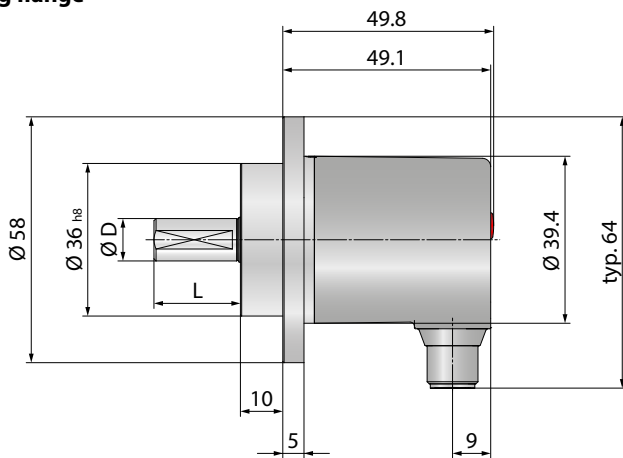
¹⁾ if power supply is applied correctly

TECHNICAL DRAWING

Synchro flange



Clamping flange



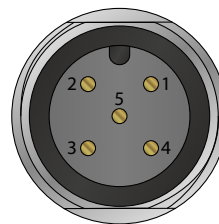
| D | Fit | L |
|----|-----|------|
| 6 | h7 | 12.5 |
| 10 | f7 | 20 |

ELECTRICAL CONNECTION

| Function | Connector output | Cable output |
|---------------------|------------------|--------------|
| Signal | 1 | GN |
| +V | 2 | BN |
| GND | 3 | WH |
| Set 2 ¹⁾ | 4 | PK |
| Set 1 ¹⁾ | 5 | GY |

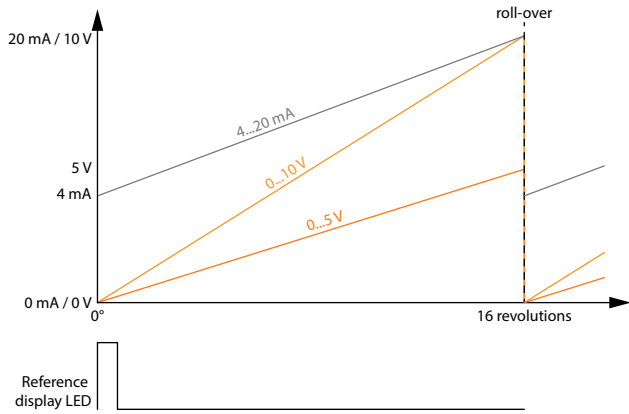
¹⁾ only with scalable versions.
 Set 1: input for teach point 1
 Set 2: input for teach point 2

Connector output M12, male

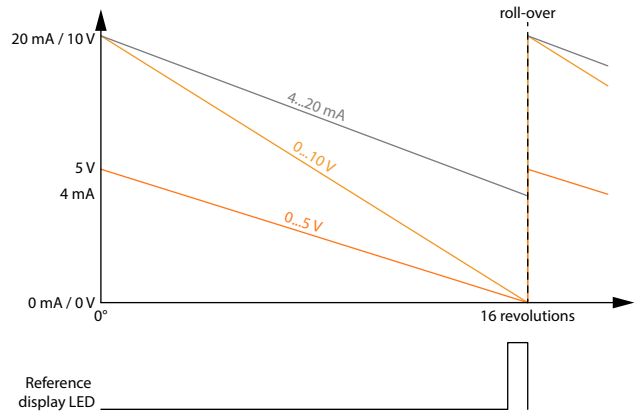


EXAMPLE OUTPUT DIAGRAMS

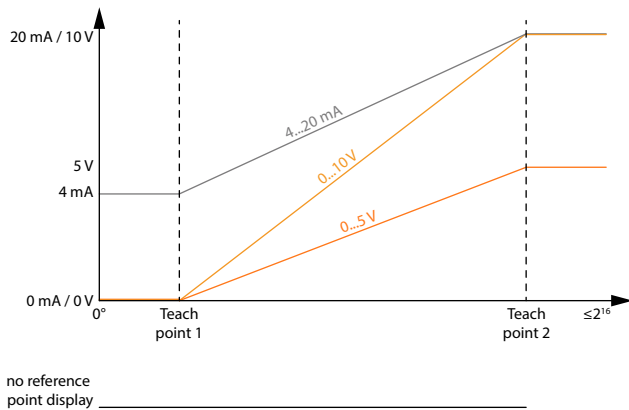
Version 16 revolutions, clockwise



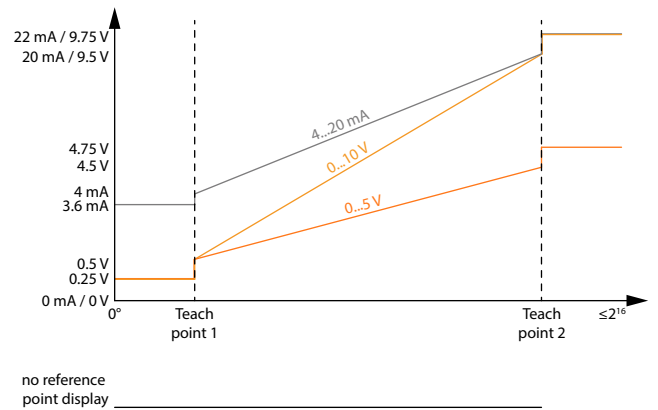
Version 16 revolutions, counterclockwise



Version scalable up to 65536 revolutions, without limit switch



Version scalable up to 65536 revolutions, with limit switch



Measurement range with factory settings:
16 revolutions with roll-over

Limit switch function:

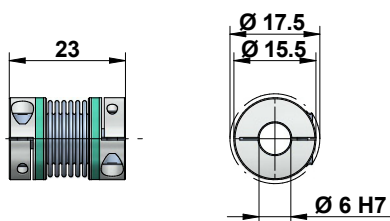
| Version | 4...20 mA | 0...5 V | 0...10 V |
|-------------------|-----------|---------|----------|
| Limit switch low | 3.6 mA | 0.25 V | 0.25 V |
| Limit switch high | 22 mA | 4.75 V | 9.75 V |

ACCESSORIES COUPLINGS

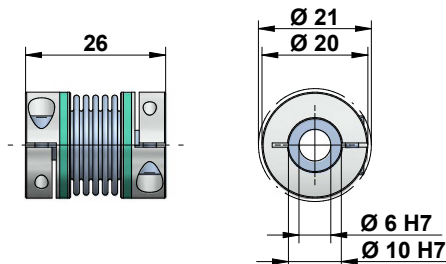
Rotary transducers should never be connected to shafts or drives in an inflexible, stiff way. For this reason, we recommend using a coupling between the rotary transducer and the shaft. Bellow couplings are used for the free of backlash connection between an encoder and a shaft. The couplings are free of wear and compensate lateral, axial and angular shaft misalignment. The mounting on the shaft is done by clamping hubs.

Never use force to align the rotary angle transducer!

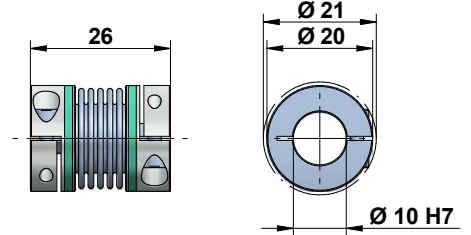
MBK-15.5-23-06-06



MBK-20-26-06-10



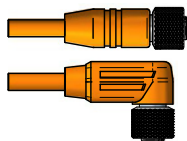
MBK-20-26-10-10



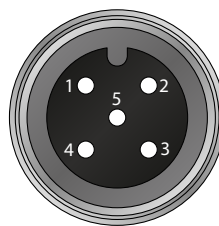
ACCESSORIES CABLES AND CONNECTORS

K5P: cable with mating connector

- M12 connector straight or angular
- 5 poles
- Protection class IP67



| Pin | Cable colour |
|-----|--------------|
| 1 | BN |
| 2 | WH |
| 3 | BU |
| 4 | BK |
| 5 | GY |



D5: mating connector

- for self assembly
- M12 connector straight or angular
- 5 poles
- Protection class IP67
- Cable diameter \varnothing 4...8 mm

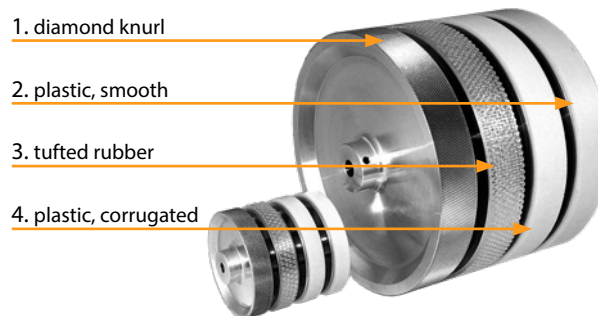


ACCESSORIES MEASURING WHEELS AND SPRING ENCODER ARM

Measuring wheels for measuring the length of products in movement, e.g. in the paper, metal, textile, wood or plastic industry.

| Circumference | [m] | 0.2 | 0.5 | 0.3 |
|------------------------|------|--|---|--------------------------------|
| Diameter | [mm] | 63.7 | 159.2 | 97.03 |
| Width | [mm] | 12 | 25 | 9.65 |
| Bore diameter | [mm] | 10 | | |
| Weight | [g] | 60 | 775 (Profile 1), 700 (Profiles 2, 3, 4) | 100 |
| Temperature | [°C] | -30...+80 | | |
| Material of wheel body | | Aluminium | | |
| Profile | | 1. diamond knurl (aluminium) / 2. plastic (polyurethane), smooth / 3. tufted rubber (polyurethane) / 4. plastic (polyurethane), corrugated | | 5. natural rubber (NR), smooth |

| Surface of the measured material | Recommended profile |
|---|---------------------|
| Cardboard | 1, 2, 3, 4, 5 |
| Wood | 1, 2, 3, 4, 5 |
| Textile | 1, 2, 3, 4 |
| Plastic (PVC, PE, ...) | 2, 3, 4, 5 |
| Paper | 2, 3, 4, 5 |
| Wire, greased metals, steel profiles, leather | 2 |
| Carpet, cables, nonwoven | 3 |
| Greased metals, glass, floor coverings | 4 |
| Painted surfaces | 2, 4 |
| Rubber, soft plastic | 1 |

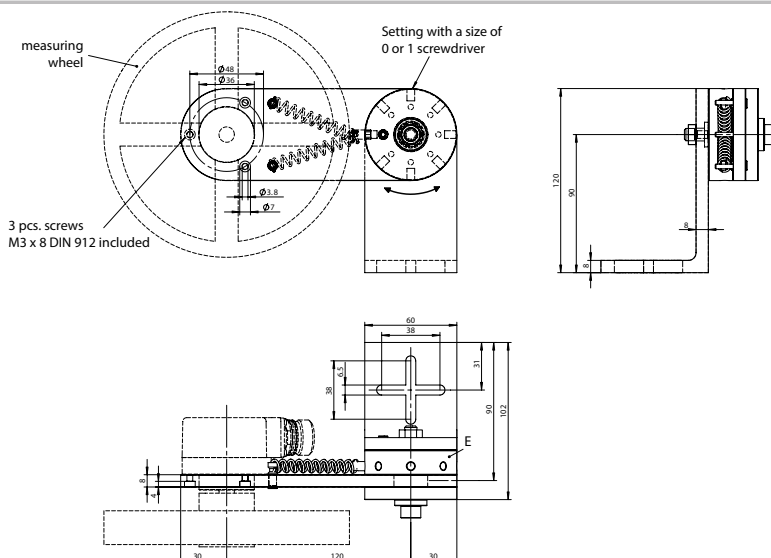


Please note:

If a measuring wheel is mounted directly on the shaft of a rotary encoder, the pressure force between the measuring wheel and measured material should not exceed the radial shaft load listed in this data sheet. In addition, the measuring wheels can only be used for in-house purposes which are not subject to the stipulations of the German calibration code.

Spring encoder arm for encoder with clamping flange

- Spring encoder arm for easy mounting of a measuring wheel with Encoder
- Flexible mounting position: 9 setting positions in 40° steps
- Base plate variable in 4 directions
- Adjustable spring pressure, max. 40 N
- Pressure for each notch approx. 20 N (first notch between 0 and approx. 20 N)
- Temperature range -40...120 °C



ORDER CODE

M58 - [] - [] - [] - [] - []

| | | | |
|--|---|--|---|
| <p>Measurement range 16 revolutions, clockwise Scalable up to 65536 r, cw 16 revolutions, counterclockwise Scalable up to 65536 r, ccw Scalable up to 65536 r, cw, limit switch Scalable up to 65536 r, ccw, limit switch</p> | <p>C A SC SA SCE SAE</p> | | <p>Connection Connector output M12, radial Cable output, radial ¹⁾</p> |
| <p>Shaft type, flange type Solid shaft, clamping flange Ø 58 mm Solid shaft, synchro flange Ø 58 mm</p> | <p>W S</p> | | <p>Output signal Current 4...20 mA Voltage 0...5 V Voltage 0...10 V</p> |
| | | | <p>Shaft diameter Ø 6 mm x 12.5 mm Ø 10 mm x 20 mm</p> |

¹⁾ length in m (min. 1 m)
 Example: KR01 = 1 m, KR02 = 2 m

ACCESSORIES

Cable with mating connector M12 (female), 5 poles, shielded

| | |
|---------------|--------------------------|
| K5P2M-S-M12 | 2 m, straight connector |
| K5P5M-S-M12 | 5 m, straight connector |
| K5P10M-S-M12 | 10 m, straight connector |
| K5P2M-SW-M12 | 2 m, angular connector |
| K5P5M-SW-M12 | 5 m, angular connector |
| K5P10M-SW-M12 | 10 m, angular connector |

Installation accessories

| | |
|-------------------|--|
| MBK-15.5-23-06-06 | Metal bellow coupling, 2 x Ø 6 mm |
| MBK-20-26-06-10 | Metal bellow coupling, Ø 6 mm, Ø 10 mm |
| MBK-20-26-10-10 | Metal bellow coupling, 2 x Ø 10 mm |

Spring encoder arm and measuring wheels

| | |
|----------|--|
| DGA-MSR | Spring encoder arm |
| MSR-02-1 | Wheel, diamond knurl, aluminium, circumference 0.2 m |
| MSR-02-2 | Wheel, smooth plastic, polyurethane, circumference 0.2 m |
| MSR-02-3 | Wheel, tufted rubber, polyurethane, circumference 0.2 m |
| MSR-02-4 | Wheel, corrugated plastic, polyurethane, circumference 0.2 m |

Digital displays for sensors with analog output, 2 channel

| | |
|-------------|-------------------------------------|
| WAY-AX-S | touch screen, supply: 18...30 VDC |
| WAY-AX-S-AC | touch screen, supply: 115...230 VAC |

For more information and options please refer to the [WAY-AX data sheet](#).

Mating connector M12 (female), 5 poles, shielded

| | |
|------------|--------------------------------------|
| D5-G-M12-S | straight connector for self assembly |
| D5-W-M12-S | angular connector for self assembly |

Spring encoder arm and measuring wheels

| | |
|----------|--|
| MSR-05-1 | Wheel, diamond knurl, aluminium, circumference 0.5 m |
| MSR-05-2 | Wheel, smooth plastic, polyurethane, circumference 0.5 m |
| MSR-05-3 | Wheel, tufted rubber, polyurethane, circumference 0.5 m |
| MSR-05-4 | Wheel, corrugated plastic, polyurethane, circumference 0.5 m |
| MSR-12-5 | Wheel, smooth natural rubber (NR), circumference 0.3 m |

Subject to change without prior notice.

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