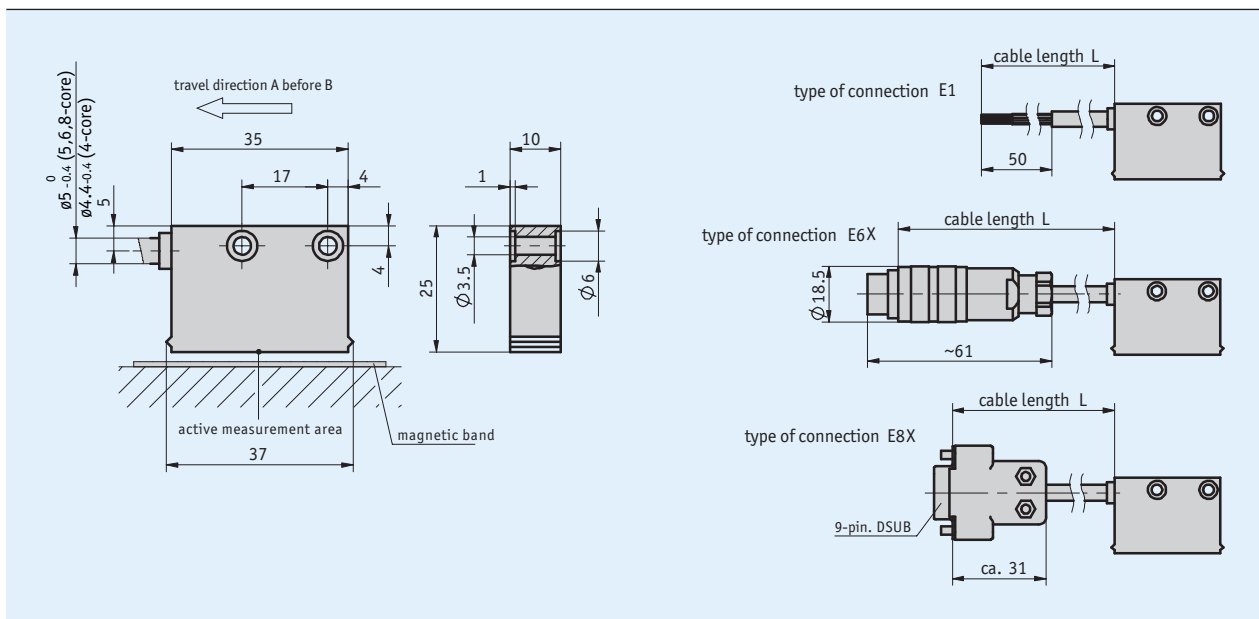
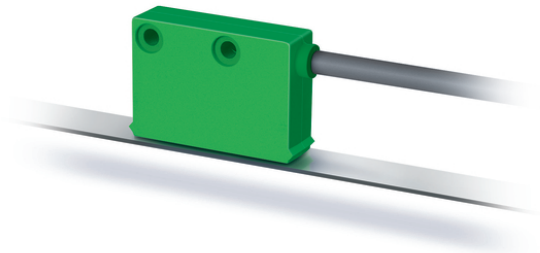


Profile

- Max. resolution 25 μm
- max. resolution 0.045° with MR200 or MBR200 (100 poles)
- Repeat accuracy $\pm 0.025\text{ mm}$
- Repeat accuracy of ± 1 increment
- Works with magnetic tape MB200/1
- Works with MR200 magnetic ring, MBR200 magnetic tape ring
- Reading distance $\leq 1\text{ mm}$
- Reading distance $\leq 0.8\text{ mm}$
- Max. 4600 pulses/revolution with MBR200 (230 poles)



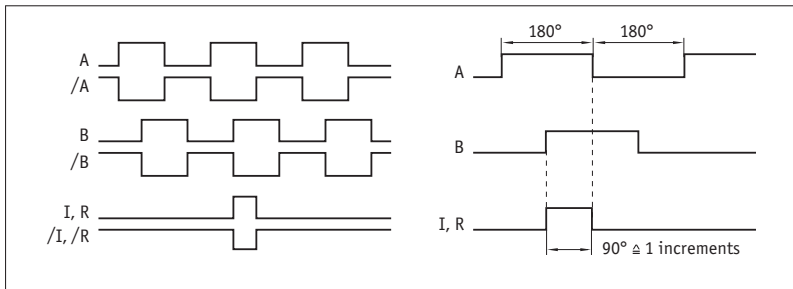
Mechanical data

| Feature | Technical data | Additional information |
|------------------------------|---------------------------------|---|
| Housing | green plastic | |
| Sensor/band reading distance | 0.1 ... 1 mm | 0, I reference signals |
| | 0.1 ... 0.4 mm | R reference signal |
| Sensor/ring reading distance | 0.1 ... 0.8 mm | 0, I reference signals |
| | 0.1 ... 0.4 mm | R reference signal |
| Cable sheath | PUR suitable for drag-chain use | 4-wire $\varnothing 4.4_{-0.4}\text{ mm}$; 5, 6, 8-wire $\varnothing 5_{-0.4}\text{ mm}$ |
| Cable bending radius | 5x cable diameter | static |
| | 7.5x cable diameter | dynamic |
| Service life of cable | >5 million cycles | under the following test conditions: travel range 4.5 m travel speed 3 m/s acceleration 5 m/s ² ambient temperature 20 °C ± 5 °C |

Electrical data

| Feature | Technical data | Additional information |
|---------------------------------|----------------------------------|--------------------------------|
| Operating voltage | 24 V DC ±20 % | reverse polarity protected |
| | 5 V DC ±5 % | no reverse polarity protection |
| Current consumption | <20 mA | at 24 V DC, off-load |
| | <75 mA | loaded |
| Output circuit | PP, LD (RS422), TTL | PP only with 24 V |
| Output signals | A, A/, B, B/, I, I/, R, R/ | quadrature signal |
| Output signal level high | >UB - 2.5 V | PP |
| | >2.5 V | LD |
| | >2.4 V | TTL |
| Output signal level low | <0.8 V | PP |
| | <0.5 V | LD |
| | <0.4 V | TTL |
| Latency | 1.5 µs | |
| Jitter | <15 % | 0.5 mm reading distance |
| Pulse width of reference signal | 1 increment(s) | |
| Real-time requirement | speed-proportional signal output | |
| Type of connection | open cable end | |
| | plug connector | 7/8-pole |
| | D-Sub | 9-pole |

Signal pattern



! The logical condition of signals A and B is not defined in reference to the index signal I or the reference signal R. It can deviate from the signal form.

System data

| Feature | Technical data | Additional information |
|-----------------------|-------------------------------|---------------------------|
| Resolution | 0.025, 0.05, 0.1, 0.5 mm | |
| Scaling factor | 1, 5, 10, 20 | |
| System accuracy | ±(0.05 + 0.01 x L) mm, L in m | at T _U = 20 °C |
| | ±0.1° | at T _U = 20 °C |
| Repeat accuracy | ±1 increment(s) | |
| Measuring range | ∞ | |
| Circumferential speed | ≤25 m/s | ≤2 m/s referencing speed |
| Travel speed | ≤25 m/s | ≤2 m/s referencing speed |

Ambient conditions

| Feature | Technical data | Additional information |
|----------------------|-------------------------------------|-------------------------------------|
| Ambient temperature | -10 ... 70 °C | |
| Storage temperature | -30 ... 80 °C | |
| Relative humidity | 100 % | condensation admissible |
| EMC | EN 61000-6-2 | interference resistance / immission |
| | EN 61000-6-4 | emitted interference / emission |
| Protection category | IP67 | EN 60529 |
| Shock resistance | 500 m/s ² , 11 ms | EN 60068-2-27 |
| Vibration resistance | 100 m/s ² , 5 ... 150 Hz | EN 60068-2-6 |

Pin assignment

■ Not inverted with reference signal

| Signal | E1 | E6X | E8X |
|--------|--------|-----|-----|
| GND | black | 1 | 1 |
| +UB | brown | 2 | 2 |
| A | red | 3 | 3 |
| B | orange | 4 | 4 |
| I, R | blue | 5 | 5 |
| nc | | 6 | 6 |
| nc | | 7 | 7 |
| nc | | | 8 |
| nc | | | 9 |

■ Inverted with reference signal

| Signal | E1 | E6X | E8X |
|--------|--------|-----|-----|
| A | red | 1 | 1 |
| B | orange | 2 | 2 |
| I, R | blue | 3 | 3 |
| +UB | brown | 4 | 4 |
| GND | black | 5 | 5 |
| A/ | yellow | 6 | 6 |
| B/ | green | 7 | 7 |
| I/, R/ | violet | 8 | 8 |
| nc | | | 9 |

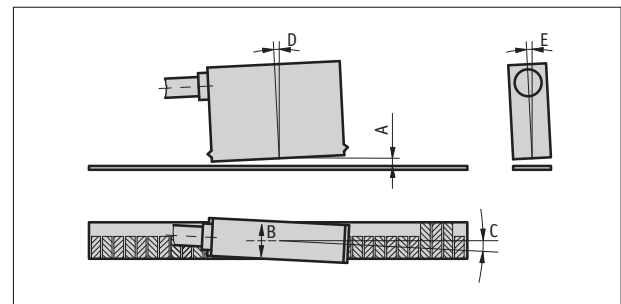
■ Inverted without reference signal

| Signal | E1 | E6X | E8X |
|--------|--------|-----|-----|
| A | red | 1 | 1 |
| B | orange | 2 | 2 |
| nc | | 3 | 3 |
| +UB | brown | 4 | 4 |
| GND | black | 5 | 5 |
| A/ | yellow | 6 | 6 |
| B/ | green | 7 | 7 |
| nc | | | 8 |
| nc | | | 9 |

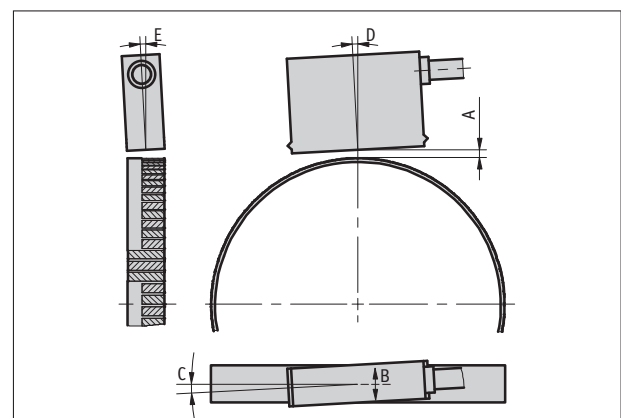
Hint for mounting

For systems with reference points on the magnetic tape please take care that sensor and tape are correctly aligned (see picture).

| Reference signal | O, I linear | O, I radial | R |
|---------------------------------|---------------------|-----------------------|-----------------------|
| A, Sensor/tape reading distance | $\leq 1 \text{ mm}$ | $\leq 0.8 \text{ mm}$ | $\leq 0.4 \text{ mm}$ |
| B, Lateral offset | $\pm 2 \text{ mm}$ | $\pm 2 \text{ mm}$ | $\pm 0.5 \text{ mm}$ |
| C, Alignment error | $\pm 1^\circ$ | $\pm 1^\circ$ | $\pm 1^\circ$ |
| D, Longitudinal inclination | $\pm 1^\circ$ | $\pm 1^\circ$ | $\pm 1^\circ$ |
| E, Lateral inclination | $\pm 3^\circ$ | $\pm 3^\circ$ | $\pm 3^\circ$ |



symbolic sensor representation



symbolic sensor representation

Order

Ordering information

One or more system components are required:

Magnetic band MB200/1
 Magnetic ring MR200
 Magnetic band ring MBR200

www.siko-global.com
www.siko-global.com
www.siko-global.com

Ordering table

| Feature | Ordering data | Specification | Additional information |
|--|---------------|---|--|
| Operating voltage | 4 | 24 V DC $\pm 20\%$ | A voltage drop is to be expected with increasing cable length. This must be taken into account in the electrical design. |
| | 5 | 5 V DC $\pm 5\%$ | |
| Type of connection | E1 | open cable end | |
| | E6X | bullet connector without mating connector | |
| | E8X | D-SUB 9-pole without mating connector | |
| | | cable extensions on request | |
| Cable length | ... | 1 ... 20 m, in steps of 1 m | |
| | | others on request | |
| Output circuit | PP | push-pull | only with operating voltage 4 |
| | LD | LineDriver | |
| | TTL | TTL | only with non-inverted output signal, cable length ≤ 5 m |
| Output signal | NI | not inverted | |
| | I | inverted | |
| Reference signal | O | without | index signal every 2 mm |
| | I | periodic index | |
| | R | fixed reference | |
| Linear resolution/ radial scaling factor | ... | 0.025/20, 0.05/10, 0.1/5, 0.5/1 | |
| | | others on request | |

Order key



Scope of delivery: MSK210, Mounting instructions, Fastening set