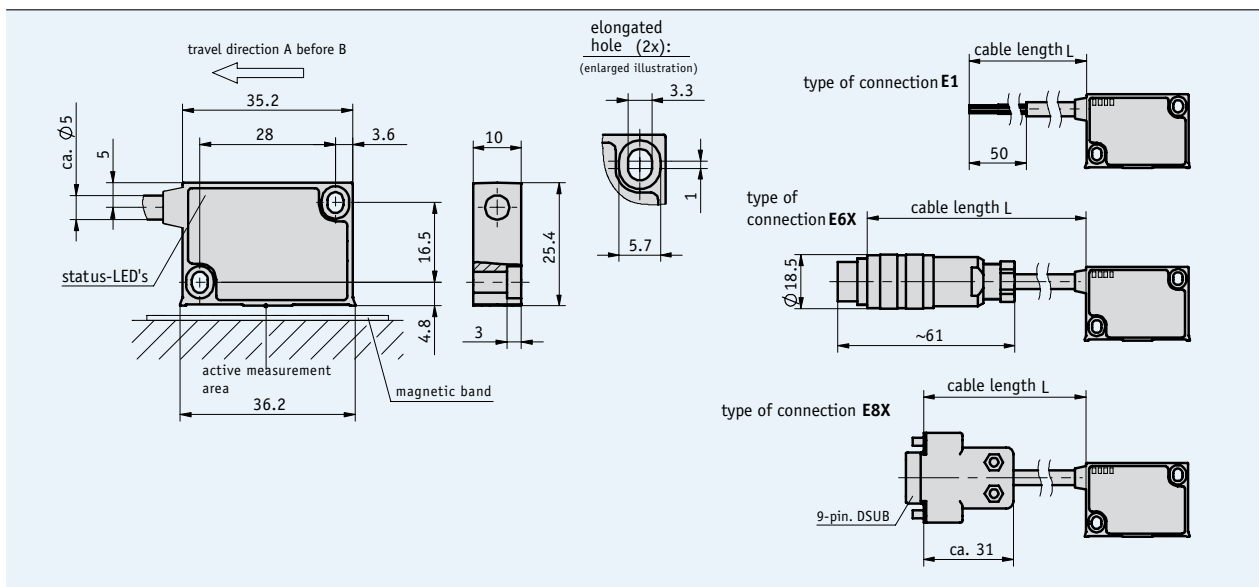


Profile

- Max. resolution 0.2 μm
- Repeat accuracy $\pm 1 \mu\text{m}$
- Max. sensor/band reading distance 0.4 mm
- Status LED display
- Robust metal housing



5.1



Mechanical data

| Feature | Technical data | Additional information |
|------------------------------|--|---|
| Scale embodiment | MB100 | |
| System accuracy | $\pm 10 \mu\text{m}$ | accuracy class 10 μm with MB100 |
| Repeat accuracy | max. $\pm 1 \mu\text{m}$ | |
| Sensor/band reading distance | 0.1 ... 0.4 mm 0.1 ... 0.2 mm | with reference signals O, I with reference signal RB |
| Travel speed | depends on resolution and pulse interval | see table |
| Housing | zinc die-cast | aluminum front cover, anodized blue |
| Sensor cable | PUR | drag chain-compatible |
| Operating temperature | -10 ... +70 °C | |
| Storage temperature | -30 ... +80 °C | |
| Humidity | 100 % rh | condensation permitted |
| Protection category | IP67 | |
| Vibration resistance | 10 g/50 Hz | |
| Max. measuring length | infinite | in steps of 90 m |

Travel speed

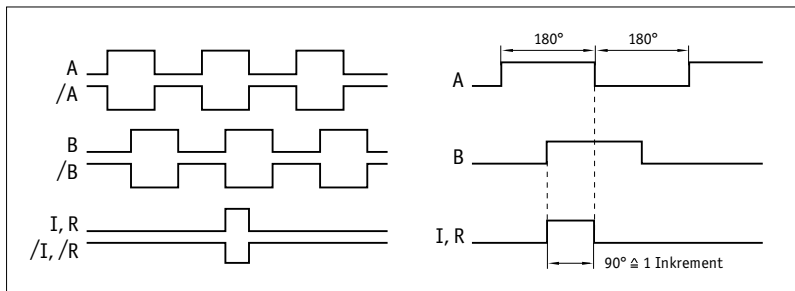
| Resolution (μm) | Travel speed V_{max} (m/s) | | | | |
|--------------------------|------------------------------|--------|--------|--------|------|
| | 0.2 | 1 | 2 | 5 | |
| 0.2 | 0.64 | 3.20 | 6.40 | 16.00 | 0.08 |
| 1 | 0.32 | 1.60 | 3.20 | 8.00 | 0.40 |
| 2 | 0.16 | 0.80 | 1.60 | 4.00 | 0.80 |
| 5 | 0.08 | 0.40 | 0.80 | 2.00 | 2.00 |
| Pulse interval (μs) | 0.25 | 0.50 | 1.00 | 2.00 | |
| Counting frequency (kHz) | 1000.00 | 500.00 | 250.00 | 125.00 | |

Electrical data

| Feature | Technical data | Additional information |
|---------------------------------|--|---|
| Operating voltage | 6.5 V DC ... 30 V DC 4.75 V DC ... 6 V DC | reverse-polarity protection on UB no reverse-polarity protection on UB |
| Current consumption | <25 mA | without load |
| Type of connection | flying leads round connector D-SUB 9-pin | |
| Output circuit | LD, RS422 | |
| Output signals | A, /A, B, /B, I, /I, or R, /R | |
| Pulse width of reference signal | 1 or 4 increments | |
| Resolution | 0.2, 1, 2, 5 μm | |
| Interference protection class | 3 | IEC-61000-6-2 |
| Real-time requirement | real-time signal processing | |
| Signal level high | >2.5 V | |
| Signal level low | <0.5 V | |

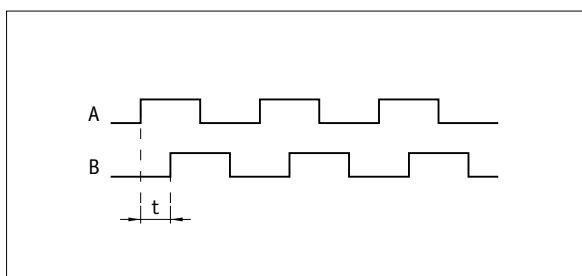
5.1

Signal forms



! 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.

Pulse interval



Example: Pulse interval $t = 1 \mu s$
(i.e., the downstream unit must be able to process 250 kHz)

$$\text{Formula for input frequency} = \frac{1}{1 \mu s \times 4} = 250 \text{ kHz}$$

Pin assignment

■ without index signal

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

■ with index signal

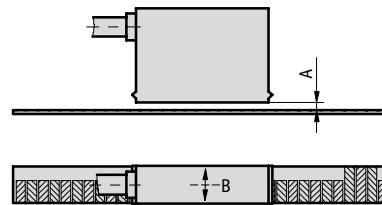
| Signal | E1 | E6X | E8X |
|--------|--------|-----|-----|
| A | red | 1 | 1 |
| B | orange | 2 | 2 |
| I, R | blue | 3 | 3 |
| +UB | brown | 4 | 4 |
| GND | black | 5 | 5 |
| /A | yellow | 6 | 6 |
| /B | green | 7 | 7 |
| /I, /R | violet | 8 | 8 |
| N.C. | | | 9 |

Mounting note

On systems with reference points on the magnetic band, please ensure the correct alignment of the sensor and band (see diagram).

| Reference signal | | O, I | RB |
|--------------------------------|--|-------------|--------------|
| Sensor/band reading distance A | | max. 0.4 mm | max. 0.2 mm |
| Lateral offset B | | max. ±2 mm | max. ±0.5 mm |

Sensor/band reading distance (symbolic sensor representation)



Order

Order note

The internal translation module can generate fast counting pulses. The pulse length is limited by the pulse interval. The follow-up electronic system must be coordinated accordingly, if necessary select the pulse interval previously.

Order table

| Feature | Order data | Specifications | Additional information |
|----------------------|------------|---|------------------------|
| Operating voltage | 10 | 6.5 ... 30 V DC | |
| | 11 | 4.75 ... 6 V DC | |
| Type of connection | E1 | flying leads, 2 m cable | |
| | E6X | round connector without mating connectors | |
| | E8X | D-SUB 9-pin without mating connectors | |
| | | cable extensions on request | |
| Cable length L | ... | 1 ... 20 m, in steps of 1 m | |
| Reference signal | 0 | without | |
| | I | index periodic | |
| | RB | fixed reference, scanning on band side | |
| Resolution in μm | ... | 0.2, 1, 2, 5 | |
| Pulse interval in μs | ... | 0.25, 0.5, 1, 2 others on request | |

Order code

MSK1000 - - - - - -
A B C D E F

Scope of delivery: MSK1000, User information, Allen fastening screws M3 x 14 mm ISO 4762, lock washers M3 DIN 7980, strain relief for sensor cable, distance gage 0.2 mm

Additional information:

Short Description, Technical Details
Product Overview

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Page 4 cont.