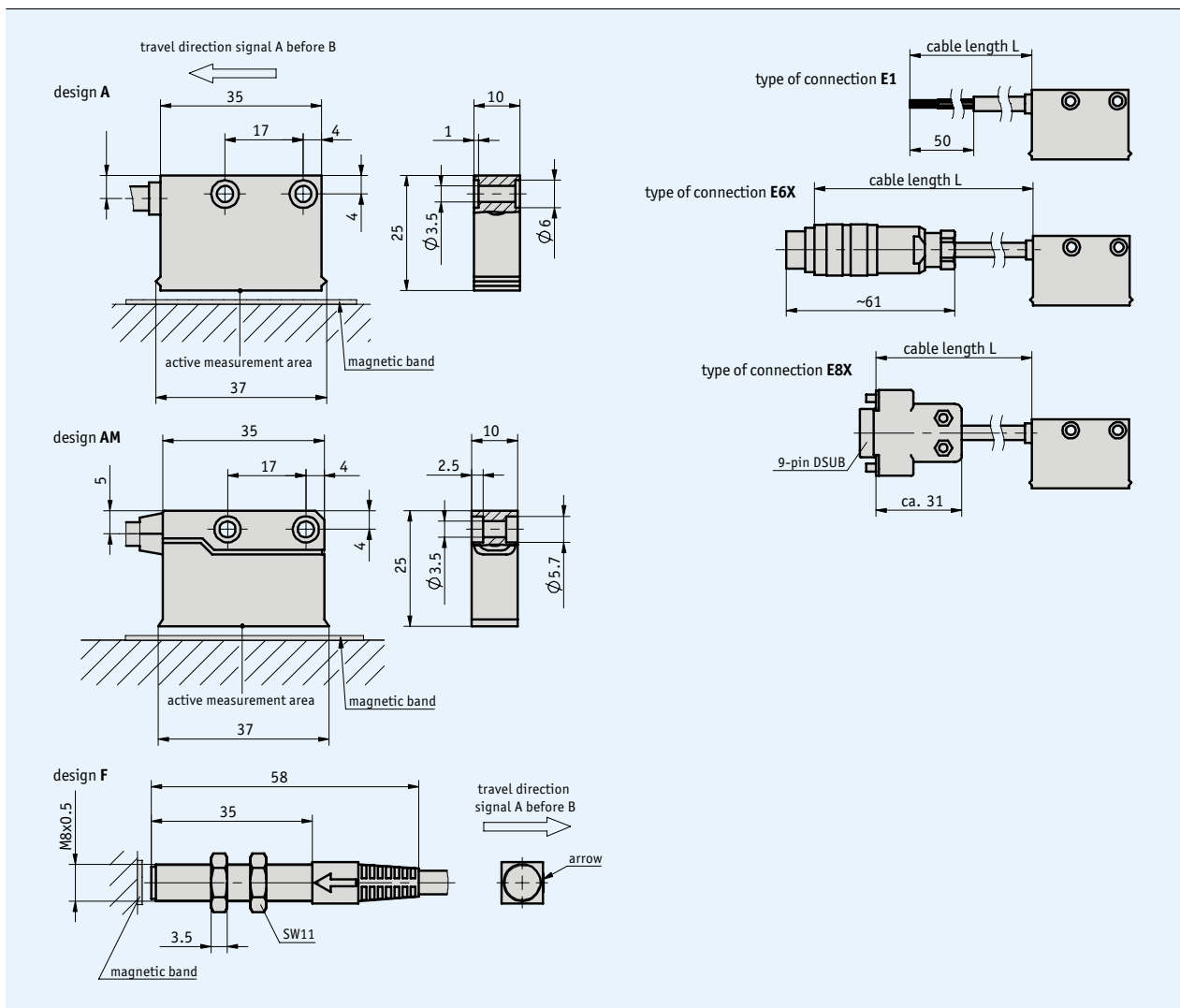


## Profile

- Max. resolution 40  $\mu\text{m}$
- Repeat accuracy  $\pm 0.04\text{ mm}$
- Works with magnetic band MB320
- Reading distance up to 2 mm



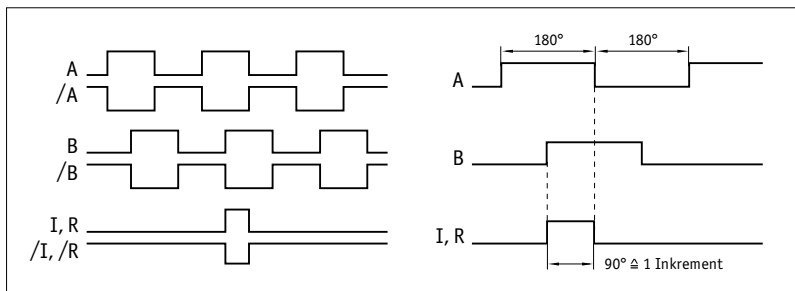
### Mechanical data

| Feature                      | Technical data   | Additional information                                 |
|------------------------------|--|--|
| Scale embodiment             | MB320  |  |
| System accuracy              | $\pm(0.1 + 0.01 \times L)$ mm, L in m  |  |
| Repeat accuracy              | $\pm 1$ increment  | with $T_U = 20$ °C                                     |
| Sensor/band reading distance | 0.1 ... 2 mm<br>0.1 ... 1.5 mm   | with reference signals O, I<br>with reference signal R |
| Travel speed                 | max. 25 m/s  | max. referencing speed 3.2 m/s                         |
| Housing                      | rectangular housing, plastic red;<br>round housing, steel  |  |
| Sensor cable                 | $\emptyset$ 4.4 <sub>-0.4</sub> mm, 4-core, PUR<br>$\emptyset$ 5.0 <sub>-0.4</sub> mm, 6 and 8-core, PUR | drag chain-compatible<br>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                                       |

### Electrical data

| Feature                         | Technical data                                 | Additional information  |
|---------------------------------|--|---|
| Operating voltage               | 24 V DC $\pm 20$ %<br>5 V DC $\pm 5$ %         | reverse-polarity protection on UB<br>no reverse-polarity protection on UB |
| Current consumption             | <20 mA off-load<br><75 mA loaded               | at 24 V   |
| Type of connection              | flying leads<br>round connector<br>D-SUB 9-pin |   |
| Output circuit                  | PP<br>LD (RS422)<br>TTL                        | PP only with 24 V   |
| Output signals                  | A, /A, B, /B, Option: I, /I, or R, /R          | quadrature signal   |
| Pulse width of reference signal | 1 increment                                    |   |
| Resolution                      | 0.04, 0.05, 0.08, 0.1, 0.16, 0.2, 0.8 mm       |   |
| Jitter                          | <15 %  | with reading distance of 0.5 mm   |
| Interference protection class   | 3  | according to IEC 801  |
| Real-time requirement           | real-time signal processing                    |   |
| Signal level high               | >UB - 2.5 V<br>>2.5 V<br>>2.4 V                | with PP<br>with LD<br>with TTL  |
| Signal level low                | <0.8 V<br><0.5 V<br><0.4 V                     | with PP<br>with LD<br>with TTL  |

#### 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.

## Pin assignment

### ■ non-inverted

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

### ■ inverted

| 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 |

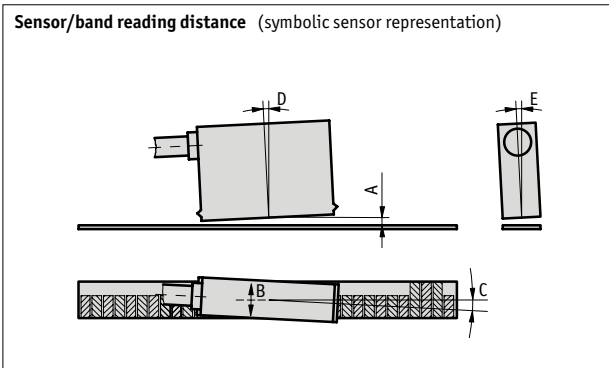
### ■ inverted with reference signal

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

## Mounting instruction

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       | R            |
|---------------------------------|------------|--------------|
| A, Sensor/band reading distance | max. 2 mm  | max. 1.5 mm  |
| B, Lateral offset               | max. ±2 mm | max. ±0.5 mm |
| C, Misalignment                 | <±3°       | <±3°         |
| D, Longitudinal tilt            | <±1°       | <±1°         |
| E, Lateral tilt                 | <±3°       | <±3°         |



**Order**

■ **Order table**

| Feature            | Order data | Specifications                            | Additional information  |
|--------------------|------------|---|---|
| Operating voltage  | 4          | 24 V DC ±20 %                             | reverse-polarity protection   |
|                    | 5          | 5 V DC ±5 %                               |   |
| Design             | A          | rectangular                               | only with output signal NI, reference signal O and Resolution 0.1                   |
|                    | AM         | metal housing without status LEDs         |   |
|                    | F          | round                                     |   |
| 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               |   |
|                    |            | others on request                         |   |
| Output circuit     | PP         | push-pull                                 | only operating voltage 4  |
|                    | LD         | line driver                               | only with non-inverted output signal, max. cable length 5 m                         |
|                    | TTL        |   |   |
| Output signal      | NI         | non-inverted                              | only with design A or AM and reference signal I or R                                |
|                    | I          | inverted                                  |   |
| Reference signal   | O          | without                                   | only with design A or AM<br>only with design A or AM,<br>not with resolution 0.8 mm |
|                    | I          | index periodic                            |   |
|                    | R          | index fixed                               |   |
| Resolution         | ...        | 0.05, 0.1, 0.2, 0.8, 0.04, 0.08, 0.16     |   |

■ **Order code**

MSK320 -  -  -  -  -  -  -  -   
A B C D E F G H

**Scope of delivery:** MSK320, User information, Allen fastening screws M3 x 14 mm ISO 4762, lock washers M3 DIN 7980, strain relief for sensor cable



**Additional information:**

Short Description, Technical Details  
Product Overview

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Page 4 cont.