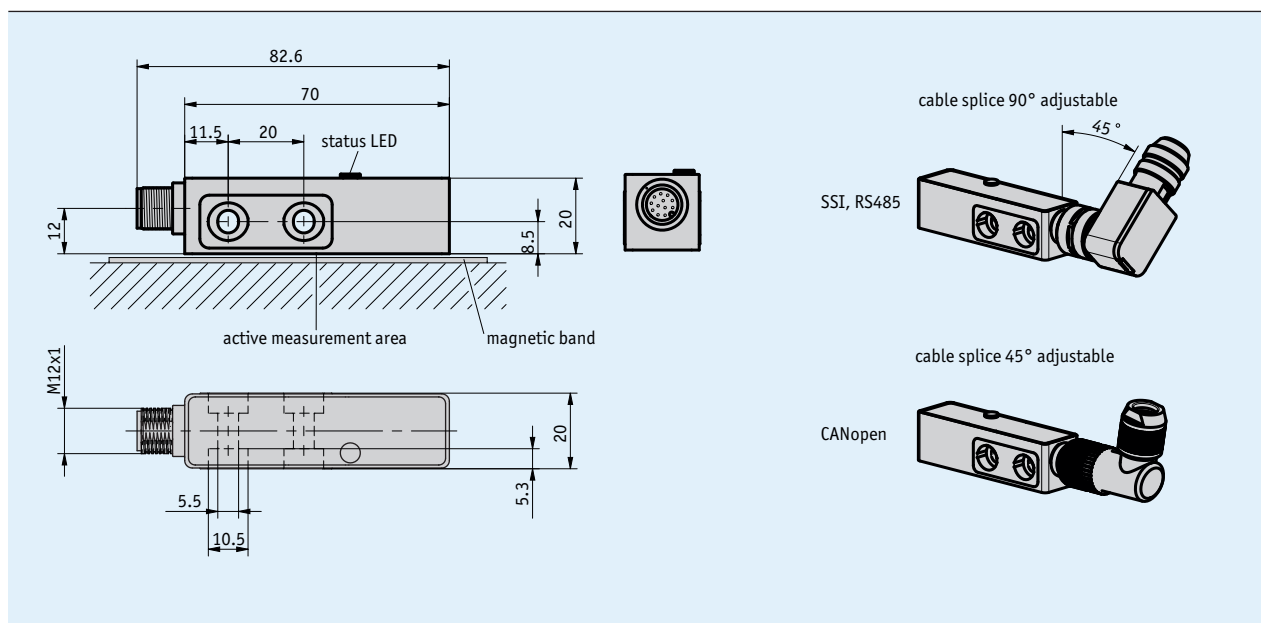


## Profile

- Max. resolution of 5  $\mu\text{m}$  absolute, 1  $\mu\text{m}$  incremental
- Repeat accuracy of 0.005 mm
- SSI, RS485, CANopen output circuits
- Additional incremental signals LD as an option (SSI, RS485)
- Reading distance  $\leq 1.3$  mm
- Max. measuring length 10240 mm
- status LEDs for diagnosis



## Mechanical data

| Feature                      | Technical data | Additional information |
|------------------------------|----------------|------------------------|
| Housing                      | zinc die-cast  |                        |
| Sensor/band reading distance | $\leq 1.3$ mm  |                        |

## Electrical data

| Feature               | Technical data               | Additional information                |
|-----------------------|------------------------------|---------------------------------------|
| Operating voltage     | 4.5 ... 30 V DC              |                                       |
| Power input           | <1.5 W                       |                                       |
| SSI clock speed input | $\leq 750$ kHz               | depending in cable length             |
| Output circuit        | without, LD (RS422)          |                                       |
| Interface             | SSI, RS485                   |                                       |
|                       | CANopen                      | spec. 2.0A, DS 301, DS 406, ISO 11898 |
| Baud rate             | 0.05 ... 1 MBit/s            | CANopen                               |
| Cycle time            | <25 $\mu\text{s}$            | SSI/RS485                             |
|                       | <40 $\mu\text{s}$            | CANopen                               |
| Type of connection    | M12 plug connector (A-coded) | 12-pole, 1x pin                       |
|                       | M12 plug connector (A-coded) | 5 poles, 1x pin (CANopen)             |

## System data

| Feature         | Technical data                | Additional information                                    |
|-----------------|-------------------------------|-----------------------------------------------------------|
| Resolution      | 5, 10 µm                      | absolute                                                  |
|                 | 10 µm                         | absolute, CANopen factory setting, reconfigurable to 5 µm |
|                 | 1, 5, 10 µm                   | incremental                                               |
| System accuracy | ±(0.02 + 0.03 x L) mm, L in m | bei T <sub>U</sub> = 20 °C                                |
| Repeat accuracy | ≤5 µm; ±1 digit               | at T <sub>U</sub> = 20 °C                                 |
| Measuring range | ≤10240 mm                     |                                                           |
| Travel speed    | ≤5 m/s                        | absolute                                                  |
|                 | see table                     | incremental                                               |

### Travel speed incremental

|                          |              | Travel speed Vmax [m/s] |        |        |        |       |       |       |       |       |
|--------------------------|--------------|-------------------------|--------|--------|--------|-------|-------|-------|-------|-------|
| Resolution [mm]          | <b>0.001</b> | 4.00                    | 1.60   | 0.80   | 0.32   | 0.20  | 0.10  | 0.05  | 0.03  | 0.01  |
|                          | <b>0.005</b> | 20.00                   | 8.00   | 4.00   | 1.60   | 1.00  | 0.50  | 0.25  | 0.13  | 0.06  |
|                          | <b>0.010</b> | 25.00                   | 16.00  | 8.00   | 3.20   | 2.00  | 1.00  | 0.50  | 0.25  | 0.13  |
| Pulse interval [µs]      |              | 0.20                    | 0.50   | 1.00   | 2.50   | 4.00  | 8.00  | 16.00 | 32.00 | 66.00 |
| Counting frequency [kHz] |              | 1250.00                 | 500.00 | 250.00 | 100.00 | 62.50 | 31.25 | 15.63 | 7.81  | 3.79  |

## Ambient conditions

| Feature              | Technical data                      | Additional information              |
|----------------------|-------------------------------------|-------------------------------------|
| Ambient temperature  | -30 ... 85 °C                       |                                     |
| Storage temperature  | -40 ... 85 °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, mating connector mounted  |
| Shock resistance     | 500 m/s <sup>2</sup> , 11 ms        | EN 60068-2-27                       |
| Vibration resistance | 100 m/s <sup>2</sup> , 5 ... 150 Hz | EN 60068-2-6                        |

## Pin assignment

### SSI, RS485 without LD

| SSI    | RS485  | PIN |
|--------|--------|-----|
| nc     | nc     | 1   |
| D+     | DÜA    | 2   |
| D-     | DÜB    | 3   |
| T-     | nc     | 4   |
| +UB    | +UB    | 5   |
| nc     | nc     | 6   |
| nc     | nc     | 7   |
| nc     | nc     | 8   |
| nc     | nc     | 9   |
| config | config | 10  |
| T+     | nc     | 11  |
| GND    | GND    | 12  |

### SSI, RS485 with LD

| SSI    | RS485  | PIN |
|--------|--------|-----|
| nc     | nc     | 1   |
| D+     | DÜA    | 2   |
| D-     | DÜB    | 3   |
| T-     | nc     | 4   |
| +UB    | +UB    | 5   |
| /A     | /A     | 6   |
| A      | A      | 7   |
| /B     | /B     | 8   |
| B      | B      | 9   |
| config | config | 10  |
| T+     | nc     | 11  |
| GND    | GND    | 12  |

### CANopen

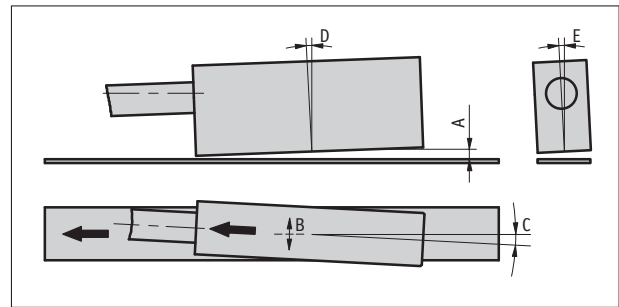
| Signal   | PIN |
|----------|-----|
| CAN_GND* | 1   |
| +UB      | 2   |
| GND*     | 3   |
| CAN_H    | 4   |
| CAN_L    | 5   |

\* CAN\_GND internally connected to GND

## Hint for mounting

When mounting sensor and magnetic tape, please be careful to align both system components correctly. The arrow marks on the tape and sensor must point in the same direction when mounting the components.

|                                 |         |
|---------------------------------|---------|
| A, Sensor/tape reading distance | ≤1.3 mm |
| B, Lateral offset               | ±3 mm   |
| C, Alignment error              | ±1.5°   |
| D, Longitudinal tilt            | ±1°     |
| E, Lateral tilt                 | ±4°     |



symbolic sensor representation

## Order

### Ordering information

one or more system components are required:

Magnetic band MBA501

[www.siko-global.com](http://www.siko-global.com)

### Ordering table

| Feature                | Ordering data | Specification                                        | Additional information      |
|------------------------|---------------|------------------------------------------------------|-----------------------------|
| Interface              | RS485         | SIKONETZ3                                            |                             |
|                        | SSI           | SSI, RS422                                           |                             |
|                        | CAN           | CANopen                                              |                             |
| Absolute resolution    | 5             | 5 µm                                                 |                             |
|                        | 10            | 10 µm                                                | CANopen factory setting     |
| Output circuit         | 0             | without LD                                           |                             |
|                        | LD            | LD, RS422 incremental                                | only with SSI, RS485        |
| Incremental resolution | 1             | 1 µm                                                 | only with LD output circuit |
|                        | 5             | 5 µm                                                 | only with LD output circuit |
|                        | 10            | 10 µm                                                | only with LD output circuit |
| Pulse interval         | ...           | 0.2, 0.5, 1.0, 2.5, 4.0, 8.0, 16.0, 32.0, 66.0 in µs |                             |

### Order key

MSA501 - A - B - C - D - E - S

**Scope of delivery:** MSA501, Mounting instructions, Fastening set

#### Accessories:

Profile Rail PSA

Cable extension KV12S2

Mating Connector Overview

Mating connector, SSI, RS485, 12-pole, socket

Mating connector, SSI, RS485, 12-pole, angular socket

Mating connector, CANopen, 5-pole, socket

Mating connector, CANopen, 5-pole, angle socket

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