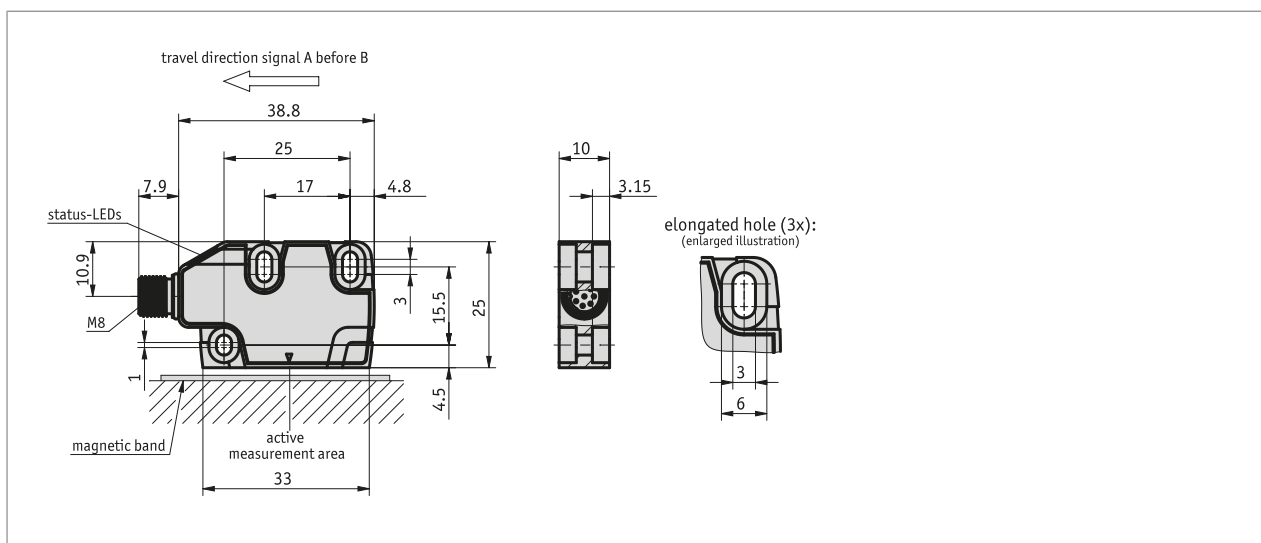


Profile

- max. resolution 1 μm
- max. 200000 pulses/revolution in conjunction with MR500 or MBR500 (160 poles)
- Repeat accuracy $\pm 0.005\text{ mm}$
- Status LED with integrated distance monitoring
- Works with magnetic tape MB500/1, magnetic ring MR500, magnetic band ring MBR500
- Reading distance $\leq 2\text{ mm}$
- Sensor connection can be plugged with KV1C cable extension
- Output circuit PP, TTL, LD (depending on the operating voltage)
- optionally with reference point R or flexible reference marks FR



Mechanical data

Feature	Technical data	Additional information
Housing	black plastic	
Sensor/band reading distance	0.1 ... 2 mm	I reference signals
	0.1 ... 1.5 mm	R reference signal
	0.4 ... 1 mm	FR reference signal
Sensor/ring reading distance	0.1 ... 2 mm	I reference signals
	0.1 ... 1.5 mm	R reference signal

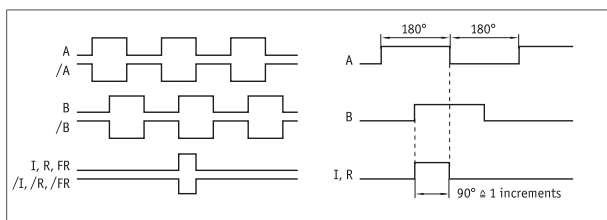
■ Travel/circumferential speed

Resolution/ Scaling factor	Travel/circumferential speed Vmax [m/s]										
	0.001/1250	0.005/250	0.01/125	0.025/50	0.05/25	0.1/12.5	0.20	0.10	0.05	0.03	0.01
	4.00	20.00	25.00	25.00	25.00	25.00	3.20	1.00	0.50	0.13	0.06
	1.60	8.00	16.00	16.00	16.00	16.00	4.00	1.00	0.50	0.25	0.12
	0.80	4.00	8.00	8.00	8.00	8.00	3.20	2.00	1.00	0.50	0.25
	0.32	1.60	3.20	3.20	3.20	3.20	2.00	1.00	0.50	0.25	0.12
	0.20	1.00	2.00	2.00	2.00	2.00	1.60	1.00	0.50	0.25	0.12
	0.10	0.50	1.00	1.00	1.00	1.00	1.00	0.50	0.25	0.12	0.06
	0.05	0.25	0.50	0.50	0.50	0.50	0.50	0.25	0.12	0.06	0.03
	0.03	0.16	0.32	0.32	0.32	0.32	0.32	0.16	0.08	0.04	0.02
	0.01	0.08	0.16	0.16	0.16	0.16	0.16	0.08	0.04	0.02	0.01
Pulse interval [μs]	0.20	0.25	0.50	1.00	2.00	4.00	8.00	16.00	32.00	64.00	128.00
Counting frequency [kHz]	1250.00	1000.00	500.00	250.00	125.00	62.50	31.25	15.63	7.81	3.91	1.95

Electrical data

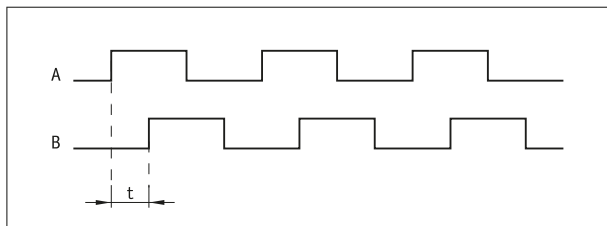
Feature	Technical data	Additional information
Operating voltage	4.75 ... 30 V DC	reverse polarity protection
Current consumption	<30 mA at 24 V DC <75 mA at 24 V DC	unloaded loaded
Output circuit	PP TTL, LD (RS422)	with operating voltage 4.75 ... 30 V DC with operating voltage 4.75 ... 6 V DC
Output signals	A, /A, B, /B, I, /I, R, /R, FR, /FR	
Output signal level high	>UB -2.5 V >2.5 V	PP LD
Output signal level low	0.8 V	
Latency	1.5 μs	
Index marks	periodic, fixed, flexible	
Pulse width of reference signal	1 or 4 increment(s)	
Real-time requirement	speed-proportional signal output	
Type of connection	plug connector	8-pole, 1x pin

Signal image



! 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, LD output circuit



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

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

System data

Feature	Technical data	Additional information
Pole length	5 mm	
Resolution	0.001, 0.005, 0.01, 0.025, 0.05, 0.1 mm	
Scaling factor	12.5, 25, 50, 125, 250, 1250	
System accuracy	±(0.025 + 0.01 x L) mm, L in m	
Repeat accuracy	±5 μm	
Measuring range	∞	
Circumferential speed	Dependent on resolution and pulse interval	see table
Travel speed	Dependent on resolution and pulse interval	see table

Ambient conditions

Feature	Technical data	Additional information
Ambient temperature	-40 ... 85 °C	
Storage temperature	-40 ... 85 °C	
Relative humidity	100 %	condensation admissible
EMC	EN 61326-1	immunity requirement of industrial applications, emission limit class B
Protection category	IP67	EN 60529, mating connector mounted
Shock resistance	≤500 m/s ² , 11 ms	EN 60068-2-27, half-sine, 3 axes (+/-), each 3 shocks
Vibration resistance	≤100 m/s ² , 10 Hz ... 2000 Hz	EN 60068-2-6, 3 axes, each 10 cycles

pin assignment

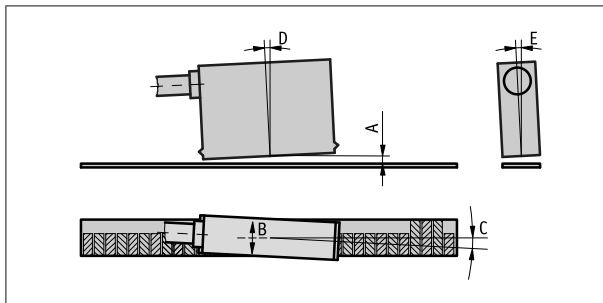
■ in conjunction with cable extension KV1C

Signal	4-core	5-core	6-core	8-core
A	red	red	red	red
B	orange	orange	orange	orange
I, R, FR		blue		blue
+UB	brown	brown	brown	brown
GND	black	black	black	black
/A			yellow	yellow
/B			green	green
/I, /R, /FR				violet

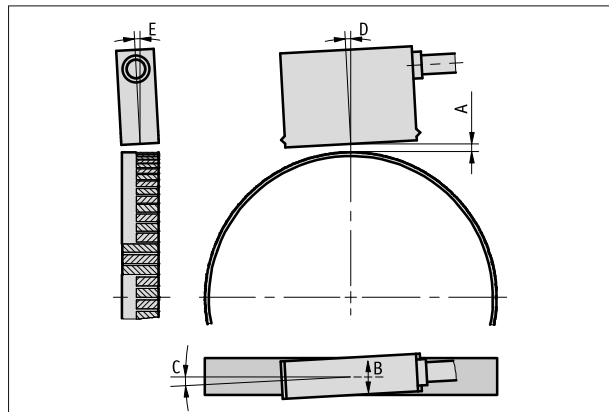
Hint for mounting

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

Reference signal	I	R	FR
A, Sensor/tape reading distance	≤2 mm	≤1.5 mm	0.4 ... 1 mm
B, Lateral offset	±2 mm	±0.5 mm	±0.5 mm
C, Alignment error	±3°	±3°	±3°
D, Longitudinal inclination	±1°	±1°	±1°
E, Lateral inclination	±3°	±3°	±3°



Symbolic representation



(Sensor representation symbolic)

Order

■ Ordering information

One or more system components are required:

Magnetic tape MB500/1
 Magnetic ring MR500
 Magnetic band ring MBR500
 Cable extension KV1C

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

■ Ordering table

Feature	Ordering data	Spezifikation	Additional information
reference signal	A I R FR	periodic index fixed reference flexible reference	
linear resolution/ radial scaling factor	B ...	0.001/1250, 0.005/250, 0.010/125, 0.025/50, 0.050/25, 0.1/12.5 others on request	
Pulse interval	C ...	0.2, 0.25, 0.5, 1, 2.5, 4, 8, 16, 32, 66	

Magnetic sensor MSC500

Compact sensor, incremental, digital interface, resolution 1 μm

Feature	Ordering data	Spezifikation	Additional information
---------	---------------	---------------	------------------------

■ Order key

MSC500 - - -
 A B C



Scope of delivery:

MSC500, Fastening set, Quick Start Guide



Accessories you can find:

Installation tool ZB3054
Flexible reference mark

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