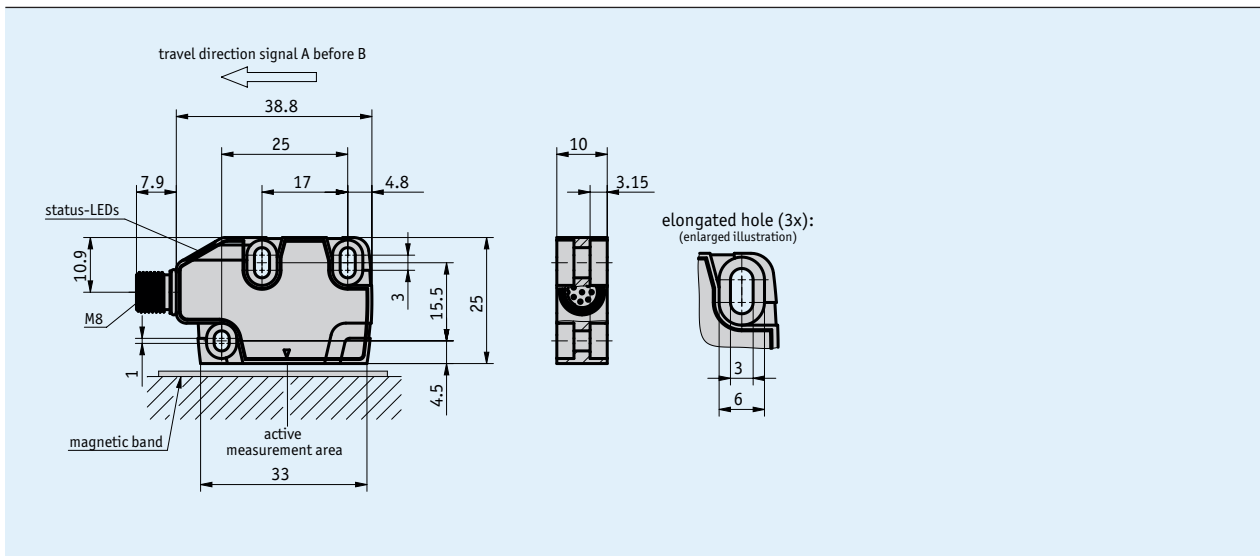


Profile

- Max. resolution 1 μm
- Max. 200000 pulses/revolution in combination with MR500 or MBR500 (160 poles)
- Repeat accuracy ±0.005 mm
- Status LED with integrated distance monitoring
- Works with MB500/1 magnetic tape, MR500 magnetic ring, MBR500 magnetic tape ring
- Reading distance ≤2 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 synthetic material	
Sensor/band reading distance	0.1 ... 2 mm	reference signal I
	0.1 ... 1.5 mm	reference signal R
	0.4 ... 1 mm	reference signal FR
Sensor/ring reading distance	0.1 ... 2 mm	reference signal I
	0.1 ... 1.5 mm	reference signal R

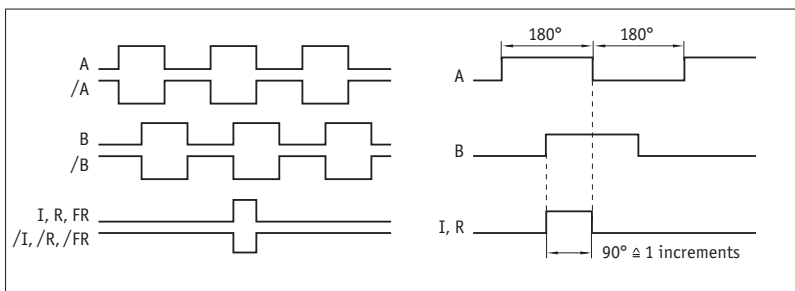
Travel/circumferential speed

Resolution/ Scaling factor	Travel/circumferential speed Vmax [m/s]										
	0.001/1250	4.00	3.20	1.60	0.80	0.32	0.20	0.10	0.05	0.03	0.01
Scaling factor	0.005/250	20.00	16.00	8.00	4.00	1.60	1.00	0.50	0.25	0.13	0.06
	0.01/125	25.00	25.00	16.00	8.00	3.20	2.00	1.00	0.50	0.25	0.12
	0.025/50	25.00	25.00	25.00	20.00	8.00	5.00	2.50	1.25	0.63	0.30
	0.05/25	25.00	25.00	25.00	25.00	16.00	10.00	5.00	2.50	1.25	0.61
	0.1/12.5	25.00	25.00	25.00	25.00	25.00	20.00	10.00	5.00	2.50	1.21
Pulse interval [μs]	0.20	0.25	0.50	1.00	2.50	4.00	8.00	16.00	32.00	66.00	
Counting frequency [kHz]	1250.00	1000.00	500.00	250.00	100.00	62.50	31.25	15.63	7.81	3.79	

Electrical data

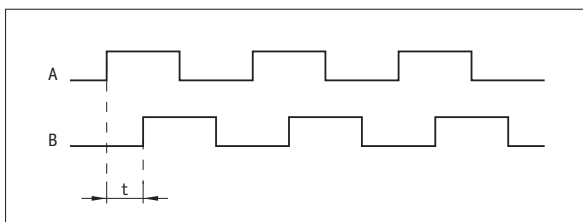
Feature	Technical data	Additional information
Operating voltage	4.75 ... 30 V DC	reverse polarity protected
Current consumption	<30 mA	at 24 V DC, off-load
	<75 mA	at 24 V DC; loaded
Output circuit	PP	with operating voltage 4.75 ... 30 V DC
	TTL, LD (RS422)	with operating voltage 4.75 ... 6 V DC
Output signals	A, /A, B, /B, I, /I, R, /R, FR, /FR	
Output signal level high	>UB - 2.5 V	PP
	>2.5 V	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 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.

Pulse interval



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 × L) mm, L in m	
	±0.1°	
Repeat accuracy	±5 μm	
Measuring range	∞	
Circumferential speed	depending on resolution and pulse interval	see table
Travel speed	depending 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	industrial requirement, emission limit class B
Protection category	IP67	EN 60529, with 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 ... 2000 Hz	EN 60068-2-6, 3 axes, each 10 cycles

Pin assignment

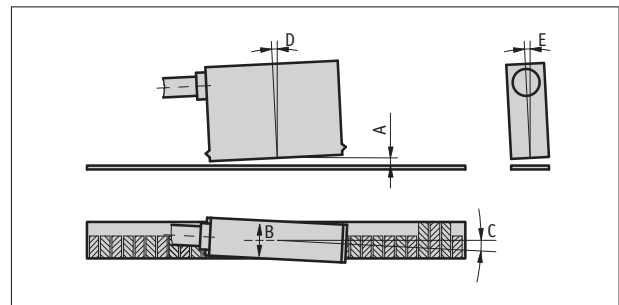
■ in connection with KV1C cable extension

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

Order

Ordering information

One or more system components are required:

Magnetic band MB500/1	www.siko-global.com
Magnetic ring MR500	www.siko-global.com
Magnetic band ring MBR500	www.siko-global.com
Cable extension KV1C	www.siko-global.com

Ordering table

Feature	Ordering data	Specification	Additional information
Reference signal	I	periodic index	
	R	fixed reference	
	FR	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
			others on request

Order key

MSC500 - - -
A B C

Scope of delivery: MSC500, Quick Start Guide, Fastening set

Accessories:
 Installation tool ZB3054
 Flexible reference mark

www.siko-global.com
 Order key 88436