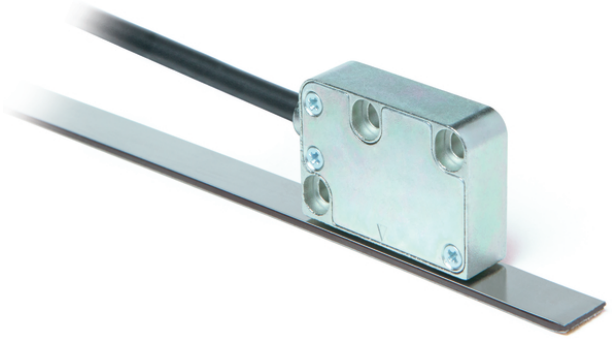
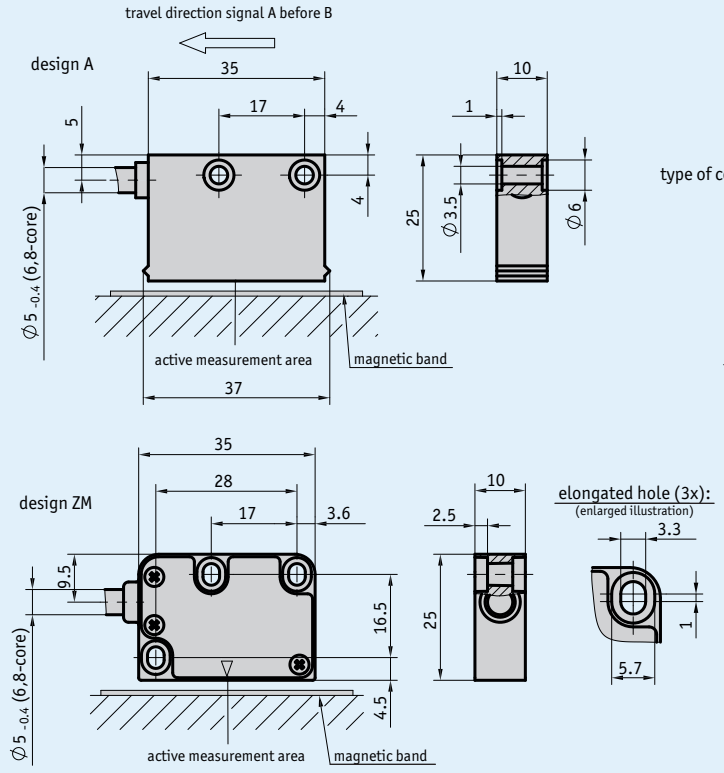
Magnetic sensor MSK200/1
Incremental, digital interface, resolution 1 µm

Profile

- Max. resolution 1 µm
- Works with magnetic tape MB200/1
- Reading distance ≤1 mm
- IP67 protection category
- Optionally with reference point R or flexible reference marks FR





Mechanical data

Feature	Technical data	Additional information
Housing	green plastic	A design
	zinc die-cast	ZM design
Sensor/band reading distance	0.1 ... 1 mm	0, I reference signals
	0.1 ... 0.5 mm	R reference signal
	0.4 ... 0.5 mm	FR reference signal
Cable sheath	PUR suitable for drag-chain use	6, 8-wire ø$5_{-0.4}$ mm
Cable bending radius	5x cable diameter	static
	7.5x cable diameter	dynamic
Service life of cable	>5 million cycles	under the following test conditions: travel range 4.5 m travel speed 3 m/s acceleration 5 m/s^2 ambient temperature 20 °C ±5 °C

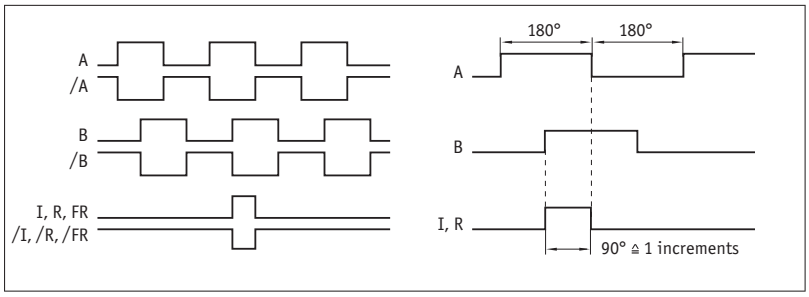
Travel speed

		Travel speed Vmax (m/s)					
Resolution (mm)	0.001	6.00	2.40	1.20	0.60	0.30	0.15
	0.002	12.00	4.80	2.40	1.20	0.60	0.30
	0.004	24.00	9.60	4.80	2.40	1.20	0.60
	0.005	25.00	12.00	6.00	3.00	1.50	0.75
	0.010	25.00	24.00	12.00	6.00	3.00	1.50
Pulse interval (µs)		0.10	0.25	0.50	1.00	2.00	4.00
Counting frequency (kHz)		2500.00	1000.00	500.00	250.00	125.00	62.50

Electrical data

Feature	Technical data	Additional information
Operating voltage	24 V DC ±20 %	
	5 V DC ±5 %	
Current consumption	≤100 mA	at 24 V DC
	≤30 mA	at 5 V DC
Output circuit	LD (RS422)	
Output signals	A, /A, B, /B, I, /I, R, /R, FR, /FR	
Real-time requirement	speed-proportional signal output	
Type of connection	open cable end	
	plug connector	7/8-pole
	D-Sub	9-pole

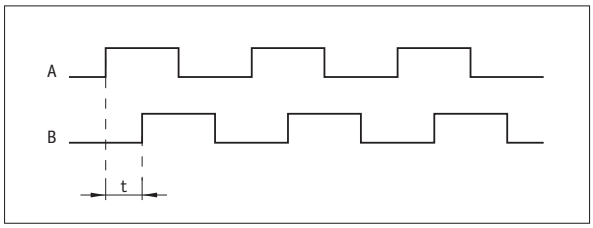
Signal pattern



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.

Reference or index signal with 4 increments (360°) signal length is only valid from the 5th counting step onwards. A corresponding delay should be taken into consideration after switching on the operating voltage.

Pulse interval



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

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

System data

Feature	Technical data	Additional information
Resolution	1, 2, 4, 5, 10 µm	
System accuracy	±(0.025 + 0.01 x L) mm, L in m	at T_U = 20 °C; 0, I reference signals
Repeat accuracy	±1 increment(s)	
Travel speed	≤25 m/s	

Ambient conditions

Feature	Technical data	Additional information
Ambient temperature	-10 ... 70 °C	
Storage temperature	-30 ... 80 °C	
Relative humidity	100 %	condensation admissible
Protection category	IP67	EN 60529

Pin assignment

Inverted without reference signal

Signal	E1	E6X	E8X
A	red	1	1
B	orange	2	2
nc		3	3
+UB	brown	4	4
GND	black	5	5
/A	yellow	6	6
/B	green	7	7
nc			8
nc			9

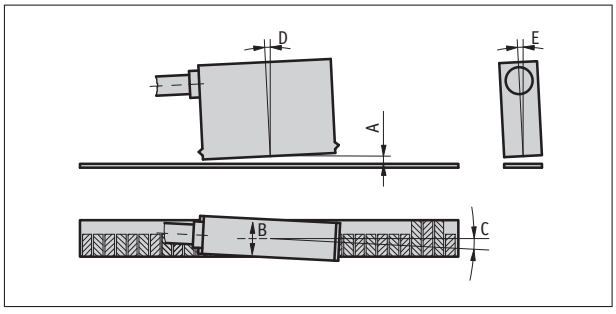
Inverted with reference signal

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

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	0, I	R	FR
A, Sensor/tape reading distance	≤1 mm	≤0.5 mm	0.4 ... 0.5 mm
B, Lateral offset	±2 mm	±0.5 mm	±0.5 mm
C, Alignment error	±1°	±1°	±1°
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 MB200/1 www.siko-global.com

Ordering table

Feature	Ordering data		Specification	Additional information
Operating voltage	4	A	24 V DC	
	5		5 V DC	
Design	A	B	rectangular	
	ZM		metal housing without status LEDs	
Type of connection	E1	C	open cable end	
	E6X		bullet connector without mating connector	
	E8X		D-SUB 9-pin without mating connector	
Cable length	...	D	2 ... 20 m, in steps of 1 m	
			others on request	
Reference signal	0	E	without	
	I		periodic index	
	R		fixed reference	
	FR		flexible reference	
Resolution	...	F	1, 2, 4, 5, 10	
Pulse interval	...	G	0.10, 0.25, 0.50, 1.00, 2.00, 4.00, 8.00	

Order key

MSK200/1 - [A] - [B] - [C] - [D] - [E] - [F] - [G]

Scope of delivery: *MSK200/1, Mounting instructions, Sensor fastening set*

Accessories:

Installation aid ZB3054 *www.siko-global.com*

Flexible reference mark *Order key 88678*

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