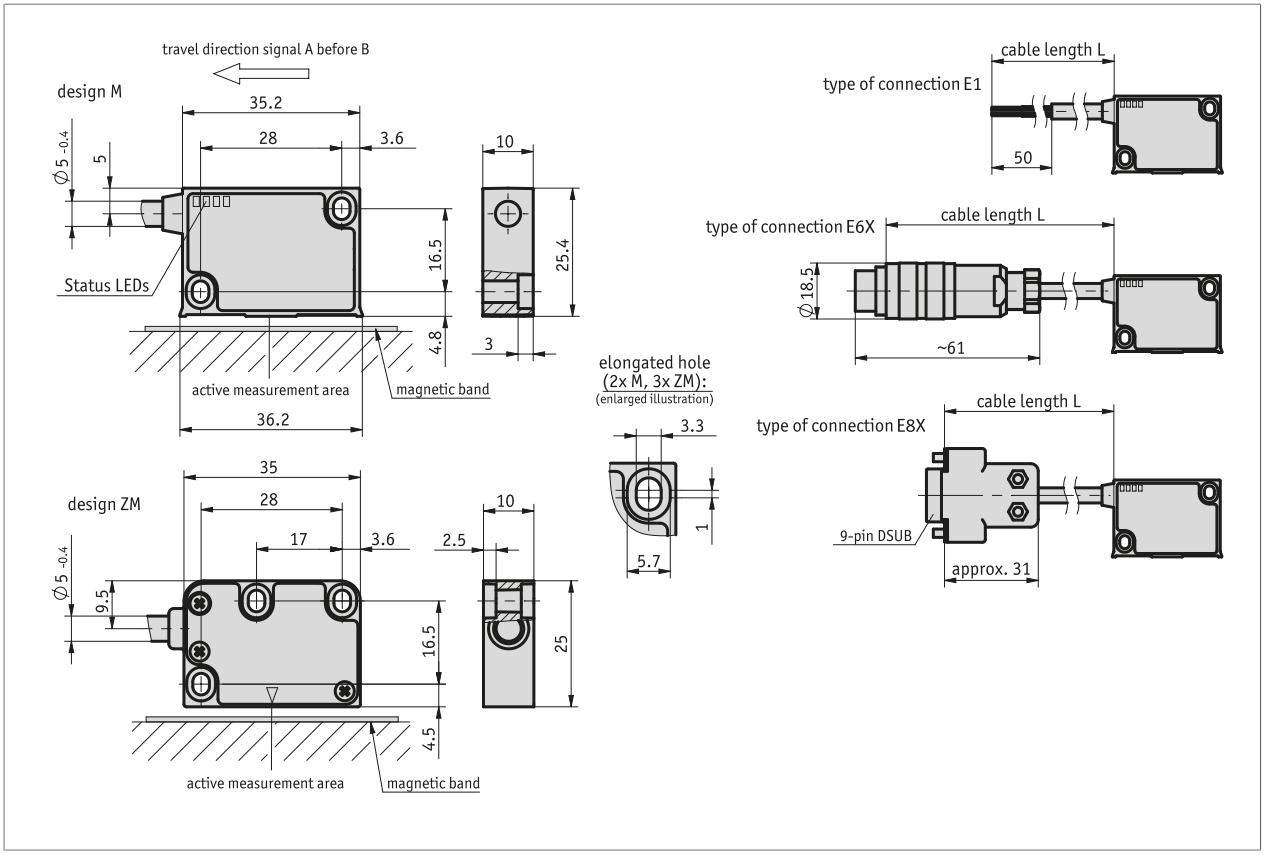
Incremental, digital interface, resolution 0.2 µm

Profile

- Max. resolution 0.2 µm
- Repeat accuracy ±1 µm
- LED status display
- Reading distance ≤0.4 mm
- Robust metal housing



Mechanical data

Feature	Technical data	Additional information
Housing	zinc die-cast/aluminum	M design: aluminum front cover
	zinc die-cast	ZM design
Sensor/band reading distance	0.1 ... 0.4 mm	O, I reference signals
	0.1 ... 0.2 mm	RB reference signal
Cable sheath	PUR, suitable for drag-chain use	6, 8-core 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 4.5 m travel speed 3 m/s acceleration 5 m/s^2 ambient temperature 20 °C ±5 °C.

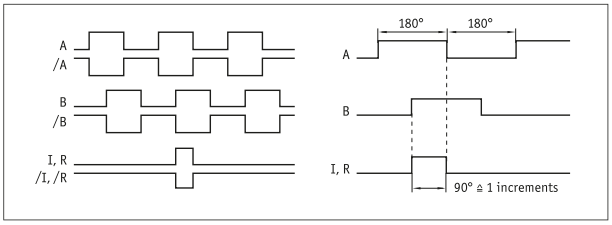
Travel speed

		Travel speed Vmax [m/s]			
Resolution [µm]	0.2	0.64	0.32	0.16	0.08
	1	3.20	1.60	0.80	0.40
	2	6.40	3.20	1.60	0.80
	5	16.00	8.00	4.00	2.00
Pulse interval [µs]		0.25	0.50	1.00	2.00
Counting frequency [kHz]		1000.00	500.00	250.00	125.00

Electrical data

Feature	Technical data	Additional information
Operating voltage	6.5 ... 30 V DC	reverse polarity protection
	4.75 ... 6 V DC	no reverse polarity protection
Current consumption	25 mA	unloaded
Output circuit	LD (RS422)	
Output signals	A, /A, B, /B, I, /I or R, /R	
Output signal level high	>2.5 V	
Output signal level low	<0.5 V	
Latency	1.5 µs	
Pulse width of reference signal	1 or 4 increment(s)	
Real-time requirement	speed-proportional signal output	
Type of connection	open cable end	
	plug connector	7/8-pole
	D-SUB	9-pole

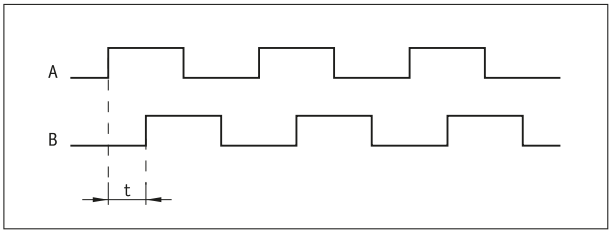
Signal image



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.

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, LD output circuit



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	0.2, 1, 2, 5 µm	
Linearity deviation	±2 µm at T_U = 20° C	0.2 mm sensor/strip reading distance
Repeat accuracy	±1 µm	
Measuring range	∞	
Travel speed	Dependent on resolution and pulse interval	see table

Ambient conditions

Feature	Technical data	Additional information
Ambient temperature	-10 ... 70 °C	
Storage temperature	-30 ... 80 °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
Shock resistance	500 m/s², 11 ms	EN 60068-2-27
Vibration resistance	<100 m/s², 5 ... 150 Hz	EN 60068-2-6

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

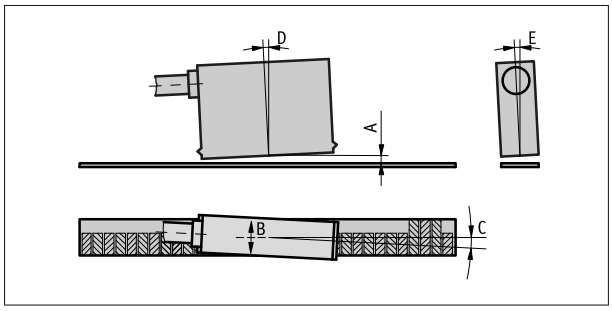
Inverted with reference signal

Signal	E1	E6X	E8X
A	red	1	1
B	orange	2	2
I,R	blue	3	3
+UB	brown	4	4
GND	black	5	5
/A	yellow	6	6
/B	green	7	7
/I, /R	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	O, I	R
A, Sensor/tape reading distance	≤0.4 mm	≤0.2 mm
B, Lateral offset	±2 mm	±0.5 mm
C, Alignment error	±3°	±3°
D, Longitudinal inclination	±1°	±1°
E, Lateral inclination	±3°	±3°



Symbolic representation

Order

Ordering information

One or more system components are required:
Magnetic tape MB100/1 www.siko-global.com

Ordering table

Feature	Ordering data		Spezifikation	Additional information
Operating voltage	A	10	6.5 ... 30 V DC	
		11	4.75 ... 6 V DC	A voltage drop is to be expected with increasing cable length. This must be taken into account in the electrical design.
design	B	M	metal housing with status LEDs	
		ZM	metal housing without status LEDs	
Type of connection	C	E1	open cable end	
		E6X	bullet connector without mating connector	
		E8X	D-SUB 9-pole without mating connector	
			cable extension on request	

Incremental, digital interface, resolution 0.2 µm

Feature	Ordering data		Spezifikation	Additional information
Cable length	D	...	01.0 ... 20 m, in intervals of 1 m	
			others on request	
reference signal	E	0	without	
		I	periodic index	index signal every 1 mm
		RB	fixed reference	
Resolution	F	...	0.2, 1, 2, 5	
			others on request	
Pulse interval	G	...	0.25, 0.5, 1.00, 2.0	
			others on request	

Order key

MSK1000 - [A] - [B] - [C] - [D] - [E] - [F] - [G]

Scope of delivery:
MSK1000, Fastening set, Installation Instructions

Accessories you can find:
Installation tool ZB3054 www.siko-global.com