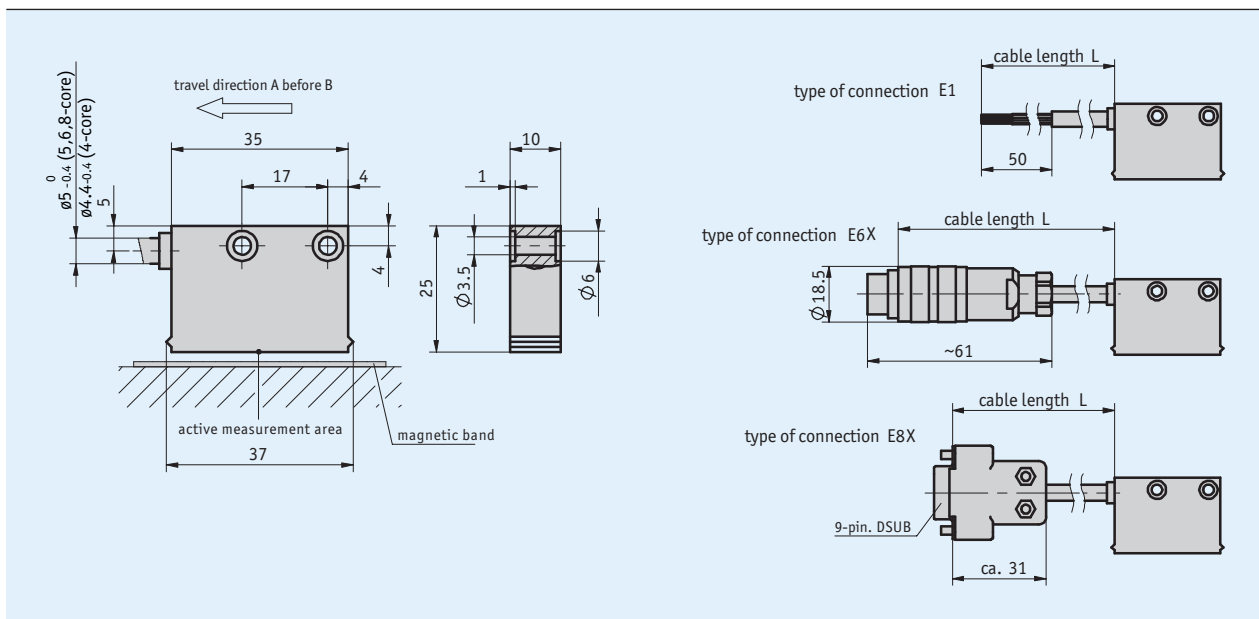
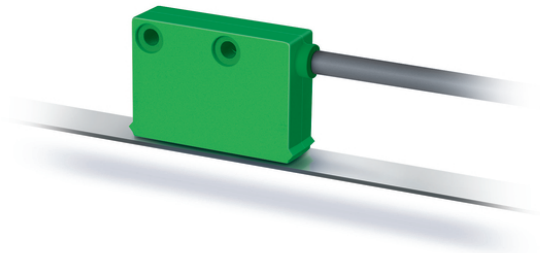


Profile

- Max. resolution 25 μm
- max. resolution 0.045° with MR200 or MBR200 (100 poles)
- Repeat accuracy ± 0.025 mm
- Repeat accuracy of ± 1 increment
- Works with magnetic tape MB200/1
- Works with MR200 magnetic ring, MBR200 magnetic tape ring
- Reading distance ≤ 1 mm
- Reading distance ≤ 0.8 mm
- Max. 4600 pulses/revolution with MBR200 (230 poles)



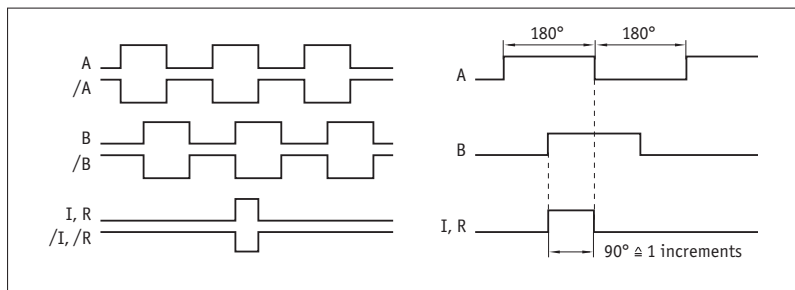
Mechanical data

Feature	Technical data	Additional information
Housing	green plastic	
Sensor/band reading distance	0.1 ... 1 mm	0, I reference signals
	0.1 ... 0.4 mm	R reference signal
Sensor/ring reading distance	0.1 ... 0.8 mm	0, I reference signals
	0.1 ... 0.4 mm	R reference signal
Cable sheath	PUR suitable for drag-chain use	4-wire $\varnothing 4.4_{-0.4}$ mm; 5, 6, 8-wire $\varnothing 5_{-0.4}$ 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

Electrical data

Feature	Technical data	Additional information
Operating voltage	24 V DC ±20 %	reverse polarity protected
	5 V DC ±5 %	no reverse polarity protection
Current consumption	<20 mA	at 24 V DC, off-load
	<75 mA	loaded
Output circuit	PP, LD (RS422), TTL	PP only with 24 V
Output signals	A, A/, B, B/, I, I/, R, R/	quadrature signal
Output signal level high	>UB - 2.5 V	PP
	>2.5 V	LD
	>2.4 V	TTL
Output signal level low	<0.8 V	PP
	<0.5 V	LD
	<0.4 V	TTL
Jitter	<15 %	0.5 mm reading distance
Pulse width of reference signal	1 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 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.

System data

Feature	Technical data	Additional information
Resolution	0.025, 0.05, 0.1, 0.5 mm	
Scaling factor	1, 5, 10, 20	
System accuracy	±(0.05 + 0.01 x L) mm, L in m	at T _U = 20 °C
	±0.1°	at T _U = 20 °C
Repeat accuracy	±1 increment(s)	
Measuring range	∞	
Circumferential speed	≤25 m/s	≤2 m/s referencing speed
Travel speed	≤25 m/s	≤2 m/s referencing speed

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/s ² , 11 ms	EN 60068-2-27
Vibration resistance	100 m/s ² , 5 ... 150 Hz	EN 60068-2-6

Pin assignment

■ Not inverted without reference signal

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

■ Inverted with reference signal

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

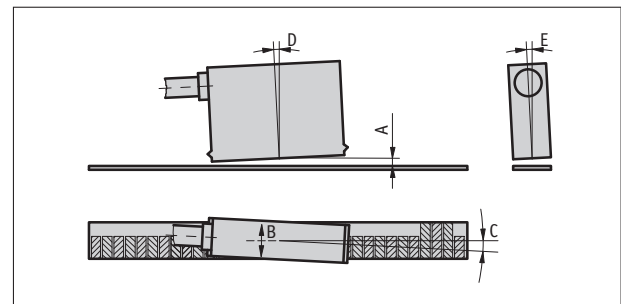
■ Inverted without reference signal

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

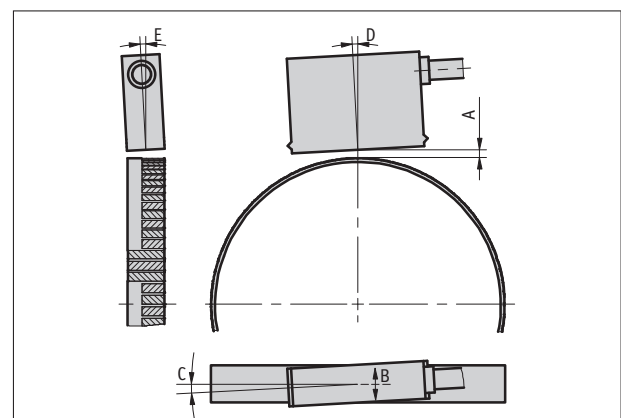
Hint for mounting

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

Reference signal	O, I linear	O, I radial	R
A, Sensor/tape reading distance	$\leq 1 \text{ mm}$	$\leq 0.8 \text{ mm}$	$\leq 0.4 \text{ mm}$
B, Lateral offset	$\pm 2 \text{ mm}$	$\pm 2 \text{ mm}$	$\pm 0.5 \text{ mm}$
C, Alignment error	$\pm 1^\circ$	$\pm 1^\circ$	$\pm 1^\circ$
D, Longitudinal inclination	$\pm 1^\circ$	$\pm 1^\circ$	$\pm 1^\circ$
E, Lateral inclination	$\pm 3^\circ$	$\pm 3^\circ$	$\pm 3^\circ$



symbolic sensor representation



symbolic sensor representation

Order

Ordering information

One or more system components are required:

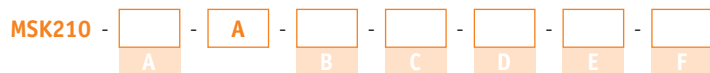
Magnetic band MB200/1
 Magnetic ring MR200
 Magnetic band ring MBR200

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Ordering table

Feature	Ordering data	Specification	Additional information	
Operating voltage	4	A 24 V DC $\pm 20\%$		
	5		5 V DC $\pm 5\%$	
Type of connection	E1	B open cable end		
	E6X		bullet connector without mating connector	
	E8X		D-SUB 9-pole without mating connector	
			cable extensions on request	
Output circuit	PP	C push-pull	only with operating voltage 4	
	LD			LineDriver
	TTL		TTL	only with non-inverted output signal, cable length ≤ 5 m
Output signal	NI	D not inverted		
	I		inverted	
Reference signal	O	E without		
	I		periodic index	index signal every 2 mm
	R		fixed reference	
Linear resolution/ radial scaling factor	...	F 0.025/20, 0.05/10, 0.1/5, 0.5/1		
		others on request		

Order key



Scope of delivery: MSK210, Mounting instructions, Fastening set