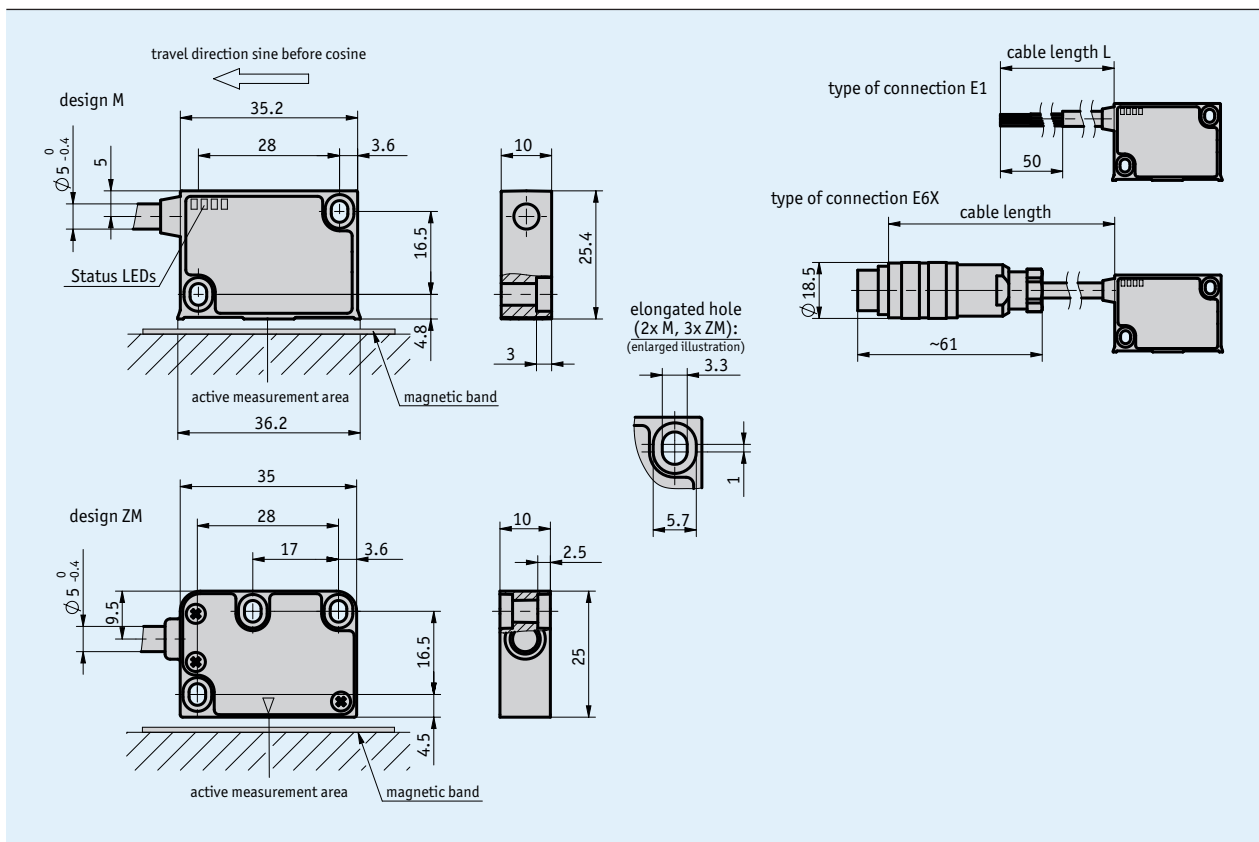


Profile

- Accuracy class $\pm 0.1^\circ$
- Repeat accuracy max. $\pm 1 \mu\text{m}$
- Status LED display
- Works with MB100/1 magnetic tape
- Works with MBR100 magnetic tape ring
- Reading distance $\leq 0.4 \text{ mm}$
- Signal period 1000 μm
- Output circuit sin/cos 1 V_{SS}
- Robust metal housing



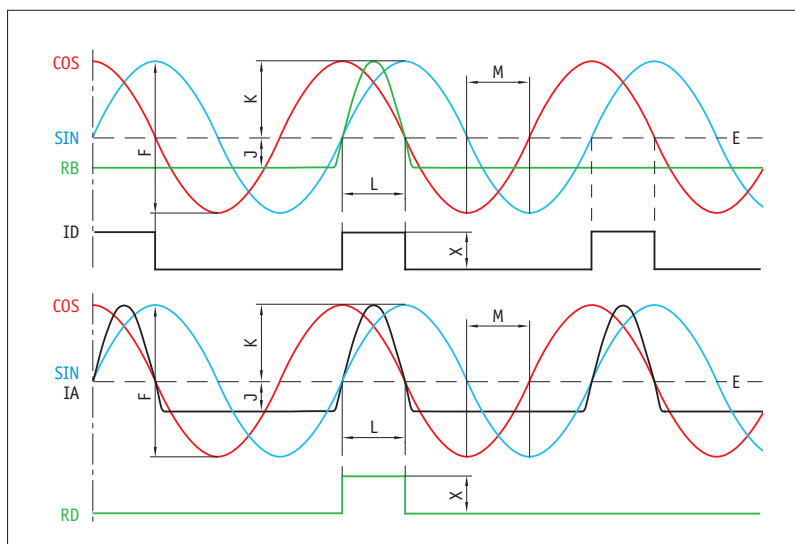
Mechanical data

Feature	Technical data	Additional information
Housing	zinc die-cast/aluminum	M design
	zinc die-cast	ZM design
Sensor/band reading distance	0.1 ... 0.4 mm	reference signal 0, IA, ID
	0.1 ... 0.2 mm	reference signal RB, RD
Sensor/ring reading distance	0.1 ... 0.4 mm	reference signal 0, IA, ID
	0.1 ... 0.2 mm	reference signal RB, RD
Cable sheath	PUR, suitable for drag-chain use	6, 8-wire ø5 _{-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	10.5 ... 30 V DC	reverse polarity protected
	5 V DC ±5 %	no reverse polarity protection
Current consumption	<25 mA	at 24 V DC
	<50 mA	at 5 V DC
Output signals	sin, /sin, cos, /cos, index, /index	
Output voltage	1 V _{pp} ±10 %	at 0 ... 70 °C, 120 Ω terminal resistance
Output impedance	0 Ω (R _{Load} >75 Ω)	short-circuit proof
Signal period	1000 μm	
Offset voltage	2.5 V, ±100 mV	sine/cosine mean to GND (10.5 ... 30 V DC)
	UB/2 ±100 mV	sine/cosine mean to GND (5 V DC)
Phasing	90° ±1°, ±3° (20 kHz)	sin/cos
	45° sin/cos	reference signal is symmetric around the positive intersection point of the sin/cos signals (phase 45°)
Real-time requirement	speed-proportional signal output	
Type of connection	open cable end	
	plug connector	7/8-pole

Signal pattern



E: Reference voltage 2.5 V
 F: 1 V_{SS} ±10 %
 J: ≥0.2 V
 K: ≥0.3 V
 L: 100° ±20 %
 M: 90° ±1.0° / ±3° (25 kHz)
 X: 1 V_{SS}

System data

Feature	Technical data	Additional information
Linearity deviation	±2 μm	at T ₀ = 20° C, reading distance 0.2 mm
Repeat accuracy	1 μm	
Measuring range	∞	
Circumferential speed	≤20 m/s	sin/cos
Travel speed	≤20 m/s	sin/cos

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	200 m/s ² , 50 Hz ... 2 kHz	EN 60068-2-6

Pin assignment

■ Without reference signal

Signal	E1	E6X
GND	black	1
sin	red	2
/sin	orange	3
cos	yellow	4
/cos	green	5
+UB	brown	6
nc		7

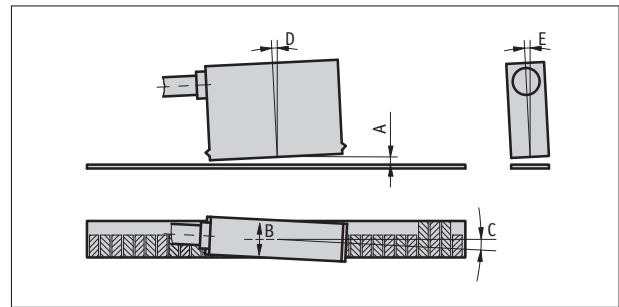
■ With reference signal

Signal	E1	E6X
sin	red	1
cos	yellow	2
index	blue	3
+UB	brown	4
GND	black	5
/sin	orange	6
/cos	green	7
/index	violet	8

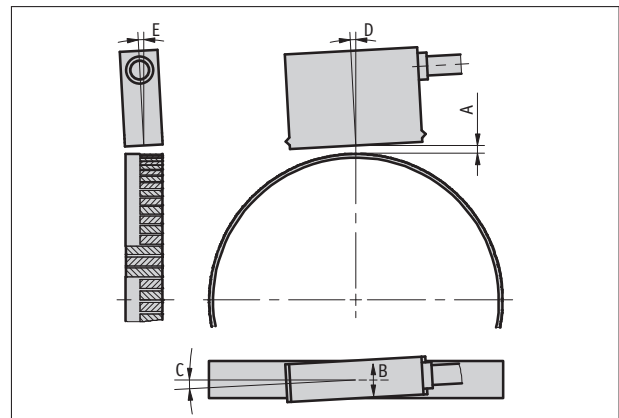
Hint for mounting

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 sensor representation)



symbolic sensor representation

Order

Ordering information

One or more system components are required:

- Magnetic band MB100/1
- Magnetic band ring MBR100

Ordering table

Feature	Ordering data	Specification	Additional information
Operating voltage	10	10.5 ... 30 V DC	
	5	5 V DC ±5 %	
Design	M	metal housing with status LEDs	
	ZM	metal housing without status LEDs	
Type of connection	E1	open cable end	
	E6X	bullet connector without mating connector	
		cable extension on request	
Cable length	...	1 ... 20 m, in steps of 1 m others on request	
Reference signal	O	without	
	IA	periodic index (analog)	index signal every 1 mm
	ID	periodic index (digital)	index signal every 1 mm
	RB	fixed, tape side (analog)	
	RD	fixed, tape side (digital)	

Order key

LE100/1 - - - - -

A B C D E

Scope of delivery: LE100/1, Quick Start Guide, Fastening set

Accessories:
Installation aid ZB3054

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