

Linear Measuring Technology

Magnetic measurement system	Limes LI50 / B2	Resolution min. 5 µm
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The non-contact incremental magnetic linear measurement system LI50 / B2 - made up of the sensor head LI50 and of the magnetic band B2 - reaches a resolution up to 5 µm with a maximum distance of 2 mm between the sensor and the band.

NEW: Version for outdoor use with extremely sturdy aluminium housing and stainless-steel cover, wide temperature range as well as a UV-resistant cable. IP68 / IP69K protection, special encapsulation technology and tested resistance to cyclic humidity and damp heat offer the highest levels of reliability, even in exposed outdoor use.



Temperature -20° + 80°	High protection level IP	Shock / vibration resistant	Reverse polarity protection

Robust

- Sturdy housing with IP67 protection. Option: special housing for maximum resistance against condensation (IP68 / IP69K, resistance to cyclic humidity acc. to EN 60068-3-38 as well as damp heat acc. to EN 60068-3-78)
- Non-contact measuring system – free from wear
- Masking tape protecting the magnetic band

Easy installation

- Simple glued assembly of the magnetic tape
- Large mounting tolerances
- Requires very little installation space
- Warning signals via Status LED if the magnetic field is too weak

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Order code	Magnetic sensor Limes LI50	8.LI50	.X1X1	.2XXX	
		Type	a b c d	e f	
a Model	1 = IP67, standard 2 = IP68 / IP69K and humidity tested acc. to EN 60068-3-38, EN 60068-3-78	c Output circuit / Power supply	1 = RS422 / 4.8 ... 26 V DC 2 = Push-Pull / 4.8 ... 30 V DC	e Reference signal	2 = index periodic
b Pulse edge interval	1 = Standard	d Type of connection	1 = cable PUR, 2 m length	f Code (resolution) ¹⁾	050 = 25 µm 250 = 5 µm
				Stock types	8.LI50.1111.2050 8.LI50.1111.2250 8.LI50.1121.2050 8.LI50.1121.2250

Order code	Magnetic band Limes B2	8.B2	.10	.010	.XXXX
		Type	a		b
a Width	10 = 10 mm	b Length	0010 = 1 m 0020 = 2 m 0040 = 4 m 0050 = 5 m	0060 = 6 m 0100 = 10 m 0200 = 20 m Other lengths up to 50 m on request.	Stock types
					8.B2.10.010.0010 8.B2.10.010.0020 8.B2.10.010.0050 8.B2.10.010.0100

1) With quadruple evaluation (only connected with magnetic band Limes B2)

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Accessories / Display Type 572		
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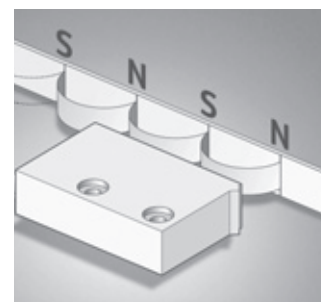
Position display, 6-digit	with 4 fast switch outputs and serial interface	6.572.0116.D05
	with 4 fast switch outputs and serial interface and scalable analogue output	6.572.0116.D95
Position display, 8-digit	with 4 fast switch outputs and serial interface	6.572.0118.D05
	with 4 fast switch outputs and serial interface and scalable analogue output	6.572.0118.D95

Further accessories can be found in the Accessories section or in the Accessories area of our website at: www.kuebler.com/accessories.
 Additional connectors can be found in the Connection Technology section or in the Connection Technology area of our website at: www.kuebler.com/connection_technology.

Technical data – Magnetic sensor Limes LI50		
Output circuit	Push-Pull	RS422
Supply voltage	4.8 ... 30 V DC	4.8 ... 26 V DC
Permissible load / channel	±20 mA	120 Ω
Max. cable length	max. 30 m	RS422 Standard
Power consumption (no load)	typ. 25 mA, max. 60 mA	
Short circuit proof ¹⁾	yes	yes ²⁾
Min. pulse edge interval	1 µs (corresponds to 4 µs/cycle see signal figures below)	
Output signal	A, \bar{A} , B, \bar{B} , 0, $\bar{0}$	
Reference signal	index periodical	
Accuracy		
System Accuracy	typ. +200 µm, max. ± (0.06 + 0.04 x L) mm, (L in [m], up to L = 50 m, at T = 20°C)	
Repeat accuracy	±1 increment	
Resolution and speed ³⁾	25 µm (quadruple), max. 16.25 m/s 5 µm (quadruple), max. 3.25 m/s	
Permissible alignment tolerance (see draft „Mounting tolerances“)		
Gap sensor / magnetic band	0.1 ... 2.0 mm (1.0 mm recommended)	
Offset	max. ±1 mm	
Tilting	max. 3°	
Torsion	max. 3°	
General data		
Working temperature	-20°C ... +80°C	
Shock resistance	500 g/1 ms	
Vibration strength	30 g/10 ... 2000 Hz	
Protection	Model 1	IP67 acc. to DIN 60529
	Model 2	IP68 / IP69K acc. to DIN 60529 and humidity tested acc. to EN 60068-3-38, EN 60068-3-78
Housing	Aluminium	
Cable	2 m long, PUR 8 x 0.14 mm ² , shielded, may be used in trailing cable installations	
Status-LED:	Green	pulse-index
	Red	Error; Speed too high or magnetic fields too weak (8.LI50.XXXX.X050 and 8.LI50.XXXX.X250)
CE compliant acc. to	EN 61000-6-2, EN 61000-6-4 and EN 61000-4-8	
RoHS compliant acc. to	EC guideline 2002/95/EC	

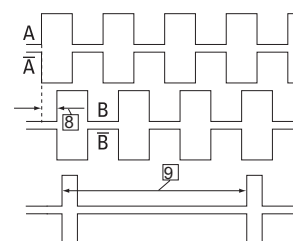
Technical data – Magnetic band Limes B2	
Pole gap	5 mm from pole to pole
Dimensions	width: 10 mm, Thickness: 1.97 mm incl. masking tape
Temperature coefficient	16 x 10 ⁻⁶ /K
Working temperature	-20°C ... +80°C -20°C ... +65°C (when mounted solely with adhesive tape)
Storage temperature	-20°C ... +80°C
Mounting	adhesive joint
Measuring	0.1 m (to receive an optimal result of measurement, the magnetic band should be ca. 0.1 m longer than the desired measuring length)
Bending radius	≥ 150 mm (when mounted solely with adhesive tape)

Function principle



Signal figures

- 8) Pulse edge interval:
Pay attention to the instructions in the technical data
- 9) Periodic index signal (every 5 mm); the logical assignment A, B and 0-Signal can change



- 1) If supply voltage correctly applied
- 2) Only one channel allowed to be shorted-out
If U_B = 5 V, short-circuit to channel, 0 V, or +U_B is permitted
If U_B = 5 ... 30 V, short-circuit to channel or 0 V is permitted
- 3) At the listed rotational speed range a counter with a count input frequency of not less than 250 kHz should be provided.

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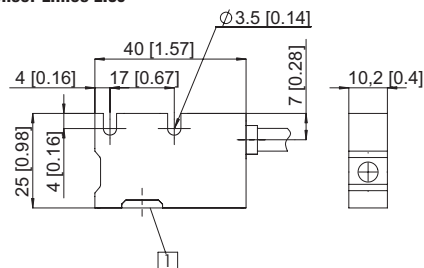
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Terminal assignment

Output circuit	Type of connection	Cable	Signal:	0 V	+V	A	\bar{A}	B	\bar{B}	0	$\bar{0}$	\perp
1, 2	1	Signal:										
		Cable colour:		WH	BN	GN	YE	GY	PK	BU	RD	shield ¹⁾

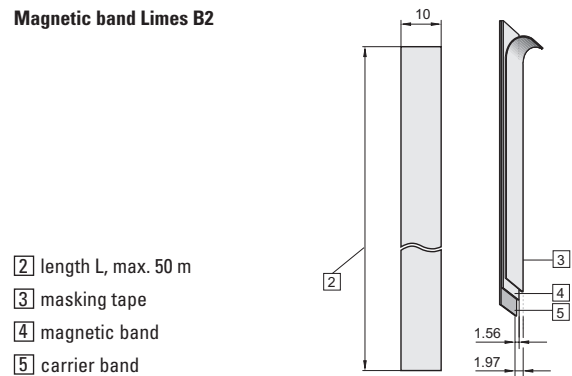
Dimensions

Magnetic sensor Limes LI50



1 active measuring area

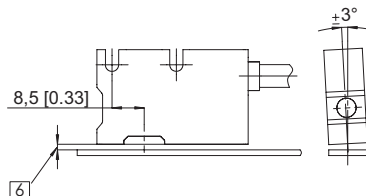
Magnetic band Limes B2



- 2 length L, max. 50 m
- 3 masking tape
- 4 magnetic band
- 5 carrier band

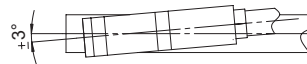
Permissible Mounting tolerances

Tilting



6 distance sensor / magnetic band:
0.1 ... 2.0 mm (1.0 mm recommended)

Torsion



Offset



1) PH = Shield is attached to connector housing