

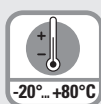
Linear measuring technology

Incremental magnetic measurement system sensor head, magnetic band	Limes LI50 / B2	Resolution min. 5 µm
---	------------------------	-----------------------------



The non-contact incremental magnetic linear measurement system Limes 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.

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 range



High protection level



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.

Order code sensor head Limes LI50

8.LI50	.	X	1	X	1	.	2	XXX
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

b Pulse edge interval

- 1 = standard

c Output circuit / power supply

- 1 = RS422 / 4.8 ... 26 V DC
- 2 = Push-Pull / 4.8 ... 30 V DC

d Type of connection

- 1 = cable, 2 m [6.56'] PUR

e Reference signal

- 2 = index periodic

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

Optional on request

- other lengths up to 70 m

Stock types

- 8.B2.10.010.0020

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

Linear measuring technology

Incremental magnetic measurement system sensor head, magnetic band	Limes LI50 / B2	Resolution min. 5 µm
---	------------------------	-----------------------------

Accessories / Display type 572		Order no.
Position display, 6-digit	with 4 fast switch outputs and serial interface	6.572.0116.D05
	with 4 fast switch outputs, 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, serial interface and scalable analogue output	6.572.0118.D95

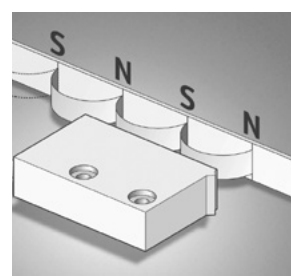
Further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.
Additional connectors can be found in the connection technology section or in the connection technology area of our website at: www.kuebler.com/connection_technology.

Technical data

Sensor head Limes LI50		
Output circuit	Push-Pull	RS422
Power supply	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 + 0.02 x L) mm (L in [m], up to L = 70 m, at T = 20°C [+68°F] and gap sensor head/magnetic band = 1.0 mm)	
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 head / magnetic band	0.1 ... 2.0 mm, 1.0 mm recommended	
Offset	max. ±1 mm [0.4"]	
Tilting	max. 3°	
Torsion	max. 3°	
General data		
Working temperature	-20°C ... +80°C [-4°F ... +176°F]	
Shock resistance	5000 m/s ² , 1 ms	
Vibration resistance	300 m/s ² , 10 ... 2000 Hz	
Protection	model 1	IP67 acc. to EN 60529
	model 2	IP68 / IP69k acc. to EN 60529 and humidity tested acc. to EN 60068-3-38, EN 60068-3-78
Housing	aluminium	
Cable	2 m [6.56'] PUR 8 x 0.14 mm ² [AWG 25] 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	EMC guideline 2014/30/EU RoHS guideline 2011/65/EU	

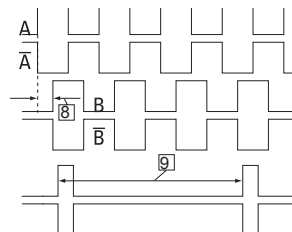
Magnetic band Limes B2	
Pole gap	5 mm from pole to pole
Dimensions	width 10 mm
	thickness 1.97 mm incl. masking tape
Temperature coefficient	16 x 10 ⁻⁶ /K
Working temperature	-20°C ... +80°C [-4°F ... +176°F] -20°C ... +65°C [-4°F ... +144°F] (when mounted solely with adhesive tape)
Storage temperature	-20°C ... +80°C [-4°F ... +176°F]
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)
Material metal tape	precision steel strip 1.4404 acc. to EN 10088-3

Function principle



Signal figures

- 8 Pulse edge interval:
pay attention to the instructions in the technical data
- 9 Periodic index signal
every 5 mm [0.20"];
the logical assignment A, B and 0-Signal can change



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

Linear measuring technology

Incremental magnetic measurement system sensor head, magnetic band

Limes LI50 / B2

Resolution min. 5 µm

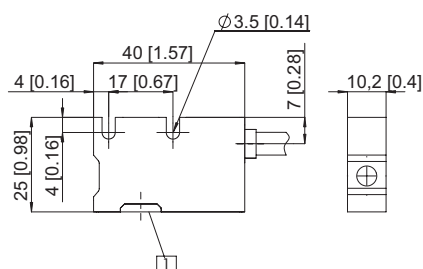
Terminal assignment

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

Dimensions

Dimensions in mm [inch]

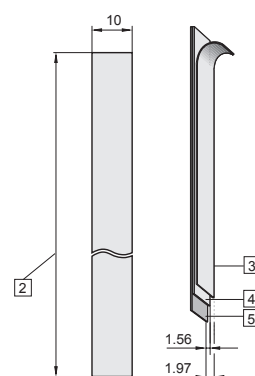
Sensor head Limes LI50



1 Active measuring area

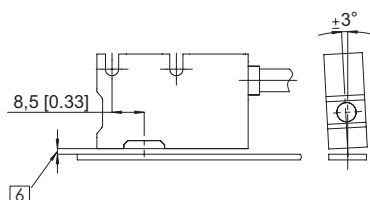
Magnetic band Limes B2

- 2 Length L, max. 70 m
- 3 Masking tape
- 4 Magnetic band
- 5 Carrier band



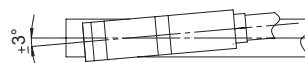
Permissible mounting tolerances

Tilting



6 Distance sensor head / magnetic band:
0.1 ... 2.0 mm (recommended 1 mm)

Torsion



Offset



1) PH = Shield is attached to connector housing.