

Linear Measuring Technology

Magnetic measurement system **Limes LI50 / B2** **Resolution min. 5 µm**



The 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.



Temperature



High IP value



Shock / vibration resistant



Reverse polarity protection

Robust

- Sturdy housing with IP67 protection
- Non-contact measuring technology – thus no wear
- Masking tape protecting the magnetic band

Easy installation

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

Order code

Magnetic sensor Limes LI50

8.LI50 . 1 1 X 1 . 2 XXX
Type a b c d e f

a Model

1 = Standard

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

Standard stock types

8.LI50.1111.2050
 8.LI50.1111.2250

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

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 0060 = 6 m
 0020 = 2 m 0100 = 10 m
 0040 = 4 m 0200 = 20 m
 0050 = 5 m Other lengths up to 50 m on request

Standard 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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Magnetic measurement system

Limes LI50 / B2

Resolution min. 5 µm

Display Type 572 for LIMES LI50



Counter series for demanding applications, with two individually scalable encoder inputs. HTL or TTL in each case A, A, B, B for count frequencies up to 1 MHz per channel. Operating modes can be selected for position or event counter, total counter, difference counter, cut-to-length display, diameter calculator, batch counter and more.

- 2 separate freely scalable count inputs - HTL or TTL; also with inverted inputs
- Max. input frequency 1 MHz/ channel (at TTL-input)
- 4 freely programmable fast solid-state outputs, each with 350 mA output current
- Step or tracking preset
- AC and DC supply voltage
- Can be used as a counter or position display with limit values
- Monitoring function, where 2 values are monitored or calculated with respect to each other
- 4 fast programmable inputs with various functions such as reset, gate, display memory, reference input or switching between the display values.
- Optional scalable analogue output 0/4 ... 20 mA, +/-10 V or 0 ... 10 V
- 2 auxiliary power supplies for sensors: 5.2 V DC and 24 V DC
- Standard interface RS 232

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

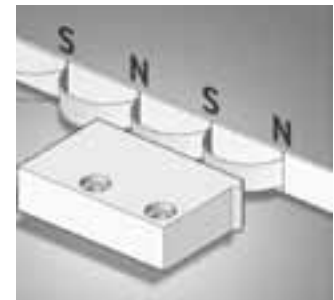
with 4 fast switch outputs and serial interface and scalable analogue output

6.572.0118.D95

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 Ohm
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 (edge interval) corresponds to 4 ms/cycle (see signal figures below)	
Output signal	A, \bar{A} , B, \bar{B} , I, \bar{I}	
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	IP67 acc. to DIN 60 529 (housing)	
Humidity	100 %, condensation possible	
Housing	zinc die-cast	
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 61 000-6-2, EN 61 000-6-4 and EN 61 000-6-3	
RoHS compliant acc. to	EG guideline 2002/95/EG	

Technical data – Magnetic band Limes B2	
Pole gap	5 mm from pole to pole
Dimensions	width: 10 mm, Thickness: 1.7 mm incl. masking tape
Temperature coefficient	(11 ±1) x 10 ⁻⁶ /K
Working temperature	-20°C ... +80°C
Storage temperature	-40°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	≥ 50 mm

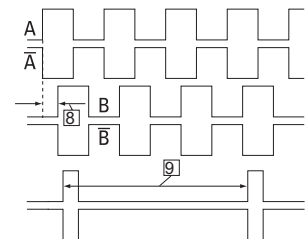
Function principle



Signal figures

For a rotation of the magnetic ring in the cw direction (see the Mounting Tolerances drawing)

- ⑨ Periodic index signal (every 2 mm); the logical assignment A, B and I-Signal can change
- ⑧ Pulse edge interval: Pay attention to the instructions in the technical data



- 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 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.

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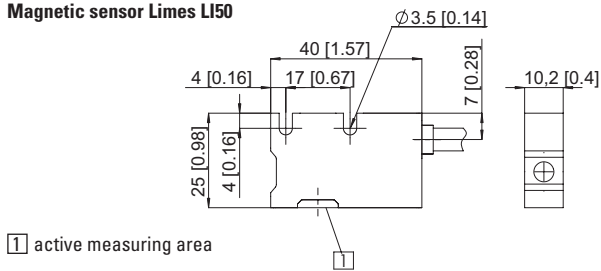
Magnetic measurement system	Limes LI50 / B2	Resolution min. 5 µm
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Terminal assignment

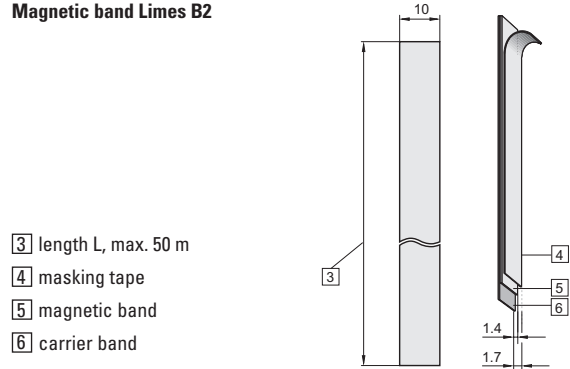
Signal	0 V GND	U _B	A	\bar{A}	B	\bar{B}	I	\bar{I}	shield
Cable colour	WH	BN	GN	YE	GY	PK	BU	RD	shield is on the housing

Dimensions

Magnetic sensor Limes LI50

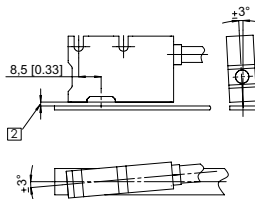


Magnetic band Limes B2

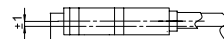


Permissible Mounting tolerances

Tilting



Torsion



Offset

[2] Abstand Sensor / Magneband: 0.1 ... 1.0mm (empfohlen 0.4mm)