

# 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)<sup>1)</sup>

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

<sup>1)</sup> 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**

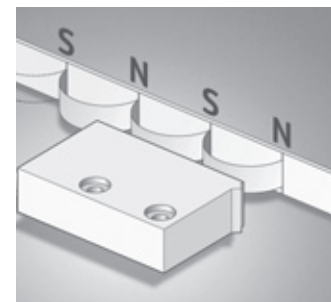
with 4 fast switch outputs and serial interface and scalable analogue output

**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 Ω
Max cable length	max. 30 m	RS422 Standard
Power consumption (no load)	typ. 25 mA, max. 60 mA	
Short circuit proof <sup>1)</sup>	yes	yes <sup>2)</sup>
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	
<b>Accuracy</b>		
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 <sup>3)</sup>	25 µm (quadruple), max. 16.25 m/s 5 µm (quadruple), max. 3.25 m/s	
<b>Permissible alignment tolerance</b> (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°	
<b>General data</b>		
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)	
Housing	zinc die-cast	
Cable	2 m long, PUR 8 x 0.14 mm <sup>2</sup> , 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	

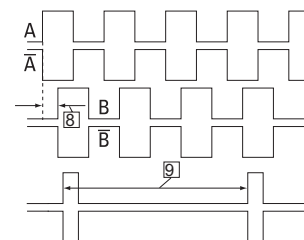
Technical data – Magnetic band Limes B2	
Pole gap	5 mm from pole to pole
Dimensions	width: 10 mm, Thickness: 1.7 mm incl. masking tape
Temperature coefficient	(11 ±1) x 10 <sup>-6</sup> /K
Working temperature	-20°C ... +80°C
Storage temperature	-40°C ... +80°C
Mounting	adhesive joint
Measuring	0.1 m (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**

- 9) Periodic index signal (every 5 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<sub>B</sub> = 5 V, short-circuit to channel, 0 V, or +U<sub>B</sub> is permitted  
 If U<sub>B</sub> = 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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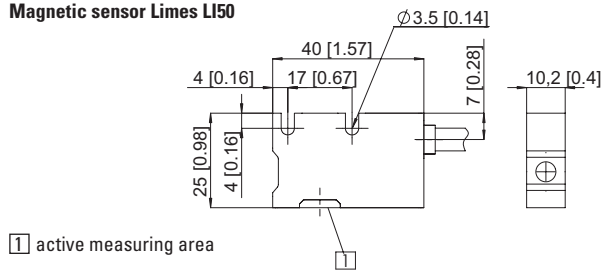
<b>Magnetic measurement system</b>	<b>Limes LI50 / B2</b>	<b>Resolution min. 5 µm</b>
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## Terminal assignment

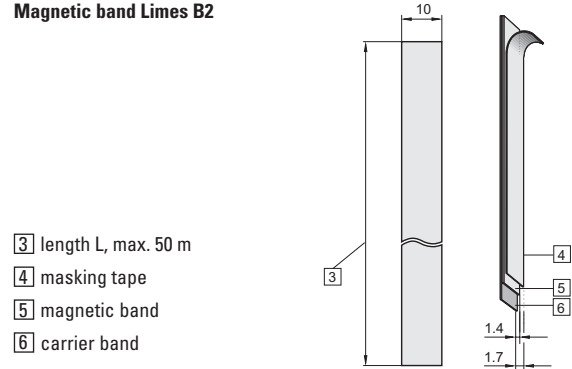
Signal	0 V GND	U <sub>B</sub>	A	Ā	B	B̄	I	T	shield
Cable colour	WH	BN	GN	YE	GY	PK	BU	RD	shield is on the housing

## Dimensions

### Magnetic sensor Limes LI50

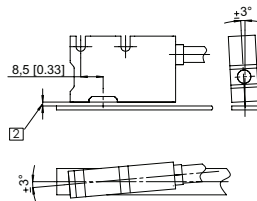


### Magnetic band Limes B2

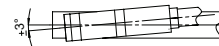


## Permissible Mounting tolerances

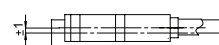
### Tilting



### Torsion



### Offset



- 2 Distance Sensor / Magnetic band:  
0.1 ... 2.0 mm (1.0 mm recommended)