

**NEW**



# Linear Measuring Technology

## Linear magnetic measurement system

### Linear magnetic measurement system **LIMES LI20/B1**



High IP



Temperature range



Shock/vibration resistant



Reverse polarity protection

#### Robust

- **Increased ability to withstand vibrations and rough installation**

Eliminates machine downtime and repairs  
High shock and vibration resistance, thanks to non-contact technology.

- **Stays sealed even when subjected to harsh everyday use. Offers security against failures in the field.**

Solid housing with up to IP 67 protection.



#### Compact

- **Installation depth only 10 mm, width of magnetic band 10 mm**
- **Installation height only 28 mm**  
Can be used even where space is very tight

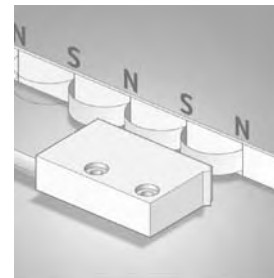
#### Simple installation

- **Fast start-up of the measuring system**  
Easy fixing of the magnetic band and the sensor head
- **Easy mounting with large tolerances possible**  
Distance of sensor head to magnetic band from 0.1 to 1.0 mm  
Tolerates lateral misalignment + 1 mm  
Warning signal when magnetic field is too weak (LED)

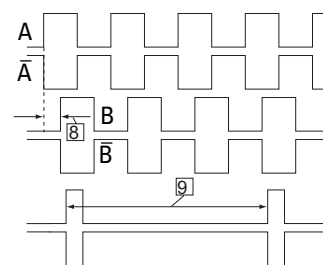
#### Technical data magnetic sensor **LIMES LI20:**

Output circuit:	Push-Pull	RS422
Supply voltage:	4,8 ... 30 V DC	4,8 ... 26 V DC
Load/channel, max cable length:	±20 mA, max. 30 m	120 Ohm, RS422 standard
Current consumption (without load):	typ. 25 mA, max. 60 mA	
Short circuit proof outputs <sup>1)</sup> :	yes	yes <sup>2)</sup>
Min. Pulse interval:	1 µs (edge interval) corresponds to 4 µs/cycle (see signal figures below)	
Output signal:	A, $\bar{A}$ , B, $\bar{B}$ , I, $\bar{I}$	
Reference signal:	Index periodical	
System Accuracy:	typ. ±200 µm, max. ± (0.04 + 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> :	100 µm (quadruple), max. 25 m/s 25 µm (quadruple), max. 4 m/s 10 µm (quadruple), max. 6,5 m/s	
<b>Permissible alignment tolerance</b>	see draft "Mounting tolerances"	
Gap sensor / magnetic band:	0.1 ... 1.0 mm (0,4 mm recommended)	
Offset:	max. ±1 mm	
Tilting:	max. 3 °	
Torsion:	max. 3 °	
Working temperature:	-20 ... +80 °C	
Shock resistance:	500g/1 ms	
Vibration strength:	30 g/10 ... 2000 Hz	
Protection class:	IP 67 according to DIN 60 529 (housing)	
Humidity:	100 %, condensation possible	
Housing:	Zinc die-cast	
Cable:	2 m, 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 (for sensors 8.LI20.XXXX.X020 and 8.LI20.XXXX.X050)	
CE-compliant according to:	EN 61 000-6-1, EN 61 000-6-4, EN 61 000-6-3 EN 61 000-4-8 (magnetic field)	
RoHS compliant acc. to EU guideline 2002/95/EG		

#### Function principle:



#### Signal figures



- 9) periodic index signal (every 2 mm)  
The logical assignment A, B and I-Signal can change
- 8) Min. Pulse interval: pay attention to the instructions in the technical data

<sup>1)</sup> With supply voltage correctly applied  
<sup>2)</sup> A max. of one channel only may be short-circuited:  
(when UB=5 V, a short circuit to another channel, 0 V, or +UB is permissible.)  
(when UB=5-30 V, a short circuit to another channel or to 0 V is permissible.)  
<sup>3)</sup> At the listed rotational speed the min. pulse interval is 1µs, 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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## Linear magnetic measurement system

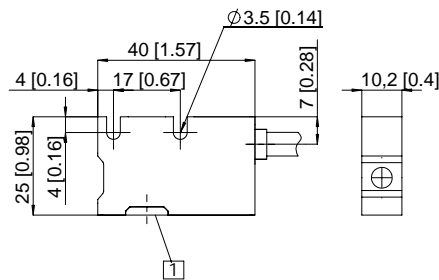
### Linear magnetic measurement system **LIMES LI20/B1**

#### Technical data magnetic band **LIMES B1:**

Pole gap	2 mm from pole to pole
Dimensions:	Width: 10 mm, Thickness: 1.7 mm incl. masking tape
Temperature coefficient:	$(11 \pm 1) \times 10^{-6} / K$
Temperature ranges:	working temperature: $-20 \dots +80 \text{ }^\circ\text{C}$ storage temperature: $-40 \dots +80 \text{ }^\circ\text{C}$
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:	$\leq 50 \text{ mm}$

#### Dimensions:

#### Magnetic sensor **LIMES LI20:**



1 active measuring area

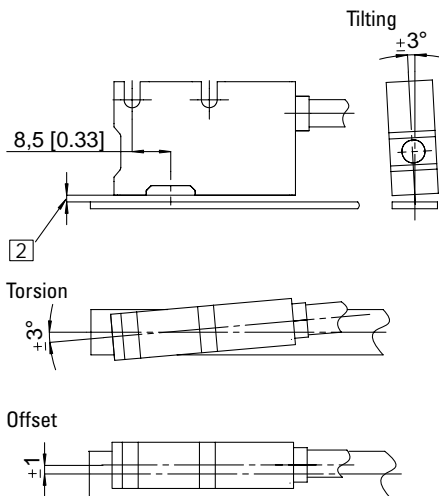
#### Pin assignment:

Signal	Wire colour
0 V, GND	white
$U_B$	brown
A	green
$\bar{A}$	yellow
B	grey
$\bar{B}$	pink
I	blue
$\bar{I}$	red

Shield is on the housing

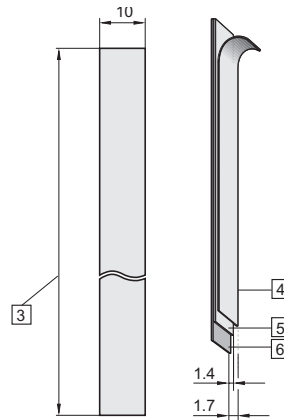


#### Permissible Mounting tolerances:



2 Distance Sensor / Magnetic band:  
0.1... 1.0 mm (0.4 mm recommended)

#### Magnetic band **LIMES B1:**



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

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# Linear Measuring Technology

## Linear magnetic measurement system



### Linear magnetic measurement system **LIMES LI20/B1**

Order code magnetic sensor **LIMES LI20:**

**8.LI20.11X1.2XXX**

Model

Design

1 = standard

Pulse interval

1 = standard

Interface and supply voltage

1 = RS422/4.8 ... 26 V DC

2 = Push-Pull/4.8 ... 30 V DC

Code (Resolution\*)

005 (100 µm)

020 (25 µm)

050 (10 µm)

(only connected with magnetic band Limes B1)

Reference signal

2 = index periodic

Type of connection

1 = cable (PUR), 2 m

\* with quadruple evaluation

**Standard stock types:**

8.LI20.1111.2005

8.LI20.1121.2005

8.LI20.1111.2020

8.LI20.1121.2020

8.LI20.1111.2050

8.LI20.1121.2050

Order code magnetic band **LIMES B1:**

**8.B1.10.010.XXXX**

Model

Width

10 = 10 mm

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

**Standard stock types:**

8.B1.10.010.0010

8.B1.10.010.0020

8.B1.10.010.0050

8.B1.10.010.0100

### Display Type 572 for **LIMES LI20:**



Counter series for demanding applications, with two individually scalable encoder inputs. HTL or TTL in each case A,  $\bar{A}$ , B,  $\bar{B}$  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
- 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

**Order code specification:**

**Position display, 6 digits**, with 4 fast switch outputs and serial interface:

6.572.0116.D05

**Position display, 6 digits**, with 4 fast switch outputs and serial interface and scalable analogue output:

6.572.0116.D95

**Position display, 8 digits**, with 4 fast switch outputs and serial interface:

6.572.0118.D05

**Position display, 8 digits**, with 4 fast switch outputs and serial interface and scalable analogue output:

6.572.0118.D95

# Linear Measuring Technology

## Linear magnetic measurement system

**Kübler**

**NEW**

### Linear magnetic measurement system **LIMES LI50/B2**



High IP



Temperature range



Shock/vibration resistant



Reverse polarity protection

#### Robust

- **Increased ability to withstand vibrations and rough installation**

Eliminates machine downtime and repairs  
High shock and vibration resistance, thanks to non-contact technology.

- **Stays sealed even when subjected to harsh everyday use. Offers security against failures in the field.**

Solid housing with up to IP 67 protection.



#### Compact

- **Installation depth only 10 mm, width of magnetic band 10 mm**
- **Installation height only 28 mm**  
Can be used even where space is very tight

#### Simple installation

- **Fast start-up of the measuring system**  
Easy fixing of the magnetic band and the sensor head

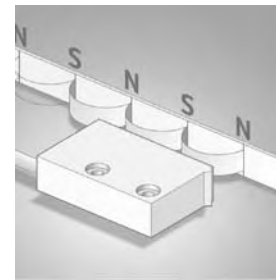
- **Easy mounting with large tolerances possible**

Distance of sensor head to magnetic band from 0.1 to 2.0 mm  
Tolerates lateral misalignment + 1 mm  
Warning signal when magnetic field is too weak (LED)

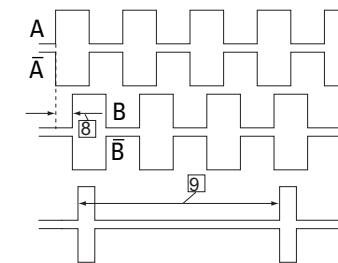
#### Technical data magnetic sensor **LIMES LI50:**

Output circuit:	Push-Pull	RS422
Supply voltage:	4,8 ... 30 V DC	4,8 ... 26 V DC
Load/channel, max cable length:	±20 mA, max. 30 m	120 Ohm, RS422 standard
Current consumption (without load):	typ. 25 mA, max. 60 mA	
Short circuit proof outputs <sup>1)</sup> :	yes	yes <sup>2)</sup>
Min. Pulse interval:	1 µs (edge interval) corresponds to 4 µs/cycle (see signal figures below)	
Output signal:	A, $\bar{A}$ , B, $\bar{B}$ , I, $\bar{I}$	
Reference signal:	Index periodical	
System Accuracy:	typ. ±200 µm ± (0.06 + 0.04 × L) mm, (L [m] up to L = max. 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 °	
Working temperature:	-20 ... +80 °C	
Shock resistance:	500g/1 ms	
Vibration strength:	30 g/10 ... 2000 Hz	
Protection class:	IP 67 according to DIN 60 529 (housing)	
Humidity:	100 %, condensation possible	
Housing:	Zinc die-cast	
Cable:	2 m, PUR 8 × 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 (for sensors 8.LI50.XXXX.X050 and 8.LI50.XXXX.X250)	
CE-compliant according to:	EN 61 000-6-1, EN 61 000-6-4, EN 61 000-6-3 EN 61 000-4-8 (magnetic field)	
RoHS compliant acc. to EU guideline 2002/95/EG		

#### Function principle:



#### Signal figures



- [9]** periodic index signal (every 2 mm)  
The logical assignment A, B and I-Signal can change
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<sup>1)</sup> With supply voltage correctly applied

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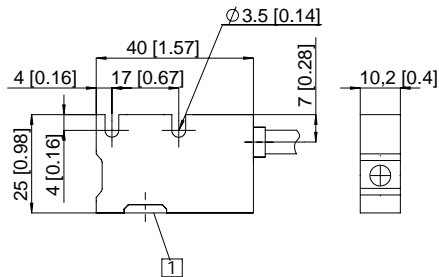
### Linear magnetic measurement system **LIMES LI50/B2**

#### 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:	$(11 \pm 1) \times 10^{-6} / K$
Temperature ranges:	working temperature: $-20 \dots +80 \text{ }^\circ\text{C}$ storage temperature: $-40 \dots +80 \text{ }^\circ\text{C}$
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:	$\leq 50 \text{ mm}$

#### Dimensions:

#### Magnetic sensor **LIMES LI50:**



1 active measuring area

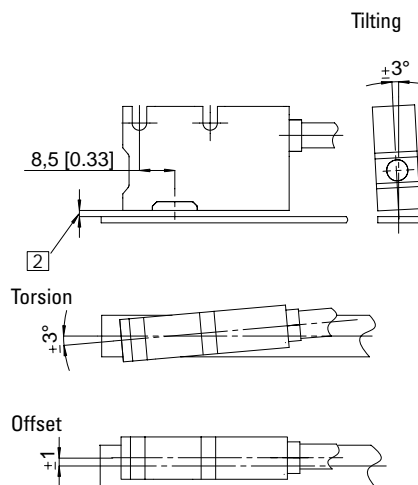
#### Pin assignment:

Signal	Wire colour
0 V, GND	white
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Shield is on the housing

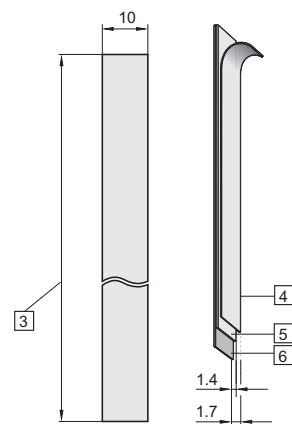


#### Permissible Mounting tolerances:



2 Distance Sensor / Magnetic band:  
0.1... 2.0 mm (1 mm recommended)

#### Magnetic band **LIMES B2:**



- 3 length L, max. 50 m
- 4 masking tape
- 5 magnetic band
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## Linear magnetic measurement system

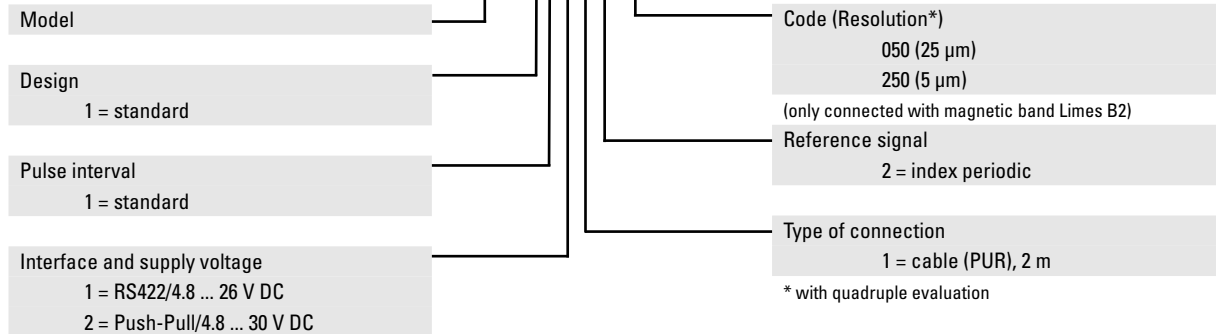
**Kübler**

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### Linear magnetic measurement system **LIMES LI50/B2**

Order code magnetic sensor **LIMES LI50:**

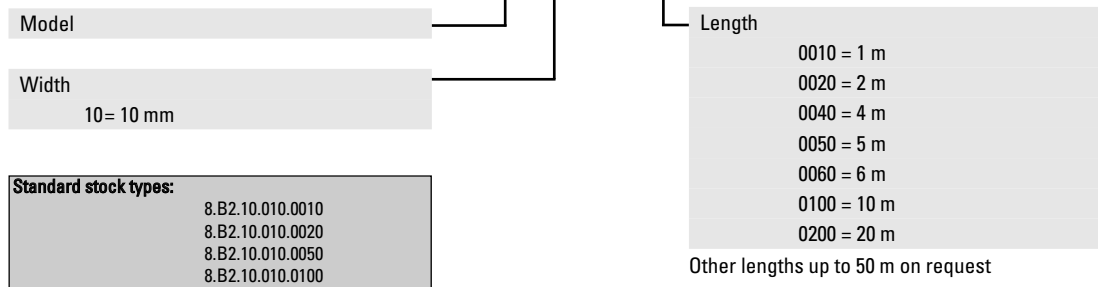
**8.LI50.11X1.2XXX**



<b>Standard stock types:</b>	
8.LI50.1111.2050	8.LI50.1121.2050
8.LI50.1111.2250	8.LI50.1121.2250

Order code magnetic band **LIMES B2:**

**8.B2.10.010.XXXX**



<b>Standard stock types:</b>	
8.B2.10.010.0010	
8.B2.10.010.0020	
8.B2.10.010.0050	
8.B2.10.010.0100	

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- Position display, 8 digits**, with 4 fast switch outputs and serial interface and scalable analogue output:  
6.572.0118.D95

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