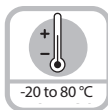


### Linear Magnetic Measurement System LM-5/LMT-5



High IP



Temperature  
-20 to 80 °C



Shock/vibration  
resistant



Reverse polarity  
protection

#### Robust

- **Fully potted diecast metal housing.**
- **Increased ability to withstand vibrations and rough installation:** Eliminates machine downtime and repairs. Non-contact technology results in high shock and vibration resistance.
- **Stays sealed even when subjected to harsh everyday use.** Die cast metal housing with up to IP68/IP69K protection.



#### Compact

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

#### Simple Installation

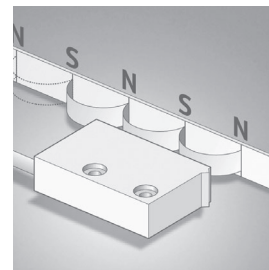
- **Fast start-up of the measuring system:** Easy attachment of the magnetic band and the sensor head.
- **Easy mounting with large tolerances possible:** Distance of sensor head to magnetic band from 0.1 to 2.0 mm; tolerates lateral misalignment +1 mm; LED warning indicator when magnetic field is too weak.

#### Technical Data Magnetic Sensor LM-5:

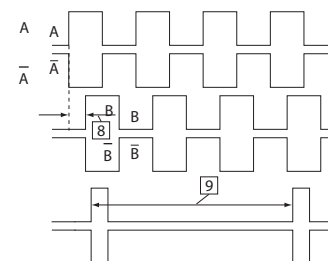
Output circuit [Key Code]:	Push-Pull [2R]	RS422 [4K]
Supply voltage:	4.8 to 30 VDC	4.8 to 26 VDC
Load/channel, max cable length:	±20 mA, max. 30 m	120 Ohm, RS422 standard
Current consumption (without load):	typ. 25 mA, max. 60 mA	
Short circuit protected:	yes	yes <sup>1)</sup>
Min. pulse interval:	1 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. ± (0.06 + 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>2)</sup> :	25 μm (post-quadrature), max. 16.25 m/s 5 μm (post-quadrature), 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°	
Working temperature:	-4 to +176 °F (-20 to +80 °C)	
Shock resistance:	500 g/1 ms	
Vibration strength:	30 g/10-2000 Hz	
Protection class:	IP67 according to DIN 60529 (housing) IP68/IP69K	
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 LM-5-*10-*050-* and LM-5-*10-*250-*)	

RoHS compliant acc. to EU guideline 2011/65/EU

#### Function Principle:



#### Signal Figures:



- 9) Periodic index signal (every 5 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> A max. of one channel only may be short-circuited: (when +V = 5 V, a short circuit to another channel, 0 V, or +V is permissible.) (when +V = 5-30 V, a short circuit to another channel or to 0 V is permissible.)

<sup>2)</sup> At the listed rotational speed the min. pulse 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.

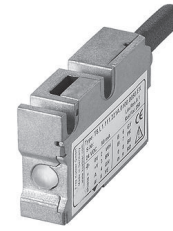
# Linear Position Technology

## Linear Magnetic Position System

### Linear Magnetic Measurement System LM-5/LMT-5

#### Technical Data Magnetic Band LMT-5:

Pole gap:	5 mm from pole to pole
Dimensions:	Width: 10 mm, Thickness: 1.7 mm incl. masking tape
Temperature coefficient:	(11±1)×10 <sup>-6</sup> /K
Temperature ranges:	working temperature: -4 to +176 °F (-20 to +80 °C) storage temperature: -40 to +176 °F (-40 to +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

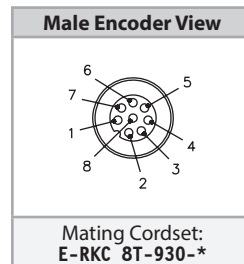


#### Standard Wiring:

Pin	Signal	Color
1	0 V	WH
2	+V	BN
3	A	GN
4	$\bar{A}$	YE
5	B	GY
6	$\bar{B}$	PK
7	Z	BU
8	$\bar{Z}$	RD

Shield is on the housing

#### Wiring Diagram:



\* Length in meters.

#### Part Number Key: Magnetic Sensor LM-5

A		B		C	D		E
LM-5	-	P10	-	2R	050	-	C

A	Type
LM-5	Linear Magnetic

B	Housing
P10	10 mm, IP68/IP69K
Q10	10 mm, IP67

C	Voltage Supply and Output Type
2R	4.8-30 VDC, Push-Pull
4K	4.8-26 VDC, RS422

D	Resolution <sup>1)</sup>
050	25 μm
250	5 μm

<sup>1)</sup> with quadruple evaluation

E	Type of Connection
C	Cable (2 m PUR)
C*-E-RSS8T	Cable w/ *m M12 Eurofast Connector

\* Not available > 2 m

#### Part Number Key: Magnetic Band LMT-5

A		B
LMT-5	-	0010

A	Type
LMT-5	10 mm, Linear Magnetic Tape, 5 mm Pole Gap

B	Length*
0010	1 m
0050	5 m
0100	10 m

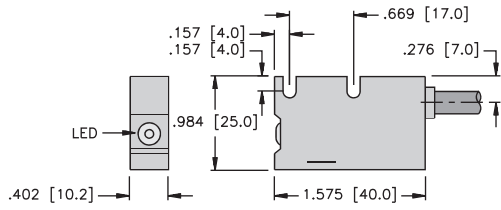
\*Other lengths < 50 m available on request

#### Accessories:

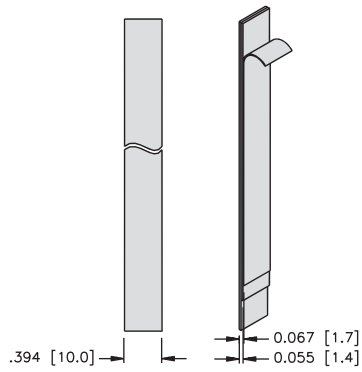
- See page H1, Connectivity, for cables and connectors

**Linear Magnetic Measurement System LM-5/LMT-5**

**Dimensions: Magnetic Sensor LM-5-\*10**



**Dimensions: Magnetic Band LMT-5**



**Permissible Mounting Tolerances:**

