EMSPA

LINEAR MAGNETOSTRICTIVE TRANSDUCER WITH ANALOGUE OUTPUT

MAIN CHARACTERISTICS

EMSPA is an absolute linear magnetostrictive transducer with analogue interface.
Thanks to the absence of electrical contact on the housing, there is no problem of wear and deterioration during its working life.
Magnetostrictive technology guarantees high performance in terms of speed and accuracy.
The compact size and robust housing ensure high reliability and ease of installation, even in applications with mechanical stresses, vibrations or high levels of contamination.



ORDERING CODE	EMSPA	500	S	20D	10	P	A

SERIES
linear magnetostrictive transducer with analogue output EMSPA

STROKE
mm from 50 to 1500
see table for stroke availability

ENCLOSURE RATING
IP 67 S

OUTPUT SIGNAL
0 ... 10 V DC / 1 cursor (standard) 10S
0 ... 10 V DC / 1 cursor position/speed 10P
0 ... 10 V DC / 2 cursors (min. stroke 400 mm) 10D
4 ... 20 mA / 1 cursor 20S
4 ... 20 mA / 1 cursor position/speed 20P
4 ... 20 mA / 2 cursors (min. stroke 400 mm) 20D

TRAVEL SPEED
max 10 m/s 10

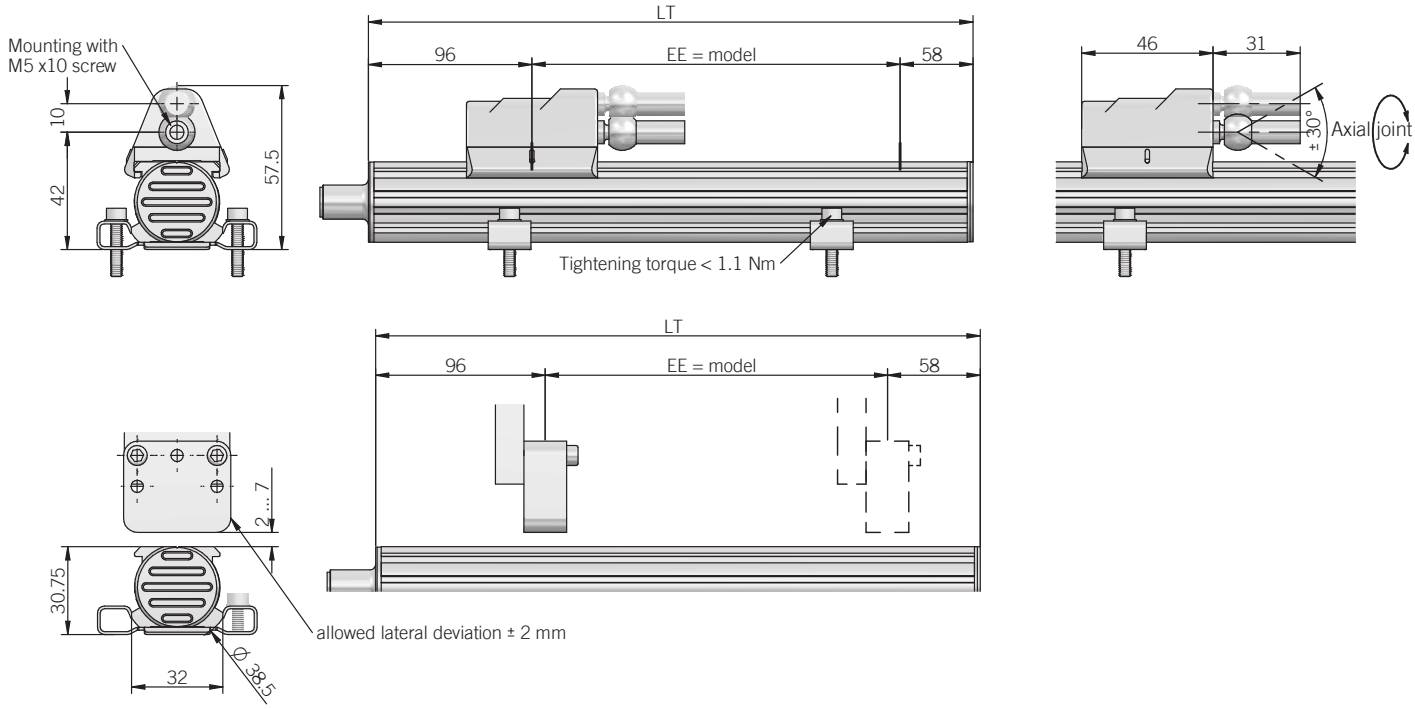
OUTPUT TYPE
cable (standard length 1 m) P
M12 5 pin connector S5
M12 8 pin connector S8
M16 IP40 DIN 45322 6 pin connector C6
M16 IP40 DIN 45326 8 pin connector C8

OUTPUT DIRECTION
axial A

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EMSPA



dimensions in mm

· brackets, cursors and socket connector not included, please refer to Accessories

ELECTRICAL SPECIFICATIONS

Resolution	16 bit (max electrical noise 5 mVpp)	
Output signal	0 ... 10 V DC	4 ... 20 mA
Output alarm value	10,5 V DC	21 mA
Output max value	12 V DC	30 mA
Power supply[1]	19,2 ... 28,8 V DC	
Power ripple	1 Vpp max	
Current consumption	70 mA max	90 mA max
Output load	5 kΩ	< 500 Ω
Output ripple	< 5 mVpp	
Indipendent linearity	≤ ± 0,01 % FS (min ± 0,060 mm) typical with sliding cursor ≤ ± 0,02 % FS with floating cursor (working distance 2 ... 5 mm) ≤ ± 0,04 % FS with floating cursor (working distance 5 ... 7 mm)	
Repeatability	< 0,01 mm	
Hysteresis	< 0,01 mm	
Sampling time	0,5 ms (50 ... 300) 1 ms (350 ... 1100) 1,5 ms (1200 ... 1500)	
Protection against overvoltage	yes	
Protection against polarity inversion	yes	
Protection against power supply on output	yes	
Electrical insulation	500 V DC	
Cable type	shielded - fixed installation conductors section 0,25 mm²/ AWG 24 bending radius min 40 mm	
Electromagnetic compatibility	according to 2014/30/EU directive	
RoHS	according to 2011/65/EU directive	

MECHANICAL SPECIFICATIONS

Stroke	50 - 100 - 150 - 200 - 250 - 300 - 350 - 400 - 450 - 500 - 600 - 700 - 800 - 900 - 1000 - 1100 - 1200 - 1300 - 1400 - 1500 mm
Electric stroke (EE)	see stroke (mm)
Overall dimension (LT)	EE + 154 mm
Enclosure rating	IP 67 (IEC 60529)
Detected measurement	displacement / speed
Travel speed	10 m/s max
Acceleration	100 m/s² max
Speed measurament range	0 ... 10 m/s
Speed accuracy	< 2 %
Shock	100 G, 11 ms, single shock (IEC 60068-2-27)
Vibration	12 G, 10 ... 2000 Hz (IEC 680068-2-6)
Housing material	anodized aluminium / Nylon 66 G 25
Cursor type	sliding or floating cursor
Temperature coefficient	0,005 % FS / °C
Operating temperature[2, 3]	-30° ... +75°C (-22° ... +167°F)
Storage temperature[3]	-40° ... +100°C (-40° ... +212°F)

[1] as measured at the transducer without cable influences

[3] measured on transducer

[4] condensation not allowed

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CONNECTIONS

Function	Cable P	5 pin M12 S5	8 pin M12 S8	6 pin M16 IP40 C6	8 pin M16 IP40 C8
+ V DC	brown	5	7	5	7
0 V	white	4	6	6	8
Output cursor 1 0 ... 10 V 4 ... 20 mA	grey	1	5	1	5 (1*)
0V cursor 1	pink	2	1	2	2
Inverse output cursor 1 **Output cursor 2** **Output speed** 10 ... 0 V 20 ... 4 mA	yellow	3	3	3	3
0 V **Output cursor 1** **Output cursor 2** **Output speed**	pink	2	2	4	6
NC	/	/	4	/	4
NC	/	/	8	/	/

* only with 4 ...20 mA output

S5 connector (5 pin)
M12 A coded
front view



S8 connector (8 pin)
M12 A coded
front view



C6 connector (6 pin)
DIN 45322
front view

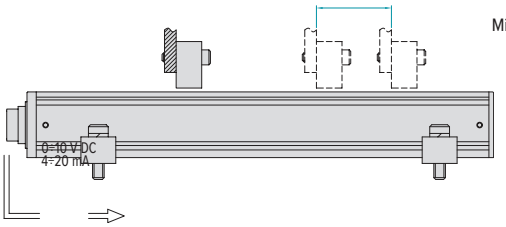


C8 connector (8 pin)
DIN 45326
front view



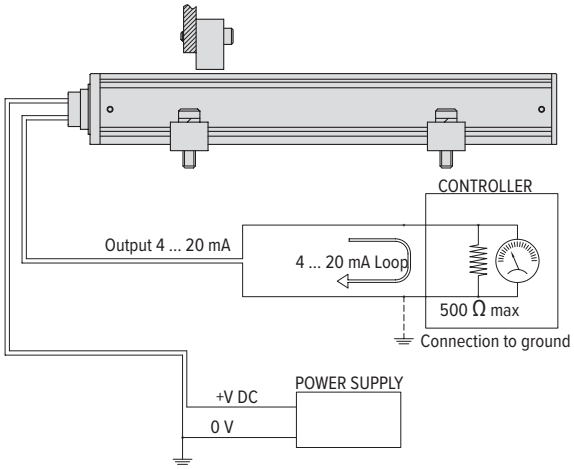
The transducer housing must only be earthed on the control system side through the cable shield.
To ensure correct electrical insulation of the transducer from the machine, always fit the brackets using the plastic washers supplied.

INSTALLATION EXAMPLE



For a multi-cursor model, the cursors must operate under the same conditions of distance and temperature. The cursors must be mounted on a non-magnetic material support (such as brass, aluminium or AISI316 stainless steel). The kit includes two screws, two nuts and two washers (all brass).
The cursor must be installed with maximum attention to horizontal alignment with the transducer axis (maximum tolerance ± 2 mm), the distance from the transducer surface must be within the range of 2 to 7 mm.

APPLICATION EXAMPLE (CURRENT OUTPUT)



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