EMSPA

LINEAR MAGNETOSTRICTIVE TRANSDUCER WITH ANALOGUE OUTPUT

MAIN CHARACTERISTICS

EMSPA is an absolute linear magnetostrictive transducer with analog interface.
Thanks to the absence of electrical contact on the enclosure there is no issue of wear and deterioration during working life.
Magnetostrictive technology guaranties great performances of speed and accuracy.
High reliability and simple installation even for applications with mechanical stresses, shocks or high contamination are assured by the compact size and the rugged enclosure.

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

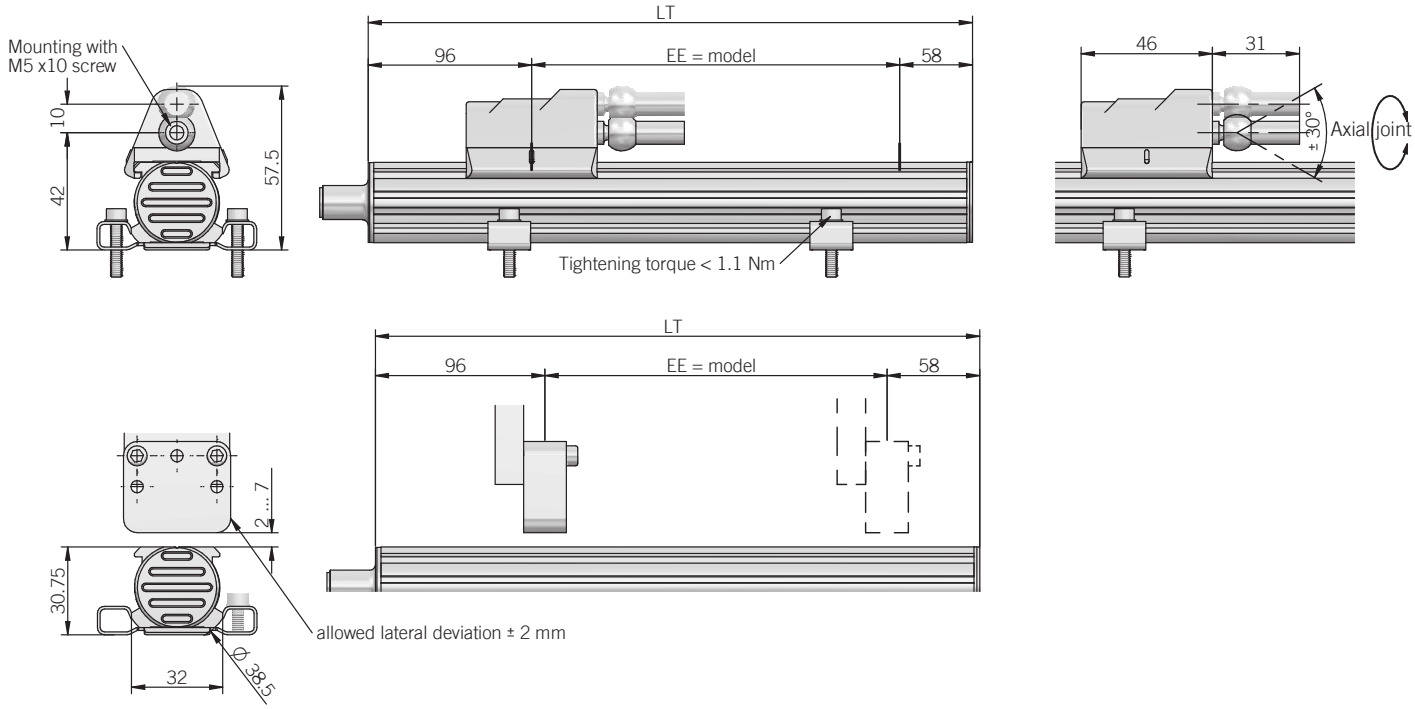
OUTPUT SIGNAL
0 ... 10 V DC / 1 cursor (standard) 10S
0 ... 10 V DC / 1 cursor position/speed 10P
0 ... 10 V DC / 2 cursors (min. stroke 400 mm) 10D
4 ... 20 mA / 1 cursor 20S
4 ... 20 mA / 1 cursor position/speed 20P
4 ... 20 mA / 2 cursors (min. stroke 400 mm) 20D

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 DIN 45322 6 pin connector C6
M16 DIN 45326 8 pin connector C8

OUTPUT DIRECTION
axial A

EMSPA



dimensions in mm

· brackets, cursors and female 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	
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	min 0 ... 0,1 m/s max 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

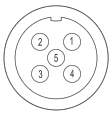
[3] measured on transducer

[4] condensation not allowed

CONNECTIONS

Function	Cable P	5 pin M12 S5	8 pin M12 S8	6 pin M16 C6	8 pin M16 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

S5 connector (5 pin)
M12 A coded
solder side view FV



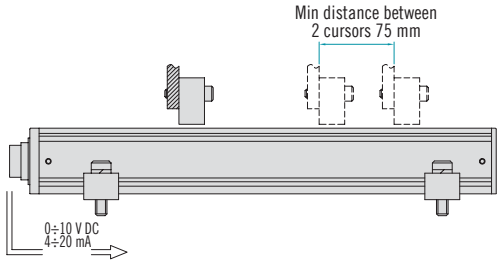
S8 connector (8 pin)
M12 A coded
solder side view FV

C6 connector (6 pin)
DIN 45322
solder side view FV

C8 connector (8 pin)
DIN 45326
solder side view FV

The transducer enclosure has to be connected to ground only on the control system side by the cable shield.
To guarantee the correct electrical insulation of the transducer from the machine, always assemble the brackets using the plastic washers included.

INSTALLATION EXAMPLE



For multi-cursor model, the cursors have to work in the same conditions of distance and temperature. Cursors must be installed on a support made of non-magnetic material (like brass, aluminium or AISI316 stainless steel).
The installation kit provides two screws, two nuts and two washers (all made of brass).
The cursor must be installed with maximum attention to horizontal alignment with the transducer axis (maximum tolerance is ± 2 mm), distance from the transducer surface has to be within the range from 2 to 7 mm.

APPLICATION EXAMPLE (CURRENT OUTPUT)