

EMSSA

LINEAR MAGNETOSTRICTIVE ROD TRANSDUCER WITH ANALOGUE OUTPUT



Specifications

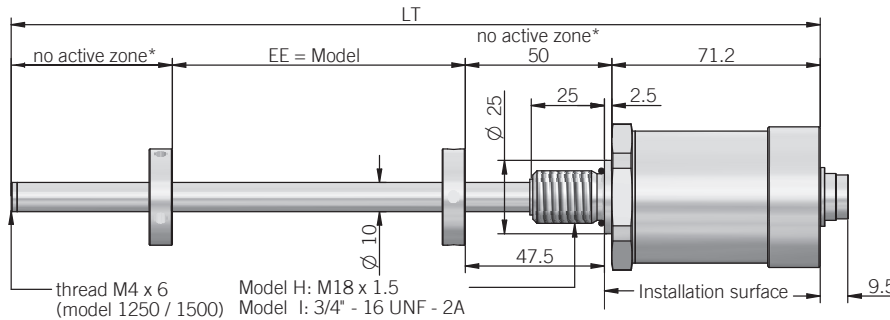
EMSSA is an absolute linear magnetostrictive transducer featuring an analogue interface.

Main characteristics of magnetostrictive transducers is the absence of electric contact on the enclosure there is no issue of wear and deterioration during working life guaranteeing high displacement speed and precision.

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. This series has been designed for being mounted internally to high applications (350 bar, 500 bar peak) such as hydraulic or pneumatic cylinders.

ORDERING CODE	EMSSA	500	S	10	H	10	P	A
	SERIES linear magnetostrictive transducer with analogue output EMSSA							
	STROKE mm from 50 to 1500 <i>see table for stroke availability</i>							
	ENCLOSURE RATING IP 67 S							
	OUTPUT SIGNAL 0 ... 10 VDC 10 4 ... 20 mA 20							
	THREAD TYPE M18 x 1,5 H 3/4" - 16 UNF I							
	DISPLACEMENT SPEED max speed 10 m/s 10							
	OUTPUT TYPE cable (standard length 1 m) P DIN 45322 M16 6 pin connector C6							
	OUTPUT DIRECTION axial A							

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* = 55 mm up to stroke 1000 mm, from 1250 mm consider 60 mm due to M4 threaded hole

dimensions in mm

- OR 15,4 x 2,1 (mod.H) / OR 16,36 x 2,21 (mod.I) included
- Cursors and female connector not included, for ordering P/N please refer to Accessories section

ELECTRICAL SPECIFICATIONS

Resolution	16 bit (max electrical noise 5 mVpp)	
Output signal	0 ... 10 VDC	4 ... 20 mA
Output alarm value	10,5 VDC	21 mA
Output value max	12 VDC	30 mA
Power supply	19,2 ... 28,8 VDC	
Power ripple	1 Vpp max	
Current consumption	70 mA max	90 mA max
Output load	5 k Ω	< 500 Ω
Output ripple	< 5 mVpp	
Independent linearity	$\pm 0,02\%$ FS (min $\pm 0,060$ mm)	
Repeatability	< 0,01 mm	
Hysteresis	< 0,01 mm	
Sampling time	0,5 ms (mod. 50 ... 200) 1 ms (mod. 400 ... 1000) 1,5 ms (mod. 1250 ... 1500)	
Protection against overvoltage	yes	
Protection against polarity inversion	yes	
Protection against power supply on output	yes	
Electrical insulation	500 VDC	
Electromagnetic compatibility	according to 2014/30/EU directive	

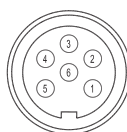
MECHANICAL SPECIFICATIONS

Stroke	50 - 100 - 150 - 200 - 250 - 300 - 350 - 400 - 450 - 500 - 600 - 700 - 800 - 900 - 1000 - 1250 - 1500 mm
Electric stroke (EE)	see model (mm)
Overall dimensions (LT)	EE + 176,2 mm (mod. 50 ... 900) EE + 181,2 mm (mod. 1000 ... 1500)
Enclosure rating	IP 67 (IEC 60529)
Detected measurement	displacement
Travel speed	10 m/s max
Acceleration	100 m/s ² max
Speed measurement 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)
Rod / housing material	1.4401 / AISI 316 stainless steel
Operative pressure	350 bar (500 bar peak)
Cursor type	floating cursor
Temperature coefficient	$\leq 0,01\%$ FS / °C
Operating temperature	-30° ... +75°C (-22° ... +167°F)
Storage temperature	-40° ... +100°C (-40° ... +212°F)

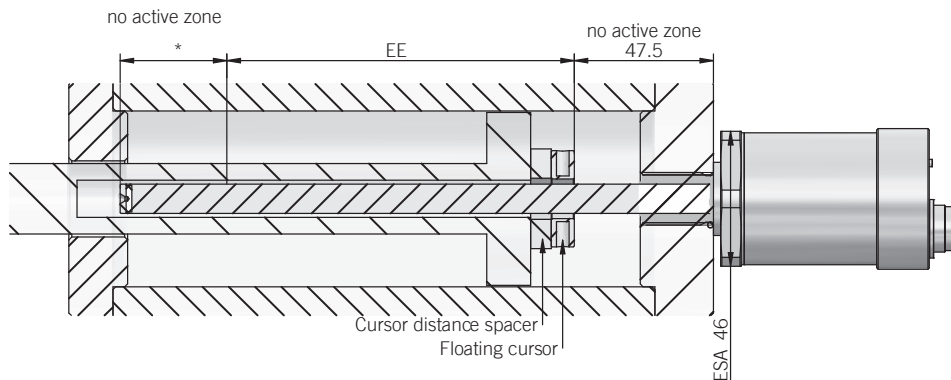
CONNECTIONS

Function	Cable output	C6 6 pin M16 connector
+ V DC	brown	5
OV	white	6
Output cursor 1 0 ... 10 V 4 ... 20 mA	grey	1
OV cursor 1	pink	2
Inverse output cursor 1 10 ... 0 V 20 ... 4 mA	yellow	3
OV inverse output cursor 1	pink	4

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



Cylinder mounting example



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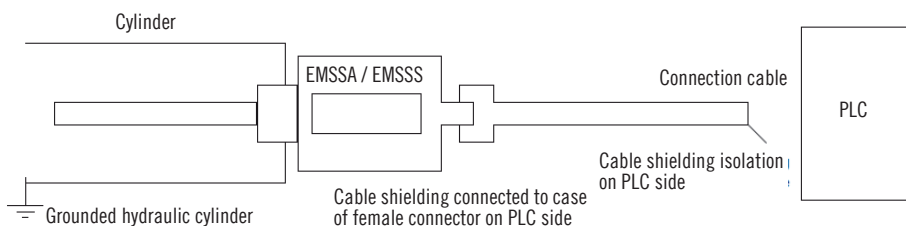
For correct installation of rod-type magnetostrictive transducers in hydraulic cylinders, remember that the cylinder head must be made of non-magnetic material where the threaded hole will be drilled to install the transducer. If not, the residual magnetisation caused by drilling the threaded hole must be less than 4 Gauss. Sealing surface must be free from scratches longitudinal or spiral

Ro 1,6 µm for sealing with non pulsating pressure
Ro 0,8 µm for seals with pulsating pressure

Suggested o-ring (model H)
Parker 6-349 15,4 x 2,1
Material: Viton 90° Shore A
Mixes: Parker N552-90

Suggested o-ring (model I)
Parker 3-908 16,36 x 2,21
Material: Viton 90° Shore A
Mixes: Parker N552-90

Electrical connection example



The transducer must be installed away from sources of magnetic fields, both static and 50 Hz (electric motors, solenoids, etc.).

- with floating cursor assembly support must be made with nonmagnetic material
- the transducer connection cable must be wired separate from power cables and/or solenoid controls, drives, or remote switches
- power supply must be drawn from dedicated power supply and connected directly to power terminals as near as possible
- since the transducer cursor is a magnet, make sure there are no iron filings or small fragments of magnetic metal near the transducer. This could produce an accumulation of material on the cursor, with consequent sliding problems
- if the transducer is installed in a cylinder isolated from the ground, the cable shielding on PLC side must be grounded
- with multiple cursors (two or more), cursors distance must be minimum 75 mm each