

EMSSS

LINEAR MAGNETOSTRICTIVE ROD TRANSDUCER WITH SSI OUTPUT



Specifications

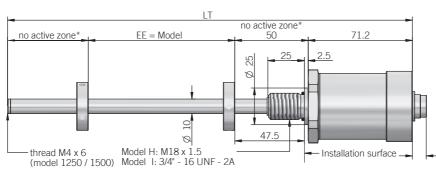
EMSSS is an absolute linear magnetostrictive transducer featuring a SSI output. Main characteristics of magnetostrictive transducer is the absence of electric contact on the enclosure so there is no issue of wear and deterioration during working life guaranteeing high displacement speed and precision.

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 preassure (350 bar, 500 bar peak) such as hydraulic or pneumatic cylinders.

ORDERING CODE	EMSSS	500	S	24	G	Н	10	R5	Р	A
ORDERING CODE	SERIES linear magnetostrictive transducer with SSI output EMSSS mm from 100 see table for stroke at	STROKE 0 to 1500 vailability ENCLOSUR	E RATING IP 67 S Data M357) 21	A LENGTH +1 bit 21 24 bit 24 25 bit 25	DDE TYPE binary B gray G THR M: 3/4" -	EAD TYPE 18 x 1,5 H • 16 UNF I PLACEMEI ax speed 1	NT SPEED 0 m/s 10 RES 0,00 0,010 0,020 0,040 cable (stal	SOLUTION 15 mm R5 10 mm R10 10 mm R20 10 mm R40	PUT TYPE	A
								0	OUTPUT DIE	RECTION axial A



EMSSA



 $^{\star} = 55$ 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 SPECIFICA	TIONS				
Resolution	5 - 10 - 20 - 40 μm				
Indipendent linearity	$\leq \pm 0.02\%$ FS (min ± 0.060 mm)				
Repeatability	< 0,01 mm				
Hysteresis	≤ ± 0,005% FS (min 0,010 mm)				
Sampling time	1 ms (mod. 100 1000) 2 ms (mod. 1250 1500)				
Power supply	10 32 VDC				
Power ripple	1 Vpp max				
Max load current	50 mA max				
Output type	RS-422				
SSI output code	binary or gray				
Clock frequency	50 kHz 1 MHz				
SSI monostable time (Tm)	16 μs				
SSI frame	21 / 24 / 25 bit data lenght				
Counting direction	increase				
Protection against overvoltage	yes				
Protection against polarity inversion	yes				
Self-resetting internal fuse	yes				
Electrical insulation	500 VDC (+VDC / earth)				
Electromagnetic compatibility	according to 2014/30/EU directive				

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

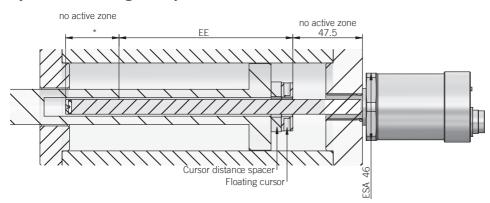


MECHANICAL SPECIFICATIONS					
Stroke	100 - 150 - 200 - 300 - 400 - 450 - 500 - 600 700 - 800 - 900 - 1000 - 1250 - 1500 mm				
Electric stroke (EE)	see model (mm)				
Overall dimensions (LT)	EE + 176,2 mm (mod. 100 1000) EE + 181,2 mm (mod. 1250 1500)				
Enclosure rating	IP 67 (IEC 60529)				
Detected measurement	displacement				
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)				
Rod / housing material	1.4401 / AISI 316 stainless steel				
Operative pressure	350 bar (500 bar peak)				
Cursor type	floating cursor				
Temperature coefficient	20 ppm FS / °C				
Operating temperature	-30° +90°C (-22° +194°F)				
Storage temperature	-40° +100°C (-40° +212°F)				

CONNECTIONS						
Function	Cable output	C6 6 pin M16 connector				
+ V DC	blue / white	5				
OV	blue	6				
Data +	brown / white	2				
Data -	orange	1				
Clock +	green / white	3				
Clock -	green	4				



Cylinder mounting example



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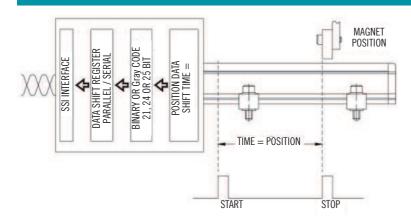
For the correct installation of rod-type magnetostrictive transducers in hydraulic cylinders, remember that the cylinder head must be made of non-magnetic material where the threaded hole will be drilled to install the transducer. If not, the residual magnetisation caused by drilling the threaded hole 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

SSI BLOCK DIAGRAM



SSI output goes to 0 if the echo is absent (magnet out of measurement range or internal device error)

SSI CABLE LENGHT									
Cable lenght	< 3 m	< 50 m	< 100 m	< 200 m	< 400 m				
Baud rate	1 Mbaud	400 kbaud	300 kbaud	200 kbaud	100 kbaud				

Installation notes

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

- \cdot 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
- · cable shield must be connected on both sides (PLC and transducer)
- · if the transducer is installed in a cylinder isolated from the ground, the cable shielding on PLC side must be grounded.