

Data Sheet for Linear Sensors

Magnetostrictive linear transducer with analogue output

Series IMS



The position sensors of the IMS series are designed for hydraulic applications (industrial and mobile).

- Rod design with external position magnet
- Level measurement with float magnet
- Contactless magnetic technology
- Direct position values - no adjustment required
- Integrated electronics with analogue output
- High degree of protection IP67 and operating pressure 350 bar (max 500 bar peak)
- Measuring strokes from 50 mm to 2000 mm

The sensors are designed for built-in in a cylinder via internal flange or attachable via external flange with thread (M18 or 3/4")

Electrical Data

Effective electrical travel 1.)	50 / 100 / 130 / 150 / 200 / 225 / 300 / 400 / 450 / 500 / 600 / 700 / 750 / 800 / 900 / 1000 / 1250 / 1500 / 1750 / 2000 / >2000mm on request
Independent linearity (best straight line) 1.)	≤ ±0,02% (Min. ± 0,060 mm)
Output signal	0.1..5.1 V / 0.1..10.1 V / 4..20 mA / Start-Stop (only internal flange)
Theoretical resolution 1.)	Almost infinite (signal noise 10 µm)
Backlash (Hysteresis) 1.)	<±0,005%
Update rate	1 ms (50..1000 mm) / 1,5 ms (1100..2000 mm) / 2 ms (>2000 mm)
Supply voltage	18..30 V (optional 12 V up to max. 1200 mm travel)
Power consumption (no load)	≤40 mA (load at output start / stop: 300Ω)
Output load	≥ 5 kOhm
Power ripple	< 1Vpp
Output value	≤ 12 V @ ≤ 30 mA
Alarm output value	10.5 V @ 21 mA
Insulation voltage 1.)	100 V
Reverse polarity protection / over voltage protection:	Yes

Mechanical Data, Environmental Conditions, Miscellaneous

Mechanical stroke 1.)	50 / 100 / 130 / 150 / 200 / 225 / 300 / 400 / 450 / 500 / 600 / 700 / 750 / 800 / 900 / 1000 / 1250 / 1500 / 1750 / 2000 /
Lifetime (90% effective electrical travel) 2.)	Mechanically almost unlimited
Max. operational speed	< 10 m/s
Max. acceleration	≤ 100 m/s ²
Operational temperature	-30..+90°C (≤ 2000 mm @ ≤24V) / -30..+70°C (all other versions)
Storage temperature	-40 °C up to +100 °C
Protection grade (IEC60529)	IP67

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Mechanical Data, Environmental Conditions, Miscellaneous

Vibration (IEC 68-2-6, Test Fc)	20 g (10..2000 Hz, 0,75 mm)
Shock (IEC 68-2-27, Test Ea)	100 g, halfsine, 11 ms
Housing length: +131,5 mm internal flange +140,3 mm external flange	50 / 100 / 130 / 150 / 200 / 225 / 300 / 400 / 450 / 500 / 600 / 700 / 750 / 800 / 900 / 1000 / 1250 / 1500 / 1750 / 2000
Mounting parts (included in delivery)	None
Cursor	Not included in delivery, to be ordered separately in different versions (see drawings)
Material housing and rod	Stainless Steel AISI 316
Material push rod	Plastic
Electrical connection	5 pole plug only external flange / round cable 1 m
Sensor mounting	Internal or external flange thread

1.) According IEC 60393

2.) Determined by climatic conditions according to IEC 68-1, para. 5.3.1 without load collectives

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Order Code

Description	Selection: standard=black/bold , possible <i>options=grey/italic</i>				
Series:	IMS				
Effective electrical travel:					
50 mm		50			
100 mm		100			
130 mm		130			
150 mm		150			
200 mm		200			
225 mm		225			
300 mm		300			
400 mm		400			
450 mm		450			
500 mm		500			
600 mm		600			
700 mm		700			
750 mm		750			
800 mm		800			
900 mm		900			
1000 mm		1000			
1250 mm		1250			
1500 mm		1500			
1750 mm		1750			
2000 mm		2000			
<i>Option >2000mm to 3000 mm on request</i>					
Electrical connection:					
5 pole connector (only external flange)			S		
Round cable 1 m (only internal flange)			K		
<i>Option cable length in m</i>			<i>Kxx</i>		
Output signal:					
0,1..5,1 V (12 V max. 1200 mm)				1251	
0,1..10,1 V (18..30 V)				2411	
4..20 mA (18..30 V)				2442	
<i>Option 20..4 mA (18..30 V)</i>				<i>2424</i>	
<i>Option Start / Stop only internal flange</i>				<i>SS</i>	
Design:					
Internal flange (only with cable)					I
External flange M18 (only with plug)					EM
External flange 3/4" (only with plug)					EZ

Mandatory accessories (not included in delivery, please order separately):
Free magnetic cursors, drawing see next page

- #118647, Typ P22 closed, with mounting holes
- #118648, Typ P23 open design
- #118649, Typ P24 closed, with mounting holes

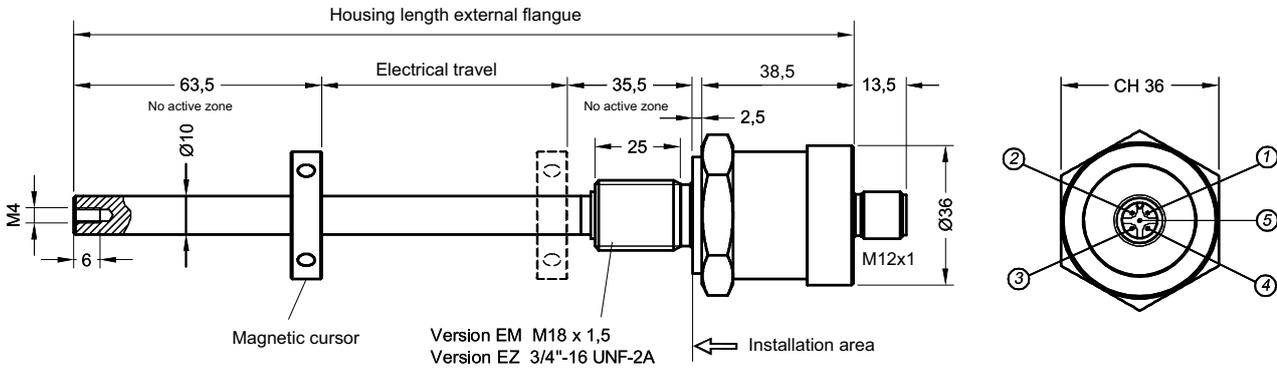
Recommended accessories (please order separately):
Connectors for solder mounting (STE M12), or with a moulded cable (STK M12)

- #125482, Mating connector, M12, 5-polig, IP67, straight, shieldable (STE M12 5POL IP67 G S)
- #125483, Mating connector, M12, 5-pole, IP67, angled, shielded (STE M12 5POL IP67 W GS)
- #127287, Mating connector with cable, M12, 5-pole, IP67, straight, shielded, 2 m (STK M12 5POL IP67 G GS 2M AWG24)
- #127527, Mating connector with cable, M12, 5-pole, IP67, angled, shielded, 5 m (STK M12 5POL IP67 W GS 5M AWG24)

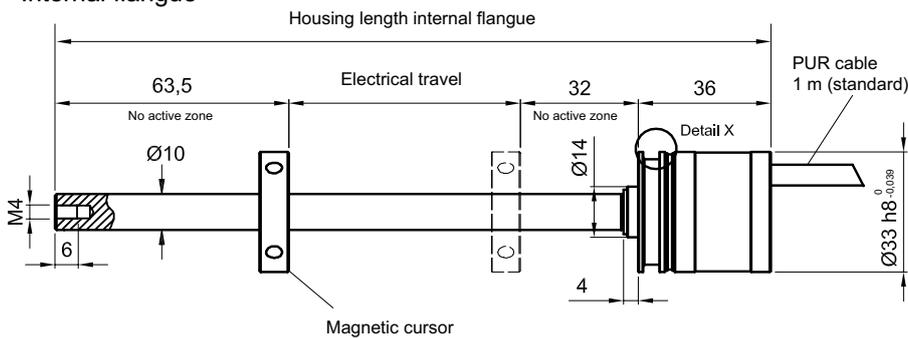
More variants and technical data see www.megatron.de, data sheet of STEM12 / STKM12

Drawing

External flange

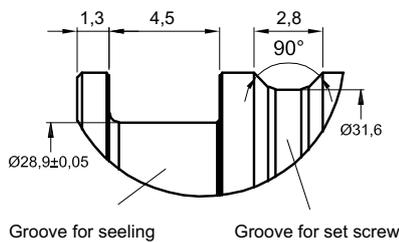


Internal flange



Dimensions in mm

Detail X



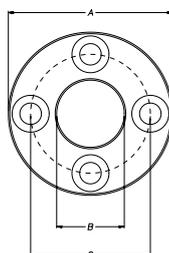
Connection		
Color of cable	Pin Number	Function
Yellow	1	Output (0,1..10,1 V / 0,1..5,1 V / 4..20 mA)
Pink	2	Output GND
Brown	5	Power supply +
Blue	4	Power supply GND
	3	Do not connect

Magnetic cursor

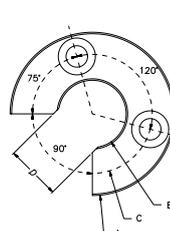
Dimensions	P22	P23	P24
A	32,8	32,8	25,4
B	13,5	13,5	13,5
C	23,9	23,9	-
Thickness	7,9	7,9	7,9

Included in order of cursor P22/23:
 Brass nuts M4
 Brass washers D4
 Brass screws M4x25

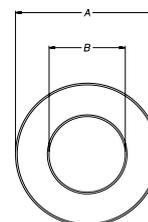
P22 closed type



P23 open type



P24 without mounting holes



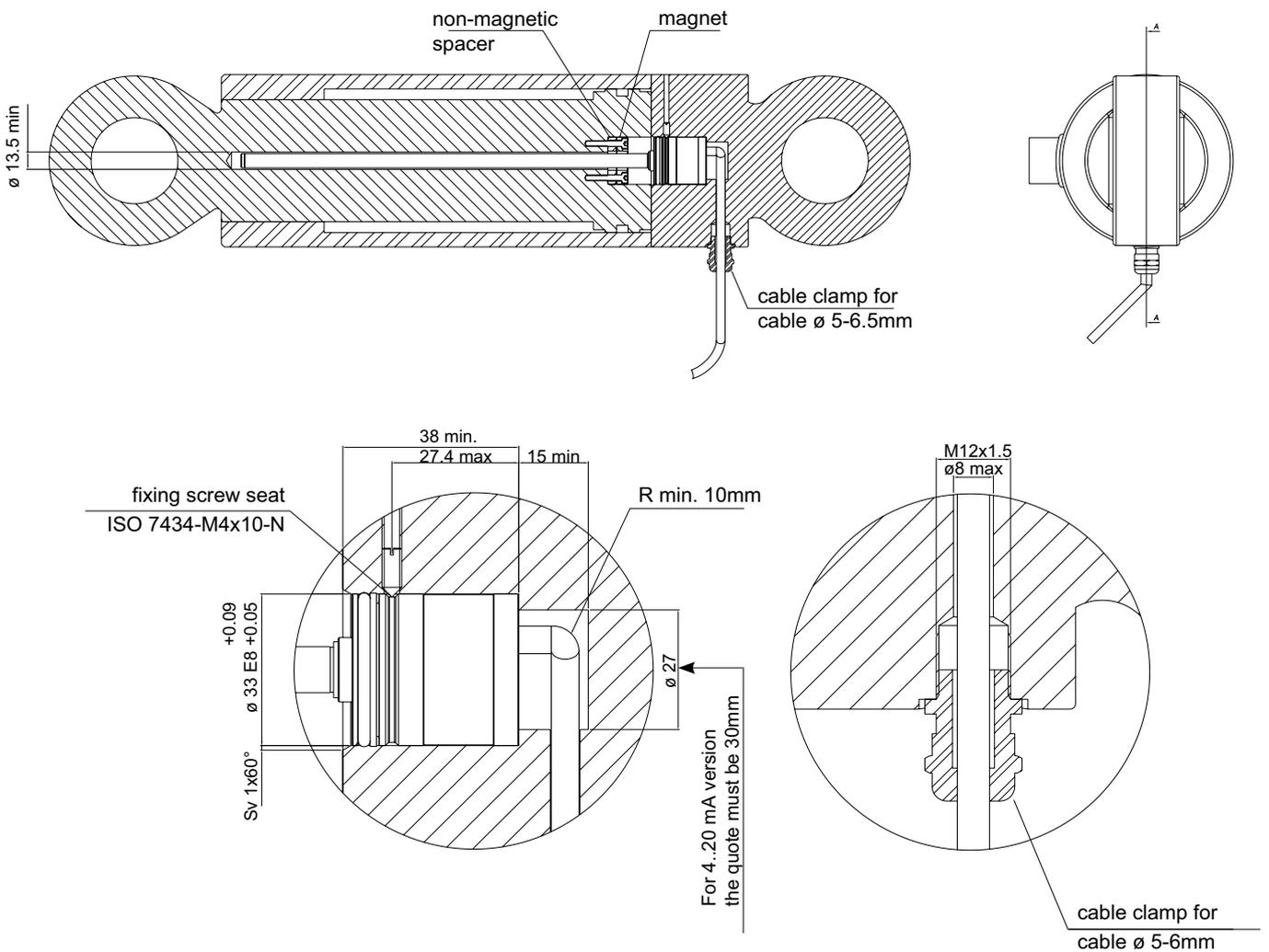
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Mounting internal flange

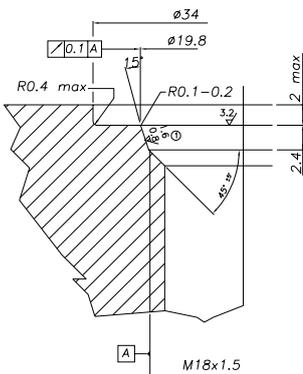
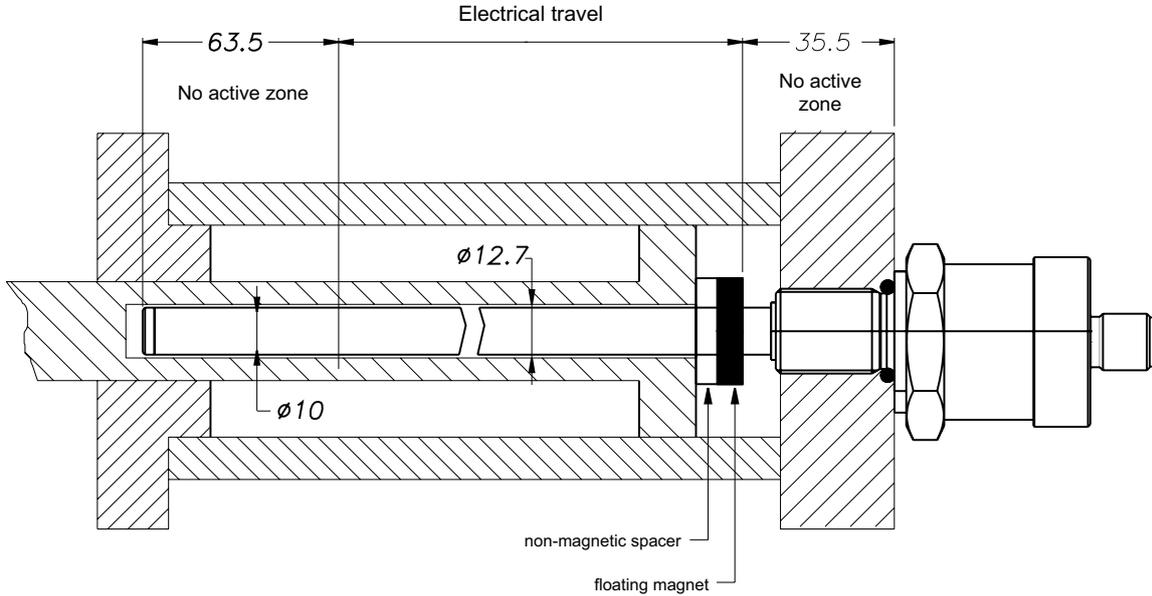


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Mounting into an hydraulic cylinder via external flange

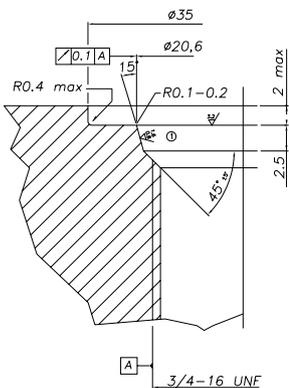
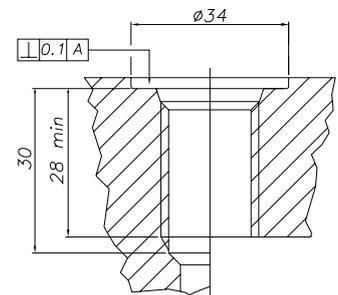


THREAD M18x1,5

- The seal surface must be free from winding or longitudinal scratches
 Ro 1.6µm for seals with NON pulsating pressure
 Ro 0.8µm for seals with pulsating pressure

Suggested O-Ring:

PARKER 6-349 15.4x2.1
 Material: Viton 90° Shore-A
 Mixes: PARKER N552-90



THREAD 3/4"-16UNF

- The seal surface must be free from winding or longitudinal scratches
 Ro 1.6µm for seals with NON pulsating pressure
 Ro 0.8µm for seals with pulsating pressure

Suggested O-Ring:

PARKER 3-908 16.36x2.21
 Material: Viton 90° Shore-A
 Mixes: PARKER N552-90

