

Data Sheet for Linear Sensors

Magnetic (magnetostrictive) linear transducer with analogue output

Series IMS



The displacement transducers of the IMS series are designed for hydraulic applications.

- High degree of protection IP67 and 350 bar (max 500 bar peak) operating pressure
- With external cursor - encapsulation of the sensor element
- Mounting via internal or external flange
- Measuring strokes from 50 mm to 4000 mm

The sensors are designed for an operating pressure of 350 bar with peak values of 500 bar. The distance measurement takes place via an external cursor.

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 / 2250 / 2500 / 2750 / 3000 / 3250 / 3500 / 3750 / 4000
Independent linearity (best straight line) 1.)	$\leq \pm 0,02\%$ (Min. $\pm 0,060$ 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 μ m)
Backlash (Hysteresis) 1.)	$< \pm 0,005\%$
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: 300 Ω)
Output load	≥ 5 k Ω m
Power ripple	< 1 Vpp
Output value	≤ 12 V @ ≤ 30 mA
Alarm output value	10,5 V @ 21 mA
Insulation voltage 1.)	100 V
Reverse polarity protection / overvoltage 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 / 2250 / 2500 / 2750 / 3000 / 3250 / 3500 / 3750 / 4000
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 (≤ 2500 mm @ ≤ 24 V) / -30..+70°C (all other versions)
Storage temperature	-40..+100°C
Protection grade (IEC60529)	IP67

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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:	50 / 100 / 130 / 150 / 200 / 225 / 300 / 400 / 450 / 500 / 600 / 700 / 750 / 800 / 900 /
+131,5 mm internal flange	1000 / 1250 / 1500 / 1750 / 2000 / 2250 / 2500 / 2750 / 3000 / 3250 / 3500 / 3750 /
+140,3 mm external flange	4000
Mounting parts (included in delivery)	None
Cursor	Not included in delivery
Material housing	Aluminium
Material push rod	Plastic
Electrical connection	5 pole plug only external flange / round cable 1 m
Sensor mounting	Internal or external flange

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 options=grey/cursive			
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			
2250 mm		2250			
2500 mm		2500			
2750 mm		2750			
3000 mm		3000			
3250 mm		3250			
3500 mm		3500			
3750 mm		3750			
4000 mm		4000			
Electrical connection:					
5 pole plug (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

Accessories (not included in delivery):

- Mating connector (STEM12) #125482: M12 thread, 5-pole, IP67, straight, shieldable (STE M12 5POL IP67 G S)
- Mating connector (STEM12) #125483: M12 thread, 5-pole, IP67, angled, shielded (STE M12 5POL IP67 W GS)
- Mating connector with cable (STKM12) #127497: M12 thread, 5-pole, IP69k, straight, not shielded, 2 m (STK M12 5POL IP69K G NS 2M AWG22)
- Mating connector with cable (STKM12) #127498: M12 thread, 5-pole, IP69k, angled, not shielded, 2 m (STK M12 5POL IP69K W NS 2M AWG22)
- Free cursor type 22P closed #118647: Take a look at drawing
- Free cursor type 23P open #118648: Take a look at drawing
- Free cursor 24P without mounting holes #118649: Take a look at drawing

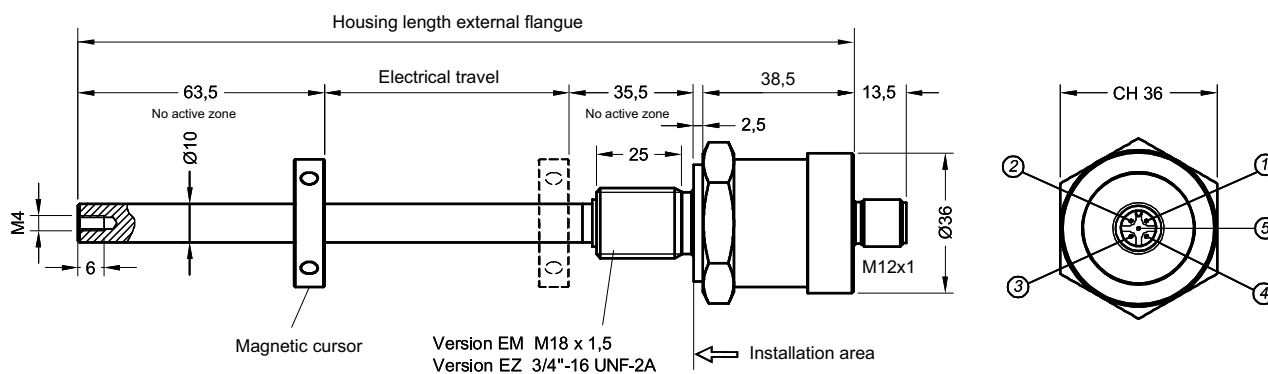
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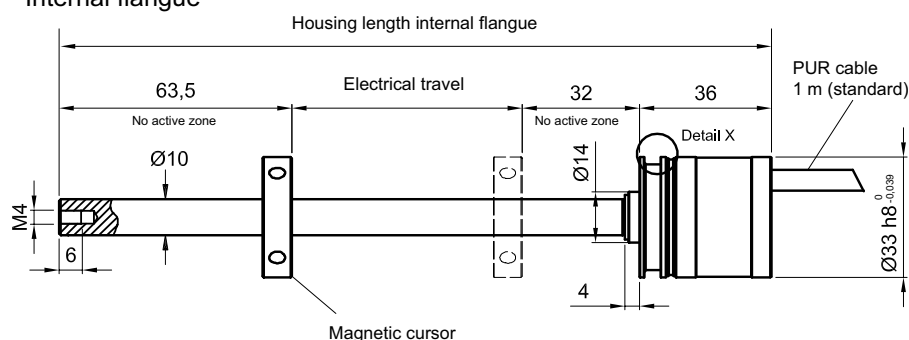
Series IMS

Drawing

External flange

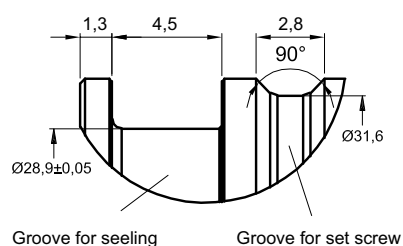


Internal flange



Dimensions in mm

Detail X



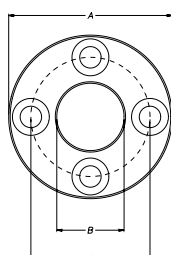
Connection		
Color of cable	Pin Number	Function
Yellow	1	Output (0,1..10,1 V / 0,1..5,1 V / 4..20 mA)
Pink	2	Output GND
Brown	5	Power supply +
Blue	4	Power supply GND
	3	Do not connect

Magnetic cursor

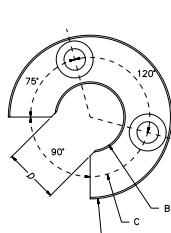
Dimensions	P22	P23	P24
A	32,8	32,8	25,4
B	13,5	13,5	13,5
C	23,9	23,9	-
Thickness	7,9	7,9	7,9

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

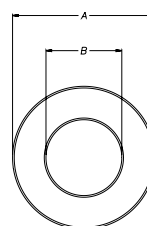
P22 closed type



P23 open type



P24 without mounting holes

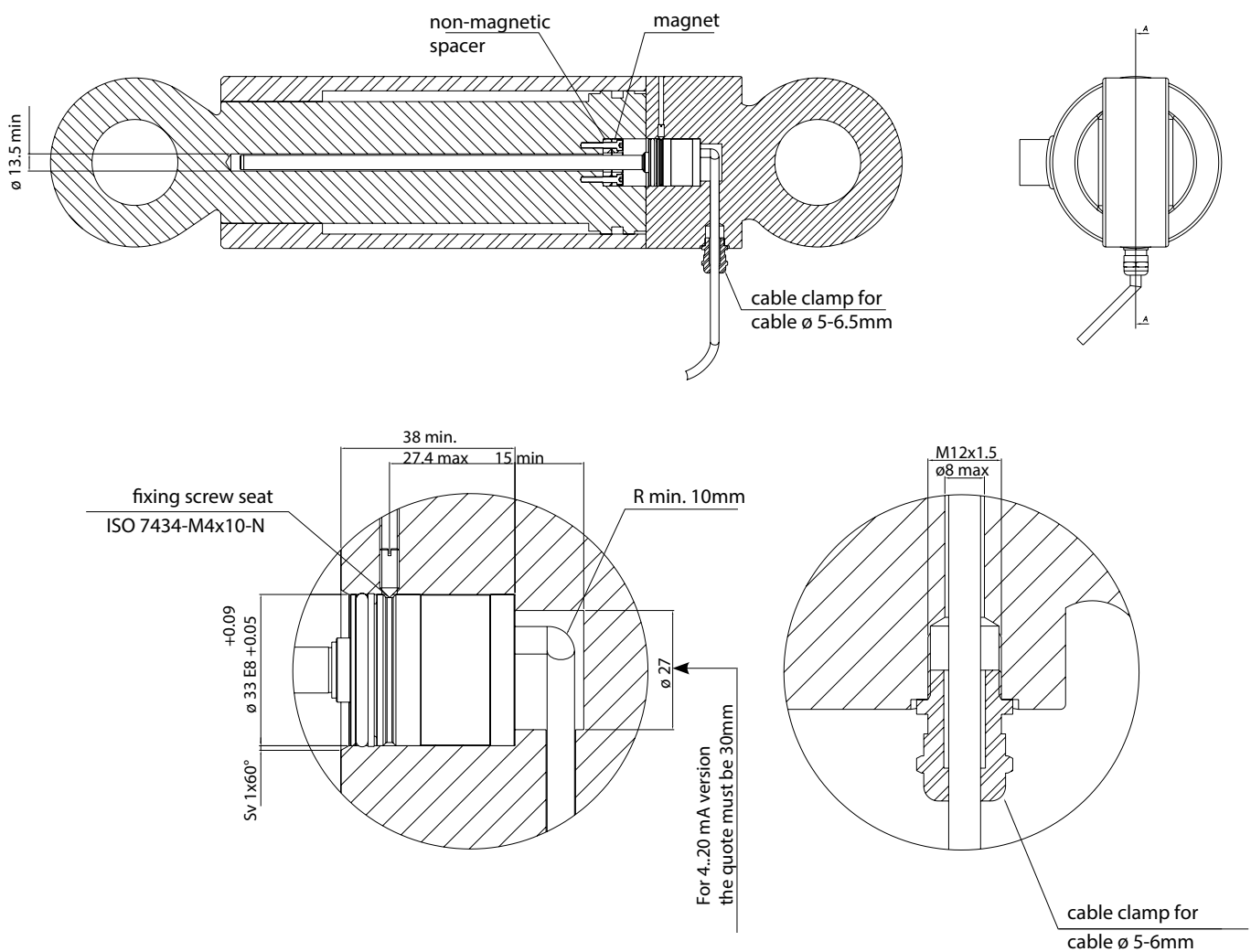


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Mounting internal flange

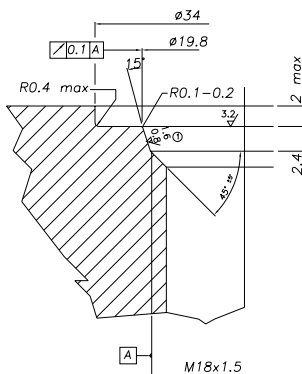
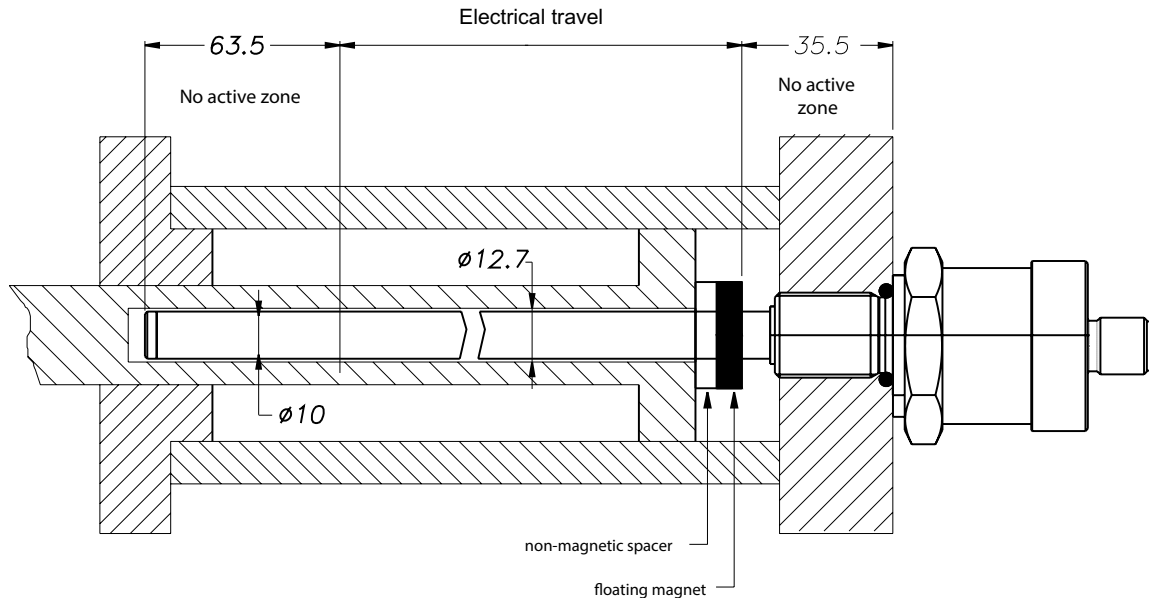


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Mounting external flange

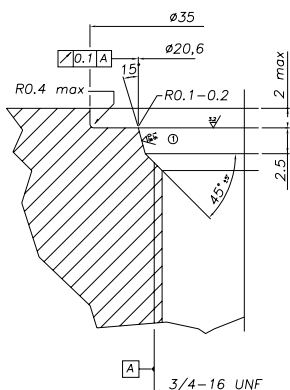
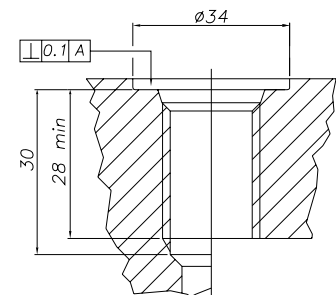


THREAD M18x1,5

- 1 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

- 1 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

