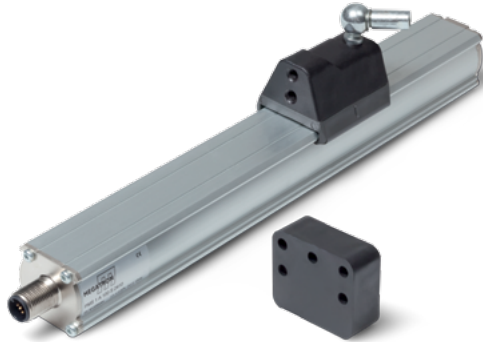


# Data Sheet for Linear Sensors



Magnetic (magnetostrictive) linear transducer with analogue output

Series PMS2



The PMS2 series is used in industrial applications that require a robust displacement sensor without push rod.

- Non-contact measuring principle
- Mechanical connection by ball coupling to compensate for the angular offset or free position sensor
- Small space requirement without push rod
- Measuring lengths from 50 mm to 4000 mm
- Very precise due to high resolution and good linearity
- Electromagnetic compatibility 2014/30 /EU (EMC)

The robust aluminium housing allows use in harsh industrial applications. Due to its excellent performance in terms of EMC immunity, the displacement sensor is suitable for use in electromagnetically disturbed industrial environments.

Electrical Data	PMS2 A	PMS2 AH
Effective electrical travel 1.) in mm	50 / 75 / 100 / 130 / 150 / 175 / 200 / 225 / 250 / 300 / 350 / 360 / 400 / 450 / 500 / 550 / 600 / 650 / 700 / 750 / 800 / 850 / 900 / 950 / 1000 / 1100 / 1200 / 1250 / 1300 / 1400 / 1500 / 1750 / 2000 / 2250 / 2500	50 / 75 / 100 / 130 / 150 / 175 / 200 / 225 / 250 / 300 / 350 / 360 / 400 / 450 / 500 / 550 / 600 / 650 / 700 / 750 / 800 / 850 / 900 / 950 / 1000 / 1100 / 1200 / 1250 / 1300 / 1400 / 1500 / 1750 / 2000 / 2250 / 2500 / 2750 / 3000 / 3250 / 3500 / 3750 / 4000
Independent linearity (best straight line) 1.)	With guided cursor $\leq \pm 0.02\%$ (min. $\pm 0.06$ mm)	With guided cursor $\leq \pm 0.01\%$ (min. $\pm 0.06$ mm)
Independent linearity (best straight line) 1.)	With free cursor $\pm 0.02\%$ (at distance between 2 and 5 mm) With free cursor $\pm 0.04\%$ (at distance between 5 and 7 mm)	
Output signal	0..10 V	4..20 mA / 0..20 mA
Theoretical resolution 1.)	16 bit (@ $\leq 5$ mVpp)	
Max. residual ripple VSUP	1 Vpp	
Backlash (Hysteresis) 1.)	< 0.01 mm (only limited by the output noise)	
Update rate (depends on travel)	0.5 ms (50..300 mm) / 1 ms (350..1100 mm) / 1.5 ms (1200..2000 mm) / 2 ms (2250..3000 mm) / 3 ms (3250..4000 mm)	
Supply voltage	24 V $\pm 20\%$	
Power consumption (no load)	$\leq 70$ mA**	$\leq 90$ mA**
Output load	$\leq 5$ kOhm	$\leq 500$ Ohm
Power ripple	< 5mVpp	
Output value	$\leq 12$ V	$\leq 30$ mA
Alarm output value	10.5 V	21 mA
Insulation voltage 1.)	500 V (Suppressor diode 30V 0.4J mounted against voltage spikes)	
Reverse polarity protection / overvoltage protection / protection against power supply in output: Yes		

Mechanical Data, Environmental Conditions, Miscellaneous	PMS2 A	PMS2 AH
Mechanical stroke 1.) in mm	50 / 75 / 100 / 130 / 150 / 175 / 200 / 225 / 250 / 300 / 350 / 360 / 400 / 450 / 500 / 550 / 600 / 650 / 700 / 750 / 800 / 850 / 900 / 950 / 1000 / 1100 / 1200 / 1250 / 1300 / 1400 / 1500 / 1750 / 2000 / 2250 / 2500	50 / 75 / 100 / 130 / 150 / 175 / 200 / 225 / 250 / 300 / 350 / 360 / 400 / 450 / 500 / 550 / 600 / 650 / 700 / 750 / 800 / 850 / 900 / 950 / 1000 / 1100 / 1200 / 1250 / 1300 / 1400 / 1500 / 1750 / 2000 / 2250 / 2500 / 2750 / 3000 / 3250 / 3500 / 3750 / 4000
Lifetime (90% effective electrical travel) 2.)	Theoretically infinite	

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Mechanical Data, Environmental Conditions, Miscellaneous	PMS2 A	PMS2 AH
Max. operational speed	≤ 10 m/s (min. 0..0.1 m/s, max. 0..10 m/s)	
Accuracy speed	<2% (FS)	
Max. acceleration	≤ 100 m/s <sup>2</sup>	
Operational temperature	-30 °C up to +75 °C	-30 °C up to +85 °C*
Storage temperature	-40 °C up to +100 °C	
Protection grade (IEC60529)	IP67	
Vibration (IEC 68-2-6, Test Fc)	12 g (10..2000 Hz)	15g (10..2000 Hz)
Shock (IEC 68-2-27, Test Ea)	100 g, halfsine, 11 ms	
Housing length (+ 154 mm)	50 / 75 / 100 / 130 / 150 / 175 / 200 / 225 / 250 / 300 / 350 / 360 / 400 / 450 / 500 / 550 / 600 / 650 / 700 / 750 / 800 / 850 / 900 / 950 / 1000 / 1100 / 1200 / 1250 / 1300 / 1400 / 1500 / 1750 / 2000 / 2250 / 2500 / 2750 / 3000 / 3250 / 3500 / 3750 / 4000	
Mounting parts (included in delivery)	1 Mounting set: 2 x clamps + 4 x screws + 4 x washer	
Cursor	Not included in delivery	
Material housing	Anodized aluminium	
Material cursor	Plastic	
Electrical connection	Plug 5-pole (M12) / Plug 6-pole DIN45322) / Plug 8-pole (M16) / Plug 8-pole (M12) / Round cable 1 m	
Sensor mounting	Adjustable mounting clamps	

1.) According IEC 60393

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

\* For PMS2 AH: Please note possible temperature restrictions for electrical connections

\*\* For PMS2 AH: The devices must be supplied with a Class 2 Power Supply (as for NEC) or LPS Power Supply (as for EN 60950). If devices are permanently connected to the machine it's requested an external switch or circuit breaker and external over current protection.

# Data Sheet for Linear Sensors

Magnetic (magnetostrictive) linear transducer with analogue output

Series PMS2

## Accessories (not included in delivery):

### For 5 pole connector M12:

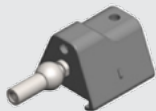
- Mating connector (STEM12) #125482: M12 thread, 5-pole, IP67, straight, shieldable (IP67 STE M12 5POL IP67 G S)
- Mating connector (STEM12) #125483: M12 thread, 5-pole, IP67, angled, shielded (STE M12 5POL IP67 W GS)
- Mating connector with cable (STKM12) #127287: M12 thread, 5-pole, IP67, straight, shielded, 2 m (STK M12 5POL IP67 G GS 2M AWG24)
- Mating connector with cable (STKM12) #127527: M12 thread, 5-pole, IP67, angled, shielded, 5 m (STK M12 5POL IP67 W GS 5M AWG24)

### For 6 pole connector M16:

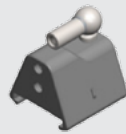
- Mating connector (STEM16) #118645: M16 thread, 6-pole, IP67, straight, shieldable (STE M16 6POL IP67 G S)
  - Mating connector (STEM16) #118646: M16 thread, 6-pole, IP67, angled, shieldable (STE M16 6POL IP67 W S)
- More connectors with cable on request. Take a look at data sheet STEM for connector without cable, STKM for connector with cable.

### For 8 pole connector M16 / M12 with or without cable on request

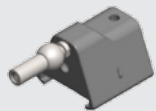
## Cursors:



Guided cursor with axial joint  
low #134590



Guided cursor with angled joint  
#134592



Guided cursor with axial joint  
high #134591



Free cursor #134574

## Additional accessories:

- Additional mounting kit (2 x clamps + 4 x screws + 4 x spring washers) #122527
- On request mounting kit M5 (2 x clamps + 4 x screws + 4 x spring washers)

# Data Sheet for Linear Sensors

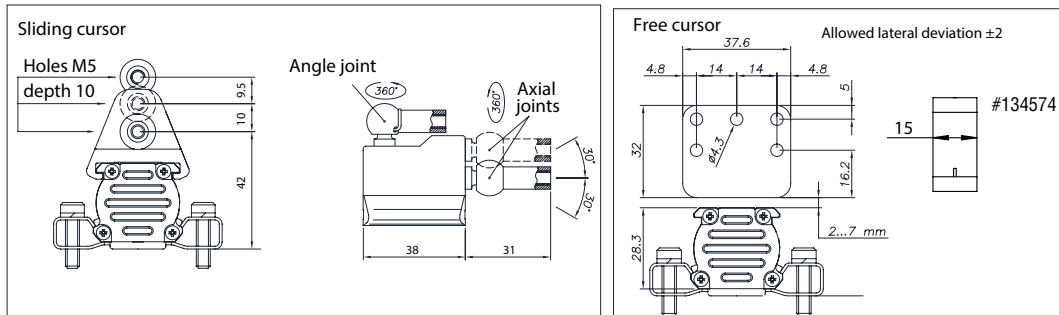
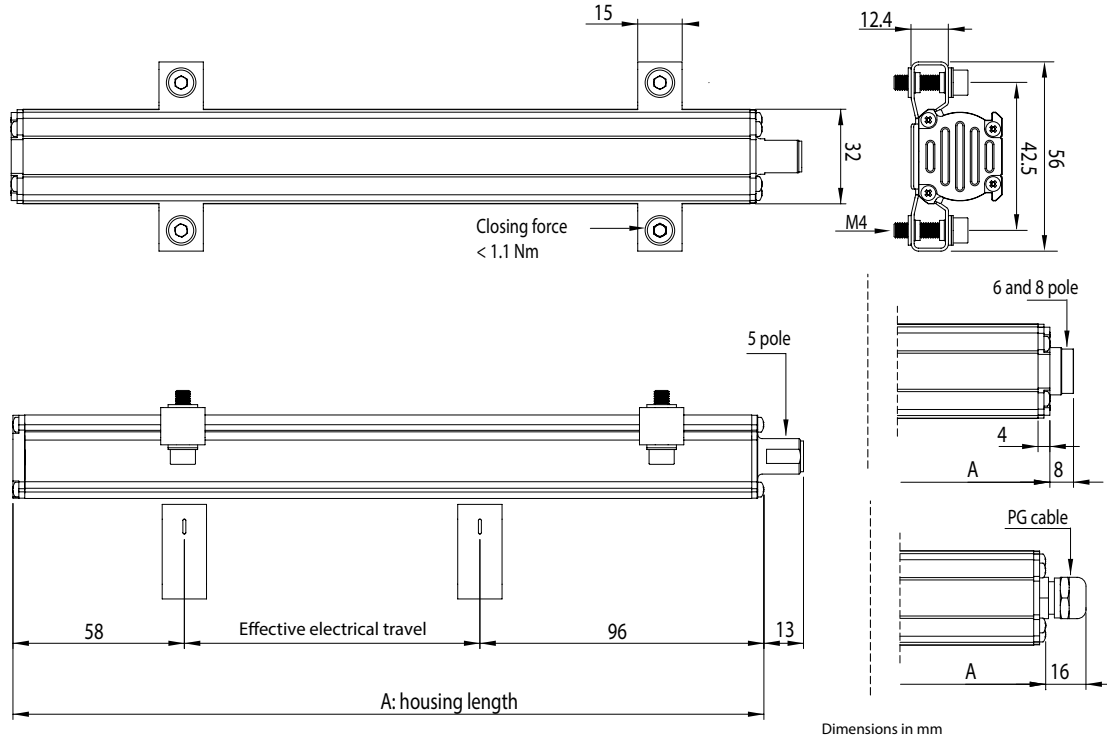
Magnetic (magnetostrictive) linear transducer with analogue output

Series PMS2

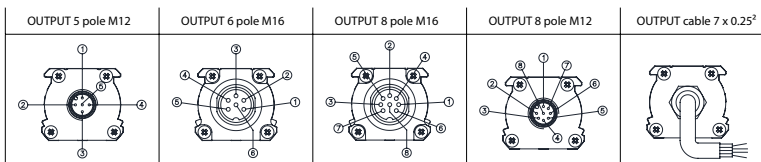
## Order Code

Description	Selection: <b>standard=black/bold</b> , possible options=grey/italic					
Series:	<b>PMS2</b>					
Operating mode: Analogue		<b>A</b>				
Performance: Standard High			<b>-</b> <b>H</b>			
Designed for 1 cursor <i>Option designed for 2 cursors</i>				<b>1</b> <b>2</b>		
Effective electrical travel:						
50 mm					<b>50</b>	
75 mm					<b>75</b>	
100 mm					<b>100</b>	
130 mm					<b>130</b>	
150 mm					<b>150</b>	
175 mm					<b>175</b>	
200 mm					<b>200</b>	
225 mm					<b>225</b>	
250 mm					<b>250</b>	
300 mm					<b>300</b>	
350 mm					<b>350</b>	
360 mm					<b>360</b>	
400 mm					<b>400</b>	
450 mm					<b>450</b>	
500 mm					<b>500</b>	
550 mm					<b>550</b>	
600 mm					<b>600</b>	
650 mm					<b>650</b>	
700 mm					<b>700</b>	
750 mm					<b>750</b>	
800 mm					<b>800</b>	
900 mm					<b>900</b>	
1000 mm					<b>1000</b>	
1100 mm					<b>1100</b>	
1200 mm					<b>1200</b>	
1250 mm					<b>1250</b>	
1300 mm					<b>1300</b>	
1400 mm					<b>1400</b>	
2250 mm					<b>2250</b>	
2500 mm					<b>2500</b>	
2750 mm (only for High)					<b>2750</b>	
3000 mm (only for High)					<b>3000</b>	
3250 mm (only for High)					<b>3250</b>	
3500 mm (only for High)					<b>3500</b>	
3750 mm (only for High)					<b>3750</b>	
4000 mm (only for High)					<b>4000</b>	
Electrical connection: 5-pole plug M12 <i>Option 6-pole plug M16</i> <i>Option 8-pole plug M16</i> <i>Option 8-pole plug M12</i> Round cable 1 m <i>Option cable length in m (xx = 5, 10, 15)</i>						<b>S</b> S6 S816 S812 <b>K</b> Kxx
Output signal: 0..10 V 4..20 mA <i>Option 0..20 mA</i> <i>Option 0..+5Vdc</i>						<b>2410</b> <b>2442</b> 2420 2405

### Drawing



### Connectors / Cables



Connection	5 pole M12	6 pole M16	8 pole M16	8 pole M12	Cable
Output cursor 1 0...10V / 4...20mA / 0...20mA	1	1	5 (1*)	5	Grey
GND Output cursor 1 (0V)	2	2	2	1	Pink
Inverse output cursor 1 / Output cursor 2 / Output speed 0...10V / 4...20mA / 0...20mA	3	3	3	3	Yellow
GND cursor 1 / Output cursor 2 / Output speed (0V)	2	4	6	2	Pink
Power supply+	5	5	7	7	Brown
Power supply GND	4	6	8	6	White
n.c	-	-	4	4	-
n.c	-	-	1 (5*)	8	-

\* = for version 4...20mA/0...20mA: The transducer case must be grounded with the cable sheathing on the control system side only.

# Data Sheet for Linear Sensors

Magnetic (magnetostrictive) linear transducer with analogue output

Series PMS2

## Drawing

### ANALOG OUTPUT

The PMS2 magnetostrictive transducers provide a direct and reverse voltage or current analogue output proportional to the magnetic cursor's position. Since the output is direct, no signal electronic processing is required if interfaced with controllers or measurement instruments.

