



Displacement sensor for hydraulic applications

- With integrated signal converter
- High degree of protection IP67 and max. 250 bar operating pressure
- With external magnetic drag - capsule of the sensor element
- Mounting via internal or external flange
- Measuring lengths from 50 mm to 1000 mm
- Long lifetime (up to 100 million movements)

The sensors are designed for operating pressures of max. 250 bar with peaks of 400 bar. The mechanical detection of linear movement is done by a magnetic drag.

### Electrical Data

Effective electrical travel (+1/-0 mm) 1.)	50 / 100 / 150 / 200 / 250 / 300 / 350 / 400 / 450 / 500 / 550 / 600 / 750 / 800 / 850 / 900 / 950 / 1000
Total electrical travel ( $\pm 1$ mm) 1.)	50 / 100 / 150 / 200 / 250 / 300 / 350 / 400 / 450 / 500 / 550 / 600 / 750 / 800 / 850 / 900 / 950 / 1000
Independent linearity (best straight line) 1.)	$\pm 0,35\%$
Output signal	4..20 mA (4 mA between 1..3% / 20 mA between 96..99% effective electrical travel)
Theoretical resolution 1.)	Almost infinite
Repeatability 1.)	$\leq 0.08$ mm
Backlash (Hysteresis) 1.)	$\leq 0.25$ mm
Update rate	$\leq 1$ ms
Supply voltage	10..30 V (please refer load diagram)
Power consumption (no load)	$\leq 35$ mA
Output load	Please refer load diagram
Isolation resistance 1.)	100 MOhm@45 VDC, 1bar, 2s

### Mechanical Data, Environmental Conditions, Miscellaneous

Mechanical stroke (+5 mm) 1.)	50 / 100 / 150 / 200 / 250 / 300 / 350 / 400 / 450 / 500 / 550 / 600 / 750 / 800 / 850 / 900 / 950 / 1000
Lifetime (90% effective electrical travel) 2.)	> 25 million meters or 100 million movements (the smaller value applies)
Max. operational speed	$\leq 5$ m/s
Max. acceleration	$\leq 10$ m/s <sup>2</sup>
Operational force @ RT 1.) 2.)	< 0,5 N
Operational temperature	-30 °C up to +80 °C
Storage temperature	-40 °C up to +100°C
Protection grade (IEC60529)	IP67
Vibration (IEC 68-2-6, Test Fc)	20 g (5..2000 Hz, 0,75mm)
Shock (IEC 68-2-27, Test Ea)	50 g, halfsine, 11 ms
Housing length (+100,2 $\pm 1$ mm)	50 / 100 / 150 / 200 / 250 / 300 / 350 / 400 / 450 / 500 / 550 / 600 / 750 / 800 / 850 / 900 / 950 / 1000
Included in delivery	1 x magnetic cursor (O-ring for internal flange included / no O-ring for external flange)
Material housing	Steel AISI 304
Connection type	PUR-Cable 3-pole shielded 1 m ( $\varnothing$ Leads: 3 x 0.14 mm <sup>2</sup> )

# Data Sheet for Linear Sensors

## Potentiometric Linear Transducer (Conductive Plastic)

Series HEM12E

1.) According IEC 60393

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

Please note: Max. permissible supply voltage <75 VDC respectively <50 VAC in addition the max. power rating must be observed

Order Code					
Description	Selection: <b>standard=black/bold</b> , possible <i>options=grey/italic</i>				
<b>Series:</b>	<b>HEM12E</b>				
<b>Effective electrical travel:</b>					
50 mm		<b>50</b>			
100 mm		<b>100</b>			
150 mm		<b>150</b>			
200 mm		<b>200</b>			
250 mm		<b>250</b>			
300 mm		<b>300</b>			
350 mm		<b>350</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>			
750 mm		<b>750</b>			
800 mm		<b>800</b>			
850 mm		<b>850</b>			
900 mm		<b>900</b>			
950 mm		<b>950</b>			
1000 mm		<b>1000</b>			
<b>Construction:</b>					
Internal flange			<b>I</b>		
External flange			<b>E</b>		
<b>Electrical connection:</b>					
Standard PUR cable 3-pole 1 m				<b>K</b>	
<i>Option cable length in m</i>				<i>Kxx</i>	
<b>Output signal:</b>					
Standard 4-20 mA					<b>2442</b>

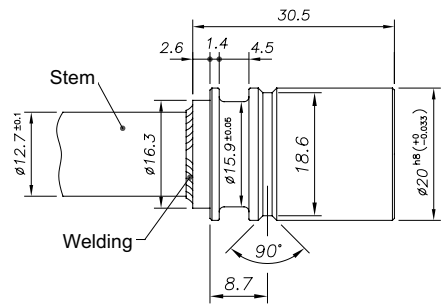
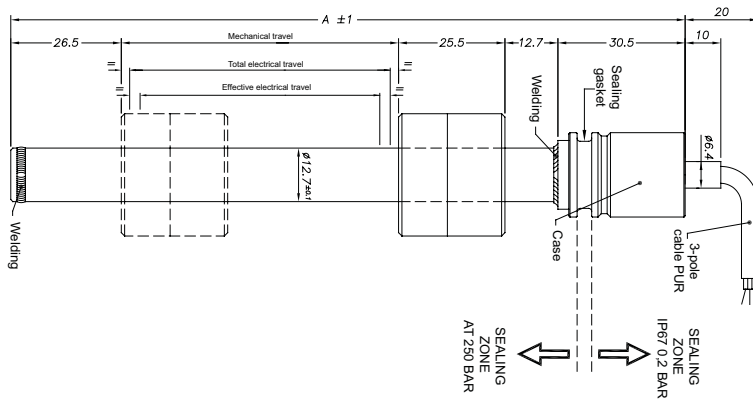
**For higher quantities or on-going demand, additional options are available as described below on request**

For example:

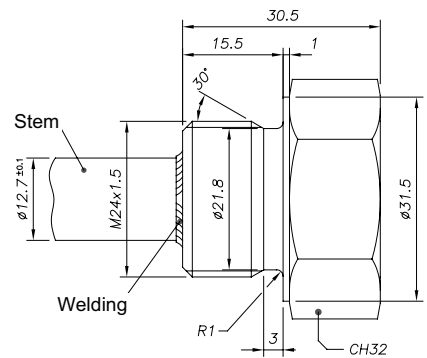
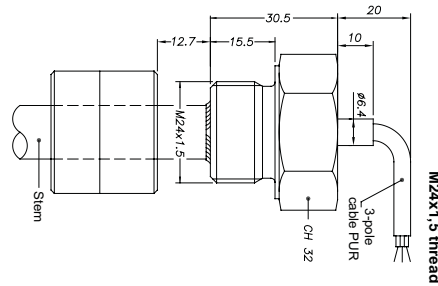
- Cables with / without connector
- Special axis length and much more

### Drawing

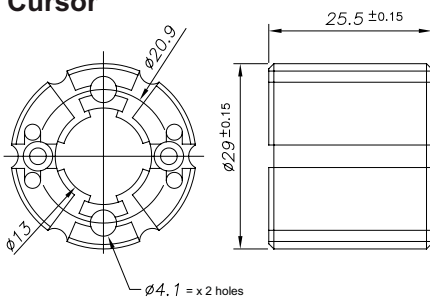
#### Construction - intern flange: I



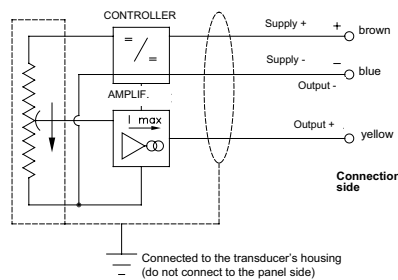
#### Construction - extern flange: E



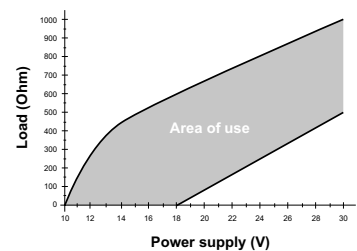
#### Cursor



#### Connection diagram



#### Load diagram

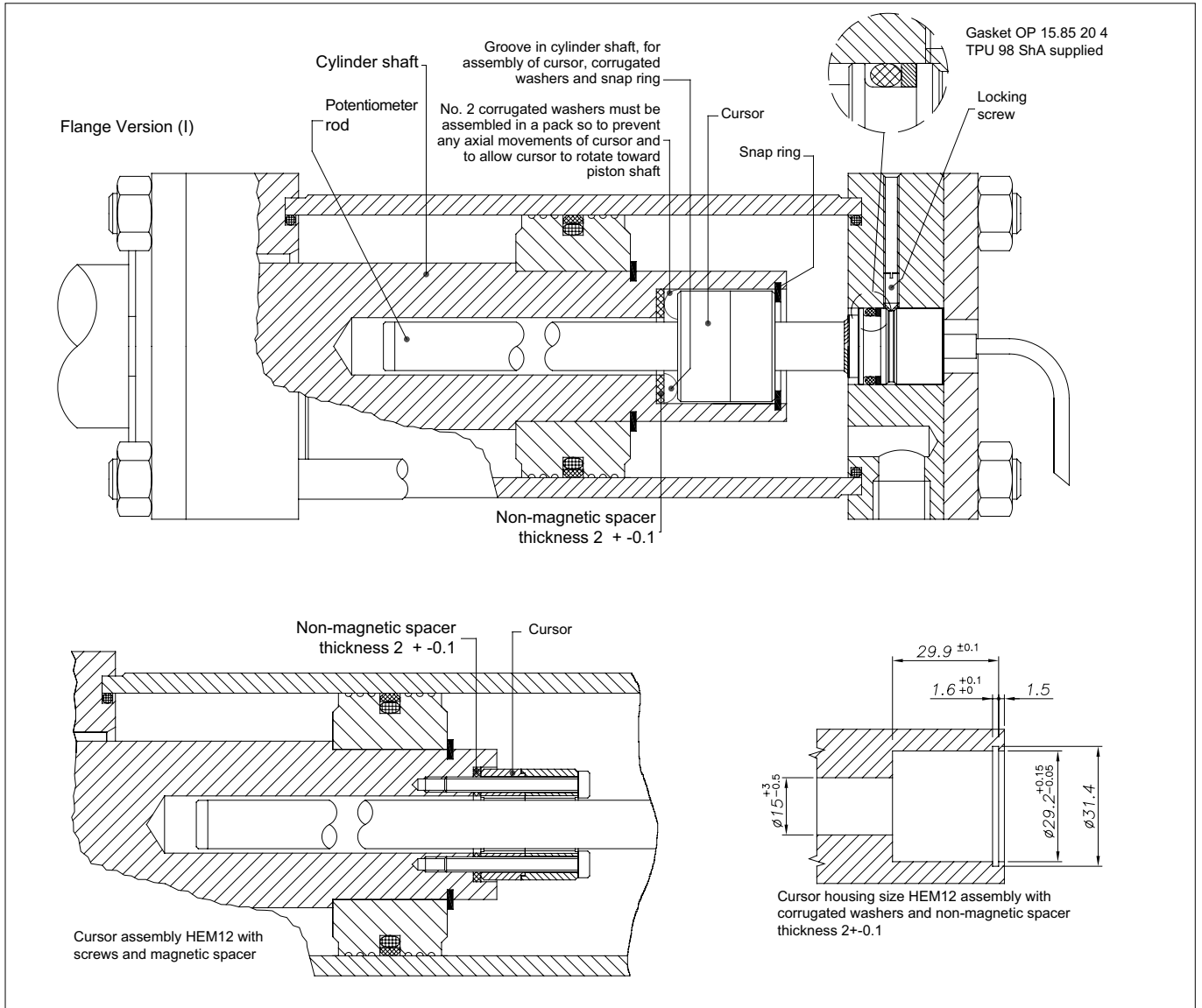


#### Dimensions in mm

A [+102,2 mm] 50 / 100 / 150 / 200 / 250 / 300 / 350 / 400 / 450 / 500 / 550 / 600 / 750 / 800 / 850 / 900 / 950 / 1000

Installation in cylinder

Installation inside cylinder with intern flange: I



Installation in cylinder

Installation inside cylinder with extern flange: E

