

LINEAR POTENTIOMETER



Series LMI12-SL and LMI12-SE

Key-Features:

- Linear displacement transducer with magnetic cursor
- Working pressure up to 250 bar (hydraulic cylinders)
- Pressure sealed high grade steel housing (IP67)
- Measurement ranges from 50 to 1000 mm
- Displacement speed ≤ 5 m/s
- Linearity up to ± 0.35 %
- Analog output signal 4...20 mA (LMI-SE)
- Working temperature up to $-30...+100$ °C
- Life cycle $> 25 \times 10^6$ meter or 100×10^6 operations, whichever is less
- Simple Apparatus according to EN 60079-11 (LMI-SL)

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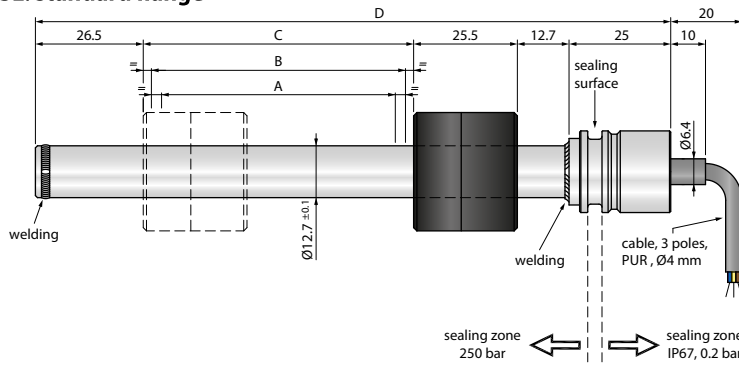
TECHNICAL DATA

		LMI12-SL	LMI12-SE
Measurement range	[mm]	50 / 100 / 150 / 200 / 250 / 300 / 350 / 400 / 450 / 500 / 550 / 600 / 750 / 800 / 850 / 900 / 950 / 1000	
Linearity	[%]	±0.35	
Repeatability	[mm]	≤0.08	
Resolution		theoretical infinite, depends on the signal quality of the reference respectively supply voltage	
Sensitivity (without hysteresis)	[mm]	0.05...0.1	
Hysteresis	[mm]	<0.25	
Displacement force	[N]	≤0.5	
Displacement speed	[m/s]	≤5	
Acceleration max.	[m/s²]	≤10	
Output		potential divider	4...20 mA ¹⁾
Resistance	[kΩ]	measurement ranges ≤300 mm: 5 measurement ranges 350 to 600 mm: 10 measurement ranges ≥750 mm: 20	-
Tolerance on resistance	[%]	±20	-
Dissipation at 40 °C (0 W at 120 °C)	[W]	measurement range 50 mm: 1 measurement range 100 mm: 2 measurement ranges ≥150 mm: 3	-
Applicable voltage max.	[V]	measurement range 50 mm: 40 measurement ranges ≥100 mm: 60	-
Recommended cursor current	[μA]	<0.1	-
Cursor current max.	[mA]	10	-
Cursor current in case of bad performances max.	[mA]	max. 10	-
Temperature coefficient resistance	[ppm/°C]	±200	-
Temperature coefficient output voltage	[ppm/°C]	<5	-
Supply	[VDC]	-	10...30
Current consumption max.	[mA]	-	35
Noise on output		-	<0.08 % FS RMS
Temperature coefficient		-	<0.02 % FS/°C
Sampling time	[ms]	-	≤1
Electrical isolation		>100 MΩ at 500 VDC, 1 bar, 2 s	>100 MΩ at 45 VDC, 1 bar, 2 s
Dielectric strength		<100 μA at 500 VAC, 1 bar, 2 s	-
Protection class		IP67	
Operating temperature	[°C]	-30...+100	-30...+80
Storage temperature	[°C]	-50...+120	-40...+100
Operating pressure max.	[bar]	250, peek 400	
Vibration resistance		5...2000 Hz, A _{max} = 0,75 mm, a _{max} = 20 g	
Shock resistance		50 g, 11 ms	
Inverse-polarity protection		-	yes
Overvoltage protection		-	yes
Life cycle		>25 x 10 ⁶ m or >100 x 10 ⁶ operations (whichever is less)	
Connection		cable output (1 m), 3 poles	
Housing		stainless steel AISI 304	
Mounting		flange with or without thread	

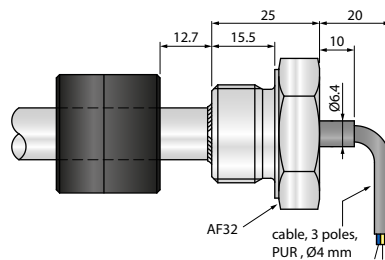
¹⁾ Zero point (4 mA) between 1 % and 3 % of useful electrical stroke
End point (20 mA) between 96 % and 99 % of useful electrical stroke

TECHNICAL DRAWING

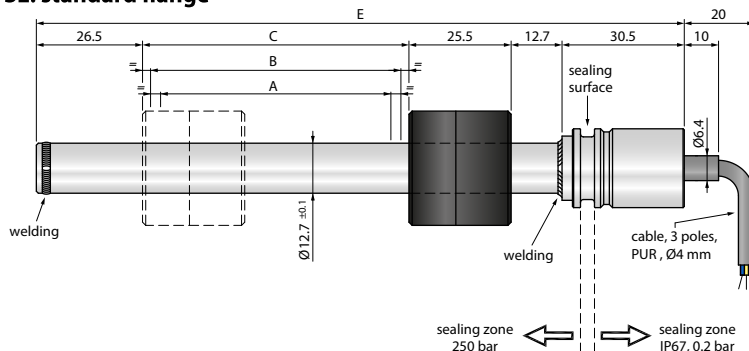
LMI-SL: standard flange



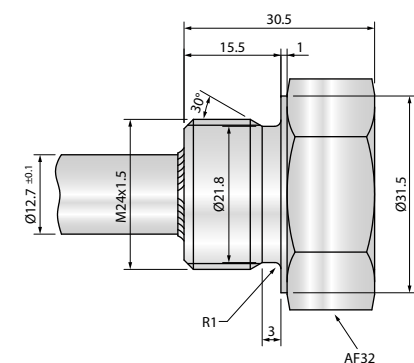
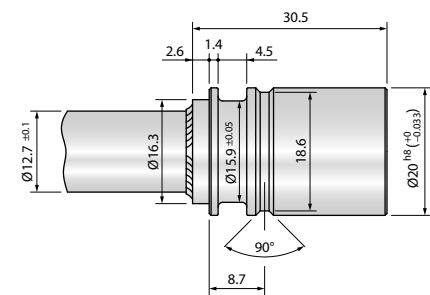
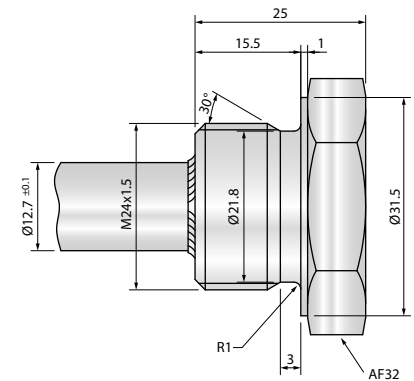
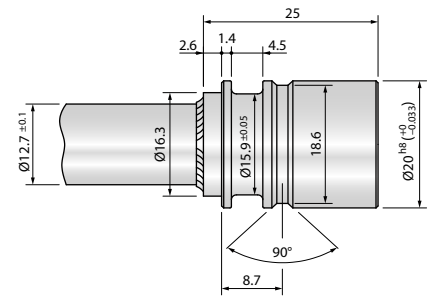
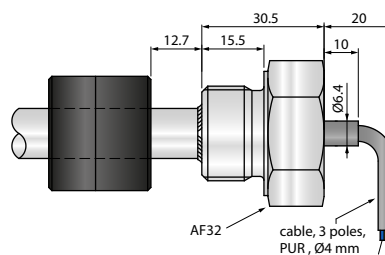
LMI-SL-M: threaded flange



LMI-SE: standard flange



LMI-SE-M: threaded flange

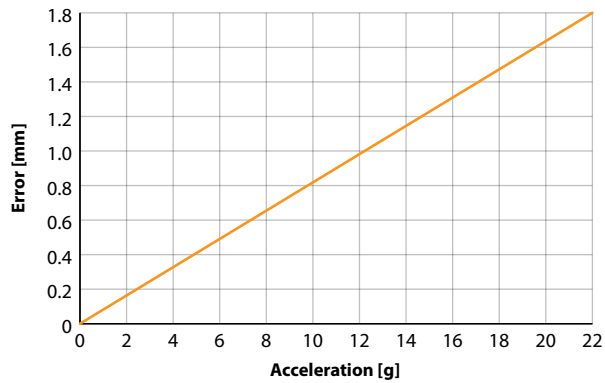


Useful electrical stroke +1/-0	A	=measurement range
Theoretical electrical stroke ±1	B	measurement range +1
Mechanical stroke	C	measurement range +5
Housing length ±1 (LMI12-SL)	D	measurement range +94.7
Housing length ±1 (LMI12-SE)	E	measurement range +100.2

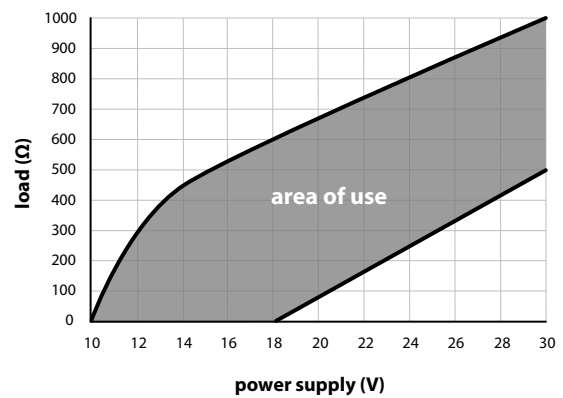
Note: After the installation of the sensor, the ring magnet has to be placed onto the sensor rod. In order to link the magnet to the sensor element, the magnet has to be pushed once fully to the end of the sensor rod (up to flange/cable connection).

TRACKING ERROR AND LOAD DIAGRAM

Tracking error LMI12-SL and LMI12-SE

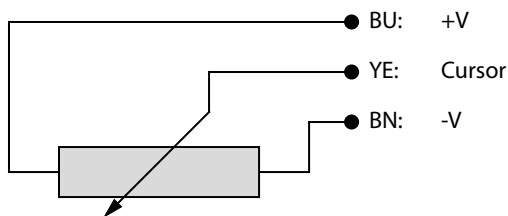


Load diagram LMI12-SE

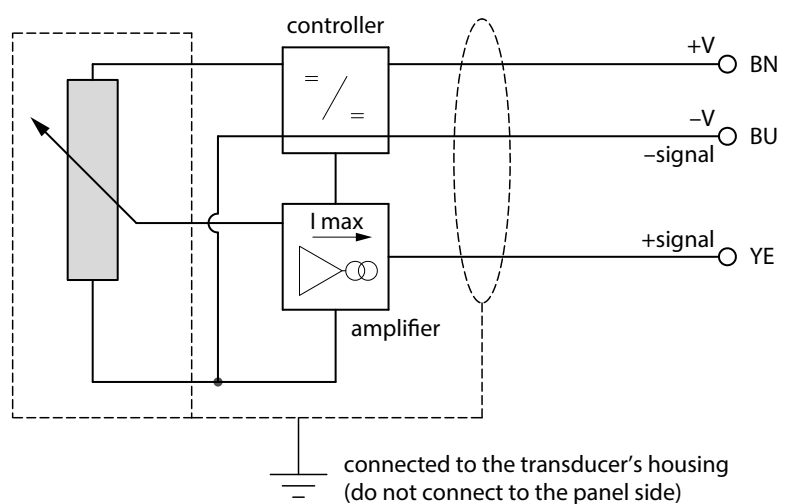


ELECTRICAL CONNECTION

LMI12-SL



LMI12-SE



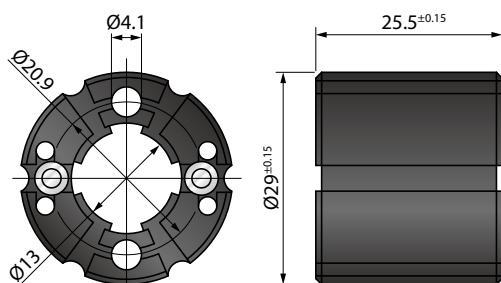
Installation notes:

- Do **NOT** use the sensor as a variable resistor!
- While calibrating the sensor set the stroke so that the output signal does not drop below 1 % or exceed 99 % of the supply voltage.

ACCESSORIES

Position magnet PCUR010

(1 pc. included in delivery)



Signal conditioner PMX-24

- Converts potentiometer signals into analog output signals: 4...20 mA, 0...10 V, 0...5 V, ± 10 V, ± 5 V
- Input: potentiometer 1...20 k Ω
- Configurable output
- DIN-rail-mounting with face-side connector
- For more information please refer to the [PMX-24 data sheet](#).



ORDER CODE

LMI12 - - F - -

Output

Potentiometer
Current 4...20 mA

SL
SE

Measurement range [mm]

see [„Technical Data“](#)

Mounting

Standard flange
Threaded flange M24x1.5

ACCESSORIES

Position magnet

PCUR10 1 pc. included in delivery

Digital displays for sensors with analog output, 2 channel

WAY-AX-S touch screen, supply: 18...30 VDC

WAY-AX-S-AC touch screen, supply: 115...230 VAC

For more information and options please refer to the [WAY-AX data sheet](#).

Signal conditioner

PMX-24 Output signals: 4...20 mA, 0...10 V, 0...5 V, ± 10 V, ± 5 V

For more information and options please refer to the [PMX-24 data sheet](#).

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