MICRO-EPSILON

More Precision

induSENSOR // Linear inductive displacement sensors

Mounting options and accessories
induSENSOR DTA / LDR

Connection cables

0157047	C7210-5/3	Sensor cable, 5 m, with cable connector
0157048	C7210/90-5/3	Sensor cable, 5 m, with 90° cable connector

Service (see page 34/35)

Connector assembly M9 and cable reduction XXXX mm - DTA-x

Connector assembly M9 - DTA-x (see page 34/35)

Power supply cable

2901087	PC710-6/4	Supply/output cable, 6 m

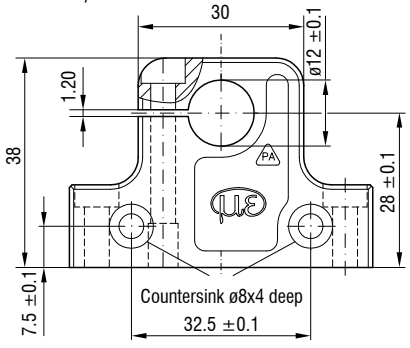
Spare plungers

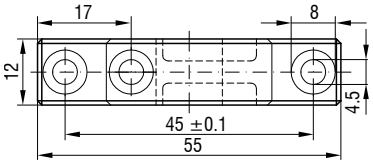
0800136	LDR-10	Spare plunger
0800137	LDR-25	Spare plunger
0800138	LDR-50	Spare plunger

Connector assembly

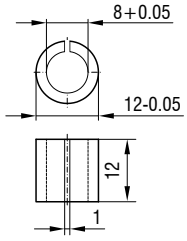
MBS12/8 Mounting block	Sensor installation for circumferential clamping
MBS12/8 Adapter ring	for reduction to D8 (gauge / LDR)

Mounting block MBS12/8



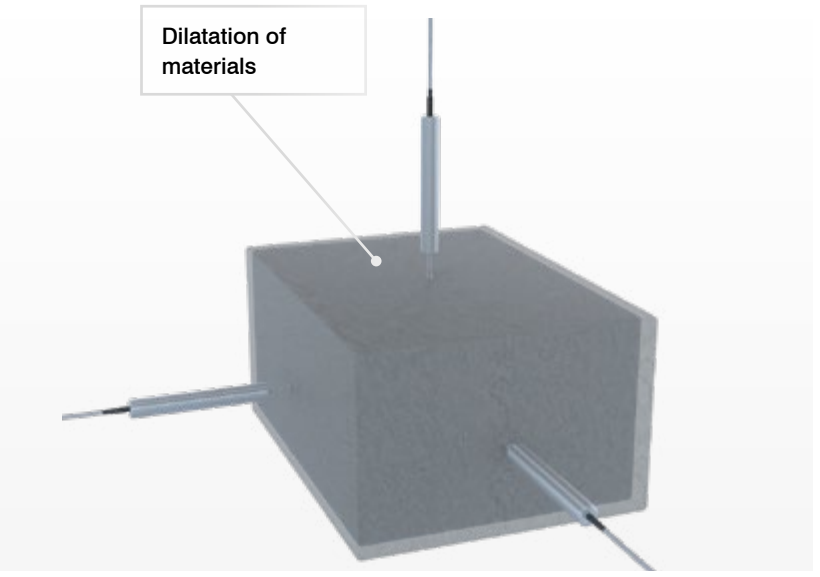


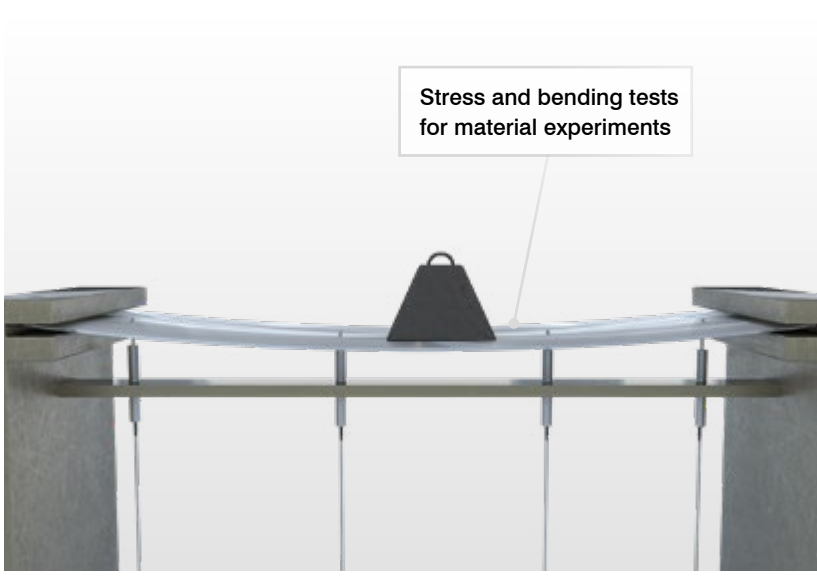
Adapter ring

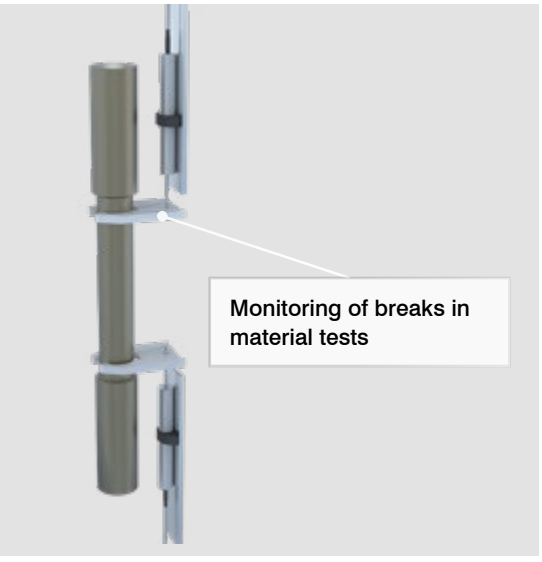


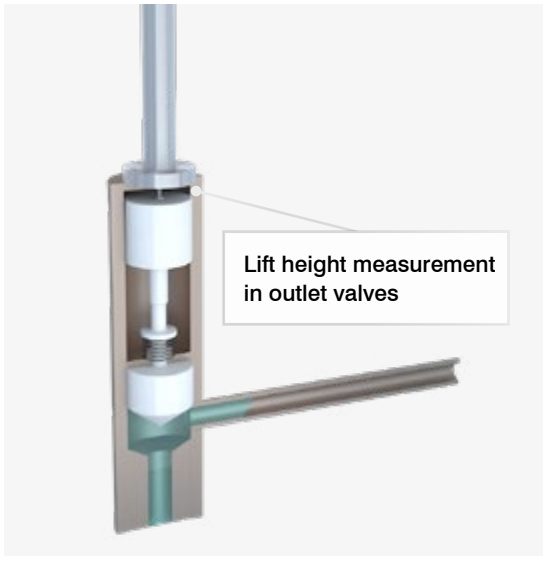
Applications
induSENSOR DTA / LDR

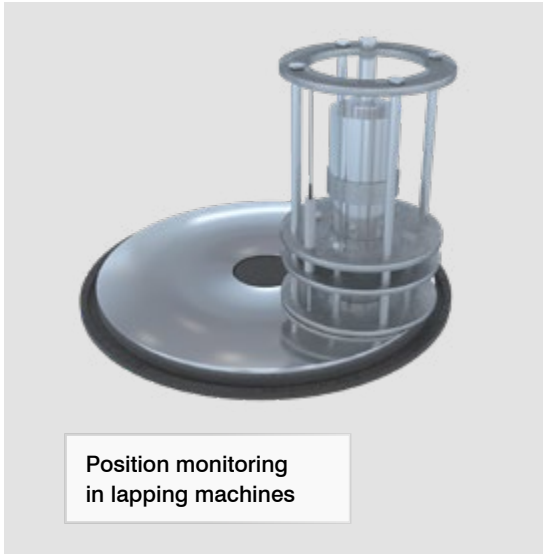
The DTA / LDR displacement sensors are suitable for numerous measurement tasks which require robust designs and high signal stability. Due to their wear-free design, the DTA / LDR sensors impress with longevity and long-term stability.

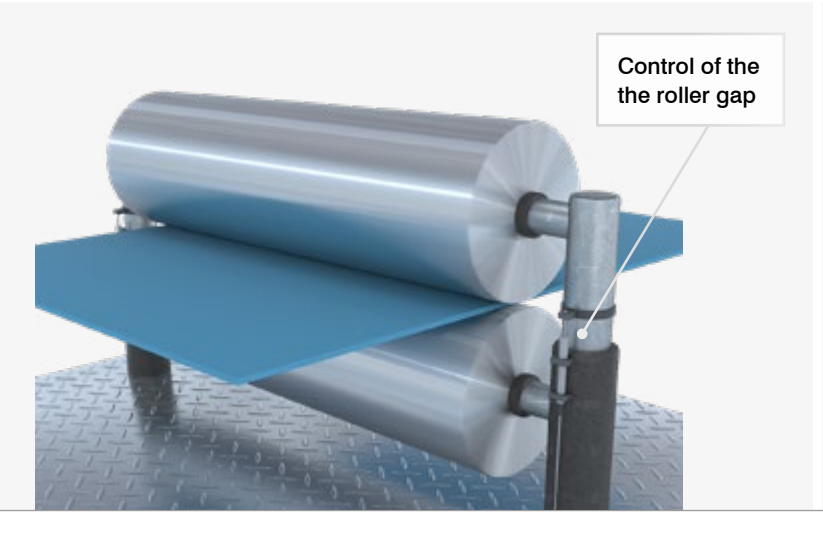


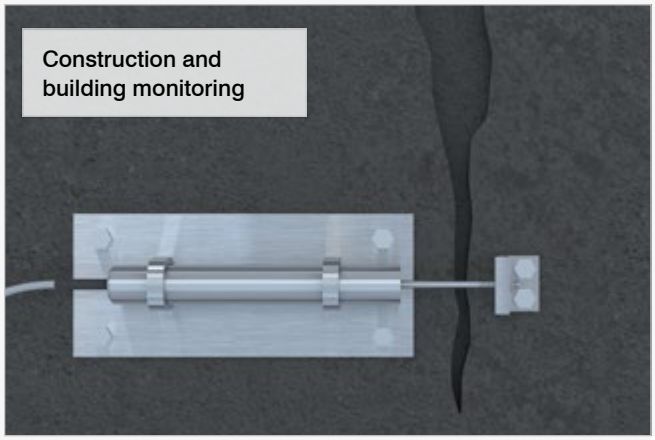












Sensors for displacement measurements of rotating shafts
induSENSOR LVP / LDR

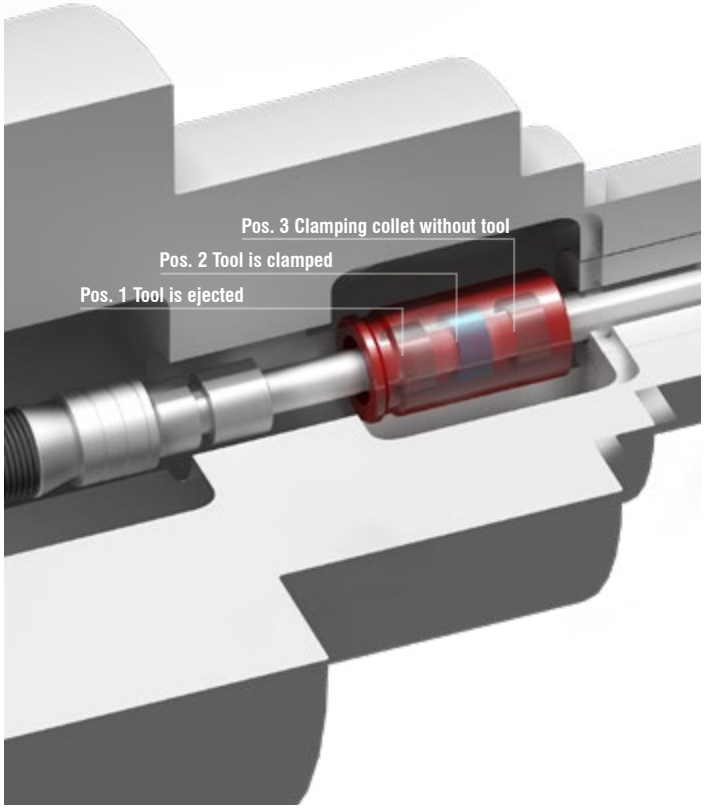
- Compact design
- High ambient temperatures
- High temperature stability
- High measurement repeatability
- Robust design IP67

The LVP-25-Z20 and LDR-14-Z20 sensors are designed for monitoring the clamping position in machine tools.

The cylindrical sensors are integrated into the release device and detect the clamping stroke of the drawbar. The measuring object is a ring which is glued onto the drawbar.

The sensors can be universally used for different types of tools due to their extremely compact sensor design. The sensors provide an analog signal according to the stroke motion of the drawbar when clamping the tool. Consequently, continuous monitoring is possible without the switching point having to be set mechanically.

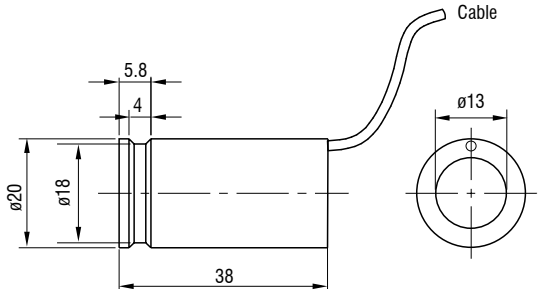
The miniature sensor controller can either be accommodated at the point of measurement or in the control cabinet. Thanks to their high accuracy, the sensors contribute significantly to meeting the ever increasing requirements for precision and availability of machine tools.

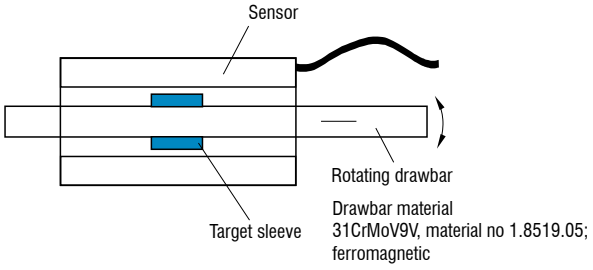


Model		LVP-25-Z20	LDR-14-Z20
Measuring range		25 mm	14 mm
Resolution [1]	50 Hz	6 µm	7 µm
	300 Hz	12 µm	14 µm
Linearity [2]	typ. ≤ ±1.5 % FSO	≤ ±0.375 mm	≤ ±0.21 mm
Temperature stability		≤ 150 ppm FSO/K	≤ 200 ppm FSO/K
Sensitivity [3]		16 mV / mm/V	26 mV / mm/V
Excitation frequency		16 KHz	23 KHz
Excitation voltage		550 mV	
Measuring object		Ring for shaft diameter 8 mm or 10 mm (included in delivery)	
Connection		integrated cable 2 m with open ends; axial cable outlet; cable diameter 1.8 mm; min. bending radius 10 mm	
Temperature range	Storage	-40 … +85 °C	
	Operation [4]	-40 … +120 °C	
Pressure resistance		Atmospheric pressure	
Shock (DIN EN 60068-2-27)		40 g / 5 ms, 6 axes, 1000 shocks each	
Vibration (DIN EN 60068-2-6)		10 Hz - 49.9 Hz: 2 mm; 20 g / 49.9 Hz – 2000 Hz, 3 axes, 10 cycles each	
Protection class (DIN EN 60529)		IP67	
Material		Stainless steel, PEEK	
Weight	Sensor	approx. 40 g	approx. 30 g
	Target ring	< 1 g	< 1 g
Compatibility		MSC7401, MSC7802, MSC7602	

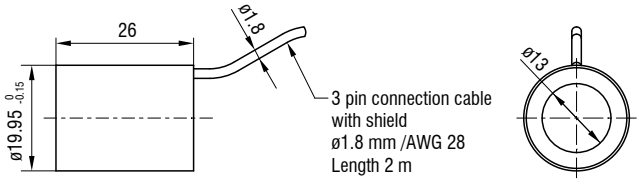
[1] Valid when operated with compatible Micro-Epsilon controller
[2] Independent linearity
[3] With 10 mm reference drawbar
[4] Max. temperature change: 3 K / min; higher temperatures on request

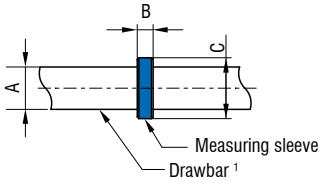
LVP-25-Z20





LDR-14-Z20





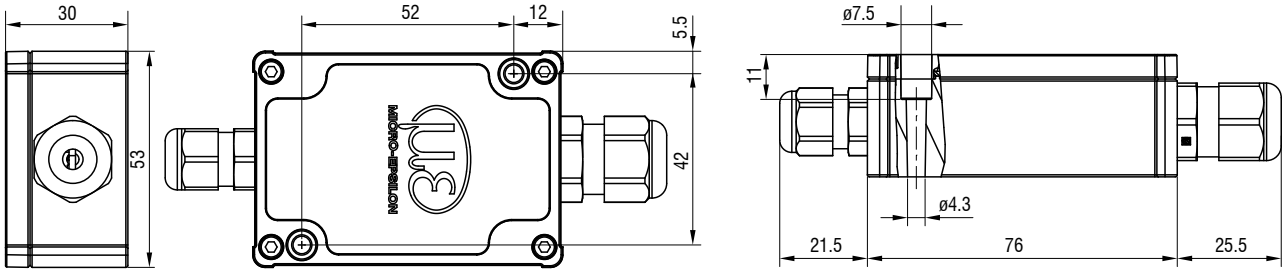
Dimensions in mm, not to scale

		Dimensions		
Model	Drawbar 1	A	B	C
LVP-25-Z20	D8	ø8 mm	5 mm	ø11.5 mm
	D10	ø10 mm	5.5 mm	ø11.5 mm
LDR-14-Z20	D8	ø8 mm	3 mm	ø11.5 mm
	D10	ø10 mm	5.5 mm	ø11.5 mm

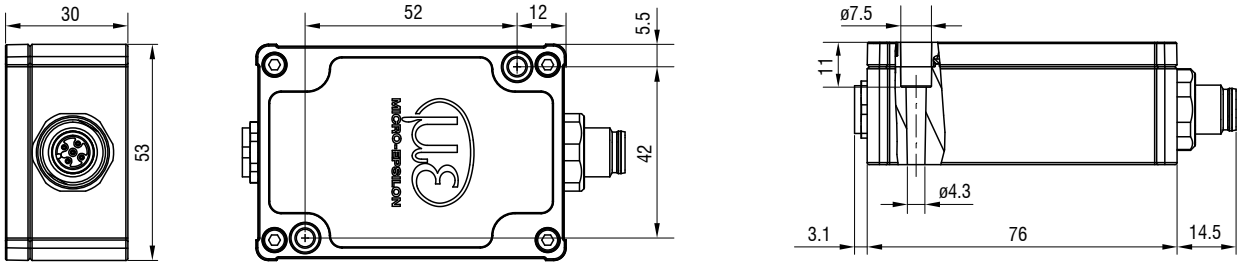
1) Not included in delivery

Dimensions
induSENSOR MSC7401 / MSC7802

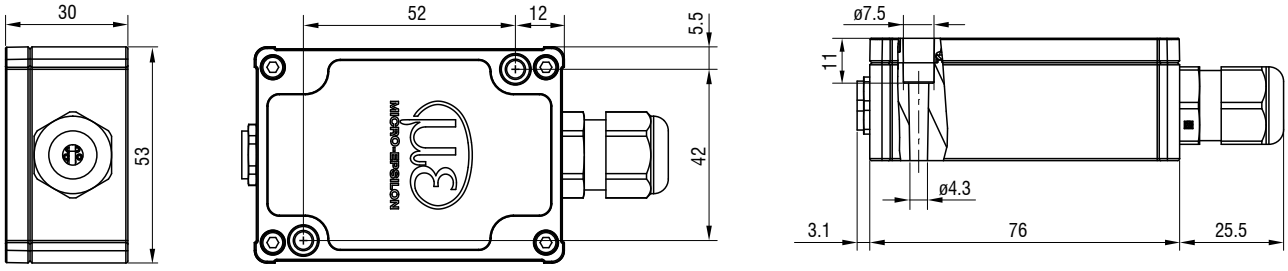
MSC7401



MSC7401(010)



MSC7401(020)



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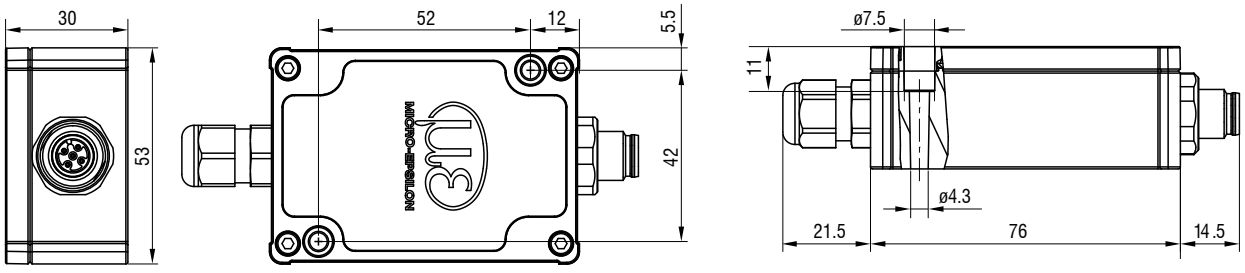
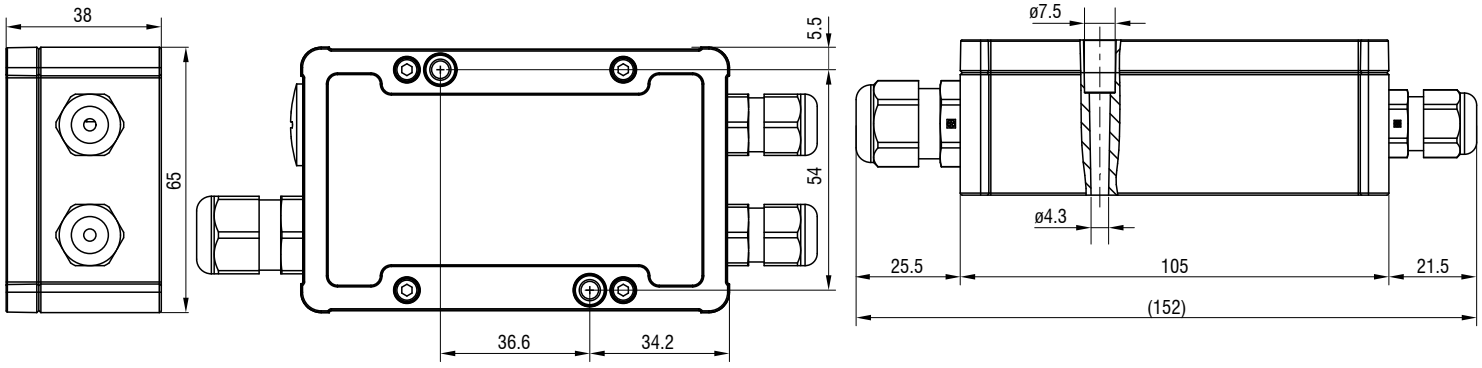


MSC7802



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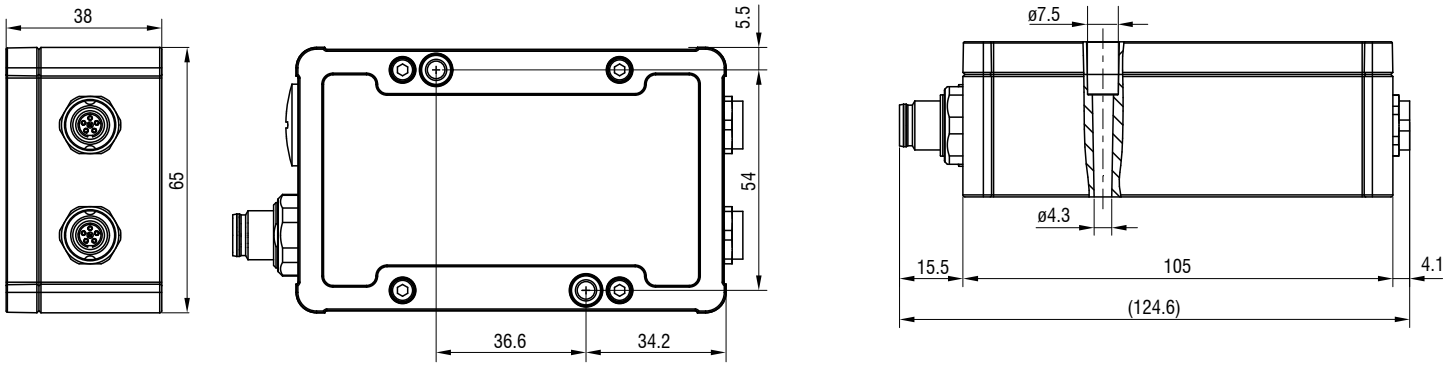

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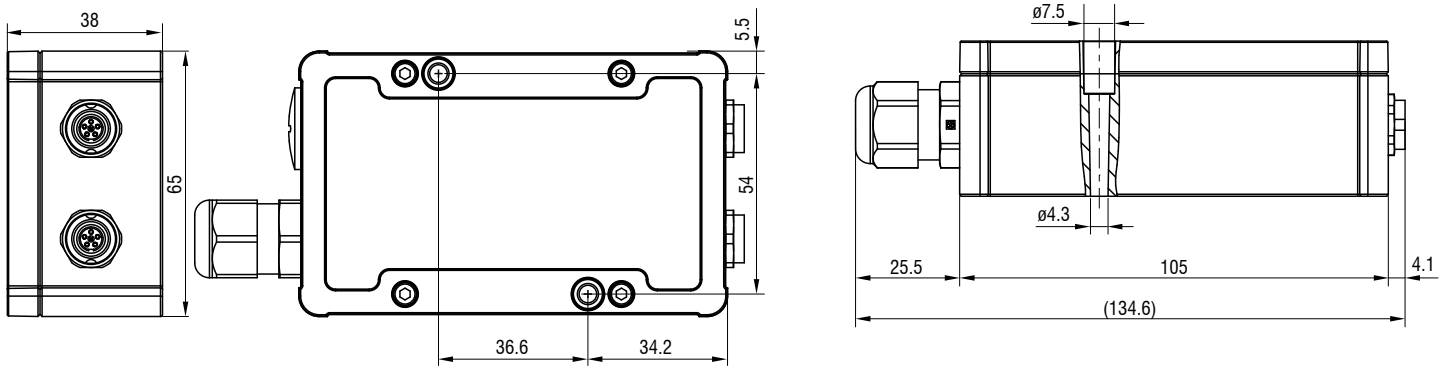

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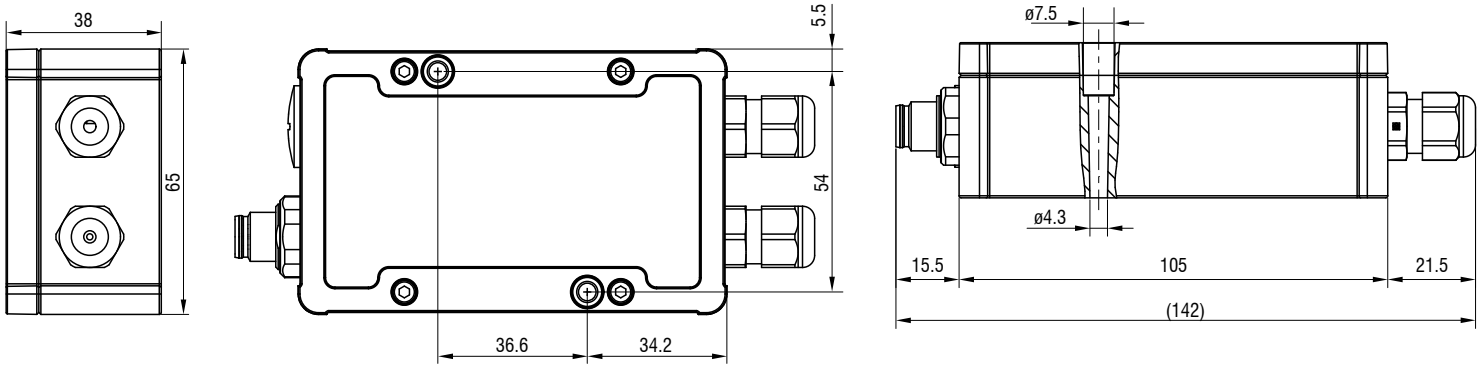


Dimensions in mm, not to scale

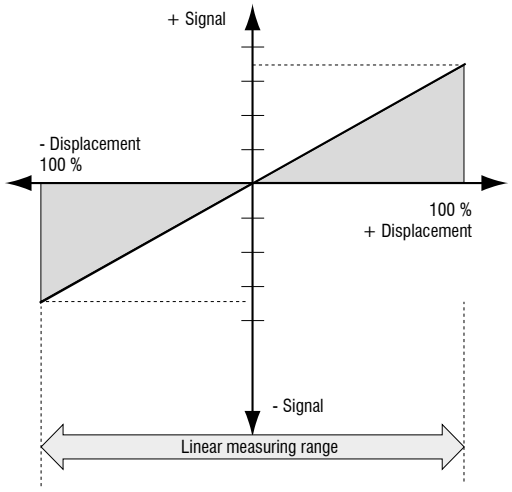
Technology and measuring principle
induSENSOR

LVDT Gauges and LVDT displacement sensors (DTA series)

LVDT displacement sensors and gauges (Linear Variable Differential Transformer) are constructed with a primary and two secondary coils, which are arranged symmetrically to the primary winding. As a measuring object, a rod shaped soft-magnetic core can be moved within the differential transformer. An electronic oscillator supplies the primary coil with an alternating current of constant frequency. The excitation is an alternating voltage with an amplitude of a few volts and a frequency between 1 and 10 kHz.

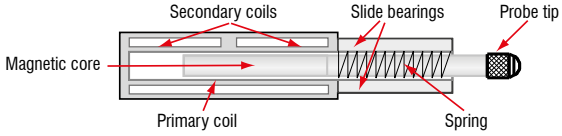
Depending on the core position, alternating voltages are induced in the two secondary windings. If the core is located in its "zero position", the coupling of the primary to both secondary coils is equally large. Movement of the core within the magnetic field of the coil causes a higher voltage in one secondary coil and a lower voltage in the second coil. The difference between the two secondary voltages is proportional to the core displacement. Due to the differential design of the sensor, the LVDT series has an output signal which is very stable.

Signal LVDT sensor



Probe tip

Measuring principle gauging sensor



Plunger

Measuring principle displacement sensor