

More Precision

induSENSOR // Linear inductive displacement sensors



induSENSOR LVP / LDR

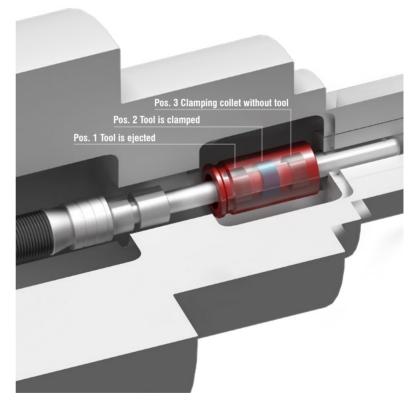
	Compact design
	High ambient temperatures
(↑→°C	High temperature stability
	High repeatability
<u>IP67</u>	Robust design IP67

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.

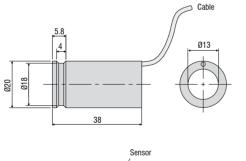


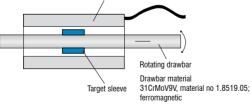


S0 Hz $50 Hz$ $6 \mu m$ $7 \mu m$ Resolution 1 $300 Hz$ $12 \mu m$ $14 \mu m$ Linearity typ. $\leq \pm 1.5\%$ FS0 $\leq \pm 0.375 mm$ $\leq \pm 0.21 mm$ Temperature stability $(5 \pm 1.5\%$ FS0 $(5 \pm 0.375 mm$ $\leq \pm 0.21 mm$ Temperature stability $(5 \pm 1.5\%$ FS0 $(5 \pm 0.375 mm$ $(5 \pm 0.20 pm$ FS0/K Sensitivity 3 $(5 \pm 0.375 mm)$ $(5 \pm 0.21 mm)$ $(26 mV / mm/V)$ Sensitivity 3 $(16 mV / mm/V)$ $(26 mV / mm/V)$ $(26 mV / mm/V)$ Excitation nequency $(16 kHz)$ $(23 kHz)$ $(23 kHz)$ Excitation voltage $(5 \pm 0.00 mm)^2$ $(16 kHz)$ $(23 kHz)$ Measuring object Ring for shaft diameter 8 mm or 10 mm (included in delivery) $(16 mV - mh)^2$ Connection Storage $(-40 \dots + 45 ^{\circ C})^2$ $(-40 \dots + 45 ^{\circ C})^2$ Temperature range Storage $(0 p 5 ms, 6 aces, 1000 shocks each$ $(10 Hz + 49 9 Hz 2 mm)^2$ Vibration (DIN EN 60068-2-27) Gender 10 Hz - 400 Hz 2 axees, 100 cycles each $(0 Hz + 49 9 Hz 2 mm)^2$ $(0 G Stainles stei), PC Gender)$ Neight </th <th colspan="2">Model</th> <th>LVP-25-Z20</th> <th>LDR-14-Z20</th>	Model		LVP-25-Z20	LDR-14-Z20	
Resolution " 300 Hz 12 µm 14 µm Linearity typ. ≤ ±1.5% FSO ≤ ±0.375 mm ≤ ±0.21 mm Temperature stability ≤ 150 ppm FSO/K ≤ 200 ppm FSO/K Sensitivity ?1 16 mV / mm/V 26 mV / mm/V Excitation frequency 16 kHz 23 kHz Excitation voltage 550 mV Measuring object 6 mV / mm/V 26 mV / mm/V Connection 16 kHz 23 kHz Connection 16 mV / mm/V on min. bending radius 10 mm (included in delivery) Connection 10 mm with open ends; axia cable outlet; cable diameter 1.8 mm; min. bending radius 10 mm (fixed installation) Temperature range Storage -40 +8 °C Operation -40 +8 °C -40 +8 °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) 0/ 40 g / 49.9 Hz - 2000 Hz, 3 axes, 10 cycles each Protection class (DIN EN 60529) 20 g / 49.9 Hz - 2000 Hz, 3 axes, 10 cycles each Material Sensor approx. 40 g approx. 30 g <td colspan="2">Measuring range</td> <td colspan="2">25 mm 14 mm</td>	Measuring range		25 mm 14 mm		
Number of the second	Resolution 1)	50 Hz	6 <i>µ</i> m	7 <i>µ</i> m	
Temperature stability ≤ 150 ppm FSO/K ≤ 200 ppm FSO/K Sensitivity ² 16 mV / mm/V 26 mV / mm/V Excitation frequency 16 kHz 23 kHz Excitation voltage 16 kHz 23 kHz Excitation voltage Soor Soor W 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 (fixed installation) Temperature range Storage -40 + 85 °C Operation Operation -40 + 85 °C Shock (DIN EN 60068-2-27) 40 g / 5 ms, 6 axes, 1000 shocks each Vibration (DIN EN 60068-2-6) 0 10 Hz - 49.9 Hz: 2 mm; 20 g / 49.9 Hz - 2000 Hz, 3 axes, 10 cycles each Protection class (DIN EN 60529) 0 10 Hz - 49.9 Hz: 2 mm; 20 g / 49.9 Hz - 2000 Hz, 3 axes, 10 cycles each Netrial Stainless steel, PEEK Weight Sensor approx. 40 g		300 Hz	12 <i>µ</i> m	14 <i>µ</i> m	
Sensitivity ²) 16 mV / mm/V 26 mV / mm/V Excitation frequency 16 kHz 23 kHz Excitation voltage 6 KHz 50 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 (fixed installation) Temperature range Storage Operation 40 + 85 °C Pressure resistance 40 + 85 °C 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: 2 mm;	Linearity	typ. $\leq \pm 1.5\%$ FSO	$\leq\pm$ 0.375 mm	≤ ±0.21 mm	
Excitation frequency 16 kHz 23 kHz Excitation voltage 6 kHz 50 mV Measuring object 70 mm (included in delivery) Measuring object 70 mm (included in delivery) Connection 70 mm (integrated cable (2 m) with open ends; axial cable outlet; cable diameter 1.8 mm; min. bending radius 10 mm (fixed installation) Temperature range Storage Operation -40 +85 °C Pressure resistance atmospheric pressure Shock (DIN EN 60068-2-27) 00 eration Vibration (DIN EN 60068-2-6) 10 Hz - 49.9 Hz : 2 mm; 20 g / 49.9 Hz : 2000 Hz, 3 axes, 100 shocks each Protection class (DIN EN 60529) 70 eration Material 80 eration Weight Sensor Approx. 40 g approx. 40 g	Temperature stability		\leq 150 ppm FSO/K	\leq 200 ppm FSO/K	
Excitation voltage 550 mV Measuring object Storage Connection integrated cable (2 m) with open ends; axial cable outlet; cable diameter 1.8 mm; min. bending radius 10 mm (fixed installation) Temperature range Storage Operation -40 +85 °C Pressure resistance -40 +120 °C ³ Shock (DIN EN 60068-2-27) Genetion Vibration (DIN EN 60068-2-6) 10 Hz - 49.9 Hz: 2 mm; 20 g / 49.9 Hz; 2 mu; 20 g / 49.9 Hz; 2 mu; 20 g / 49.9 Hz; 2 mu; 20 g / 49.9	Sensitivity 2)		16 mV / mm/V	26 mV / mm/V	
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 (fixed installation) Temperature range Storage Operation -40 +85 °C Pressure resistance -40 +85 °C Shock (DIN EN 60068-2-27) 40 g / 5 ms, 6 axes, 1000 shocks each Vibration (DIN EN 60068-2-6) 20 g / 49.9 Hz - 2000 Hz, 3 axes, 10 cycles each Protection class (DIN EN 600529) 70 G Material Sensor Weight Sensor	Excitation frequency		16 kHz	23 kHz	
Connection integrated cable (2 m) with open ends; axial cable outlet; cable diameter 1.8 mm; min. bending radius 10 mm (fixed installation) Temperature range Storage Operation -40 +85 °C Pressure resistance Operation 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: 2 mm;	Excitation voltage	ion voltage 550 mV			
Connection Storage Temperature range Storage Operation -40 +85 °C Pressure resistance -40 +120 °C ° Shock (DIN EN 60068-2-27) 40 g / 5 ms, 6 axes, 1000 shocks each Vibration (DIN EN 60068-2-6) 20 g / 49.9 Hz: 2 mm; 20 g / 49.9 Hz: 2 mm; Protection class (DIN EN 60529) IP67 Material Sensor Weinht Sensor	Measuring object		Ring for shaft diameter 8 mm or 10 mm (included in delivery)		
Temperature range Operation Operation -40 + 120 °C ³ 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) 20 g / 49.9 Hz: 2 mm; 20 g / 49.9 Hz: 2 mm; Protection class (DIN EN 60529) IP67 Material Sensor Weinht Sensor	Connection				
Operation -40 + 120 °C ³ 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 Sensor Weight Sensor	Temperature range	Storage	-40 +85 °C		
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 Weinht Sensor approx. 40 g		Operation	-40 + 120 °C ³⁾		
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 Sensor approx. 40 g approx. 30 g	Pressure resistance		atmospheric pressure		
Vibration (DIN EN 60068-2-6) 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	Shock (DIN EN 60068-2-27)		40 g / 5 ms, 6 axes, 1000 shocks each		
Material Stainless steel, PEEK Weight Sensor approx. 40 g approx. 30 g	Vibration (DIN EN 60068-2-6)		,		
Weight Sensor approx. 40 g approx. 30 g	Protection class (DIN EN 60529)		IP67		
Weight	Material		Stainless steel, PEEK		
Target ring < 1 g < 1 g	Weight	Sensor	approx. 40 g	approx. 30 g	
		Target ring	< 1 g	< 1 g	
Compatibility MSC7401, MSC7802, MSC7602	Compatibility		MSC7401, MSC7802, MSC7602		

PSO = Full Scale Output ¹⁾ Valid when operated with compatible Micro-Epsilon controller ²⁾ With 10 mm reference drawbar ³⁾ Max. temperature change: 3 K / min; higher temperatures on request

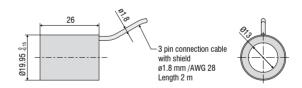
LVP-25-Z20

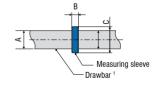




Dimensions in mm, not to scale

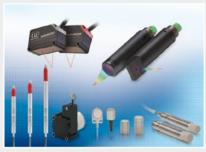
LDR-14-Z20





		Dimensions				
Model	Drawbar 1	А	В	С		
LVP-25-Z20	D8	ø8 mm	ø5 mm	ø11.5 mm		
	D10	ø10 mm	ø5.5 mm	ø11.5 mm		
LDR-14-Z20	D8	ø8 mm	ø3 mm	ø11.5 mm		
	D10	ø10 mm	ø5.5 mm	ø11.5 mm		
¹⁾ Not included in delivery						

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