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# More Precision

**induSENSOR** // Linear inductive displacement sensors





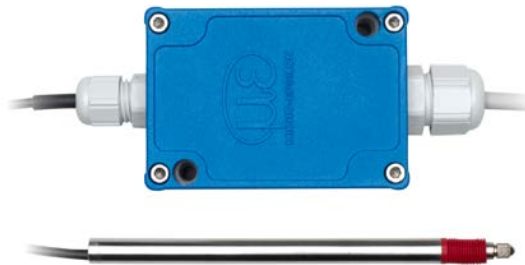
- Compact and robust aluminum housing (IP67)
- High resolution and linearity
- Universal application - compatible with LVDT and half-bridge sensors
- Ideal for high-volume applications in machine building and automation
- User-friendly set up and configuration via buttons or software

The new MSC7401 controller is designed to be operated with LVDT and LDR measuring gauges and displacement sensors. Due to its robust aluminum housing protected to IP67, this single-channel controller is predestined for industrial measurement tasks.

A large variety of compatible, inductive displacement sensors and gauges from Micro-Epsilon combined with an optimized price/performance ratio opens up numerous fields of applications in automation technology and machine building. The controller is easily set up using buttons or software.

#### Exemplary configuration

MSC7401 with DTA-5G8-3-CA gauge:



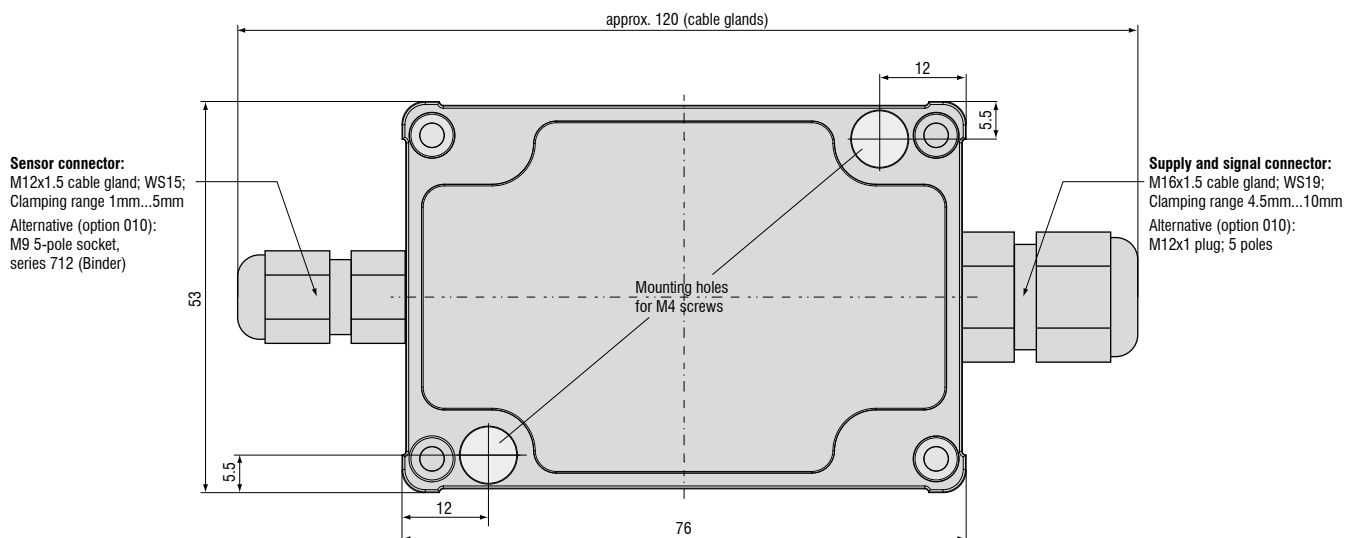
Technical Data	Channel with DTA-5G8-3-CA
Measuring range	$\pm 5 \text{ mm}$
Linearity	$30 \mu\text{m}$
Resolution	$\sim 1.2 \mu\text{m}$
Output	analog

Model		MSC7401 Miniature sensor controller
Power supply		5 V <sup>1)</sup> ... 14 V ... 30 V
Protection		reverse polarity protection, overvoltage protection
Sensor principle		full-bridge sensor/LVDT (DTA series) and half-bridge sensor (LDR series)
Input impedance (sensor)		> 100 kOhm
Gain		adjustable via buttons or software
Zero		
Output signal (adjustable)		(0)2 ... 10 VDC / 0.5 ... 4.5 V / 0 ... 5 V (Ra > 1 kOhm) or (0)4 ... 20 mA (load < 500 Ohm)
Resolution <sup>2)</sup>	DTA series	13 bits (0.012 % FSO) at 50 Hz 12 bits (0.024 % FSO) at 300 Hz
	LDR series	12 bits (0.024 % FSO) at 50 Hz 11 bits (0.048 % FSO) at 300 Hz
Linearity		0.02 % FSO
Frequency response (only adjustable via software)		300 Hz (-3dB)
Storage		-40 ... +85 °C
Operation		-40 ... +85 °C
Temperature stability	DTA series	± 100 ppm FSO/K
	LDR series	± 125 ppm FSO/K
Protection class		IP67
Weight		approx. 200 g
Housing material		aluminum die casting
Connection	Cable gland	screw terminal; AWG 16 to AWG 24; with ferrule up to AWG 28
	Connector	power supply: M12x1 plug (5 poles); sensor: M9 socket; 5 poles (Binder)
EMC		DIN EN 61326-1; DIN EN 61326-2-3
Vibration		DIN EN60068-2-6
Shock		DIN EN 60068-2-27 (40g, 6ms, 1000 per axis)
		DIN EN 60068-2-27 (100g, 6ms, 3 per axis)

FSO = Full Scale Output

<sup>1)</sup> Restricted with load and signal span

<sup>2)</sup> Noise: AC RMS measurement via RC low-pass filter of the 1st order with  $f_c = 5$  kHz





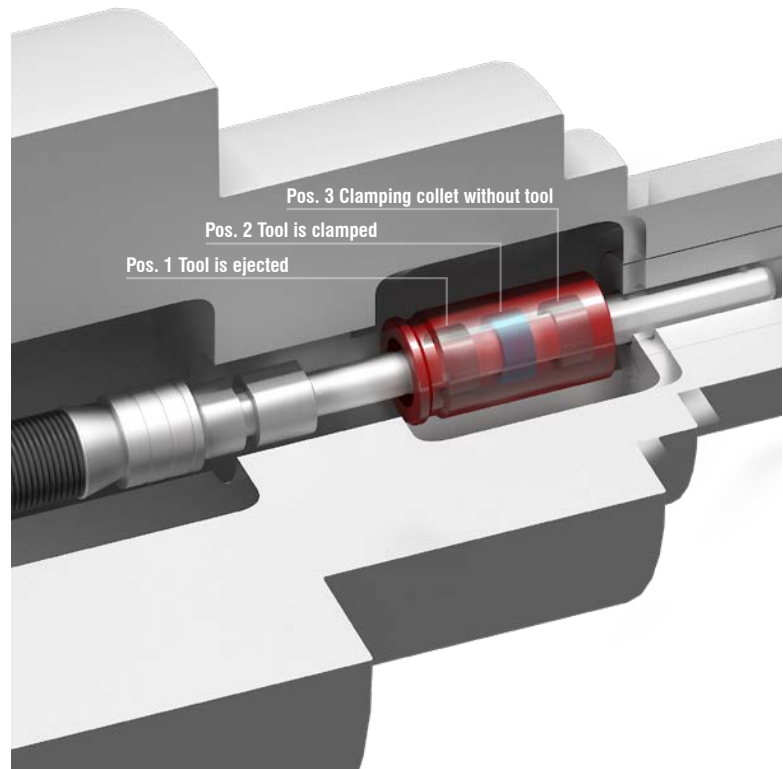
- Compact design
- High ambient temperatures
- High temperature stability
- High dynamics

To monitor the clamping position in machine tools, analog LVP sensors from Micro-Epsilon are used.

The cylindrical sensor is integrated into the release device and directly measures the clamping stroke of the drawbar. On the drawbar, a ring is fastened, which acts as the target for the sensor.

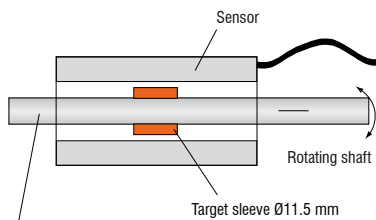
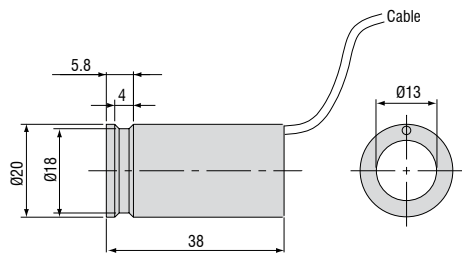
The LVP sensor can be universally used with the most varied types of tool due to an extremely compact sensor design. The sensor supplies an analog signal according to the stroke motion of the drawbar when clamping the tool. Consequently, continuous monitoring is possible without the switching point having to be laboriously set mechanically.

The miniature sensor controller can either be accommodated at the point of measurement or in the control cabinet. Thanks to its high accuracy, the LVP sensor contributes significantly to meeting the ever increasing demands on machine tool precision and availability.



Model	LVP-25-Z20-5-CA-AC
Measuring range	25 mm
Target (included)	article 0482218 for shaft diameter 8 mm
	article 0482219 for shaft diameter 10 mm
Linearity	typical $\pm 1.5\%$ FSO
Sensor housing	stainless steel
Temperature stability (sensor)	$< \pm 0.01\%$ FSO / °C
Temperature range	-40 ... +120 °C (higher on request)
Protection class (sensor)	IP67
Medium	air, oil
Controller	MSC7401 (pages 10 - 11)

FSO = Full Scale Output



Pull rod material  
31CrMoV9V, no. 1.8519.05



## High performance sensors made by Micro-Epsilon



Sensors and systems for displacement and position



Sensors and measurement devices for non-contact temperature measurement



2D/3D profile sensors (laser scanner)



Optical micrometers, fiber optic sensors and fiber optics



Color recognition sensors, LED analyzers and color online spectrometer



Measurement and inspection systems