



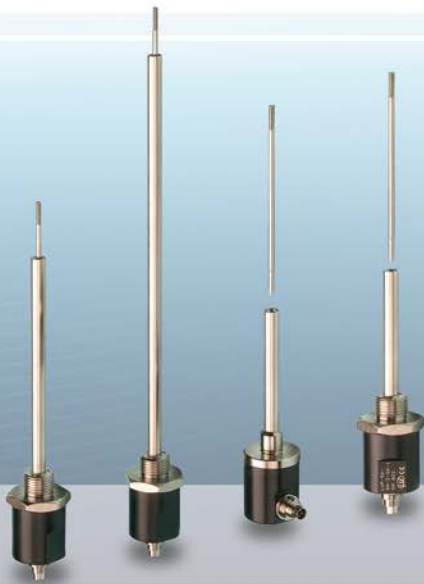
More Precision.

induSENSOR

Linear inductive displacement sensors



LVP series - inductive sensors with measuring plunger and integrated electronics



- No wear and no maintenance**
- Linearity 0.25% FSO**
- Integrated microelectronics**
- Compact design - short installed length**
- Shielded against EMI**
- For use in difficult ambient conditions**

The displacement sensors of the LVP series use a plunger for measurement. They are equipped with integrated electronics.

An important advantage of the LVP measuring technique lies in the short length of the installed sensor. This difference in lengths becomes clear in a direct comparison with an LVDT sensor. The LVP displacement sensors are ideally suited for tiny installation rooms. With protection class IP67, the sensors can even be used in harsh industrial environments.

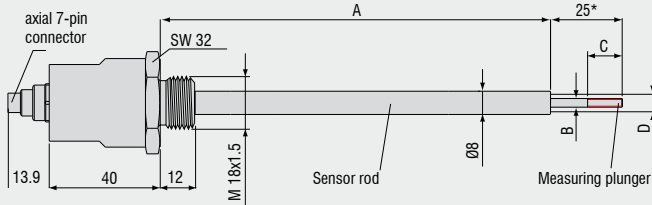


Comparison of the length of LVDT and LVP series with identical measuring ranges

Model	LVP-50	LVP-100	LVP-200
Measuring range	50mm	100mm	200mm
Linearity	standard $\pm 0.5\%$ FSO	0.25mm	0.5mm
	option $\pm 0.25\%$ FSO	0.125mm	0.25mm
Resolution	$< 0.03\%$ FSO	0.015mm	0.03mm
Temperature range	-40°C ... +85°C		
Temperature stability	zero	$\pm 50\text{ppm} / ^\circ\text{C}$	
	sensitivity	$\pm 150\text{ppm} / ^\circ\text{C}$	
Frequency response (-3 dB)	300Hz		
Output	4 ... 20mA		
Output load	500Ω		
Power supply	18 ... 30VDC		
Current consumption	max. 40mA		
Protection class	IP 67		
Electromagnetic compatibility (EMC)	EN 61326-1:2006 (spurious emission) EN 61326-2-3:2006 (immunity to interference)		
Shock ¹	40g, 3000 shocks / axis; 100g radial, 300g axial		
Vibration	5Hz ... 44Hz $\pm 2.5\text{mm}$; 44Hz ... 500Hz $\pm 20\text{g}$		

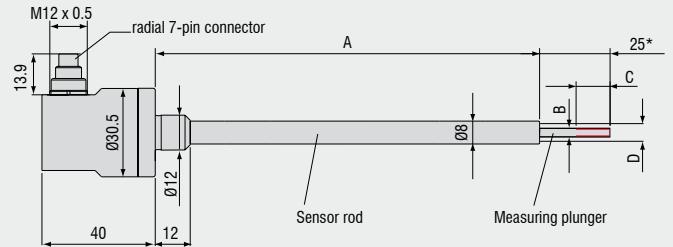
FSO = Full Scale Output
1) Half sinusoid 6 ms

LVP series housing version -GA- (option)



* Measuring plunger start position $I_{out} = 4\text{mA}$

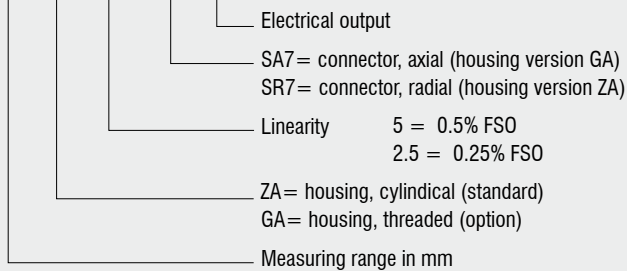
LVP series housing version -ZA-



* Measuring plunger start position $I_{out} = 4\text{mA}$

Article

LVP - 50 - ZA - 2,5 - SR7 - I



Measuring range	A	B	C	D
50	77	M2	10	4
100	138	M3	12	4
200	261	M3	12	4

All data in mm



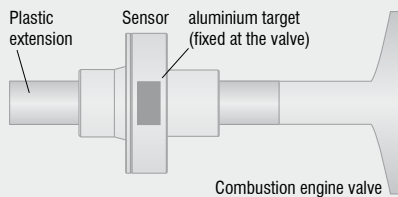
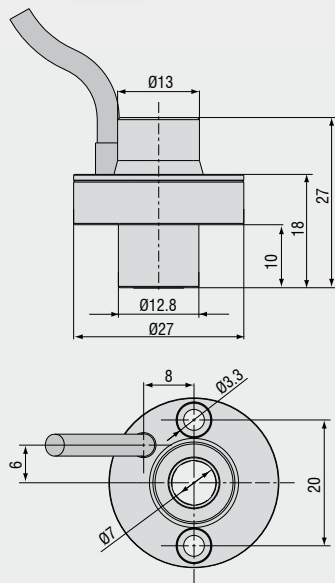
The LVP-3, LVP-14 and LVP-25 sensors are modified versions of the standard LVP sensors. They are designed for specific application areas, and operated with external electronics in contrast to the standard LVP series.

Valve stroke sensor in stainless steel housing

Future generations of engines will be able to dispense with mechanical camshafts. The displacement of the electromechanically or electrohydraulically driven inlet and outlet valves of internal combustion engines is acquired by the displacement sensor of the product line LVP-14-F-5-CR and fed into the control circuit. In this way a variable inlet and outlet control of the valves can be realised. Ultimately, the fuel consumption is reduced, emission values are improved and the engine power characteristic is matched to the individual driving situation.

Model		LVP-14-F-5-CR
Article		2616078
Measuring range		14mm
Target (optional)		article 0482273
Linearity		0.5% FSO (0.07mm)
Housing		stainless steel
Temperature stability sensor		±100ppm / °C
Temperature range sensor		-30°C ... +150°C
Protection class sensor		IP 67
Controller		MSC739VS-U
Article		4111009
Power supply		+10...16VDC
Output		1...9VDC
Resolution		0,02% FSO
Frequency response		20kHz (-3dB)
Dimensions		150 x 64 x 54mm

FSO = Full Scale Output

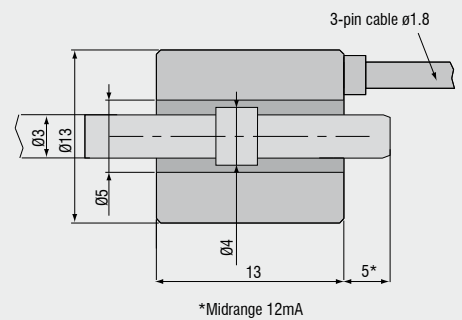


Sensor for needle stroke movements

The compact displacement sensor LVP-3-Z13-5-CA is suitable for acquiring small measurement ranges with high accuracy. The large free hole for the passage of the core also facilitates large excessive strokes. The measurement object, realised as a simple aluminium ring, is mounted on the rod, plunger, pin, needle or other similar part to be measured. In a typical application the displacement sensor LVP-3-Z13-5-CA is used in automatic glue application guns. The continuously measuring sensor monitors the switching point, also for wear of the needle seating. Additionally, the continuous measurement offers the option of checking the needle for the correct stroke position. The small, compact sensor is easy to integrate even in tight installation spaces.

Model	LVP-3-Z13-CA
Article	2617014
Measuring range	3mm
Target (included)	ø3 x 30 long with thread M3 and alu sleeve ø4 x 3.3
Linearity	typ. 0.3% FSO (9µm)
Housing	stainless steel
Temperature stability sensor	±100ppm / °C
Temperature range sensor	-40°C ... +150°C
Protection class sensor	IP 67
Electronics	series MSC7210 (page 12 - 13)

FSO = Full Scale Output

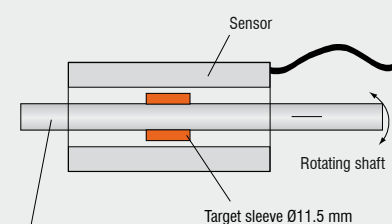
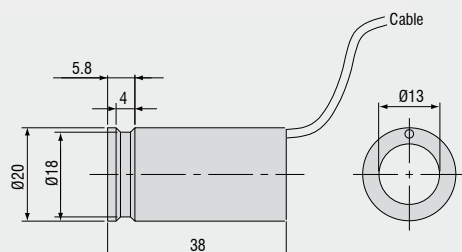


Sensor for the acquisition of displacement on rotating shafts

Analogue sensors from the series LVP offer a significant improvement to monitor the clamping position of tools. The sensor is integrated into the chuck and directly measures the clamping stroke of the drawbar. It can be universally used with the most varied types of tool due to an extremely compact design. The sensor supplies an analogue 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 miniaturised sensor electronic unit is supplied with 24 VDC and can either be accommodated at the point of measurement or in the control cabinet.

Model	LVP-25-Z20-5-CA-AC
Article	2617008
Measuring range	25mm
Target (included)	article 0482218 for shaft diameter 8mm article 0482219 for shaft diameter 10mm
Resolution	0.01mm
Linearity	typical ±1% FSO (0.25mm)
Dynamics	150Hz (-3dB)
Housing	stainless steel
Temperature stability sensor	< ±0.01% FSO / °C
Temperature range	-40° C ... +150° C
Protection class sensor	IP 67
Medium	air, oil
Electronics	series MSC7210 (page 12 - 13)

FSO = Full Scale Output



Pull rod material
31CrMoV9V, no. 1.8519.05

Accessories for VIP, LVP, LDR, EDS and LVDT series

Accessories

2960031	MC25D	digital micrometer calibration fixture
2420062	PS2020	power supply on DIN rail, input 100 - 240VAC, output 24VDC / 2.5A
2984026	certificate	function and linearity inspection certificate incl. protocol with listed measurement data of the linearity inspection and documentation



Linearity inspection certificate

Accessories VIP and LVP series

Connection cable

0157043	C703-5	VIP/LVP/EDS 7-pin connection cable, 5m
2902084	C703-5/U	VIP/LVP/EDS 7-pin connection cable, 5m for voltage output 1 - 5V
0157050	C703/90-5	VIP/LVP/EDS-7-pin connection cable, 5m with 90° cable connector
2962001	MBS 12/8	mounting set for VIP series with 3 mounting blocks and 2 adapting rings
0487087	MBS 12/8	mounting block VIP/LVP series

Plunger

0800114	LVP-50	plunger
0800115	LVP-100	plunger
0800116	LVP-200	plunger

Accessories LDR series

Connection cable

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

Supply cable

2901087	PC710-6/4	supply/output cable, 6m
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Plunger

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

Accessories EDS series

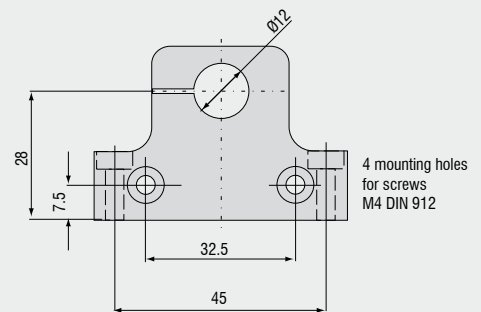
Service

2985001		Function and linearity inspection for EDS series incl. pressure inspection and documentation without recalibration
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Connection cable

0157043	C703-5	VIP/LVP/EDS 7-pin connection cable for S series, 5m
2902084	C703-5/U	VIP/LVP/EDS 7-pin connection cable for S series, 5m for voltage output 1 - 5V
0157050	C703/90-5	VIP/LVP/EDS 7-pin connection cable for S series, 5m with 90° cable connector
2901143	C705-5	VIP/LVP/EDS -pin connection cable for F series, 5m
2901160	C705-15	VIP/LVP/EDS -pin connection cable for F series, 15m

Mounting block VIP and LVP series



Accessories **LVDT series**

Sensor cable

2902004	C701-3	sensor cable 3m, with connector and tin-plated free ends
2902013	C701-6	sensor cable, 6m, with connector and tin-plated free ends
2902009	C701/90-3	sensor cable, 3m, with 90° connector and tin-plated free ends
2966002		MSC710 connector set for supply/output cable
2981010		connector mounting and calibration of MSC710

Connection cable

2901087	PC710-6/4	supply/output cable, 6 m
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Plunger

0800001	DTA-1D	plunger
0800002	DTA-3D	plunger
0800003	DTA-5D	plunger
0800004	DTA-10D	plunger
0800005	DTA-15D	plunger
0800006	DTA-25D	plunger

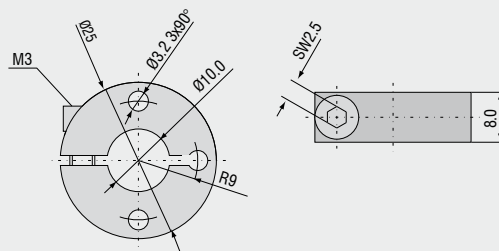
Flange

0483090.01	DTA-F10	mounting flange, slotted for DTA-1D, DTA-3D, DTA-5D, DTA-10D
0483083.02	DTA-F20	mounting flange, slotted for DTA-15D, DTA-25D

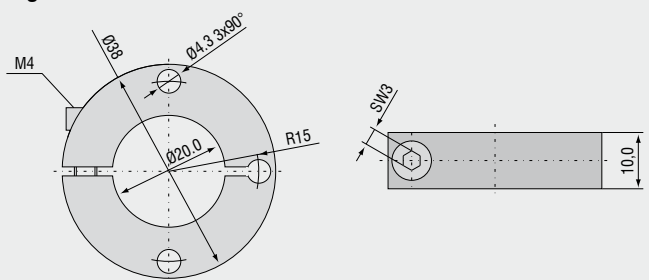
Probe tips

0459002	type 2
0459001	type 2 hard metall
0459003	type 11
0459004	type 13

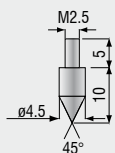
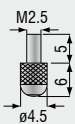
Flange DTA-F10



Flange DTA-F20



Standard probe tip: type 2 Option: type 11 Option: type 13



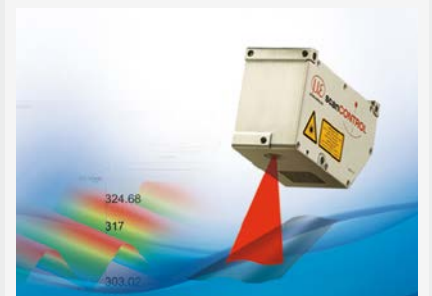
High performance sensors made by Micro-Epsilon



Sensors and systems for displacement and position



Sensors and measurement devices for non-contact temperature measurement



2D/3D profile sensors (laser scanner)



Measurement and inspection systems for quality assurance



Optical micrometers, fibre optic sensors and fiber optics



Colour recognition sensors, LED analyzers and colour online spectrometer