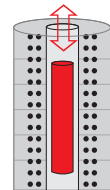




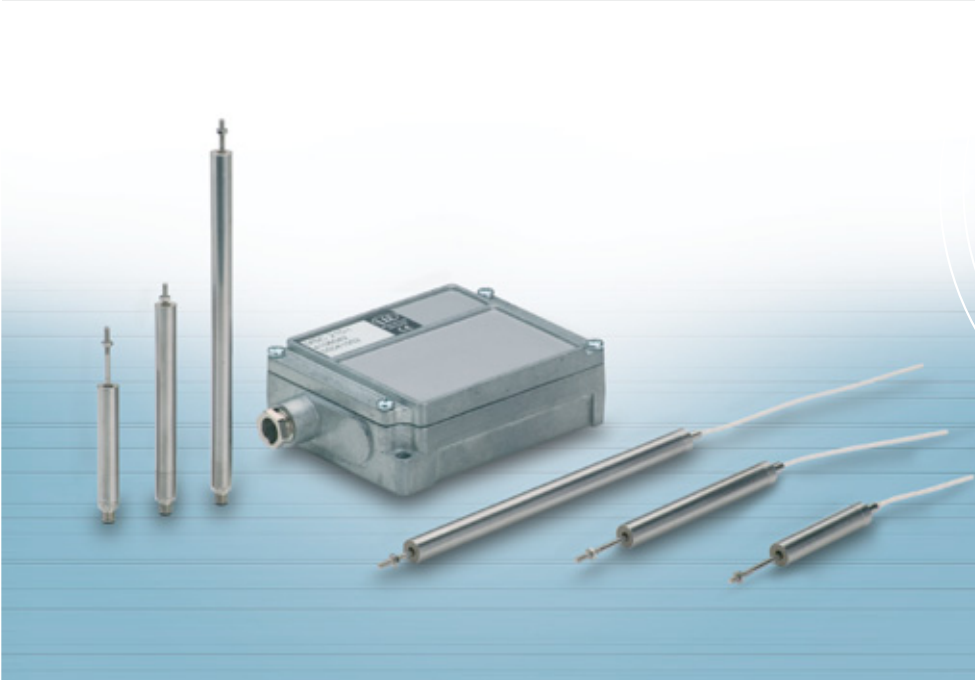
More Precision.

induSENSOR

Linear inductive displacement sensors



LIP series linear displacement sensors

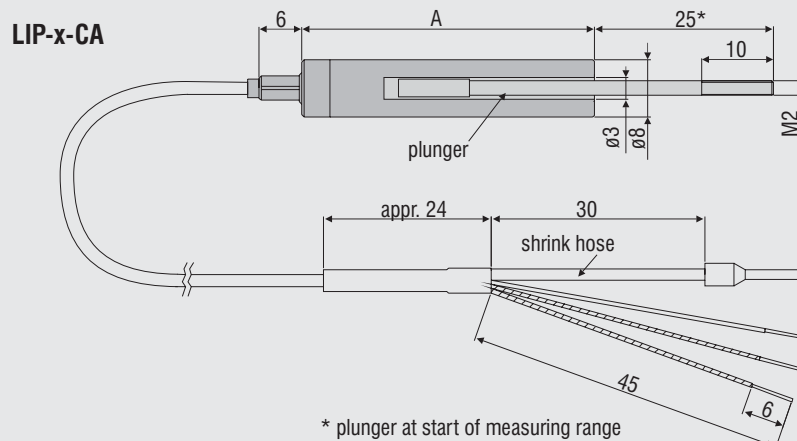


No wear and no maintenance
Excellent temperature stability
Operating temperature range up 160°C
Compact design - short installed length
Small sensor diameter
High measurement signal quality

The specific sensor configuration of the linear displacement sensors in the LIP series is characterized by a short, compact design with small diameter. Three connections are required as an interface to the sensor. The compact design and the small sensor diameter facilitate the installation of the measurement systems in locations where space is restricted.

Fields of use and applications

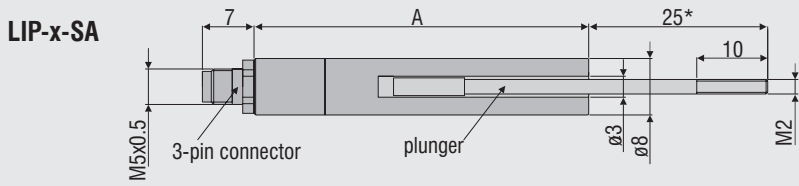
The inexpensive LIP sensors are also particularly suitable for large-scale installation under restricted spatial conditions and in industrial environments with a high measuring rate.



Model	A
LIP-10-CA	41 mm
LIP-25-CA	67 mm
LIP-50-CA	121 mm

Model	LIP-10-		LIP-25-		LIP-50-	
	SA	CA	SA	CA	SA	CA
Measuring range	10 mm		25 mm		50 mm	
Measuring principle	LIP - Sensor					
Linearity	typ. ±0.30 % FSO		typ. ±0.35 % FSO		typ. ±0.45 % FSO	
	0.030 mm		0.088 mm		0.225 mm	
	max. ±0.50 % FSO					
Excitation frequency	16 kHz		12 kHz		8 kHz	
Excitation amplitude	1 V _{eff}		1 V _{eff}		2.6 V _{eff}	
Sensitivity	51 mV/Vmm		21 mV/Vmm		5.5 mV/Vmm	
Temperature range	SA	storage -40 °C ... +80 °C / operation -15 °C ... +80 °C				
	CA	storage -40°C ... +160 °C / operation -40 °C ... +160 °C				
Temperature stability	zero	±30 ppm / °C				±40 ppm / °C
	sensitivity	±100 ppm / °C				±150 ppm / °C
Housing (material)	ferromagnetic stainless steel					
Weight sensor (without plunger)	9 g	24 g	14 g	28 g	23 g	37 g
Weight plunger	1.5 g		2.2 g		3.5 g	
Sensor cable - minimum bending radius fixed / moved	8 / 15 mm	10 / 30 mm	8 / 15 mm	10 / 30 mm	8 / 15 mm	10 / 30 mm
Outer cable diameter	3.1 mm	1.8 mm	3.1 mm	1.8 mm	3.1 mm	1.8 mm
Protection class	IP 67					
Shock	IEC 68-2-29	40 g, 3000 shocks / axis				
	IEC 68-2-27	100 g radial, 300 g axial				
Vibration	IEC 68-2-6	5 Hz ... 44 Hz ±2.5 mm / 44 Hz ... 500 Hz ±20 g				
Electric connection	SA	3-pin connector (accessory cable, article 0157047/047, 3 or 5 m)				
	CA	integral axial cable (shielded), 2 m				

FSO = Full Scale Output SA = connector axial CA = cable axial



* plunger at start of measuring range

Model	A
LIP-10-SA	47 mm
LIP-25-SA	73 mm
LIP-50-SA	127 mm

MSC7210 sensor controller for LIP series



Rugged die-cast housing

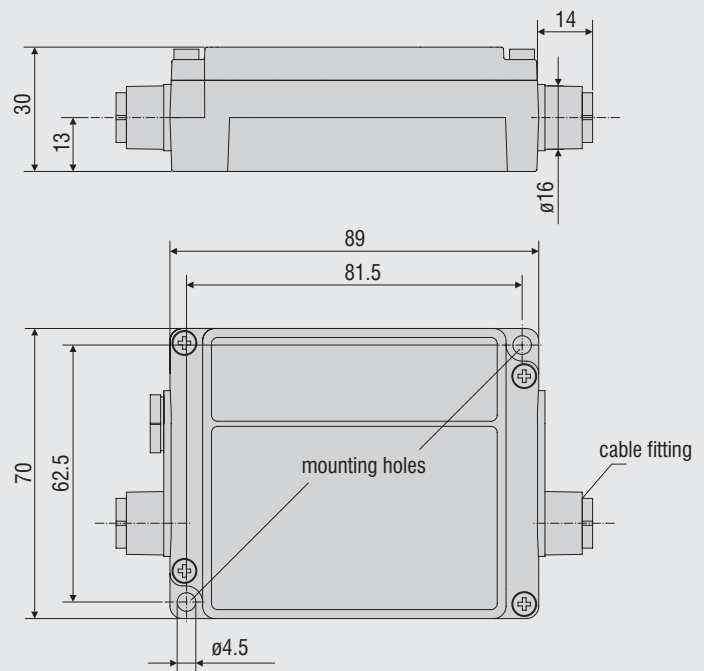
For all sensors in the LIP series

Adjustable excitation frequency 4-33 kHz

Zero point and gain can be adjusted

High resolution and linearity

The MSC7210 is a single-channel electronic unit for the operation of inductive displacement transducers according to the LIP principle. The zero point and gain can be set over a wide range using trimming potentiometers. Due to the small size, the electronic unit is versatile in mounting.



Model	MSC7210-U	MSC7210-I
Power supply	18 ... 30 VDC	
Protection	Polarity reversal and overvoltage protection	
Sensor principle	LIP sensor	
Sensor excitation	1000 ... 2600 mV 4 ... 33 kHz (16 steps selectable via DIPswitch)	
Range	gain	-20 ... +270 % FSO (trimpot)
	zero	±70 % FSO (trimpot)
Output signal	2 ... 10 VDC	4 ... 20 mA
Noise	< 1.5 mV _{eff} *	< 3 μA _{eff} *
	< 15 mV _{SS}	< 30 μA _{SS}
Linearity	< ± 0.02 % FSO	
Frequency response	300 Hz	
Temperature range	storage	-40 °C ... +85 °C
	operating	0 °C ... +70 °C
Temperature stability	±100 ppm / °C	
Housing material	Zinc die cast	
Electromagnetic compatibility (EMC)	EN 50 081-2 (spurious emission)	
	EN 50 082-2 (immunity to interference)	
Protection class	IP 65	
Shock	test signal: Half sine wave peak acceleration 15 g shock duration 6 ms test axes x, y, z No. of impacts per axis: 1000	
	test signal: Sine - sweep frequency: 20 ... 500 Hz test axes x, y, z No. of frequency cycles per axis: 10	
Vibration		
Sensor connection	plugable screw clamp 4-pin	
Signal/supply connection	plugable screw clamp 5-pin	

FSO = Full Scale Output

* RMS AC measurement, frequency 3 Hz ... 300 Hz

More Precision.

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Sensors and systems

for displacement, position and dimension

Sensors and measurement devices

for non-contact temperature measurement

Measurement systems

for online/offline quality control

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