

INDUCTIVE SENSOR LVDT

Links to further documents for this series:

[Installation guide](#)

[Calibration Instructions LVA](#)

HM 2408



LVIG SERIES

Key-Features:

- Sensor with integrated or external electronics
- Rod with ball joint eyes
- Measurement ranges from 2 mm to 200 mm
- Linearity up to $\pm 0.35\%$
- Analog output: 0...10 V or 4...20 mA
- Protection class up to IP67
- Temperature range up to $-35...+120\text{ }^{\circ}\text{C}$

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TECHNICAL DATA - SENSOR WITH INTEGRATED ELECTRONICS

Measurement range	[mm]	2	5	10	20	50	100 ¹⁾	200 ¹⁾
Linearity	[% F.S.]	<±0.5 / optional: <±0.35						<±1
Output		0...10 V / 4...20 mA						
Supply	[VDC]	24 ±20 %						
Current consumption (no load)	[mA]	Voltage output: <20 / Current output: <40						
Load resistance	[kΩ]	Voltage output: >10 / Current output: <0.5						
Noise	[mV _{RMS}]	<10						
Cut-off frequency (-3 dB)	[Hz]	100						
Connection		Cable output, radial, 5 poles						
Protection class		IP65						
Operating temperature	[°C]	0...+70 (at low humidity, not freezing)						
Storage temperature	[°C]	-30...+80						
Temperature coefficient	[% F.S./K]	±0.04						
Shock resistance		100 g, 2 ms (DIN IEC68T2-27)						
Vibration resistance		10 g, 2...2000 Hz (DIN IEC68T2-6)						
Housing		Nickel plated steel						
Core		Nickel iron alloy						
Weight approx.	[g]	155	180	195	245	305	510	860

¹⁾ For a horizontal installation, the sensor housing must be stabilized additionally. An axial alignment must be ensured. Otherwise the sensor could bend due to its own weight! We recommend to use 3 mounting blocks.

TECHNICAL DATA - SENSOR FOR EXTERNAL ELECTRONICS

Measurement range	[mm]	2	5	10	20	50	100 ¹⁾	200 ¹⁾
Linearity	[% F.S.]	<±0.5 / optional: <±0.35					<±1	
Sensitivity	[mV/V/mm]	76	82	43	34	27	12,2	7
Calibrated at		5 V _{RMS} / 2.5 kHz / RL = 1 MΩ						
Excitation voltage	[V _{RMS}]	1...10						
Excitation frequency	[kHz]	0.5...5						
Input resistance typ.	[Ω]	332	69	97	175	221	460	820
Input impedance typ.	[Ω]	790	134	188	345	369	2240	5770
Output impedance typ.	[Ω]	900	170	118	360	525	2140	5060
Connection		Cable output, radial, 5 poles						
Protection class		IP65 / optional: IP67						
Operating temperature	[°C]	-35...+120 (at low humidity, not freezing)						
Storage temperature	[°C]	-55...+120						
Temperature coefficient	[% F.S./K]	±0,02						
Shock resistance		200 g, 2 ms (DIN IEC68T2-27)						
Vibration resistance		10 g, 2...2000 Hz (DIN IEC68T2-6)						
Housing		Nickel plated steel						
Core		Nickel iron alloy						
Weight approx.	[g]	140			165	180	230	290

¹⁾ For a horizontal installation, the sensor housing must be stabilized additionally. An axial alignment must be ensured. Otherwise the sensor could bend due to its own weight! We recommend to use 3 mounting blocks.

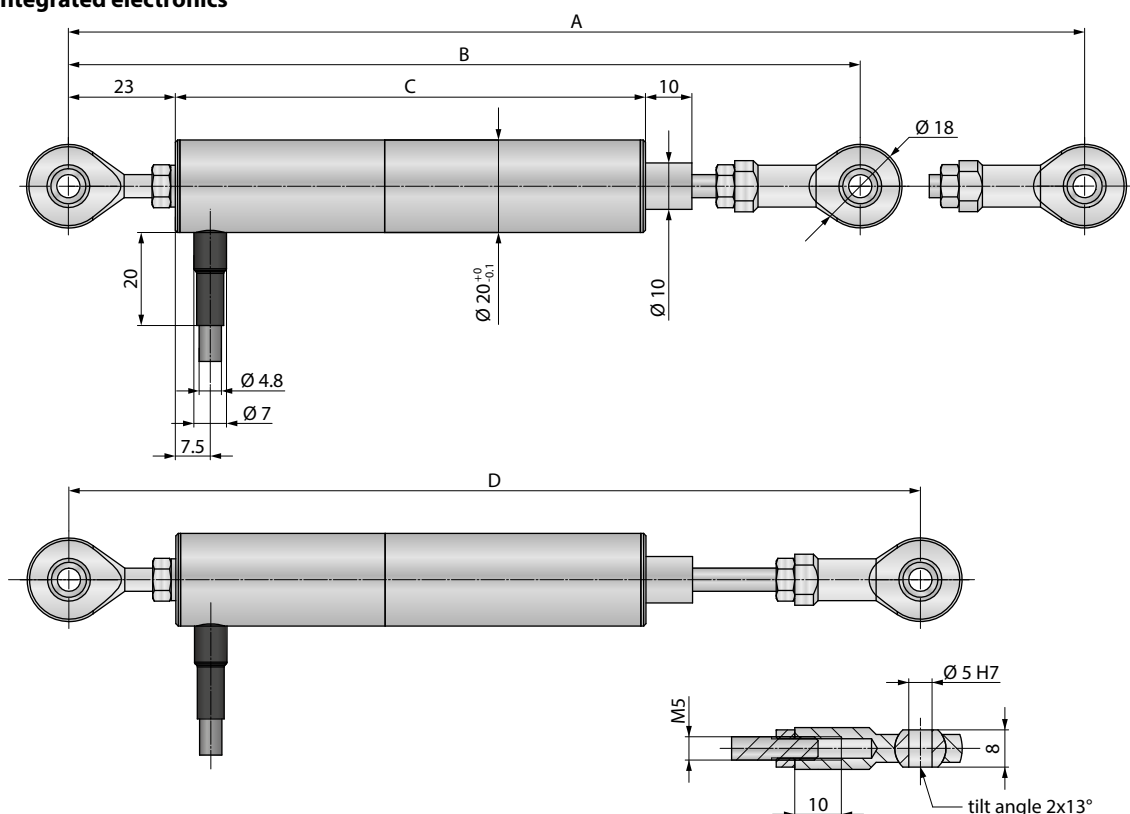
TECHNICAL DATA - EXTERNAL ELECTRONICS

Output		0...10 V / 4...20 mA
Linearity ¹⁾	[% F.S.]	<±0.01
Noise	[mV _{RMS}]	<20
Supply	[VDC]	18...36
Current consumption (without load)	[mA]	<80 (at 24 V) / <100 (at 18 V)
Isolation voltage	[VDC]	500
Isolation resistance		1 GΩ at 500 VDC
Cut-off frequency		max. 10 % of excitation frequency
Sensor supply	[V _{RMS}]	3
Carrier frequency	[kHz]	2.5 (MR≥50 mm) / 5 (MR≤20 mm)
Protection class		IP40
Operating temperature	[°C]	-25...+85
Storage temperature	[°C]	-25...+85
Temperature coefficient sensitivity	[% F.S./K]	<±0.04
Temperature coefficient zero point	[% F.S./K]	<±0.015
Mounting		DIN rail
Housing		Polyamid PA6.6

¹⁾ To achieve optimum measurement results, it is recommended to power up the electronics for 10 min before measurement.

TECHNICAL DRAWING - SENSOR

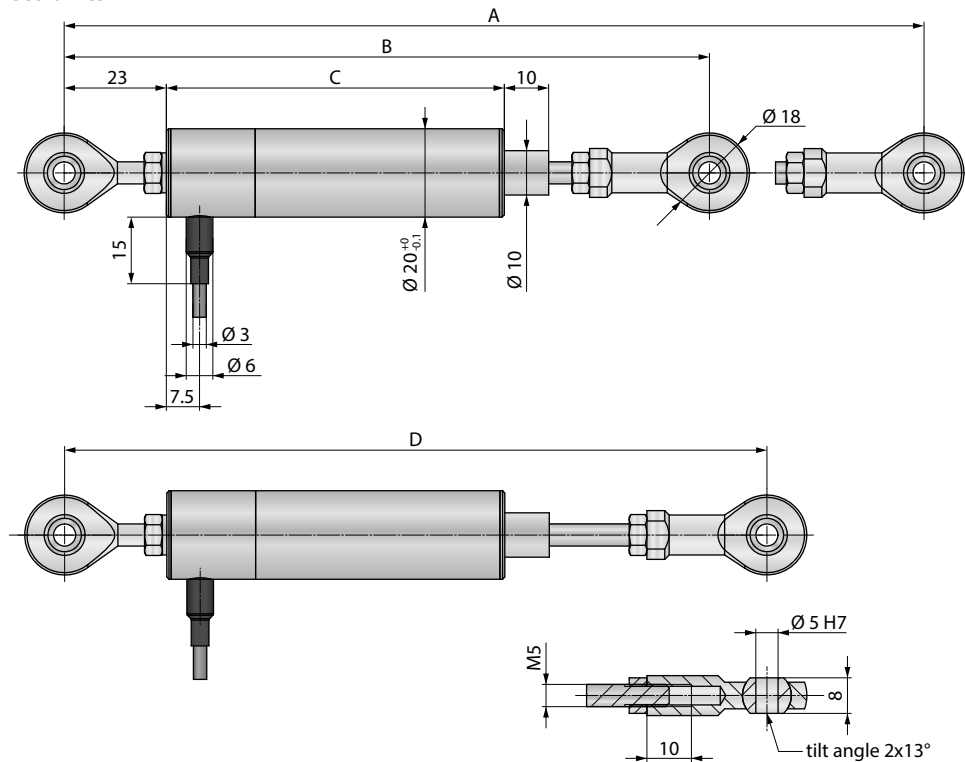
Sensor with integrated electronics



Measurement range		2	5	10	20	50	100	200
Rod outer position	A	182	196	235	310	515	785	
Rod inner position	B	163	170	204	250	384	570	
Housing length	C	87	101	140	185	320	490	
Middle of stroke ±1	D	173	183	219	280	443	678	

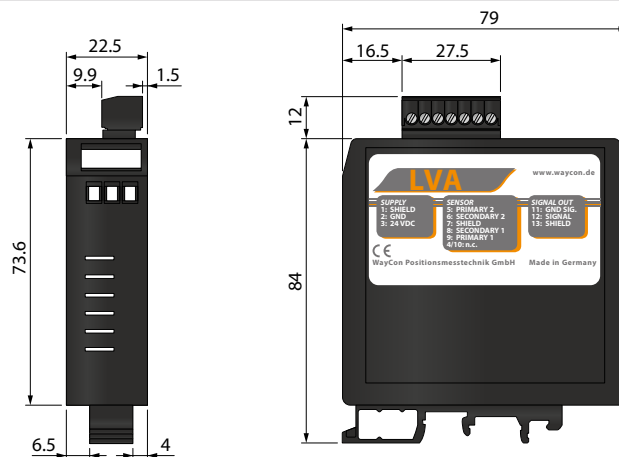
TECHNICAL DRAWING - SENSOR

Sensor for external electronics



Measurement range		2	5	10	20	50	100	200
Rod outer position	A	157	171	210	285	490	760	
Rod inner position	B	138	145	179	225	359	545	
Housing length	C	62	76	115	160	295	465	
Middle of stroke ±1	D	148	158	194	255	418	653	

TECHNICAL DRAWING - EXTERNAL ELECTRONICS



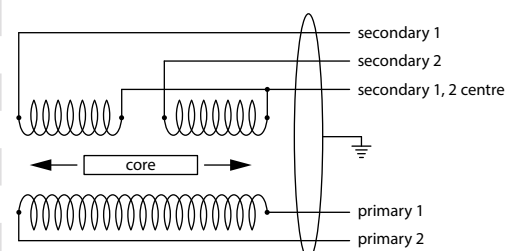
ELECTRICAL CONNECTION - SENSOR

Sensor with integrated electronics

Function	Cable colour
+V	BN
GND _{Supply}	GY
Signal	GN
GND _{Signal}	WH
n. c.	YE

Sensor for external electronics

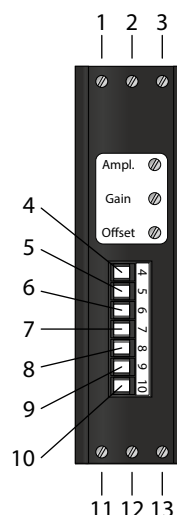
Function	Cable colour
Primary 1	RD
Primary 2	BK
Secondary 1	OG
Secondary 2	YE
Secondary 1, 2 centre	WH
Shield	Housing



ELECTRICAL CONNECTION - EXTERNAL ELECTRONICS

DIN-rail electronics LVA

Function	Terminal
Shield	1
GND _{Supply}	2
+V	3
n. c.	4
Primary 2	5
Secondary 2	6
Shield	7
Secondary 1	8
Primary 1	9
n. c.	10
GND _{Signal}	11
Signal	12
Shield	13



ORDER CODE - SENSOR

LVIG - - - -

Measurement range [mm] 2 / 5 / 10 / 20 / 50 / 100 ¹⁾ / 200 ¹⁾	e. g. 5						
Output Integrated electronics Voltage 0...10 V Current 4...20 mA	10V 420A						
External electronics For LVA with output 4...20 mA For LVA with output 0...10 V	300 310						
Sensor without electronics	000						
Connection Cable output, radial ²⁾	KR_ _						

-	Version Standard without options Improved linearity ±0.35 % Improved protection class IP67
Option L35 IP67	Not combinable with Ranges 100 / 200 Sensor with integrated electronics

2	Sensitivity 200 mV (for range 2 mm) 500 mV (for ranges 5 and 10 mm) 1000 mV (for range 20 mm) 1900 mV (for ranges ≥50 mm)
5 10 19	Carrier frequency 2.5 kHz (ranges ≥50 mm) 5 kHz (ranges ≤20 mm)

¹⁾ For a horizontal installation, the sensor housing must be stabilized additionally. An axial alignment must be ensured.

Otherwise the sensor could bend due to its own weight! We recommend to use 3 mounting boots.

²⁾ Length in m (min. 1 m). Example: KR01 = 1 m (standard), KR02 = 2 m

ORDER CODE - EXTERNAL ELECTRONICS

LVA - - - - -

Supply 24 VDC	24						
Output signal Voltage 0...10 V Current 4...20 mA	10V 420A						
Sensor supply 3 V	3						

2	Sensitivity 200 mV (for range 2 mm) 500 mV (for ranges 5 and 10 mm) 1000 mV (for range 20 mm) 1900 mV (for ranges ≥50 mm)
5 10 19	Carrier frequency 2.5 kHz (ranges ≥50 mm) 5 kHz (ranges ≤20 mm)

2.5	Sensitivity 200 mV (for range 2 mm) 500 mV (for ranges 5 and 10 mm) 1000 mV (for range 20 mm) 1900 mV (for ranges ≥50 mm)
5	Carrier frequency 2.5 kHz (ranges ≥50 mm) 5 kHz (ranges ≤20 mm)



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