HEMOMATIK LVIG Series LVDT Inductive Sensor Installation Guide

Contents

HEMOMATIK

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FAQs

- **Q: What is the measurement accuracy of the sensor?**
  - **A:** The measurement accuracy of the sensor is dependent on various factors such as linearity, calibration, and environmental conditions.
- **Q: Can the sensor be used in high-temperature environments?**
  - **A:** Please refer to the product specifications and guidelines for information on operating temperature ranges.

TECHNICAL DATA

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	[mVRMS]	<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 weight! We recommend using 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 VRMS / 2.5 kHz / RL = 1 MΩ						
Excitation voltage	[VRMS]	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 weight! We recommend using 3 mounting blocks.

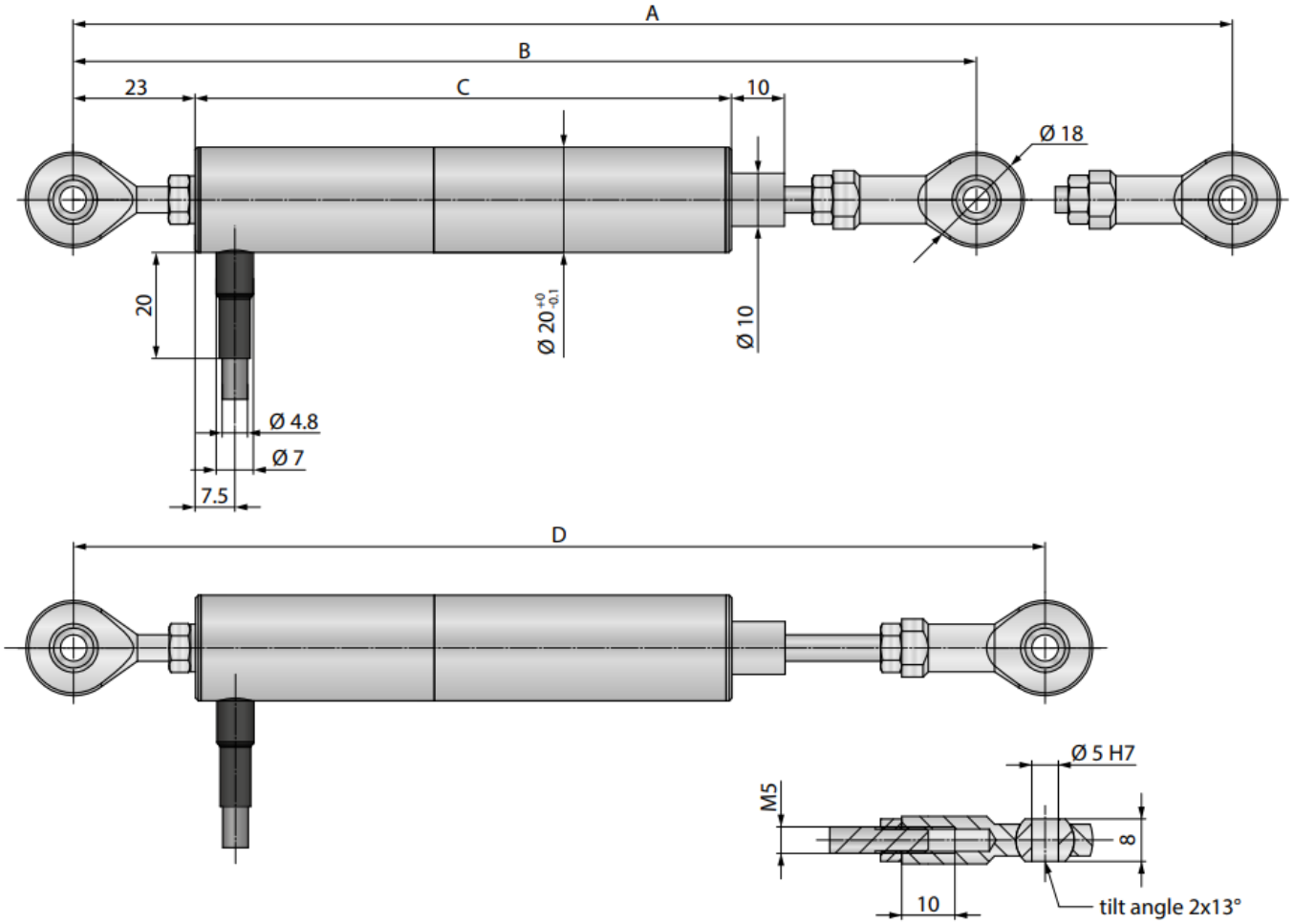
TECHNICAL DATA – EXTERNAL ELECTRONICS

Output		0…10 V / 4…20 mA
Linearity 1)	[% F.S.]	<±0.01
Noise	[mVRMS]	<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	[VRMS]	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.

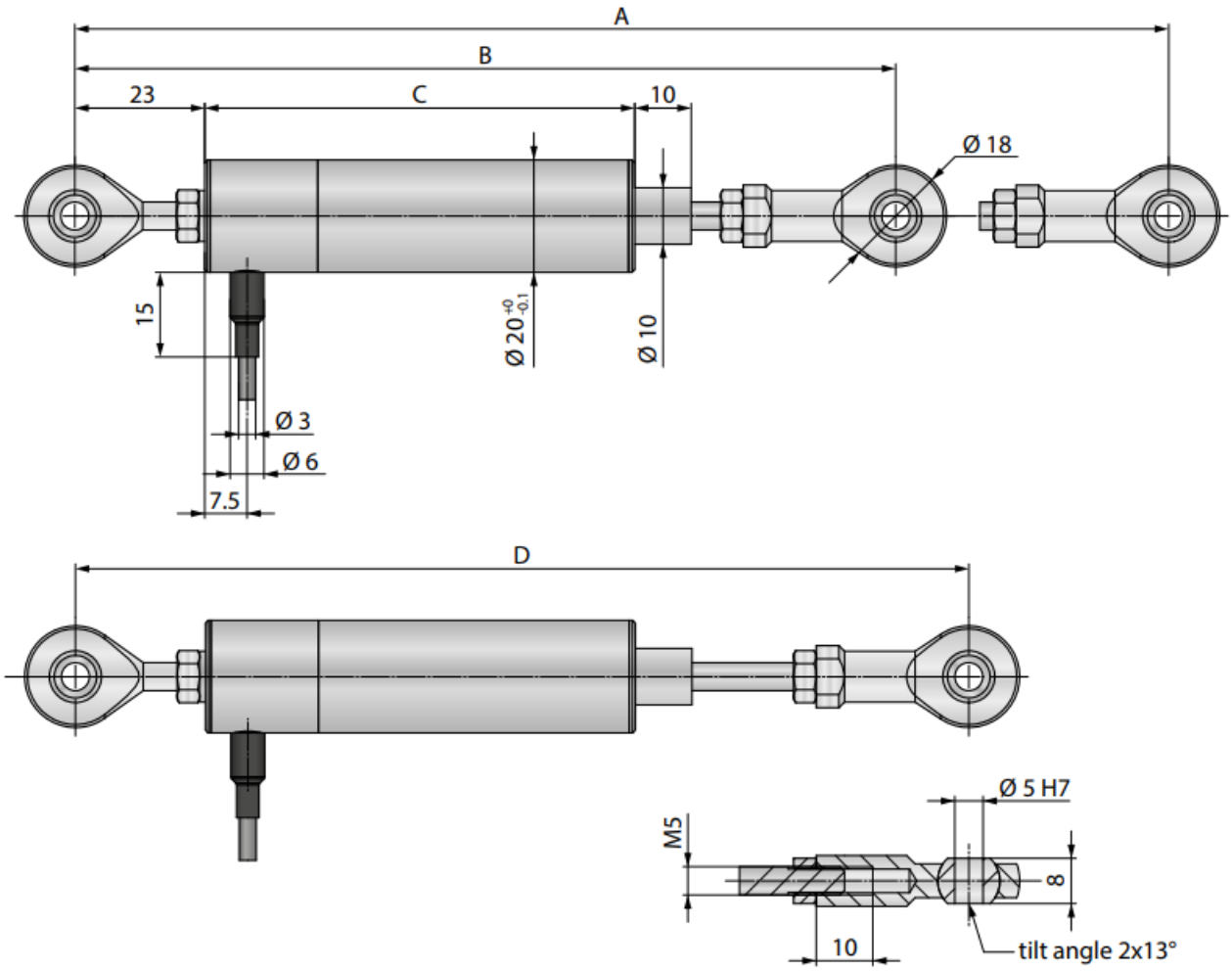
TECHNICAL DRAWING – SENSOR

Sensor with integrated electronics



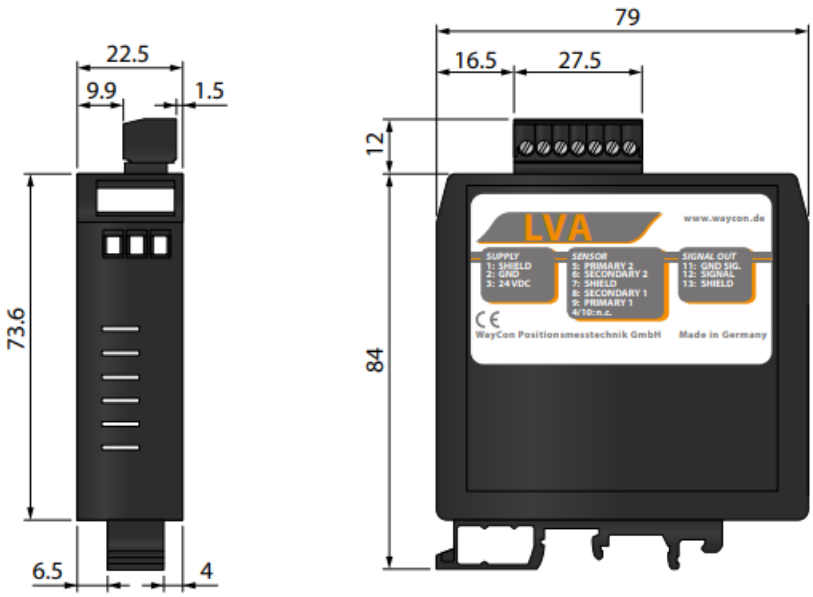
Measurement range		2	5	10	20	50	100	200
Rod outer position	**A**	182		196	235	310	515	785
Rod inner position	**B**	163		170	204	250	384	570
Housing length	**C**	87		101	140	185	320	490
Middle of stroke ±1	**D**	173		183	219	280	443	678

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



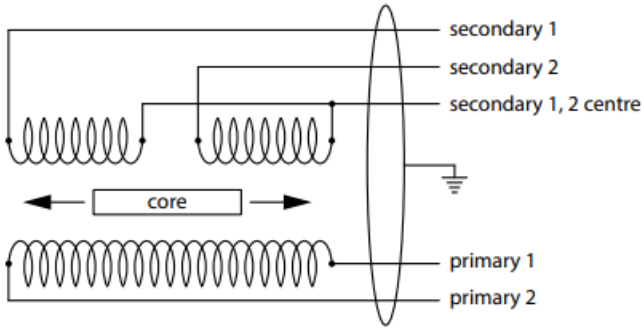
ELECTRICAL CONNECTION – SENSOR

Sensor with integrated electronics

Function	**Cable colour**
+V	BN
GNDSupply	GY
Signal	GN
GNDSignal	WH
n. c.	YE

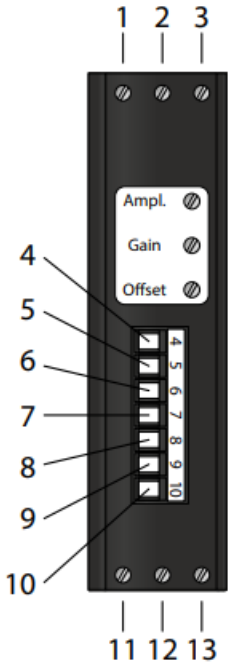
Sensor for external electronics

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



DIN-rail electronics LVA

Function	**Terminal**
Shield	1
GNDSupply	2
+V	3
n. c.	4
Primary 2	5
Secondary 2	6
Shield	7
Secondary 1	8
Primary 1	9
n. c.	10
GNDSignal	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 ***External electronics*** For LVA with output 4...20 mA For LVA with output 0...10 V ***Sensor without electronics***	 10V 420A 300 310 000
Connection Cable output, radial [2]	KR_ _

	Version
-	Standard without options
L35	Improved linearity ±0.35 %
IP67	Improved protection class IP67

Option	**Not combinable with**
L35	Ranges 100 / 200
IP67	Sensor with integrated electronics

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 weight! We recommend using 3 mounting blocks.
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

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

	Carrier frequency
2.5	2.5 kHz (ranges ≥50 mm)
5	5 kHz (ranges ≤20 mm)

Subject to change without prior notice.

CONTACT INFORMATION

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Documents / Resources

	HEMOMATIK LVIG Series LVDT Inductive Sensor [pdf] Installation Guide LVIG-Serien, LVDT, HM 2408, LVIG Series LVDT Inductive Sensor, LVIG Series, LVDT Inductive Sensor, Inductive Sensor, Sensor

References

- Sensor technology for industry and research - WayCon Positionsmesstechnik
- Sensoren für Industrie und Forschung - WayCon Positionsmesstechnik
- User Manual