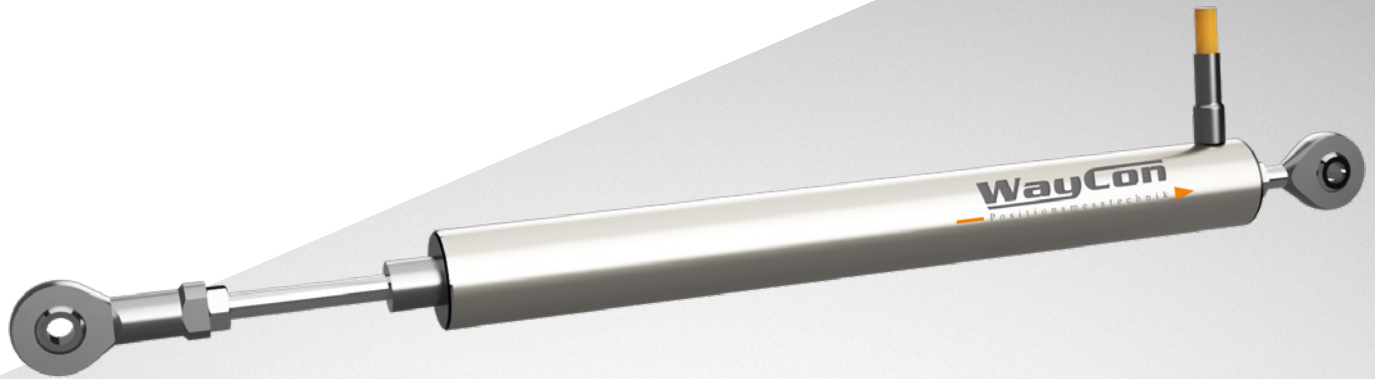


INDUCTIVE SENSOR LVDT

Links to further documents for this series:

[Installation guide](#)

[Calibration Instructions LVA](#)



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 $\pm 0.1\%$
- 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: <±0.25 or <±0.1 | | | | | | <±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: <±0.25 | | | | | | <±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.

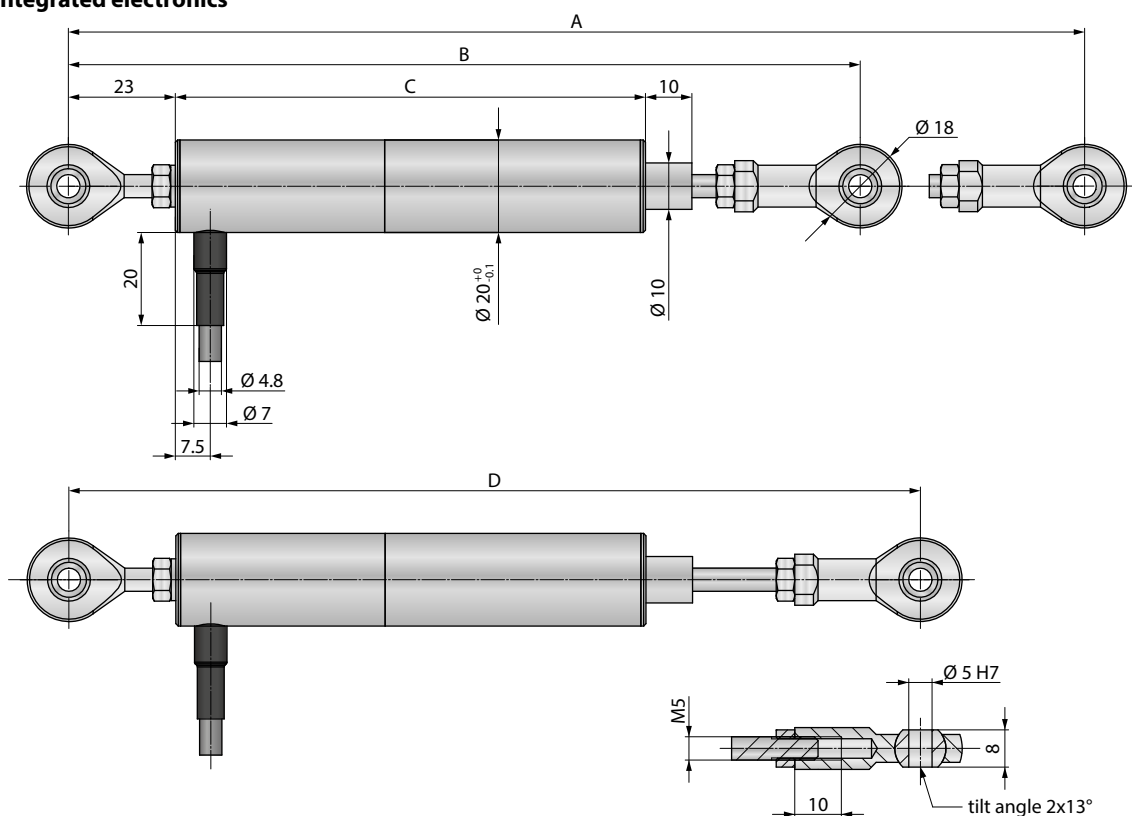
TECHNICAL DATA - EXTERNAL ELECTRONICS

| | | |
|-------------------------------------|----------------------|-----------------------------------|
| 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

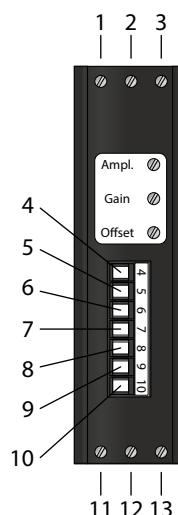
| Function | Cable colour |
|-----------------------|--------------|
| +V | BN |
| GND _{Supply} | GY |
| Signal | GN |
| GND _{Signal} | WH |
| n. c. | YE |

| 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 <i>Integrated electronics</i> Voltage 0...10V Current 4...20 mA | 10V 420A |
| <i>External electronics</i> For LVA with output 4...20 mA For LVA with output 0...10 V | 300 310 |
| <i>Sensor without electronics</i> | 000 |

| | |
|---|------|
| Connection Cable output, radial ²⁾ | KR__ |
|---|------|

| | |
|----------------|--------------------------------|
| Version | |
| - | Standard without options |
| L25 | Improved linearity ±0.25 % |
| L10 | Improved linearity ±0.1 % |
| IP67 | Improved protection class IP67 |

| | |
|---------------|--|
| Option | Not combinable with |
| L25 | Ranges 100 / 200 |
| L10 | Ranges 100 / 200, Sensor for external electronics |
| 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 own weight! We recommend to use 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...10V 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.

WayCon Positionsmesstechnik GmbH

Email: info@waycon.de

Internet: www.waycon.biz

WayCon

Positionsmesstechnik

Headquarters Munich

Mehlbeerenstr. 4

82024 Taufkirchen

Tel. +49 (0)89 67 97 13-0

Fax +49 (0)89 67 97 13-250

Office Cologne

Auf der Pehle 1

50321 Brühl

Tel. +49 (0)2232 56 79 44

Fax +49 (0)2232 56 79 45