

# Data Sheet for Linear Sensors

## Oil filled Potentiometric Linear Transducer (Wirewound)

## Series WGO40



The series WGO40 are hermetically sealed linear potentiometers (wirewound) with oil filling. The transducer is largely insensitive to environmental influences and therefore ideally suited for use under extreme environmental conditions.

| Electrical Data                                | WGO40100                                       | WGO40200         | WGO40300          | WGO40400  | WGO40500  |
|--|--|------------------|-------------------|-----------|-----------|
| Effective electrical travel 1.)                | 100 ±1 mm                                      | 200 ±1 mm        | 300 ±1 mm         | 400 ±1 mm | 500 ±1 mm |
| Total resistance 1.)                           | 100 Ohm..20 kOhm                               | 100 Ohm..50 kOhm | 200 Ohm..100 kOhm |           |           |
| Resistance tolerance                           | ±5% (±3%)                                      |                  |                   |           |           |
| Independent linearity (best straight line) 1.) | ±0,5% (±0,25%)                                 |                  | ±0,3% (±0,1%)     |           |           |
| Theoretical resolution 1.)                     | Depends on resistance value (see table)        |                  |                   |           |           |
| Backlash (Hysteresis) 1.)                      | ≤ 1 mm   |                  |                   |           |           |
| Rotational noise (ENR) (IEC60393 Method C)     | 100 Ohm  |                  |                   |           |           |
| Max. / recommended wiper current 1.)           | 1 mA (@ 40°C, 1 min in case of failure) / 2 µA |                  |                   |           |           |
| Power rating @ 40°C (0W @ 55°C)                | ≤ 1 W  | ≤ 2 W            | ≤ 3 W             | ≤ 4 W     | ≤ 5 W     |
| Insulation voltage1.)                          | 900 VAC, 1min                                  |                  |                   |           |           |
| Isolation resistance 1.)                       | 100 MOhm @ 500 VDC                             |                  |                   |           |           |

| Mechanical Data, Environmental Conditions, Miscellaneous | WGO40100                                     | WGO40200   | WGO40300   | WGO40400   | WGO40500   |
|--|--|------------|------------|------------|------------|
| Mechanical stroke 1.)                                    | ca. 105 mm                                   | ca. 205 mm | ca. 305 mm | ca. 405 mm | ca. 505 mm |
| Lifetime (90% effective electrical travel) 2.)           | 10 Mio. movements                            |            |            |            |            |
| Max. operational speed                                   | < 2 m/s                                      |            |            |            |            |
| Operational force @ RT 1.) 2.)                           | < 20 N                                       |            |            |            |            |
| End stop force in case of failure                        | < 90 N                                       |            |            |            |            |
| Operational temperature                                  | -30..+60°C                                   |            |            |            |            |
| Storage temperature                                      | -30..+60°C                                   |            |            |            |            |
| Protection grade (IEC60529)                              | IP55   |            |            |            |            |
| Vibration (IEC 68-2-6, Test Fc)                          | 15 g (10..2000 Hz, 0,75mm, 12h)              |            |            |            |            |
| Shock (IEC 68-2-27, Test Ea)                             | 50 g, halfsine, 11 ms (18x)                  |            |            |            |            |
| Housing length   | 252 ±1 mm                                    | 352 ±1 mm  | 452 ±1 mm  | 552 ±1 mm  | 652 ±1 mm  |
| Mass   | ca. 1 kg                                     | ca. 1,2 kg | ca. 1,5 kg | ca. 1,9 kg | ca. 2,3 kg |
| Mounting parts (included in delivery)                    | 2 x ball joints                              |            |            |            |            |
| Material housing   | Aluminium                                    |            |            |            |            |
| Material push rod  | Stainless steel                              |            |            |            |            |
| Electrical connection                                    | Soldering pins, round cable 2 m, 6-pole plug |            |            |            |            |

1.) According IEC 60393

2.) Determined by climatic conditions according to IEC 68-1, para. 5.3.1 without load collectives

Please note: Max. permissible supply voltage <75 VDC respectively <50 VAC in addition the max. power rating must be observed

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### Number of wire turns / resolution

| Resistance Ohm                | 100 | 200  | 500  | 1k   | 2k   | 5k   | 10k  | 20k  | 50k  | 100k |
|-------------------------------|-----|------|------|------|------|------|------|------|------|------|
| Number of wire turns WGO40100 | 530 | 670  | 910  | 800  | 1000 | 1400 | 1700 | 2200 | -    | -    |
| Number of wire turns WGO40200 | 830 | 1050 | 1400 | 1800 | 1600 | 2200 | 2850 | 3450 | 4900 | -    |
| Number of wire turns WGO40300 | -   | 1400 | 1900 | 2400 | 2200 | 3000 | 3800 | 4750 | 6450 | 8000 |
| Number of wire turns WGO40400 | N/A | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| Number of wire turns WGO40500 | N/A | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |

### Order Code

| Description                                     | Selection: standard=black/bold, possible options=grey/cursive |            |  |  |  |  |  |  |  |                       |
|---|---|------------|--|--|--|--|--|--|--|-----------------------|
| <b>Series:</b>                                  | <b>WGO40</b>  |            |  |  |  |  |  |  |  |                       |
| <b>Effective electrical travel:</b>             |   |            |  |  |  |  |  |  |  |                       |
| <b>100 mm</b>                                   |   | <b>100</b> |  |  |  |  |  |  |  | <b>L0,5%</b> (L0,25%) |
| <b>200 mm</b>                                   |   | <b>200</b> |  |  |  |  |  |  |  | <b>L0,5%</b> (L0,25%) |
| <b>300 mm</b>                                   |   | <b>300</b> |  |  |  |  |  |  |  | <b>L0,3%</b> (L0,1%)  |
| <b>400 mm</b>                                   |   | <b>400</b> |  |  |  |  |  |  |  | <b>L0,3%</b> (L0,1%)  |
| <b>500 mm</b>                                   |   | <b>500</b> |  |  |  |  |  |  |  | <b>L0,3%</b> (L0,1%)  |
| <b>Electrical connection:</b>                   |   |            |  |  |  |  |  |  |  |                       |
| <b>Soldering pins</b>                           |   |            |  |  |  |  |  |  |  |                       |
| <b>Round cable 2 m</b>                          |   |            |  |  |  |  |  |  |  |                       |
| <b>Plug</b>                                     |   |            |  |  |  |  |  |  |  |                       |
| <b>Total resistance:</b>                        |   |            |  |  |  |  |  |  |  |                       |
| <i>Option 100 Ohm (only for 100 and 200 mm)</i> |   |            |  |  |  |  |  |  |  |                       |
| <i>Option 200 Ohm</i>                           |   |            |  |  |  |  |  |  |  |                       |
| <i>Option 500 Ohm</i>                           |   |            |  |  |  |  |  |  |  |                       |
| <b>1 kOhm</b>                                   |   |            |  |  |  |  |  |  |  |                       |
| <i>Option 2 kOhm</i>                            |   |            |  |  |  |  |  |  |  |                       |
| <b>5 kOhm</b>                                   |   |            |  |  |  |  |  |  |  |                       |
| <b>10 kOhm</b>                                  |   |            |  |  |  |  |  |  |  |                       |
| <i>Option 20 kOhm</i>                           |   |            |  |  |  |  |  |  |  |                       |
| <i>Option 50 kOhm (not for 100 mm)</i>          |   |            |  |  |  |  |  |  |  |                       |
| <i>Option 100 kOhm (not for 100 and 200 mm)</i> |   |            |  |  |  |  |  |  |  |                       |
| <b>Resistance tolerance:</b>                    |   |            |  |  |  |  |  |  |  |                       |
| <b>±5%</b>                                      |   |            |  |  |  |  |  |  |  | <b>W5%</b>            |
| <i>Option ±3</i>                                |   |            |  |  |  |  |  |  |  | W3%                   |
| <b>Independent linearity:</b>                   |   |            |  |  |  |  |  |  |  |                       |
| <b>Standard depends on travel</b>               |   |            |  |  |  |  |  |  |  | <b>see above</b>      |
| <i>Option depends on travel</i>                 |   |            |  |  |  |  |  |  |  | <i>see above</i>      |

**For higher quantities or on-going demand, additional options are available as described below on request**

For example:

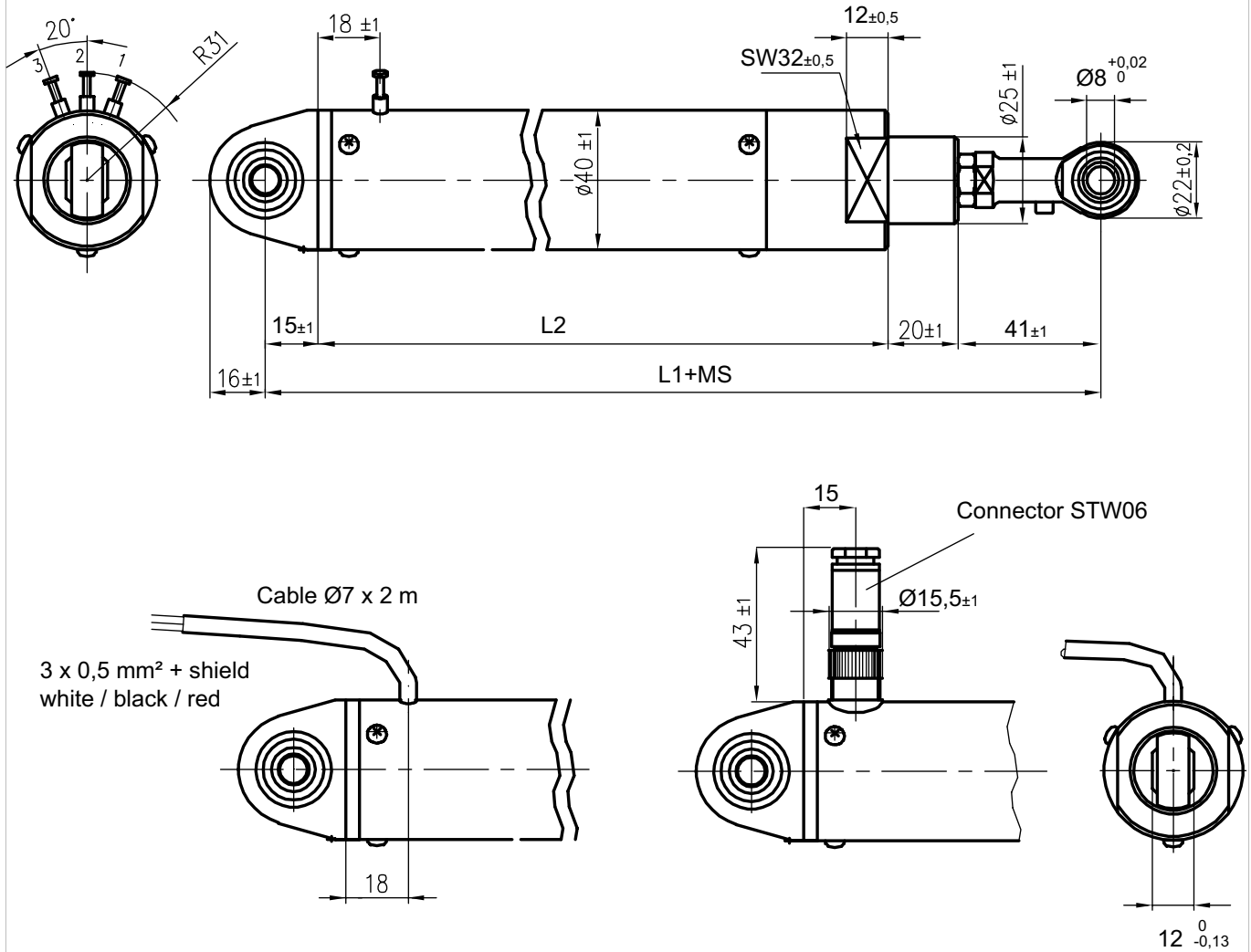
- Assembled leads and cables with / without connector
- Probe, special axis length and much more

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## Drawing



| Model    | Mechanical Stroke (MS) | L <sub>1</sub> | L <sub>2</sub> |
|----------|------------------------|----------------|----------------|
| WGO40100 | Approx. 105            | 328            | 252            |
| WGO40200 | Approx. 205            | 428            | 352            |
| WGO40300 | Approx. 305            | 528            | 452            |
| WGO40400 | Approx. 405            | 628            | 552            |
| WGO40500 | Approx. 505            | 728            | 652            |

