Displacement

Displacement Sensor, Potentiometric FWA xxx T

- Displacement transducers are suitable for direct, accurate measurement of displacements in automatic control and metrology.
- The pickup of the displacement is performed by using a pull rod with a universal joint. This allows for an actuation that is free from backlash and transverse forces, even in case of parallel and angular displacements of transducer and measuring direction.
- Elastomer-damped, independently resilient multi-finger noble metal sliding contact for reliable contact, even at high adjustment speed, shock or vibration.
- Long life, extraordinary linearity, pull rod running on two exact bearings, very high adjustment speed of up to 10m/s, shock and vibration resistant.

Technical Data:

- **Independent linearity:**
  - T25: ±0.2%; T50: ±0.15%
  - T75: ±0.1%; T100: ±0.075%
  - T150: ±0.075%

- **Housing length (meas. A+1mm):**
  - T25: 63mm; T50: 88mm
  - T75: 113mm; T100: 138mm
  - T150: 188mm

- **Mech. stroke (meas. B ±1.5mm):**
  - T25: 30mm; T50: 55mm
  - T75: 80mm; T100: 105mm
  - T150: 155mm

- **Total weight (with 2m cable):**
  - T25: 140g; T50: 160g
  - T75: 170g; T100: 190g
  - T150: 220g

- **Weight of the pull rod incl. coupling and sliding contact block:**
  - T25: 35g; T50: 43g
  - T75: 52g; T100: 58g
  - T150: 74g

New: Measurement of fast changes in displacement with digital ALMEMO® D7 measuring plugs, see page 10.16.

- Movability, ball-shaped coupling
  - ±1mm parallel displacement, ±2.5° angular displacement

- Operating force (horizontal): ≤ 0.30N

- Reproducibility: 0.002mm

- Insulation resistance: ≥ 10MW, (500VDC, 1 bar, 2s)

- Dielectric strength: ≤ 1mA, (50Hz, 2s, 1 bar, 500V AC)

- Max. permissible torque: 140Nm

- Temperature range: –30 to +100°C

- Temperature coefficient: typ. 5ppm/°C

- Vibrations: 5 to 2000Hz/\text{A}_{\text{max}}
  - 0.75\text{mm}/\text{A}_{\text{max}} = 20\text{g}

- Shock: 50g/11ms

- Life span: > 100 x 106 strokes

- Protection system: IP 40

Option

Plug connection (instead of fixed connected cable), including 3m cable with screwed round socket and ALMEMO® connector

Order no. OWA071AK

Types

- **Order no.**
  - Working length/resolution, incl. ALMEMO® cable 2m long
  - 100 mm / 0.01 mm
  - 150 mm / 0.01 mm

- Other designs are available on request

Displacement transducers FWA xxx TEX
- with pivot joint Protective class IP54, 10 to 300 mm

Displacement transducers FWA xxx TX2
- Protective class IP67 with pivot joint, 25 to 300 mm

Pre-adjusted in the factory by storing the correction values in the ALMEMO® connector.

The precise adjustment can be locally performed by the user with final measures after the installation.
Displacement Tracer, Potentiometric FWA xxx TR

- Resistor and collector paths made from conducting plastic.
- Suitable for direct measurements of displacement without a form-locking connection, position detection at stationary measuring objects, tolerance measurements and for continuous contour measurement.
- The pull rod, which is supported on both sides, allows for accepting transverse forces that, for example, occur during a continuous scan of curves or spline parts.
- Rear limit stop is used to provide a simple mechanical coupling of automatic retraction systems, such as pneumatic cylinders or electromagnets.
- Long life, extraordinary linearity, tracer pin running on two exact bearings, DIN compliant standard measuring inserts can be used, shock and vibration resistant.

Pre-adjusted in the factory by storing the correction values in the ALMEMO® connector. The precise adjustment can be locally performed by the user with final measures after the installation.

New: Measurement of fast changes in displacement with digital ALMEMO® D7 measuring plugs, see page 10.16.

Technical Data:

| Independent linearity: | TR25: ±0.2%; TR50: ±0.15% |
| TR75: ±0.1%; TR100: ±0.075% |
| Housing length (meas. A+1mm): TR25: 63mm; TR50: 94.4mm; TR75: 134.4mm; TR100: 166mm |
| Mech. stroke (meas. B ±1.5mm): TR25: 30mm; TR50: 55mm; TR75: 80mm; TR100: 105mm |
| Total weight (with 2m cable): TR25: 120g; TR50: 150g; TR75: 180g; TR100: 200g |
| Weight of the pull rod incl. coupling and sliding contact block: TR25: 25g; TR50: 36g; TR75: 48g; TR100: 57g |
| Max. operating frequency: (for most critical application ‘probe tip upright’) TR25: 18Hz; TR50: 14; TR75: 11Hz; TR100: 10Hz |
| Operating force (horizontal): ≤ 5 N |
| Reproducibility: 0.002mm |
| Insulation resistance: ≥ 10MW (500VDC, 1 bar, 2s) |
| Dielectric strength: ≤ 1mA (50Hz, 2s, 1 bar, 500VAC) |
| Max. permissible torque: 140Nm |
| Temperature range: -30 to +100°C |
| Temperature coefficient: typ. 5ppm/°C |
| Vibrations: 5 to 2000Hz/Amax = 0.75mm/amax = 20g |
| Shock: 50g/11ms |
| Life span: > 100 x 106 strokes |
| Protection system: IP 40 |

Option

Plug connection (instead of fixed connected cable), including 3m cable with screwed round socket and ALMEMO® connector

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Working length/resolution, incl. ALMEMO® cable 2m long</td>
<td>Order no.</td>
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<tr>
<td>25 mm / 0.001 mm</td>
<td>FWA025TR</td>
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<tr>
<td>50 mm / 0.01 mm</td>
<td>FWA050TR</td>
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<tr>
<td>75 mm / 0.01 mm</td>
<td>FWA075TR</td>
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</table>

Order no. OWA071AK

Order no. FWA100TR

10 mm / 0.01 mm included with delivery
2 tensioning clamps Z3-31 including 4 cap screws M4x10, 1 probe tip with hard-metal ball