Position Transducers with mounting clamps potentiometric up to 300 mm, IP 67
Series TX2

High protection class and very compact dimensions characterize this cost effective transducer. The heavy-duty design with metal flanges and double-sealed actuating rod allows a variety of applications even under adverse conditions like e.g. dirt, dust and humidity.

The adjustable fixing via mounting clamps makes a variable and simple mounting of the sensor possible, particularly for industrial applications.

The electrical connection can be made via a radial plug connector or a radial cable.

For transducers with or without return spring and mounting clamp, bushing mount or flange plates, please see separate data sheets TEX.

### Special features
- compact dimensions
- protection class IP67
- very long life (depending on application) up to 50 million movements
- resolution better than 0.01 mm
- outstanding linearity up to ±0.05 %
- suitable for harsh environmental conditions (humidity, oil, dust)
- cable or connector version available

### Description

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
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<tbody>
<tr>
<td>Housing</td>
<td>aluminium, anodized</td>
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<tr>
<td>Mounting</td>
<td>see drawing</td>
</tr>
<tr>
<td>Actuating rod</td>
<td>stainless steel, rotatable</td>
</tr>
<tr>
<td>Bearings</td>
<td>sintered bronze bush</td>
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<tr>
<td>Resistance element</td>
<td>conductive plastic</td>
</tr>
<tr>
<td>Wiper assembly</td>
<td>precious metal multi-finger wiper</td>
</tr>
<tr>
<td>Electrical connections</td>
<td>3-pin round connector M8x1</td>
</tr>
<tr>
<td></td>
<td>3-wire, shielded cable, 2 m long</td>
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**Type designations**

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<tr>
<th>TX2</th>
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<tbody>
<tr>
<td>0025</td>
<td>0050</td>
<td>0075</td>
<td>0100</td>
<td>0150</td>
<td>0200</td>
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**Electrical Data**

- Defined electrical range: 25, 50, 75, 100, 150, 200, 250, 300 mm
- Electrical range: 27, 52, 77, 102, 152, 205, 255, 305 mm
- Nominal resistance: 1, 2, 3, 4, 6, 8, 10, 12 kΩ
- Resistance tolerance: ±20%
- Independent linearity: 0.2, 0.1, 0.1, 0.1, 0.05, 0.05, 0.05, 0.05 ±%
- Repeatability: < 0.01 mm
- Recommended operating wiper current: ≤ 1 µA
- Max. wiper current in case of malfunction: 10 mA
- Max. permissible applied voltage: 42 V
- Effective temperature coefficient of the output-to-applied voltage ratio: typical 5 ppm/K
- Insulation resistance (500 VDC): ≥ 10 MΩ
- Dielectric strength (500 VAC, 50 Hz): ≤ 100 µA

**Mechanical Data**

- Body length (dimension A): 88, 111, 136, 161, 224, 274, 324, 374 ± 1 mm
- Mechanical stroke (dimension B): 30, 55, 80, 105, 158, 208, 258, 308 ± 1 mm
- Recommended mounting clamp distance (dimension D): 30, 50, 70, 90, 140, 190, 240, 290 mm
- E min. (dimension E): 15, 20, 25, 25, 35, 35, 35, 35 mm
- Weight approx.:
  - with connector (101): 100, 110, 120, 130, 150, 163, 190, 205 g
  - with cable (202): 120, 156, 160, 177, 190, 225, 250, 270 g
- Operating force:
  - horizontal: < 5 (at RT 20° C) N
  - vertical: 5 (at RT 20° C) N

**Environmental Data**

- Temperature range: -40...+85 connector / -20...+100 cable °C
- Operating humidity range: 0...95 (no condensation) % R.H.
- Vibration:
  - Freq.: 5...2000 Hz
  - Amax = 0.75  mm/s²
  - Amax = 20  g
- Shock:
  - 50  g
  - 6  ms
- Life: > 50 x 10⁶, typ. movements
- Operating speed: 5 m/s max.
- Protection class: IP67 DIN EN 60529 (use connector with IP67 or higher)
  - The protection class IP67 was determined as fabricated condition under the following terms (DIN EN 60529):
  - 1 m water depth, duration 0.5 h
  - Abrasion of rod sealing depends on application and cycles.
  - Please pay attention to the instruction manual before starting up.
### Ordering specifications

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<td>202: NT standard cable 2 m, radial output</td>
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<td>Mechanical version actuating rod x1x</td>
<td>1: Transducer with one-side rod and thread M5</td>
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### Recommended accessories
- Connector M8x1, 2 m cable, EEM 33-64, IP67, Art.No. 005617;
- Angled connector M8x1, 2 m cable, EEM 33-65, IP67, Art.No. 005618;
- Ball coupling Z301 M5/M5, Art.No. 005618;
- Connector with longer cable length on request.
- Process-controlled indicators MAP... with display.
- Signal conditioner MUP.../MUK... for current supply and standardized output signals.

### Output connector
- Code 101: 3-pin round connector M8x1, radial output
- Code 202: NT standard cable 2 m, radial output

<table>
<thead>
<tr>
<th>Code</th>
<th>Connector with cable</th>
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<tr>
<td>PIN 1</td>
<td>BN brown</td>
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<tr>
<td>PIN 4</td>
<td>WH white</td>
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<tr>
<td>PIN 3</td>
<td>GN green</td>
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</tbody>
</table>

### Included in delivery
- 2 mounting clamps incl. 2 head cap screws M5x20

### Optional Accessories
- Pivot head Z-G01
  - Art.No. 056014

### Mounting Instructions
A ball coupling is recommended for backlash-free and side load-free operation to compensate misalignment between transducer axis and the moving part.

### Important
All values specified in this data sheet for linearity, lifetime and temperature coefficient are only valid for a sensor used as a voltage divider with virtually no load applied to the wiper ($I_w < 1 \mu A$).