More Precision

induSENSOR // Linear inductive displacement sensors
LVDT gauge sensors DTA-xG8 are primarily used for the measurement and inspection of workpiece geometry (e.g. length, width, diameter, thickness, depth, height). Therefore, different measuring ranges from ±1 mm to ±10 mm are available. The gauges are particularly suitable for applications involving a large number of pieces.

These gauges have an axial cable outlet and are equipped with either a plain bearing-guided plunger and a return spring, or with a pneumatic push rod. Depending on the measuring object, different probe tips are available.

DTA gauges can be operated with every MSC controller. Depending on this controller, single-/dual-/multi-channel measurements are possible. In addition to the well-established analog output, modern fieldbuses are available for integration purposes.

Based on modern interfaces and multi-channel capability, the MSC controllers open up new fields of application.

### Article designation

<table>
<thead>
<tr>
<th>DT</th>
<th>5-</th>
<th>G8-</th>
<th>3-</th>
<th>CA-</th>
<th>V</th>
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</thead>
<tbody>
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</table>

Gauge options:

- V: pneumatic push
- Connection (axial):
  - CA: integral cable (3m)

Linearity: 3 ±0.3 %

Function: gauge

Measuring range in mm

Excitation AC

Principle: Differential Transformer (LVDT)
<table>
<thead>
<tr>
<th>Model</th>
<th>DTA-1G8</th>
<th>DTA-3G8</th>
<th>DTA-5G8</th>
<th>DTA-10G8</th>
<th>DTA-1G8-V</th>
<th>DTA-3G8-V</th>
<th>DTA-5G8-V</th>
<th>DTA-10G8-V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring range</td>
<td>±1 mm</td>
<td>±3 mm</td>
<td>±5 mm</td>
<td>±10 mm</td>
<td>±1 mm</td>
<td>±3 mm</td>
<td>±5 mm</td>
<td>±10 mm</td>
</tr>
<tr>
<td>Linearity</td>
<td>≤ ±6 µm</td>
<td>≤ ±18 µm</td>
<td>≤ ±30 µm</td>
<td>≤ ±60 µm</td>
<td>≤ ±18 µm</td>
<td>≤ ±30 µm</td>
<td>≤ ±60 µm</td>
<td>≤ ±60 µm</td>
</tr>
<tr>
<td>Repeatability ≤ 0.15 µm</td>
<td>≤ 0.15 µm</td>
<td>≤ 0.45 µm</td>
<td>≤ 0.75 µm</td>
<td>≤ 1.5 µm</td>
<td>≤ 0.15 µm</td>
<td>≤ 0.45 µm</td>
<td>≤ 0.75 µm</td>
<td>≤ 1.5 µm</td>
</tr>
<tr>
<td>Temperature stability</td>
<td>≤ 250 ppm</td>
<td>FSO/K</td>
<td>≤ 0.3% FSO</td>
<td>≤ 0.3% FSO</td>
<td>≤ 0.3% FSO</td>
<td>≤ 0.3% FSO</td>
<td>≤ 0.3% FSO</td>
<td>≤ 0.3% FSO</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>133 mV / mm / V</td>
<td>85 mV / mm / V</td>
<td>53 mV / mm / V</td>
<td>44 mV / mm / V</td>
<td>133 mV / mm / V</td>
<td>85 mV / mm / V</td>
<td>53 mV / mm / V</td>
<td>44 mV / mm / V</td>
</tr>
<tr>
<td>Excitation frequency</td>
<td>5 kHz</td>
<td>5 kHz</td>
<td>5 kHz</td>
<td>2 kHz</td>
<td>5 kHz</td>
<td>5 kHz</td>
<td>5 kHz</td>
<td>2 kHz</td>
</tr>
<tr>
<td>Excitation voltage</td>
<td>550 mV</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Connection</td>
<td>integrated cable (3 m) with open ends; axial cable outlet; drag-chain suitable; cable diameter of 3.1 mm; min. bending radii: fixed installation 25 mm, moving 38 mm, drag chain 47 mm</td>
<td></td>
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<tr>
<td>Temperature range</td>
<td>Storage</td>
<td>-40 °C to +80 °C</td>
<td>Operation</td>
<td>-20 °C to +80 °C (without bellows); 0 °C to 80 °C (with bellows)</td>
<td></td>
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<tr>
<td>Pressure resistance</td>
<td>atmospheric pressure</td>
<td></td>
<td></td>
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<tr>
<td>Shock (DIN EN 60068-2-27)</td>
<td>40 g / 6 ms in 3 axes, 1000 shocks each</td>
<td></td>
<td></td>
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<tr>
<td>Vibration (DIN EN 60068-2-6)</td>
<td>±1.5 mm / 10 … 58 Hz in 2 axes, 10 cycles each</td>
<td></td>
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<td></td>
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<tr>
<td>Protection class (DIN EN 60529)</td>
<td>IP65 (with bellows); IP54 (without bellows)</td>
<td></td>
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<tr>
<td>Material</td>
<td>Stainless steel (housing); FPM (bellows); PUR (cable sheath); PVC/PP (cable braids)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Weight</td>
<td>approx. 70 g</td>
<td>approx. 70 g</td>
<td>approx. 75 g</td>
<td>approx. 85 g</td>
<td>approx. 70 g</td>
<td>approx. 70 g</td>
<td>approx. 80 g</td>
<td>approx. 85 g</td>
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<tr>
<td>SMR</td>
<td>1.3 N</td>
<td>0.8 N</td>
<td>1 N</td>
<td>0.7 N</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MMR</td>
<td>1.55 N</td>
<td>1.5 N</td>
<td>1.9 N</td>
<td>1.9 N</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>EMR</td>
<td>2 N</td>
<td>2.5 N</td>
<td>3 N</td>
<td>3.5 N</td>
<td></td>
<td></td>
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<tr>
<td>Compatibility</td>
<td>MSC7401, MSC7802, MSC7802</td>
<td></td>
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<td></td>
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<tr>
<td>Typ. service life</td>
<td>5 million cycles</td>
<td></td>
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</table>

FSO = Full Scale Output
SMR = Start of measuring range, MMR = Mid of measuring range, EMR = End of measuring range

1) Averaging over 100 values; 200 repetitions
2) Removing the bellows changes the spring forces

**DTA-xG8-3-CA**

- Cable diameter approx. 3.1 mm
- Cable length 3 m (open ends)

**DTA-xG8-3-CA-V**

- Cable diameter approx. 3.1 mm
- Cable length 3 m (open ends)

Dimensions in mm, not to scale
Mounting options and accessories

induSENSOR DTA (LVDT)

Sensor cables
- C701-3: Sensor cable, 3 m, with cable connector and tin-plated free ends
- C701-6: Sensor cable, 6 m, with cable connector and tin-plated free ends
- C701/90-3: Sensor cable, 3 m, with 90° cable connector and tin-plated free ends
- IF7001: Single-channel USB/RS485 converter for MSC7xxx

Service
- Assembly of screw flange - DTA-xG8
- Connector assembly M9 and cable reduction XXXX mm - DTA-x
- Connector assembly M9 - DTA-x

Probe tips
- Type 2 probe tip / hard metal
- Type 2 probe tip / plastics
- Type 2 probe tip / ruby
- Type 2 probe tip / steel
- Type 10 probe tip / steel
- Type 11 probe tip / steel
- Type 13 probe tip / steel

Sensor mounting
- MBS12/8 Mounting block: Sensor mounting for circumferential clamping
- MBS12/8 Adapter ring: for reduction to D8 (gauge)

Mounting block MBS12/8

Adapter ring

Screw flange
Gauges from Micro-Epsilon have many possible fields of application. Due to different measuring ranges and configuration settings, the gauges are suitable for numerous measurement and inspection tasks. Combined with multi-channel controllers, the DTA gauges are often used for dimensional measurement and inspection tasks, e.g., in automated quality control, R&D and production monitoring.
Sensors and Systems from Micro-Epsilon

Sensors and systems for displacement, distance and position

Sensors and measurement devices for non-contact temperature measurement

Measuring and inspection systems for metal strips, plastics and rubber

Optical micrometers and fiber optics, measuring and test amplifiers

Color recognition sensors, LED analyzers and inline color spectrometers

3D measurement technology for dimensional testing and surface inspection