The inductive precision sensor FTI is used to transform short linear travel paths into analogue electrical signals using a differential transformer with a movable core.

The core is located on a gauging pin which is pressed against the measured object by an integrated spring. The sensor is supplied with direct voltage from which an integrated oscillator generates an alternating voltage to feed the differential transformer. The secondary transformer voltages are rectified in a built-in demodulator. The oscillator and demodulator are designed using hybrid technology. The output current is strictly proportional to the displacement of the core and therefore to the measured path.

Standardized output signals and absolute linearity up to 0.2 % (on request up to 0.1 %) guarantee a highly accurate measurement value and complete electrical interchangeability.

The precision sensor is available in protection class IP50, optionally IP67, and due to its completely encapsulated housing and temperature-compensating properties of its control-loop coil, it can be used under rough environmental operating conditions.

**Special features**
- long service to non contact measuring system
- high precision with linearity of up to 0.2 %, 0.1 % on request
- reliable signal transmission through standardized current output
- robust due to completely encapsulated housing
- temperature-resistant precision due to supplementary regulating winding
- complete electrical interchangeability

The FTI sensor series offers a wide range of applications in precision measurement technology due to its high precision and linearity. The series FTI 10 is particularly suitable for applications requiring high accuracy and reliability. The sensor is available in various protection classes and can be tailored to specific customer requirements.
**Description**

- **Dimensions:** see drawing
- **Housing:** anodized aluminium
- **Plunger:** stainless antimagnetic steel, is pressed into its end position by a compression spring. Plunger with antitrotation element.
- **Gauging head:** stainless steel with external thread M 2.5 and hardened ball pint
- **Bearing:** maintenance-free plastic bearing
- **Fixture:** by means of centering collar with M 16 x 1.5 thread or using a clamping nut with clamping brackets.
- **Connection:** flexible shielded 3-core cable appr. 2 meter long (other lengths on request) leading out through cable gland on one side.
- **Electronic circuitry:** encapsulated hybrid circuit
- **Reverse polarity protection:** by means of an internal diode

**Mechanical data**

- **Mechanical range:** 12 mm
- **Required measuring force**
  - a) with IP 50 (standard): 4 N
  - b) with IP 67 (option): 10 N
- **Permissible tightening torque**
  - at the clamping flange: 25 Nm
- **Total weight (excluding cable):** 90 g

**Electrical data**

- **Electrically defined measurement range**
  - 10 mm (symmetrically within the mech. range)
- **Absolute linearity**
  - (related to the electrical centre): ± 0.2 %
  - ± 0.4 % on request
- **Operating voltage:** 18…30 VDC
- **Signal output**
  - a) standard: 4…20 mA (electrical centre at 12 mA)
  - b) Option: 0…20 mA (electrical centre at 10 mA)
- **Max. current consumption:** 10 mA
- **Load impedance:** 0-500 Ω
- **Temperature coefficient of centre range:** < 80 ppm/K
- **Temperature coefficient of sensitivity:** < 80 ppm/K
- **Dielectric strength**
  - (50 Hz, 2 s, 1 bar, 500 VAC): <100 µA
- **Max. permissible voltage between the output terminals and housing:** 100 VDC

**Environmental data**

- **Temperature range:** -25...+70 °C
- **Frequency of operation:** max. 10 Hz at 10 mm measuring stroke
- **Shock:** 50 g
- **Mechanical life:** 100 x 10⁶ movement (restricted by oblique application)
- **Protection class:** Standard IP 50, Option IP 67 (DIN 400 50 / IEC 529)

**Included in delivery**

- 1 hexagon nut M 16 x 1.5 ISO 8675
- 1 lock washer J 16.5 DIN 6797

**Recommended accessories**

- 4 fixing clamps Z3-31, Gauge roller Z 50