

## Precision Sensor, Non-Contacting

### FTI 10 Series



#### Special features

- non-contacting technology provides ultra-long life
- high precision with linearity of up to 0.1%
- reliable signal transmission through standardized current output
- robust due to completely encapsulated housing
- temperature-resistant precision due to supplementary regulating winding
- complete electrical interchangeability

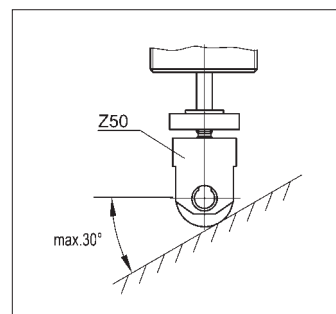
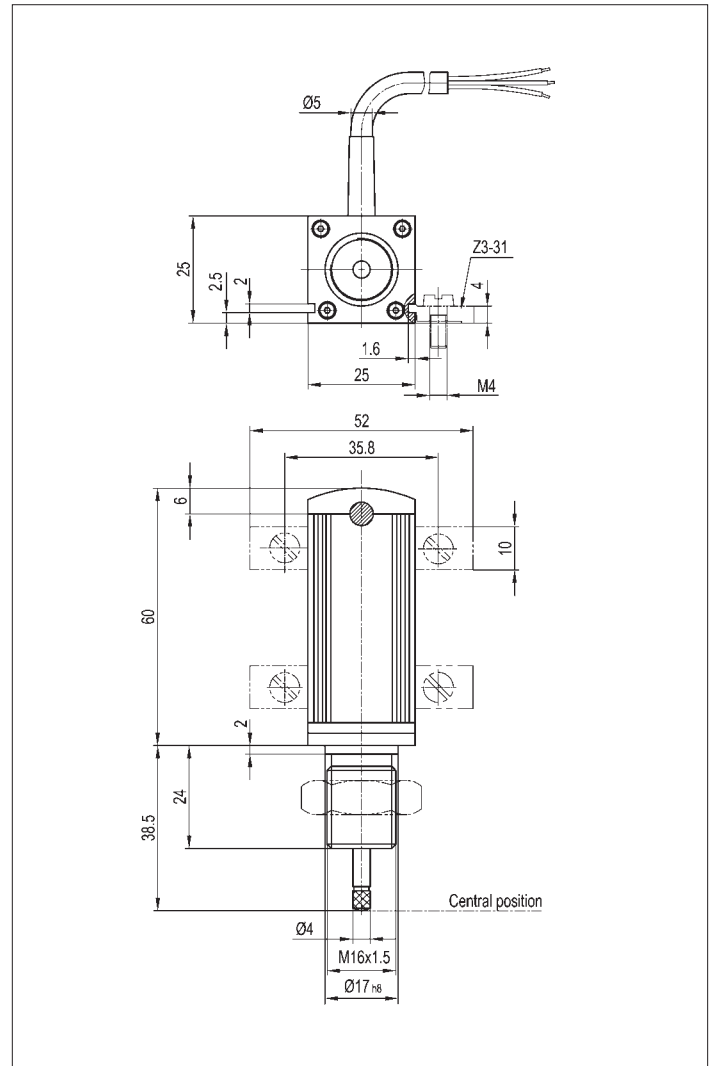
FTI inductive precision sensors transform short linear travel paths into analog electrical signals using a differential transformer with a movable core.

The core is located on a gauging pin which is pressed against the measured object by an integrated spring. The sensor is supplied with 24 VDC from which an integrated oscillator generates an AC 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 IP 50, optionally IP 67, 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.



#### Connection diagram

- |                        |                  |
|------------------------|------------------|
| — +U <sub>B</sub> red  | } supply voltage |
| — 0V black             |                  |
| — I <sub>a</sub> brown | output signal    |

Description	
Dimensions	see drawing
Housing	anodized aluminum
Plunger	stainless antimagnetic steel. Is pressed into its end position by a compression spring. Plunger with antirotation element.
Gauging head	stainless steel with external thread M 2.5 and hardened ball point
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 (symmetrically within the mech. range)	mm
Absolute linearity (related to the electrical center)	±0.2 ±0.4 ±0.1 on request	% % %
Operating voltage	18...30	VDC
Signal output		
a) standard	4...20 (electrical center at 12 mA)	mA
b) option	0...20 (electrical center at 10 mA)	mA
Max. current consumption	50	mA
Load impedance	0-500	Ω
Temperature coefficient of center range of sensitivity	< 80 < 80	ppm/K 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

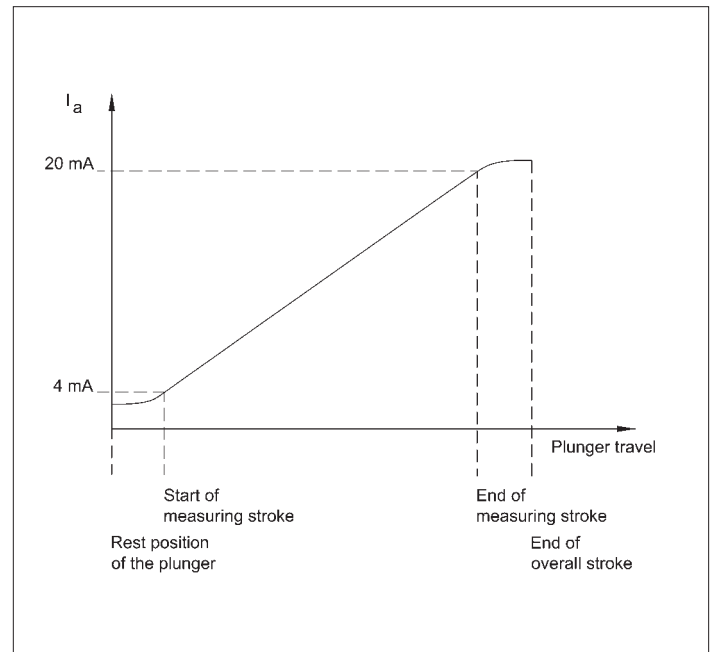
Temperature range	-25...+70	°C
Frequency of operation	max. 10 Hz at 10 mm measuring stroke	
Shock	50 11	g ms
Mechanical life (restricted by oblique application)	100 x 10 <sup>6</sup>	movem.
Protection class	Standard IP 50, Option IP 67 (DIN 400 50 / IEC 529)	

#### 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 Z 3-31,  
Gauge roller Z 50



#### Order designations

Type	Linearity in ±%	Protection class	Current output in mA	Art. No.
FTI 10.1.50.4.K1	0.1	IP 50	4...20	053101
FTI 10.1.67.4.K1	0.1	IP 67	4...20	053103
FTI 10.1.50.0.K1	0.1	IP 50	0...20	053105
FTI 10.1.67.0.K1	0.1	IP 67	0...20	053107
FTI 10.2.50.4.K1	0.2	IP 50	4...20	053100
FTI 10.2.67.4.K1	0.2	IP 67	4...20	053102
FTI 10.2.50.0.K1	0.2	IP 50	0...20	053104
FTI 10.2.67.0.K1	0.2	IP 67	0...20	053106
FTI 10.4.50.4.K1	0.4	IP 50	4...20	053110
FTI 10.4.67.4.K1	0.4	IP 67	4...20	053112
FTI 10.4.50.0.K1	0.4	IP 50	0...20	053114
FTI 10.4.67.0.K1	0.4	IP 67	0...20	053116