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Extract from our online catalogue:

# pico+100/TF/I

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The pico+TF sensors are ideal for the non-contact fill level measurement of chemically aggressive liquids or granules.

## HIGHLIGHTS

› PTFE membrane › for protection against aggressive media
› M22 sleeve in PVDF
› IO-Link interface › for support of new industry standard
› Automatic synchronisation and multiplex operation › for simultaneous operation of up to ten sensors in close quarters

## BASICS

› 1 Push-Pull switching output › pnp or npn basis
› Analogue output 4–20 mA or 0–10 V
› 4 detection ranges with a measurement range of 20 mm to 1,300 mm
› microsonic Teach-in on pin 5
› 0.069 mm resolution
› Temperature compensation
› 10–30 V operating voltage
› LinkControl › for configuration of sensors from a PC

# Description

## pico+TF ultrasonic sensors

The compact dimensions of the pico+TF sensors makes them ideal for fill-level measurement in housings of restricted dimensions. The ultrasonic transformer is protected against aggressive media by a PTFE film. The exterior PVDF coating with its M22 x 1.5 external thread seals the ultrasonic transformer from the sensor housing.

The M22 sensors detect in a contactless fashion and are reliable within a measuring range of 20 mm to 1,300 mm. The ultrasonic sensor is the best choice for non-contact fill level measurement with chemically aggressive liquids or granules.

A typical application for these sensor line is the fill level monitoring of aggressive paints and inks such as those used in the digital printing sector. These inks often contain ketone. In addition to the high chemical resistance of the sensor, its size makes it especially suited to use in restricted spaces. Regular filling and emptying of the tank can produce wave motions in the tank system, which can be compensated using the internal filter setting.

## For the pico+TF sensor family

there are 2 output stages and 4 detection ranges available:

1 Push-Pull switching output with pnp or npn switching technology

1 analogue output 4–20 mA or 0–10 V

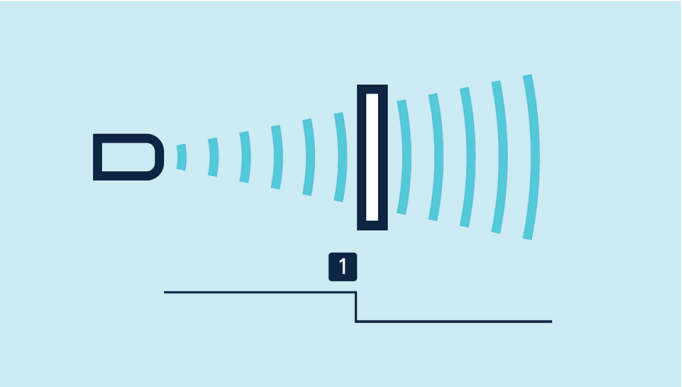
*The pico+TF ultrasonic sensor continuously detects the fill level of liquids and granules.*

## Sensors with switching output have three operating modes:

› Single switching point
› Two-way reflective barrier
› Window mode

### Teach-in of a single switching point

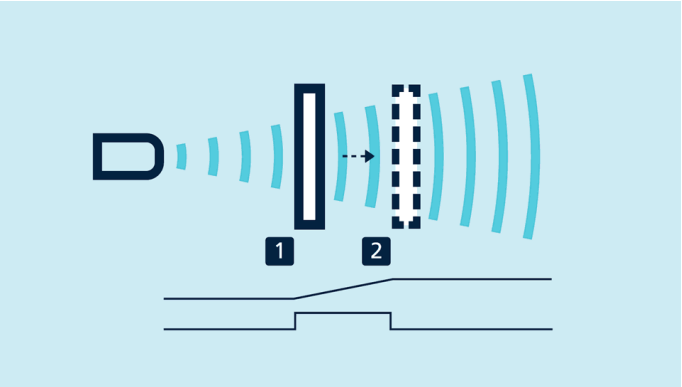
› Place object to be detected (1) at the desired distance
› Apply +$U_B$ to pin 5 for about 3 seconds
› Then apply +$U_B$ to pin 5 again for about 1 seconds




*Teach-in of a switching point*

### For configuration of a window

› Place object at the near edge of the window (1)
› Apply +$U_B$ to pin 5 for about 3 seconds
› Then move the object to the far edge of the window (2)
› Then apply +$U_B$ to pin 5 again for about 1 seconds




*Teach-in of an analogue characteristic or a window with two switching points*

### NCC/NOC

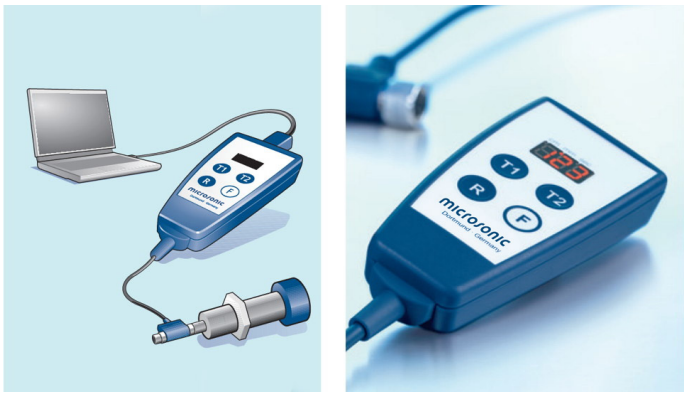
and rising/falling analogue characteristic curve can also be set via pin 5.

### One green and one yellow LED

indicate the state of the output and support microsonic Teach-in.

### LinkControl

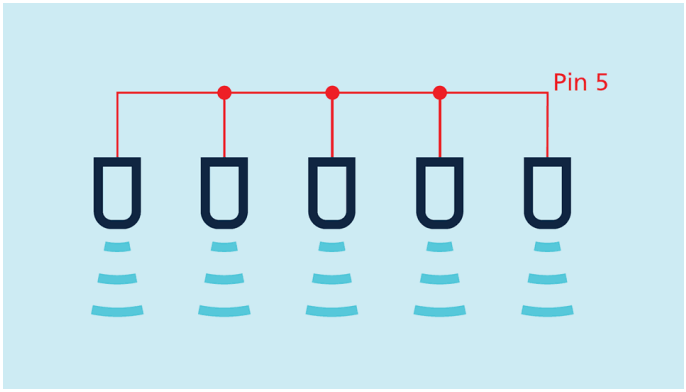
optionally permits the extensive parameterisation of pico+TF level sensors. The LCA-2 LinkControl adapter , which is available as an accessory, can be used to connect pico+TF sensors to the PC.




*Sensor connected to the PC via LCA-2 for programming*

### Easy to synchronise

A number of pico+TF level sensors can be run closely packed in applications synchronised to stop them from influencing one another. To this end, the sync mode has to be activated and all the sensors are to be electrically connected one to another with pin 5.




*Synchronisation using pin 5*

### IO-Link integrated

in version 1.0 for level sensors with switching output.

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**Imprint**

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Contact form

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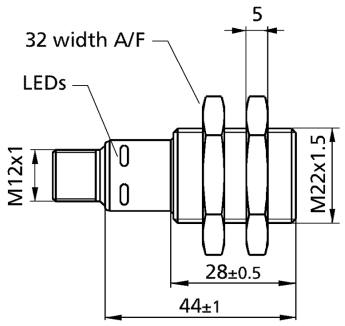
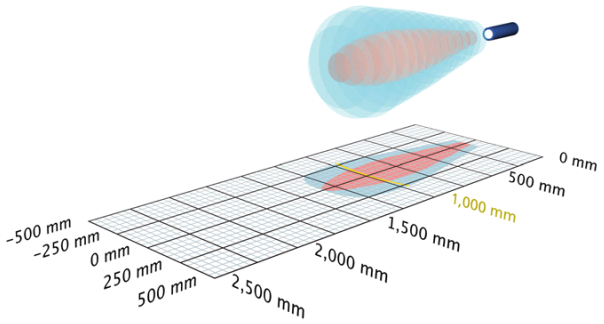
## scale drawing




## detection zone




1 x analogue 4-20 mA

1,300 mm

| | |
|---|---|
| measuring range | 120 - 1.300 mm |
| design | cylindrical M22 |
| operating mode | analogue distance measurements |
| particularities | hohe Chemiebeständigkeit<br>PVDF-Gehäuse |

### ultrasonic-specific

| | |
|---|---|
| means of measurement | echo propagation time measurement |
| transducer frequency | 200 kHz |
| blind zone | 120 mm |
| operating range | 1,000 mm |
| maximum range | 1,300 mm |
| resolution | 0.069 mm to 0.38 mm, depending on the analogue window |
| reproducibility | ± 0.15 % |
| accuracy | ± 1 % (temperature drift internally compensated) |

### electrical data

| | |
|---|---|
| operating voltage $U_B$ | 10 - 30 V d.c., reverse polarity protection |
| voltage ripple | ± 10 % |
| no-load current consumption | ≤ 40 mA |
| type of connection | 5-pin M12 initiator plug |

# pico+100/TF/I

| outputs | |
|---|---|
| output 1 | analogue output<br>current: 4-20 mA<br>switchable rising/falling |
| response time | 80 ms |
| delay prior to availability | < 300 ms |

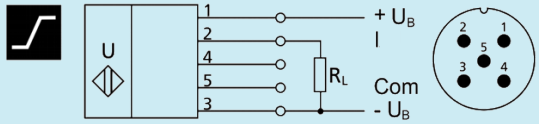
| inputs | |
|---|---|
| input 1 | com input<br>synchronisation input<br>teach-in input |

| housing | |
|---|---|
| material | PVDF, PBT |
| ultrasonic transducer | coated with PTFE film, FFKM O-ring |
| max. tightening torque of nuts | 1 Nm |
| class of protection to EN 60529 | IP 67 |
| operating temperature | -25°C to +70°C |
| storage temperature | -40°C to +85°C |
| weight | 30 g |

| technical features/characteristics | |
|---|---|
| temperature compensation | yes |
| controls | com input |
| scope for settings | Teach-in via com input on pin 5<br>LCA-2 with LinkControl |
| Synchronisation | yes |
| multiplex | yes |
| indicators | 1 x LED green: working, 1 x LED yellow: switch status |
| particularities | hohe Chemiebeständigkeit<br>PVDF-Gehäuse |

# pico+100/TF/I

pin assignment

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|---|---|
| order no. | **pico+100/TF/I** |

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