microsonic

Extract from our online catalogue:

pico+100/TF/F

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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

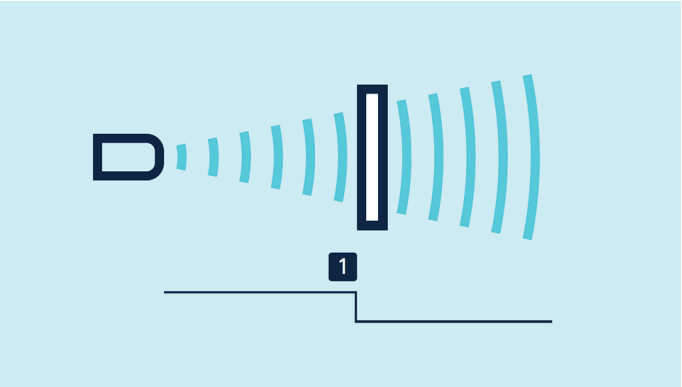
The pico+TF ultrasonic sensor continuously detects the fill level of liquids and granules.

Sensors with switching output have three operating modes:

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

Teach-in of a single switching point

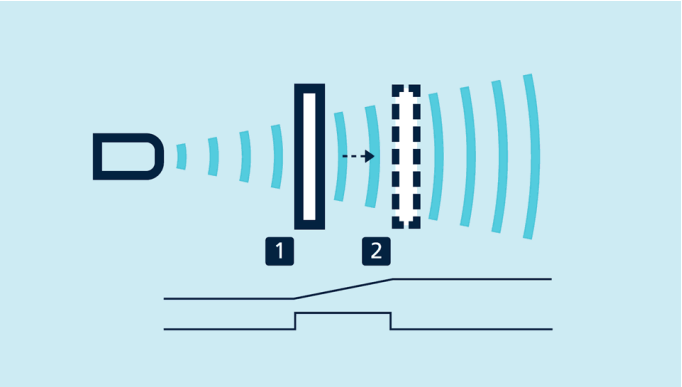
› Place object to be detected (1) at the desired distance
› Apply +U_B to pin 5 for about 3 seconds
› Then apply +U_B to pin 5 again for about 1 seconds



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

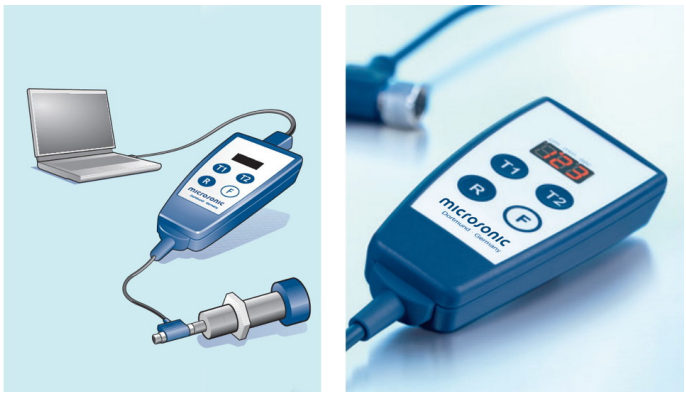
and rising/falling analogue characteristic curve can also be set via pin 5.

One green and one yellow LED

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

LinkControl

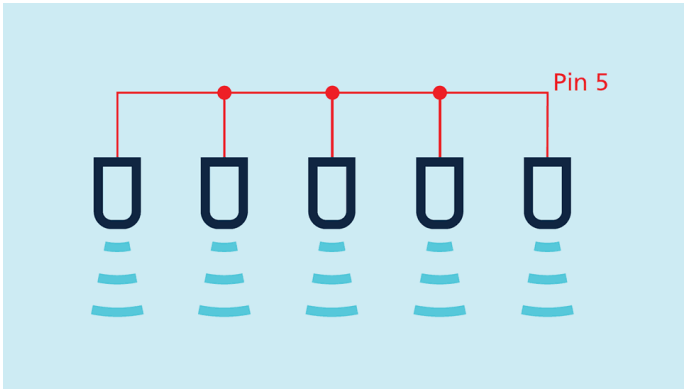
optionally permits the extensive parameterisation of pico+TF level sensors. The LCA-2 LinkControl adapter , which is available as an accessory, can be used to connect pico+TF sensors to the PC.



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.

Imprint

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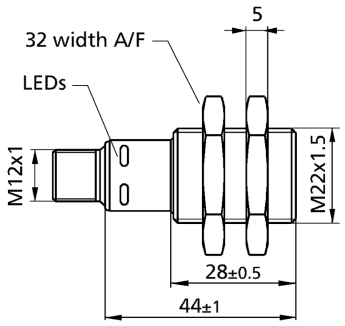
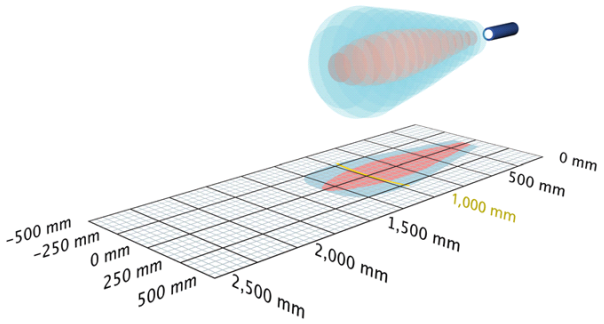
Contact form

pico+100/TF/F

scale drawing



detection zone



1 x Push-Pull

1,300 mm

measuring range	120 - 1.300 mm
design	cylindrical M22
operating mode	IO-Link proximity switch/reflective mode reflective barrier window mode
particularities	hohe Chemiebeständigkeit PVDF-Gehäuse IO-Link

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
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

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outputs	
output 1	switching output Push-Pull, U_B-3 V, -U_B+3 V,I_{max} = 100 mA
switching hysteresis	20 mm
switching frequency	10 Hz
response time	80 ms
delay prior to availability	< 300 ms

inputs	
input 1	com input synchronisation input teach-in input

IO-Link	
product name	pico+
product ID	100/F
SIO mode support	yes
COM mode	COM2 (38,4 kBaud)
min. cycle time	20,4 ms
format of process data	16 Bit, R, UNI16
content of process data	Bit 0: Q1 switch status; Bit 1-15: distance value with a resolution of 0,1 mm
ISDU paramter	detect point 1, return detect point 1, detect point 2, return detect point 2, foreground suppression, NO/NC operation, filter, filter strength, interference noise suppression, activation/deactivation of teach-in via Pin 5
system commands	teach detect point, teach detect point + 8 %, teach reflective barrier, load factory settings
IODD version	IODD version 1.0.1

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

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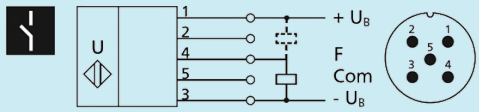
technical features/characteristics	
temperature compensation	yes
controls	com input
scope for settings	Teach-in via com input on pin 5 LCA-2 with LinkControl IO-Link
Synchronisation	yes
multiplex	yes
indicators	1 x LED green: working, 1 x LED yellow: switch status
particularities	hohe Chemiebeständigkeit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

pin assignment	
order no.	**pico+100/TF/F**

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