

EVERY  
THING  
ULTRA  
SONIC

Extract from our online catalogue:

pico+TF ultrasonic filling-level sensor

Current to: 2021-12-16



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



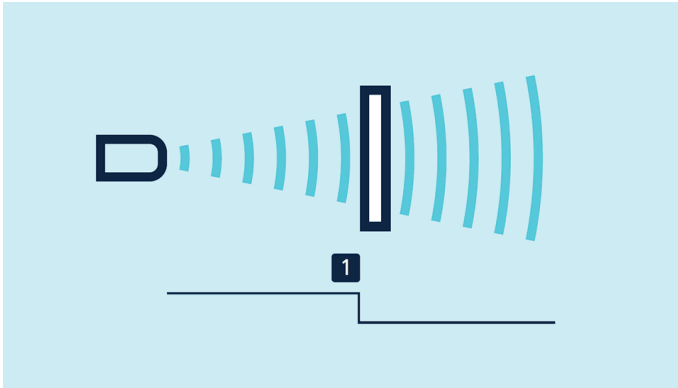
*The pico+TF ultrasonic sensor continuously detects the fill level of liquids and granules.*

**Sensors with switching output have three operating modes:**

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

### Teach-in of a single switching point

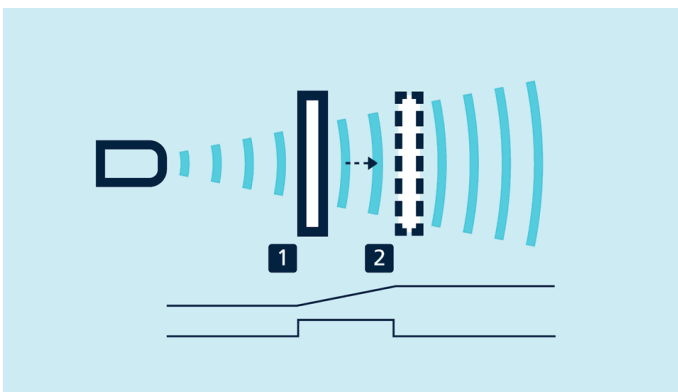
- › Place object to be detected (1) at the desired distance
- › Apply  $+U_B$  to pin 5 for about 3 seconds
- › Then apply  $+U_B$  to pin 5 again for about 1 seconds



*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/NO

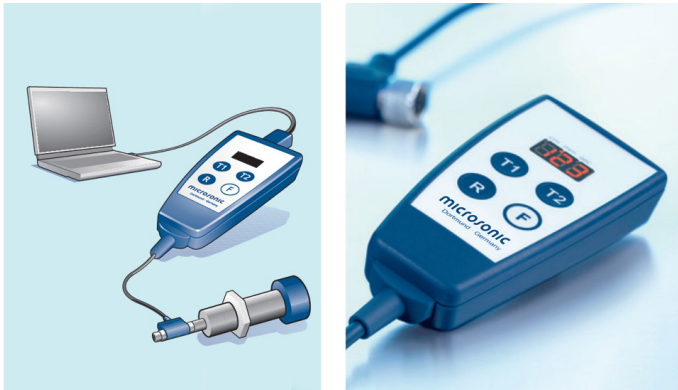
and rising/falling analogue characteristic curve can also be set via pin 5.

### One green and one yellow LED

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

### LinkControl

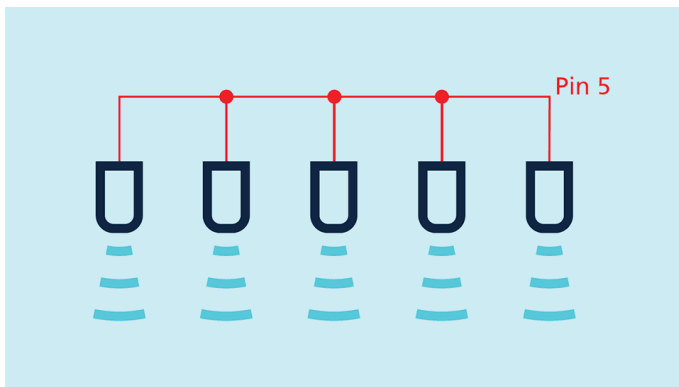
optionally permits the extensive parameterisation of pico+TF level sensors. The LCA-2 **LinkControl adapter** , which is available as an accessory, can be used to connect pico+TF sensors to the PC.



*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*

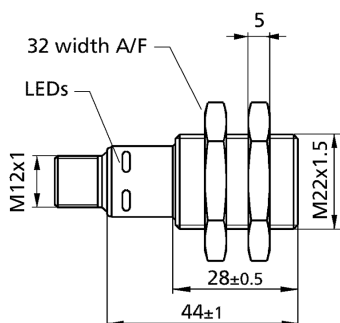
### IO-Link integrated

in version 1.0 for level sensors with switching output.

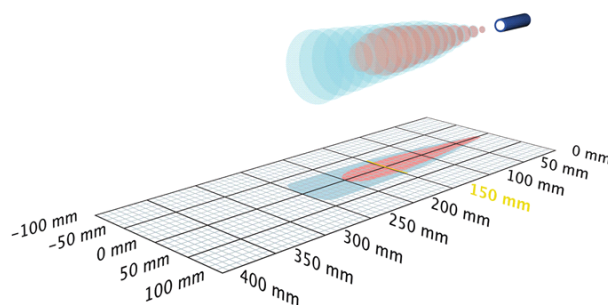
© 2021 microsonic GmbH

# pico+15/TF/F

## scale drawing



## detection zone



1 x Push-Pull



250 mm

measuring range	20 - 250 mm
design	cylindrical M22
operating mode	IO-Link proximity switch/reflective mode reflective barrier window mode
particularities	high chemical resistance narrow sound field IO-Link

## ultrasonic-specific

means of measurement	echo propagation time measurement
transducer frequency	380 kHz
blind zone	20 mm
operating range	150 mm
maximum range	250 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

# pico+15/TF/F

## outputs

output 1	switching output Push-Pull, $U_B=3\text{ V}$ , $-U_B+3\text{ V}$ , $I_{\max} = 100\text{ mA}$
switching hysteresis	2.0 mm
switching frequency	25 Hz
response time	32 ms
delay prior to availability	< 300 ms

## inputs

input 1	com input synchronisation input teach-in input
---------	--

## IO-Link

product name	pico+
product ID	15/F
SIO mode support	yes
COM mode	COM2 (38,4 kBaud)
min. cycle time	8,4 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

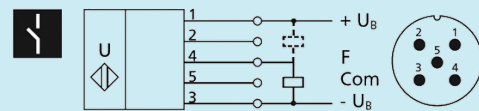
material	PVDF, PBT
ultrasonic transducer	coated with PTFE film, FFKM O-ring
max. tightening torque of nuts	1 Nm
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	30 g

# pico+15/TF/F

## 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	high chemical resistance narrow sound field IO-Link

## pin assignment



order no.

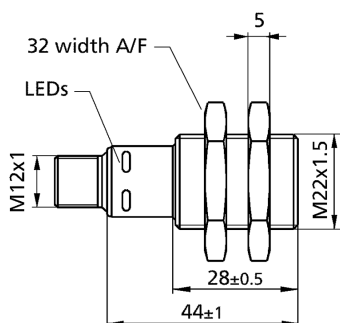
**pico+15/TF/F**

The content of this document is subject to technical changes.  
Specifications in this document are presented in a descriptive way  
only. They do not warrant any product features.

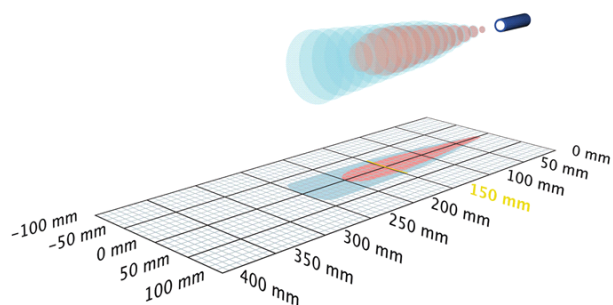


# pico+15/TF/I

## scale drawing



## detection zone



1 x analogue 4-20 mA



measuring range	20 - 250 mm
design	cylindrical M22
operating mode	analogue distance measurements
particularities	hohe Chemiebeständigkeit schlankes Schallfeld

## ultrasonic-specific

means of measurement	echo propagation time measurement
transducer frequency	380 kHz
blind zone	20 mm
operating range	150 mm
maximum range	250 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

# pico+15/TF/I

## outputs

output 1	analogue output current: 4-20 mA switchable rising/falling
response time	32 ms
delay prior to availability	< 300 ms

## inputs

input 1	com input synchronisation input teach-in input
---------	--

## housing

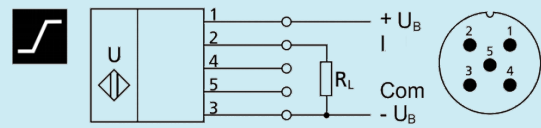
material	PVDF, PBT
ultrasonic transducer	coated with PTFE film, FFKM O-ring
max. tightening torque of nuts	1 Nm
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	30 g

## technical features/characteristics

temperature compensation	yes
controls	com input
scope for settings	Teach-in via com input on pin 5 LCA-2 with LinkControl
Synchronisation	yes
multiplex	yes
indicators	1 x LED green: working, 1 x LED yellow: switch status
particularities	hohe Chemiebeständigkeit schlankes Schallfeld

# pico+15/TF/I

## pin assignment



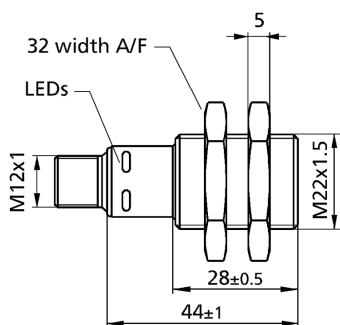
order no.

**pico+15/TF/I**

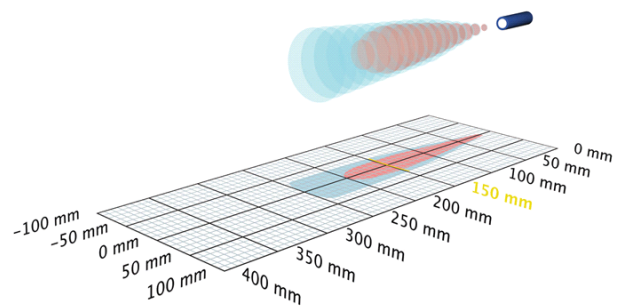
The content of this document is subject to technical changes.  
Specifications in this document are presented in a descriptive way  
only. They do not warrant any product features.

# pico+15/TF/U

## scale drawing



## detection zone



1 x analogue 0-10 V



250 mm

measuring range	20 - 250 mm
design	cylindrical M22
operating mode	analogue distance measurements
particularities	hohe Chemiebeständigkeit schlankes Schallfeld

## ultrasonic-specific

means of measurement	echo propagation time measurement
transducer frequency	380 kHz
blind zone	20 mm
operating range	150 mm
maximum range	250 mm
resolution	0.069 mm
reproducibility	± 0.15 %
accuracy	± 1 % (temperature drift internally compensated)

## electrical data

operating voltage $U_b$	15 V bis 30 V DC, verpolfest
voltage ripple	± 10 %
no-load current consumption	≤ 40 mA
type of connection	5-pin M12 initiator plug

# pico+15/TF/U

## outputs

output 1	analogue output voltage: 0-10 V, short-circuit-proof switchable rising/falling
response time	32 ms
delay prior to availability	< 300 ms

## inputs

input 1	com input synchronisation input teach-in input
---------	--

## housing

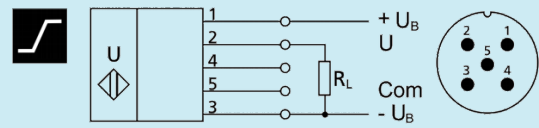
material	PVDF, PBT
ultrasonic transducer	coated with PTFE film, FFKM O-ring
max. tightening torque of nuts	1 Nm
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	30 g

## technical features/characteristics

temperature compensation	yes
controls	com input
scope for settings	Teach-in via com input on pin 5 LCA-2 with LinkControl
Synchronisation	yes
multiplex	yes
indicators	1 x LED green: working, 1 x LED yellow: switch status
particularities	hohe Chemiebeständigkeit schlankes Schallfeld

# pico+15/TF/U

## pin assignment



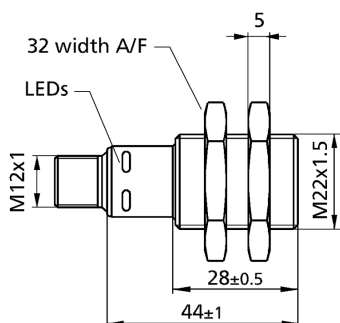
order no.

**pico+15/TF/U**

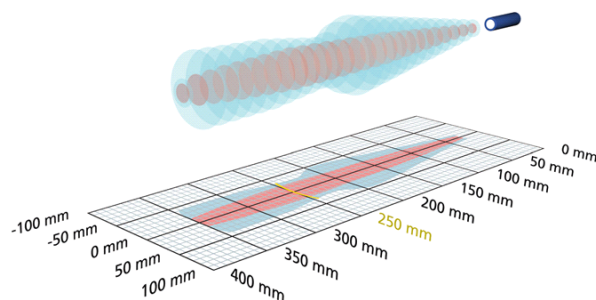
The content of this document is subject to technical changes.  
Specifications in this document are presented in a descriptive way  
only. They do not warrant any product features.

# pico+25/TF/F

## scale drawing



## detection zone



1 x Push-Pull



350 mm

measuring range	30 - 350 mm
design	cylindrical M22
operating mode	IO-Link proximity switch/reflective mode reflective barrier window mode
particularities	high chemical resistance narrow sound field IO-Link

## ultrasonic-specific

means of measurement	echo propagation time measurement
transducer frequency	320 kHz
blind zone	30 mm
operating range	250 mm
maximum range	350 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

# pico+25/TF/F

## outputs

output 1	switching output Push-Pull, $U_B=3\text{ V}$ , $-U_B+3\text{ V}$ , $I_{\max} = 100\text{ mA}$
switching hysteresis	3 mm
switching frequency	25 Hz
response time	32 ms
delay prior to availability	< 300 ms

## inputs

input 1	com input synchronisation input teach-in input
---------	--

## IO-Link

product name	pico+
product ID	25/F
SIO mode support	yes
COM mode	COM2 (38,4 kBaud)
min. cycle time	8,4 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

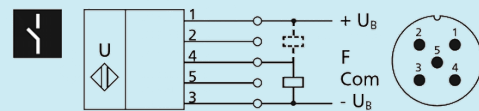


# pico+25/TF/F

## 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	high chemical resistance narrow sound field IO-Link

## pin assignment



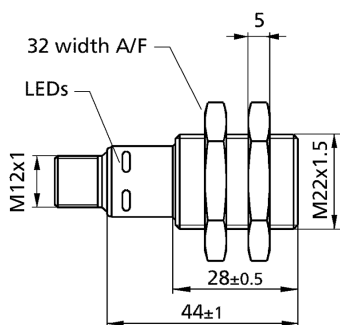
order no.

**pico+25/TF/F**

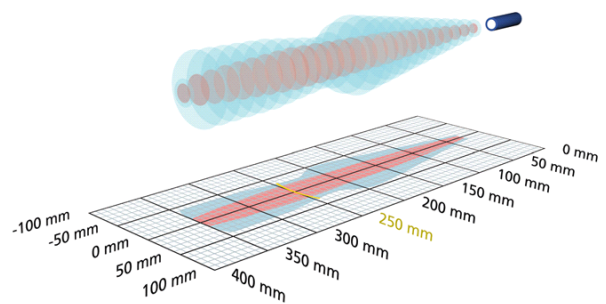
The content of this document is subject to technical changes.  
Specifications in this document are presented in a descriptive way  
only. They do not warrant any product features.

# pico+25/TF/I

## scale drawing



## detection zone



1 x analogue 4-20 mA



350 mm

measuring range	30 - 350 mm
design	cylindrical M22
operating mode	analogue distance measurements
particularities	hohe Chemiebeständigkeit schlankes Schallfeld

## ultrasonic-specific

means of measurement	echo propagation time measurement
transducer frequency	320 kHz
blind zone	30 mm
operating range	250 mm
maximum range	350 mm
resolution	0.069 mm to 0.10 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+25/TF/I

## outputs

output 1	analogue output current: 4-20 mA switchable rising/falling
response time	32 ms
delay prior to availability	< 300 ms

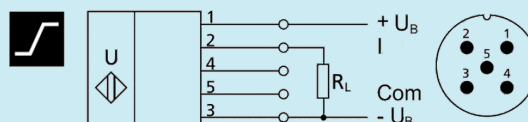
## housing

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 LCA-2 with LinkControl
Synchronisation	yes
multiplex	yes
indicators	1 x LED green: working, 1 x LED yellow: switch status
particularities	hohe Chemiebeständigkeit schlankes Schallfeld

## pin assignment



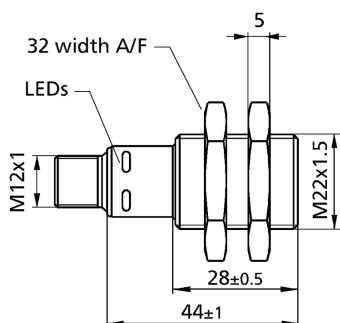
order no.

**pico+25/TF/I**

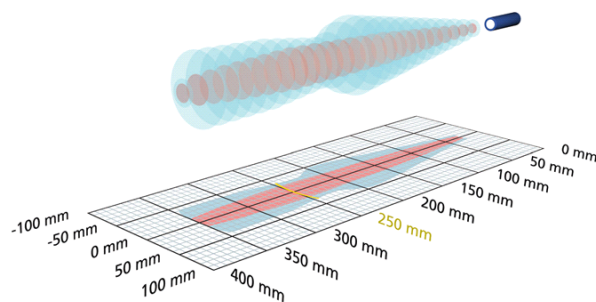
The content of this document is subject to technical changes.  
Specifications in this document are presented in a descriptive way  
only. They do not warrant any product features.

# pico+25/TF/U

## scale drawing



## detection zone



1 x analogue 0-10 V



350 mm

measuring range	30 - 350 mm
design	cylindrical M22
operating mode	analogue distance measurements
particularities	hohe Chemiebeständigkeit schlankes Schallfeld

## ultrasonic-specific

means of measurement	echo propagation time measurement
transducer frequency	320 kHz
blind zone	30 mm
operating range	250 mm
maximum range	350 mm
resolution	0.069 mm to 0.10 mm, depending on the analogue window
reproducibility	± 0.15 %
accuracy	± 1 % (temperature drift internally compensated)

## electrical data

operating voltage $U_b$	15 V bis 30 V DC, verpolfest
voltage ripple	± 10 %
no-load current consumption	≤ 40 mA
type of connection	5-pin M12 initiator plug

# pico+25/TF/U

## outputs

output 1	analogue output voltage: 0-10 V, short-circuit-proof switchable rising/falling
response time	32 ms
delay prior to availability	< 300 ms

## inputs

input 1	com input synchronisation input teach-in input
---------	--

## housing

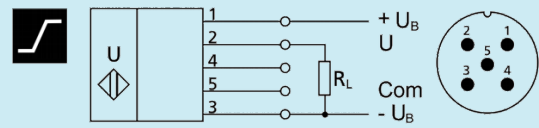
material	PVDF, PBT
ultrasonic transducer	coated with PTFE film, FFKM O-ring
max. tightening torque of nuts	1 Nm
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	30 g

## technical features/characteristics

temperature compensation	yes
controls	com input
scope for settings	Teach-in via com input on pin 5 LCA-2 with LinkControl
Synchronisation	yes
multiplex	yes
indicators	1 x LED green: working, 1 x LED yellow: switch status
particularities	hohe Chemiebeständigkeit schlankes Schallfeld

# pico+25/TF/U

## pin assignment



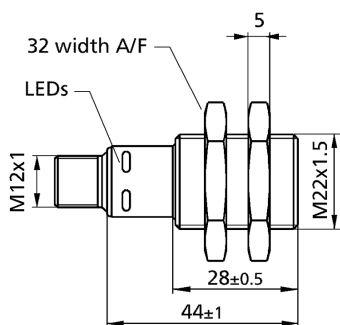
order no.

**pico+25/TF/U**

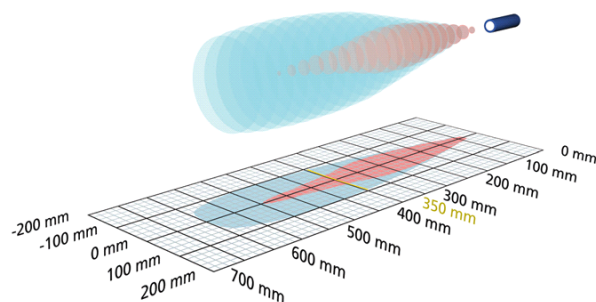
The content of this document is subject to technical changes.  
Specifications in this document are presented in a descriptive way  
only. They do not warrant any product features.

# pico+35/TF/F

## scale drawing



## detection zone



1 x Push-Pull



600 mm

measuring range	70 - 600 mm
design	cylindrical M22
operating mode	IO-Link proximity switch/reflective mode reflective barrier window mode
particularities	high chemical resistance IO-Link

## ultrasonic-specific

means of measurement	echo propagation time measurement
transducer frequency	400 kHz
blind zone	70 mm
operating range	350 mm
maximum range	600 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

# pico+35/TF/F

## outputs

output 1	switching output Push-Pull, $U_B=3\text{ V}$ , $-U_B+3\text{ V}$ , $I_{\max} = 100\text{ mA}$
switching hysteresis	5 mm
switching frequency	12 Hz
response time	64 ms
delay prior to availability	< 300 ms

## inputs

input 1	com input synchronisation input teach-in input
---------	--

## IO-Link

product name	pico+
product ID	35/F
SIO mode support	yes
COM mode	COM2 (38,4 kBaud)
min. cycle time	16 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

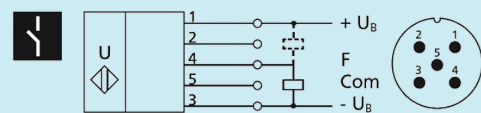


# pico+35/TF/F

## 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	high chemical resistance IO-Link

## pin assignment



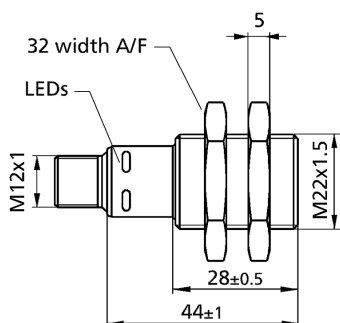
order no.

**pico+35/TF/F**

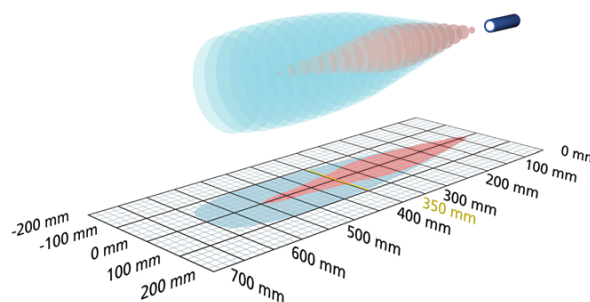
The content of this document is subject to technical changes.  
Specifications in this document are presented in a descriptive way  
only. They do not warrant any product features.

# pico+35/TF/I

## scale drawing



## detection zone



1 x analogue 4-20 mA



600 mm

measuring range	70 - 600 mm
design	cylindrical M22
operating mode	analogue distance measurements
particularities	high chemical resistance

## ultrasonic-specific

means of measurement	echo propagation time measurement
transducer frequency	400 kHz
blind zone	70 mm
operating range	350 mm
maximum range	600 mm
resolution	0.069 mm to 0.17 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+35/TF/I

## outputs

output 1	analogue output current: 4-20 mA switchable rising/falling
response time	64 ms
delay prior to availability	< 300 ms

## inputs

input 1	com input synchronisation input teach-in input
---------	--

## housing

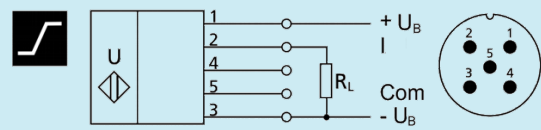
material	PVDF, PBT
ultrasonic transducer	coated with PTFE film, FFKM O-ring
max. tightening torque of nuts	1 Nm
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	30 g

## technical features/characteristics

temperature compensation	yes
controls	com input
scope for settings	Teach-in via com input on pin 5 LCA-2 with LinkControl
Synchronisation	yes
multiplex	yes
indicators	1 x LED green: working, 1 x LED yellow: switch status
particularities	high chemical resistance

# pico+35/TF/I

## pin assignment



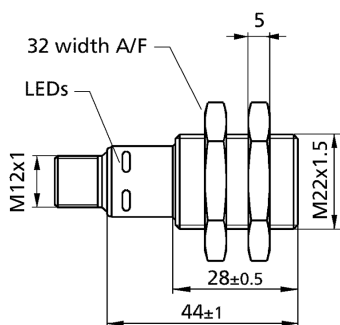
order no.

**pico+35/TF/I**

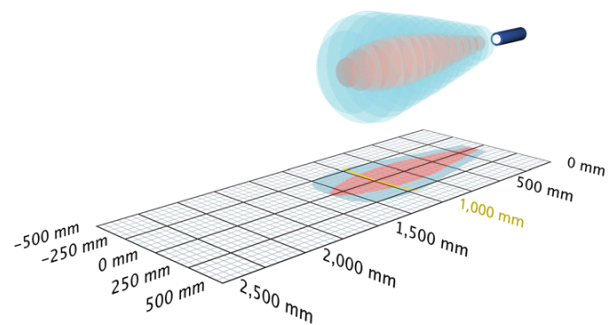
The content of this document is subject to technical changes.  
Specifications in this document are presented in a descriptive way  
only. They do not warrant any product features.

# pico+100/TF/U

## scale drawing



## detection zone



1 x analogue 0-10 V

 1,300 mm

measuring range	120 - 1.300 mm
design	cylindrical M22
operating mode	analogue distance measurements
particularities	high chemical resistance

## 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 $U_B$	15 V bis 30 V DC, verpolfest
voltage ripple	± 10 %
no-load current consumption	≤ 40 mA
type of connection	5-pin M12 initiator plug

# pico+100/TF/U

## outputs

output 1	analogue output voltage: 0-10 V, short-circuit-proof switchable rising/falling
response time	80 ms
delay prior to availability	< 300 ms

## inputs

input 1	com input synchronisation input teach-in input
---------	--

## housing

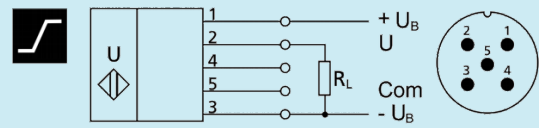
material	PVDF, PBT
ultrasonic transducer	coated with PTFE film, FFKM O-ring
max. tightening torque of nuts	1 Nm
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	30 g

## technical features/characteristics

temperature compensation	yes
controls	com input
scope for settings	Teach-in via com input on pin 5 LCA-2 with LinkControl
Synchronisation	yes
multiplex	yes
indicators	1 x LED green: working, 1 x LED yellow: switch status
particularities	high chemical resistance

# pico+100/TF/U

## pin assignment



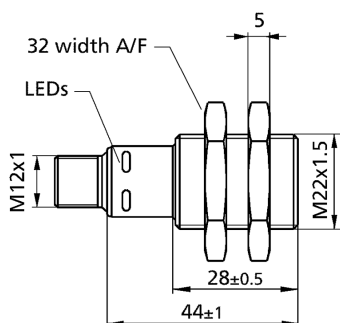
order no.

**pico+100/TF/U**

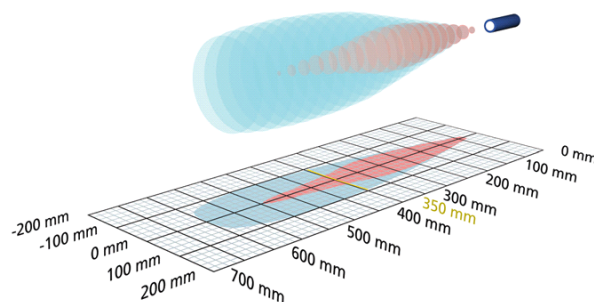
The content of this document is subject to technical changes.  
Specifications in this document are presented in a descriptive way  
only. They do not warrant any product features.

# pico+35/TF/U

## scale drawing



## detection zone



1 x analogue 0-10 V



600 mm

measuring range	70 - 600 mm
design	cylindrical M22
operating mode	analogue distance measurements
particularities	high chemical resistance

## ultrasonic-specific

means of measurement	echo propagation time measurement
transducer frequency	400 kHz
blind zone	70 mm
operating range	350 mm
maximum range	600 mm
resolution	0.069 mm to 0.17 mm, depending on the analogue window
reproducibility	± 0.15 %
accuracy	± 1 % (temperature drift internally compensated)

## electrical data

operating voltage $U_B$	15 V bis 30 V DC, verpolfest
voltage ripple	± 10 %
no-load current consumption	≤ 40 mA
type of connection	5-pin M12 initiator plug



# pico+35/TF/U

## outputs

output 1	analogue output voltage: 0-10 V, short-circuit-proof switchable rising/falling
response time	64 ms
delay prior to availability	< 300 ms

## inputs

input 1	com input synchronisation input teach-in input
---------	--

## housing

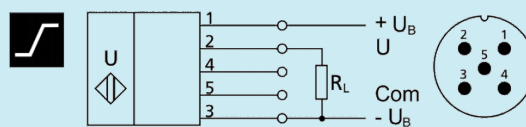
material	PVDF, PBT
ultrasonic transducer	coated with PTFE film, FFKM O-ring
max. tightening torque of nuts	1 Nm
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	30 g

## technical features/characteristics

temperature compensation	yes
controls	com input
scope for settings	Teach-in via com input on pin 5 LCA-2 with LinkControl
Synchronisation	yes
multiplex	yes
indicators	1 x LED green: working, 1 x LED yellow: switch status
particularities	high chemical resistance

# pico+35/TF/U

## pin assignment



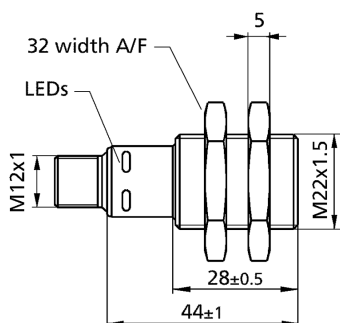
order no.

**pico+35/TF/U**

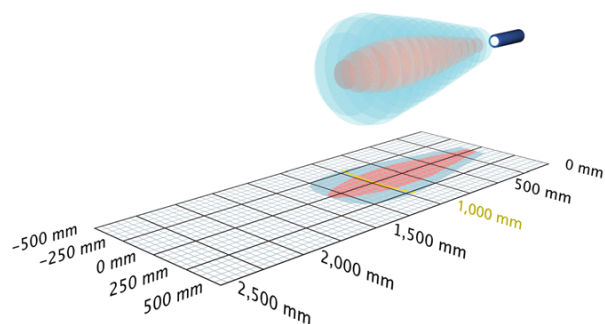
The content of this document is subject to technical changes.  
Specifications in this document are presented in a descriptive way  
only. They do not warrant any product features.

# 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	high chemical resistance 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

# pico+100/TF/F

## outputs

output 1	switching output Push-Pull, $U_B=3\text{ V}$ , $-U_B+3\text{ V}$ , $I_{\max} = 100\text{ mA}$
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

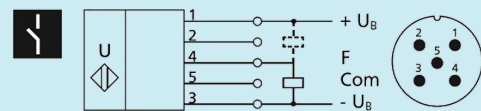
material	PVDF, PBT
ultrasonic transducer	coated with PTFE film, FFKM O-ring
max. tightening torque of nuts	1 Nm
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	30 g

# pico+100/TF/F

## 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	high chemical resistance IO-Link

## pin assignment



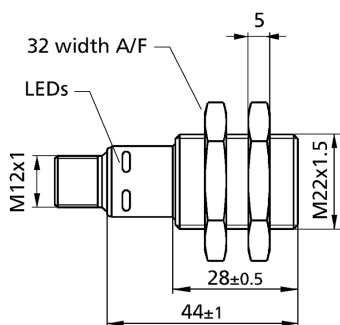
order no.

**pico+100/TF/F**

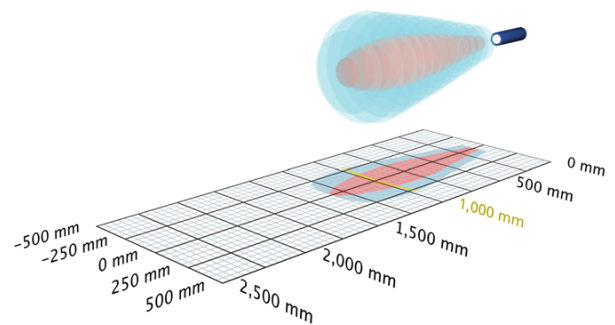
The content of this document is subject to technical changes.  
Specifications in this document are presented in a descriptive way  
only. They do not warrant any product features.

# pico+100/TF/I

## 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	high chemical resistance

## 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 current: 4-20 mA switchable rising/falling
response time	80 ms
delay prior to availability	< 300 ms

## inputs

input 1	com input synchronisation input teach-in input
---------	--

## housing

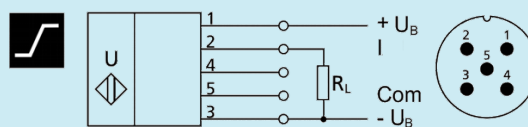
material	PVDF, PBT
ultrasonic transducer	coated with PTFE film, FFKM O-ring
max. tightening torque of nuts	1 Nm
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	30 g

## technical features/characteristics

temperature compensation	yes
controls	com input
scope for settings	Teach-in via com input on pin 5 LCA-2 with LinkControl
Synchronisation	yes
multiplex	yes
indicators	1 x LED green: working, 1 x LED yellow: switch status
particularities	high chemical resistance

# pico+100/TF/I

## pin assignment



order no.

**pico+100/TF/I**

The content of this document is subject to technical changes.  
Specifications in this document are presented in a descriptive way  
only. They do not warrant any product features.