microsonic
Ultrasonic Sensors

Extract from our online catalogue:

nano-24/CU

Current to: 2015-01-12

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nano – what's in a name? At just 55 mm long, including plug, the nano is the shortest M12 ultrasonic sensor on the market.

Highlights

- **Ultrasonic sensor in the M12 threaded sleeve**
- **The total length including plug is only 55 mm**

Basics

- **1 switching output in pnp or npn variant**
- **Analogue output 4-20 mA or 0-10 V**
- **2 detection ranges with a measurement range of 20 mm to 350 mm**
- **microsonic Teach-in on pin 2**
- **Temperature compensation**
- **0.069 mm resolution**
- **Operating voltage 10–30 V** *::: for use with various voltage networks*

Description

With a housing length of only 55 mm

nano sensors with switching outputs are the smallest ultrasonic sensors inside the M12 threaded sleeve on the market. Analogue sensors are 60 mm long. The nano has a 4-pole M12 circular plug and are taught via pin 2.

For the nano-sensor family

there are 4 output stages and 2 measuring ranges available:

1 switching output optionally in pnp or npn circuitry

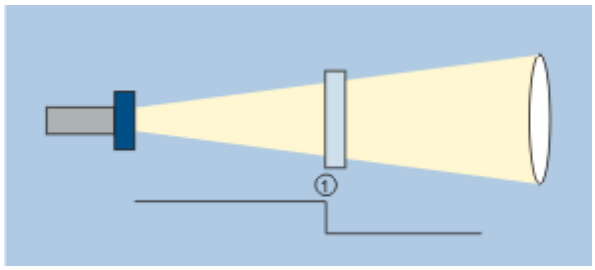
1 analogue output 4-20 mA or 0-10 V

The nano sensors with switched output have three operating modes:

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

Teach-in of a single switching point

- Place object (1) to be detected at the desired distance
- Apply +UB to pin 2 for about 3 seconds
- Then apply +UB to pin 2 again for about 1 second

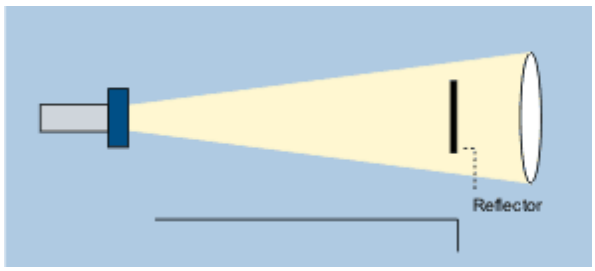


Teach-in of a switching point

Teach-in of a two-way reflective barrier

with a fixed mounted reflector.

- Apply +UB to pin 2 for about 3 seconds
- Then apply +UB to pin 2 again for about 10 second



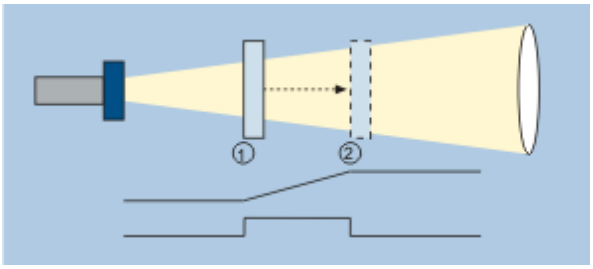
Teach-in of a two-way reflective barrier

To set a window with two switching points

- Place object to the sensor-close window limit (1)
- Apply +UB to pin 2 for about 3 seconds until both LEDs flash
- Then move the object to the sensor-distant window limit (2)
- Then apply +UB to pin 2 again for about 1 second until LED2 extinguishes

For setting an analogue output

- initially position the object to be detected on the sensor-close window limit (1)
- Apply +UB to pin 2 for about 3 seconds until both LEDs flash
- Move the object to the sensor-distant window limit (2)
- Then apply +UB to pin 2 again for about 1 second



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

For setting a window

with two switching points on a single switched output, the procedure is the same as setting the analogue

The NCC/COC function

and rising/falling analoge characteristic can also be set via pin 2.

One green and one yellow LED

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

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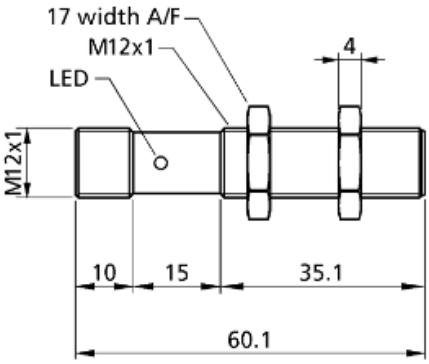
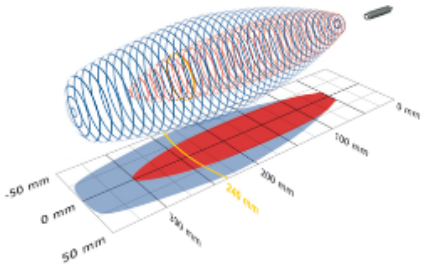
scale drawing	detection zone
	

1 x analogue 0-10 V	350 mm
operating range	40 - 240 mm
design	cylindrical M12
operating mode	analogue distance measurements
particularities	narrow sound field
ultrasonic -specific	
means of measurement	echo propagation time measurement
transducer frequency	500 kHz
blind zone	40 mm
operating range	240 mm
maximum range	350 mm
angle of beam spread	please see graphics detection zone
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	≤ 35 mA
type of connection	4-pin M12 initiator plug

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outputs	
output 1	analogue output voltage: 0-10 V (at U_B ≥ 15 V), short-circuit-proof switchable rising/falling
response time	30 ms
delay prior to availability	< 300 ms
inputs	
input 1	Teach-in input
housing	
material	brass sleeve, nickel-plated, plastic parts, PBT
ultrasonic transducer	polyurethane foam, epoxy resin with glass contents
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	15 g
technical features/characteristics	
scope for settings	Teach-in Teach-in über Com-Eingang an Pin 2
indicators	1 x LED green: working, 1 x LED yellow: object in the window
particularities	narrow sound field
documentation (download)	
pin assignment