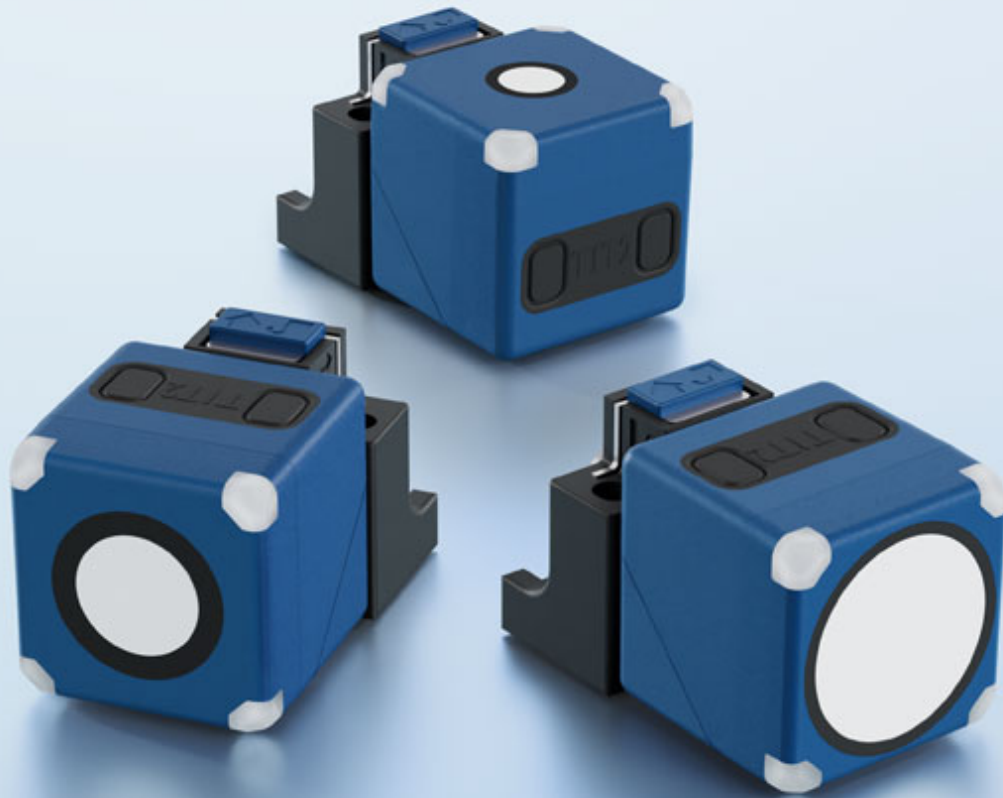




Extract from our online catalogue:

cube-130/F

Current to: 2023-11-13



cube ultrasonic sensors – easy installation: no tools required thanks to QuickLock mounting bracket.

## HIGHLIGHTS

- › Cubic miniature housing › only 40 mm x 40 mm x 40 mm
- › Sensor head › mountable in 5 positions
- › Easily visible LED display › in any mounting position
- › Convenient QuickLock mounting bracket
- › UL gelisted › to Canadian and US safety standards
- › IO-Link interface › for support of the new industry standard
- › Smart Sensor Profiles › more transparency between IO-Link Devices

## BASICS

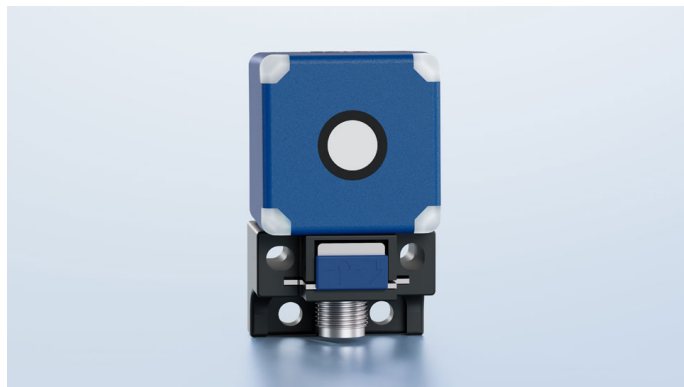
- › 1 Push-Pull switching output › pnp or npn basis
- › 1 Push-Pull switching output and 1 analogue output › or switchable to second switching output
- › 3 detection ranges with a measurement range of 65 mm to 5 m
- › microsonic Teach-in by using button T1 and T2
- › Temperature compensation
- › 9–30 V operating voltage
- › LinkControl › for configuration of sensors from a PC



# Description

## The cube ultrasonic sensors

are designed in a cubic housing for demanding applications. The cube is available with the QuickLock mounting bracket. This allows the sensor to be mounted quickly and easily.



*cube sensor with QuickLock mounting bracket*

The cube can be easily turned in 5 positions thanks to the rotating sensor head. The convenient mounting allows flexible use in numerous applications.

## Four LEDs

show all operating states in any mounting position. The sensor status is clearly visible.

## There are two output stages available:



1 Push-Pull switching output in pnp- or npn-circuitry

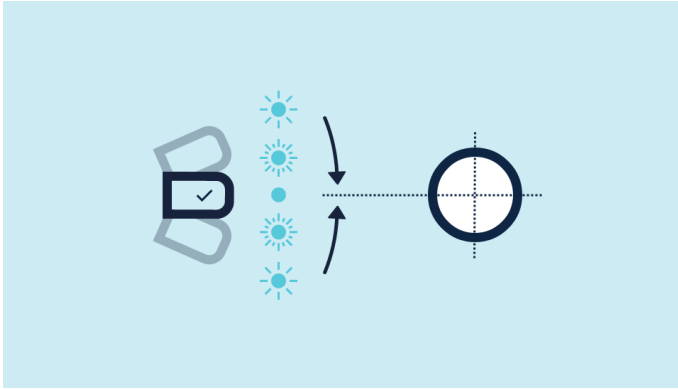


1 Push-Pull switching output and 1 analogue output or switchable to 2. switching output

With LinkControl or IO-Link, the analogue output can be deactivated and a second Push-Pull switching output activated instead. The second switching output could be used in level monitoring, for example, to control the overflow.

## New! With the internal alignment assistance

the sensor can be optimally aligned to the object during installation.



*cube sensor using alignment assistance*

### Using the two Teach-in buttons T1 and T2

the cube sensors can be easily set (microsonic Teach-in).

### IO-Link

cube ultrasonic sensors support IO-Link in version 1.1 as well as Smart Sensor Profile.

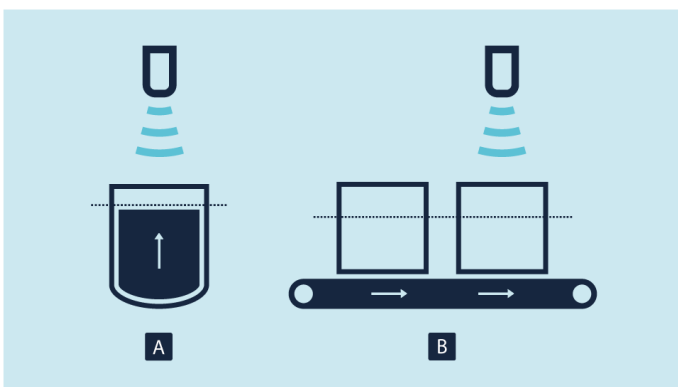
## Set cube sensor via Teach-in procedure

The cube sensors with switching output have three operating modes:

- › Single switching point (Method A and B)
- › Two-way reflective barrier
- › Window mode

### The operating mode single switching point (Method A)

is suitable for applications, in which the actual distance to the object is also the switching point. A typical application is level control, where the ultrasonic sensor detects the filling level vertically from above during the filling process. The taught switching point corresponds to the maximum filling level.

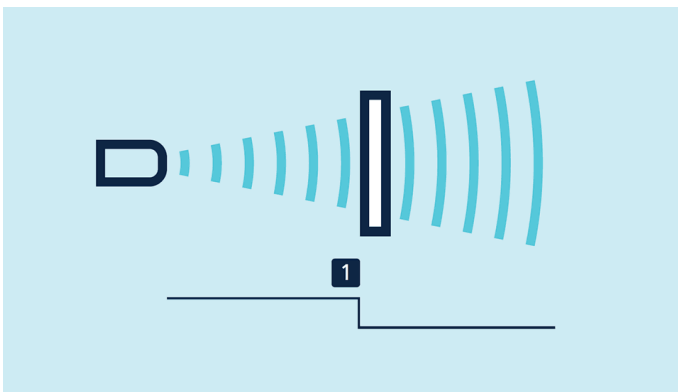


### The operating mode single switching point +8 % (Method B)

is recommended by objects, which move into the detection area from the side. In this case the switching distance is set 8 % further than the actual measured distance to the object. This ensures a reliable switching distance even if the height of the objects varies slightly.

#### Teach-in of a single switching point (Method A)

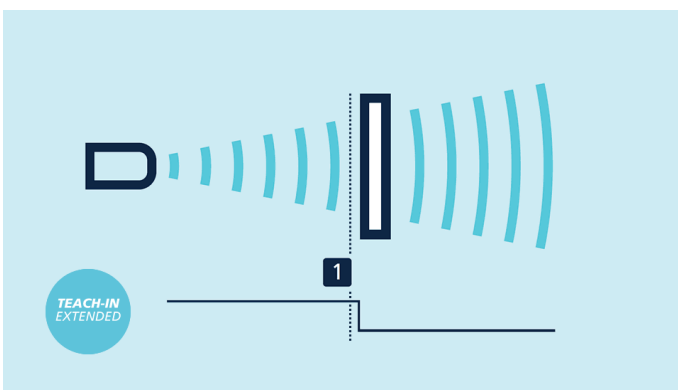
- › Place object to be detected (1) at the desired distance
- › Push button T2 for about 3 seconds
- › Then push button T2 again for about 1 second



Teach-in of a switching point (Method A)

#### Teach-in of a single switching point +8% (Method B)

- › Place object to be detected (1) at the desired distance.
- › Push button T2 for about 3 seconds.
- › Then push button T2 again for about 3 seconds.

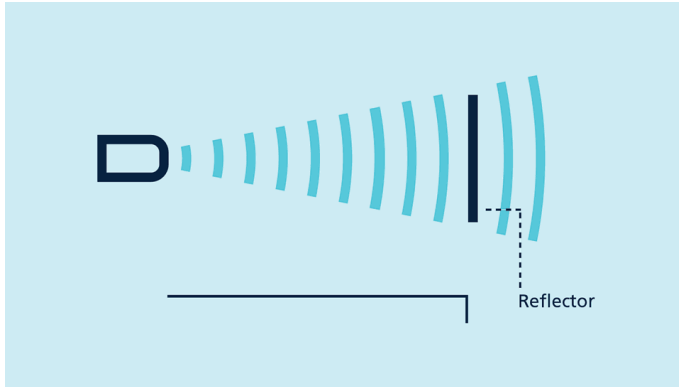


Teach-in of a switching point +8% (Method B)

#### Teach-in of a two-way reflective barrier

with a fixed mounted reflector

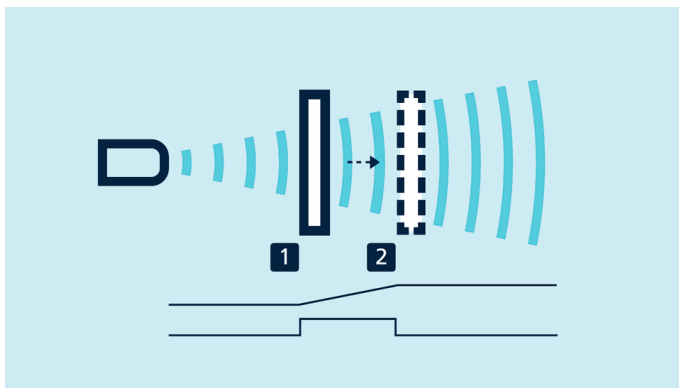
- › Push button T2 for about 3 seconds
- › Then push button T2 again for about 10 seconds



*Teach-in of a two-way reflective barrier*

### For setting the analogue output

- › Initially position the object to be detected to the sensor-close window limit (1)
- › Push button T1 for about 3 seconds
- › Then move the object to the sensor-distant window limit (2)
- › Then push button T1 again for about 1 second



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

### For configuration of a window

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

### Analogue sensors

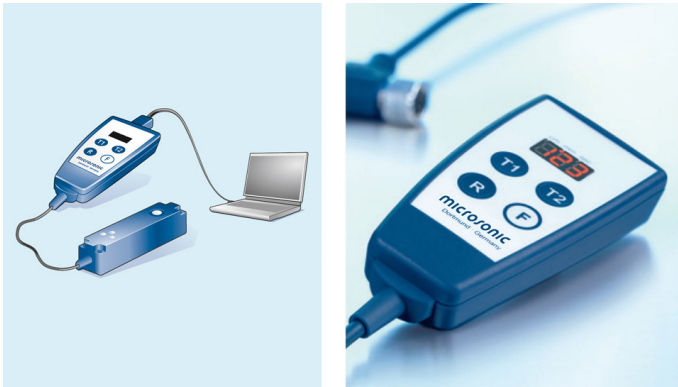
check the connected working resistance at the output and automatically switch to 4–20 mA current output or 0–10 V voltage output.

### NCC/NOC

and rising/falling analogue characteristics can also be set via the buttons.

## LinkControl

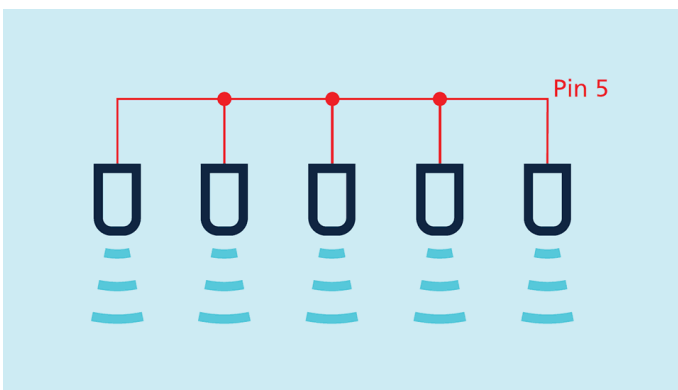
permits comprehensive parameterisation of cube ultrasonic sensors via the **LinkControl-Adapter LCA-2** which connects the sensors to the PC.



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

## Easy to synchronise

If several cube ultrasonic sensors are operated in one application, they can be synchronised via pin 5 to prevent.



*Synchronisation über Pin 5*

If more than 10 sensors must be synchronised, this can be carried out with the **SyncBox1**, which is available as an accessory. Synchronisation via pin 5 is also possible in IO-Link mode.

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## Imprint

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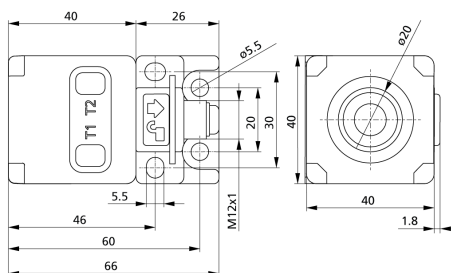
T +49 231 97 51 51 27

E [vertrieb@microsonic.de](mailto:vertrieb@microsonic.de)

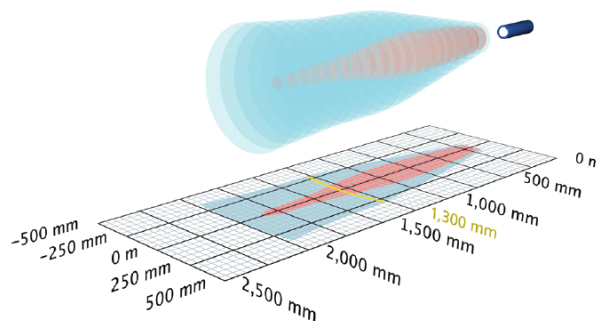
[Contact form](#)

# cube-130/F

## scale drawing



## detection zone



1 x Push-Pull



measuring range	200 - 2.000 mm
design	cuboidal
operating mode	IO-Link proximity switch/reflective mode reflective barrier window mode
particularities	Kleine quaderförmige Bauform IO-Link Version 1.1 Smart Sensor Profile UL Listed QuickLock-Montagehalterung

## ultrasonic-specific

means of measurement	echo propagation time measurement
transducer frequency	200 kHz
blind zone	200 mm
operating range	1,300 mm
maximum range	2,000 mm
resolution	0,224 mm
reproducibility	± 0.15 %
accuracy	± 1 % (temperature drift internally compensated)

## electrical data

operating voltage $U_b$	9 - 30 V d.c., reverse polarity protection
voltage ripple	± 10 %
no-load current consumption	≤ 50 mA
type of connection	5-pin M12 initiator plug

cube-130/F

# cube-130/F

## outputs

output 1	switching output Push-Pull, $U_B-3\text{ V}$ , $-U_B+3\text{ V}$ , $I_{\max} = 100\text{ mA}$ NOC/NCC adjustable, short-circuit-proof
switching hysteresis	20 mm
switching frequency	8 Hz
response time	96 ms
delay prior to availability	< 300 ms

## inputs

input 1	com input synchronisation input teach-in input
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## IO-Link

product name	cube-130/F
product ID	43380
SIO mode support	yes
COM mode	COM2 (38,4 kBaud)
min. cycle time	24 ms
format of process data	16 Bit, R, UNI16
content of process data	Bit 0: state SSC1; Bit 2-4: signal stability; Bit 5-7: signal level; Bit 8-15: scale (Int. 8); Bit 16-31: measured value (Int. 16)
ISDU paramter	Identification, measuring configuration, switched output, filter, temperature compensation, operation
system commands	SP1 Teach-in, SP2 Teach-in, factory settings
Smart Sensor Profile	yes
IODD version	IODD version 1.1

## housing

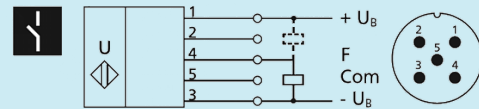
material	PA
ultrasonic transducer	polyurethane foam, epoxy resin with glass contents
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	120 g

# cube-130/F

## technical features/characteristics

temperature compensation	yes
controls	2 push-buttons
scope for settings	Teach-in via push-button Teach-in via com input on pin 5 LCA-2 with LinkControl IO-Link
Synchronisation	yes
multiplex	yes
indicators	2 x LED green, 2 x LED yellow
particularities	kleine quaderförmige Bauform IO-Link Version 1.1 Smart Sensor Profile UL Listed QuickLock-Montagehalterung

## pin assignment



order no.

**cube-130/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.