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extract from our online catalogue:

cube-35/F

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microsonic GmbH / Phoenixseestraße 7 / 44263 Dortmund / Germany / **T** +49 231 975151-0 / **F** +49 231 975151-51 / **E** info@microsonic.de
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cube

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

Highlights

- Cubic 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
- IO-Link interface › for support of the new industry standard
- Smart Sensor Profiles › more transparency between IO-Link Devices
- UL listed › to Canadian and US safety standards

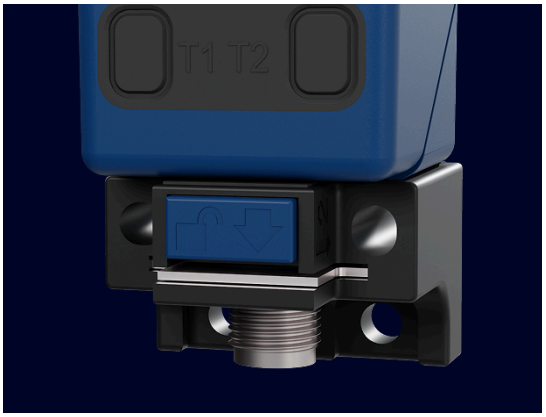
Basics

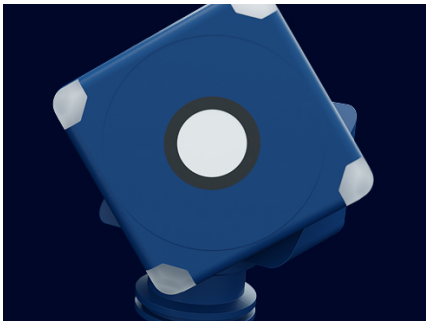
- 1 Push-Pull switching output › pnp or npn basis
- 1 Push-Pull switching output and 1 analogue output › or switchable to second switching output
- 3 detection ranges with a measurement range of 65 mm to 5 m
- microsonic Teach-in by using button T1 and T2
- Temperature compensation
- 9–30 V operating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

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.

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 therefore clearly visible at all times.

There are two output stages available:

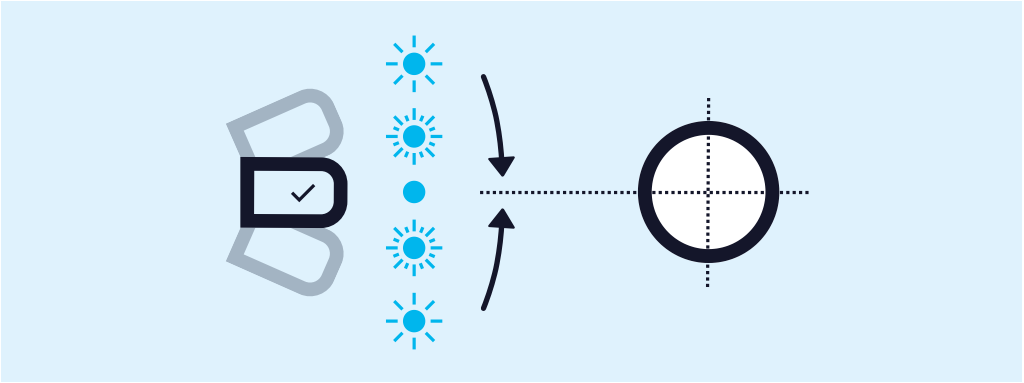
1 Push-Pull switching output in pnp- or npn-circuitry

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.

With the internal alignment assistance

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



Using alignment assistance

Using the two Teach-in buttons T1 and T2

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

IO-Link integrated

cube ultrasonic sensors support IO-Link in version 1.1.2 as well as Smart Sensor Profile.

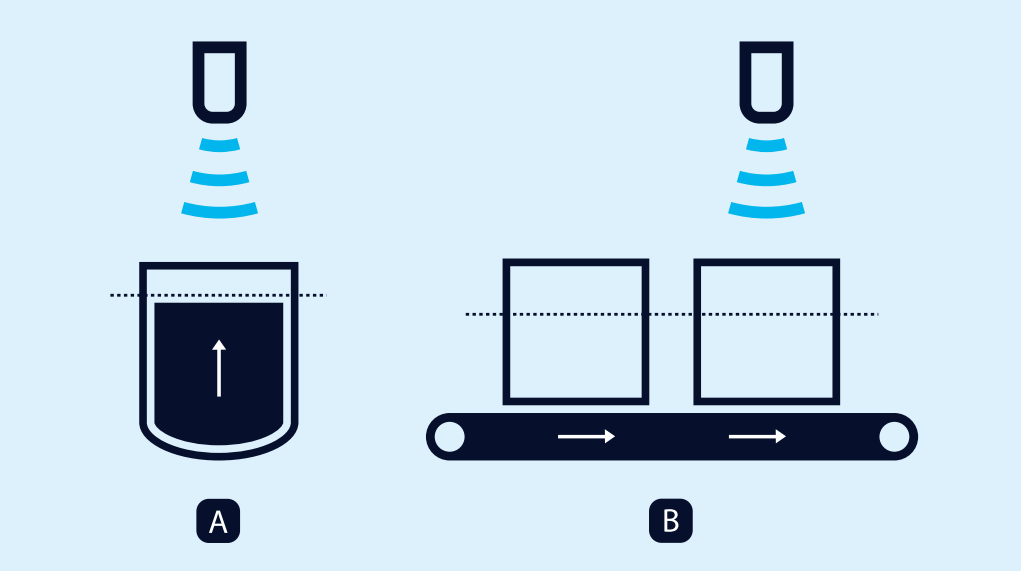
Set cube sensor via Teach-in procedure

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.



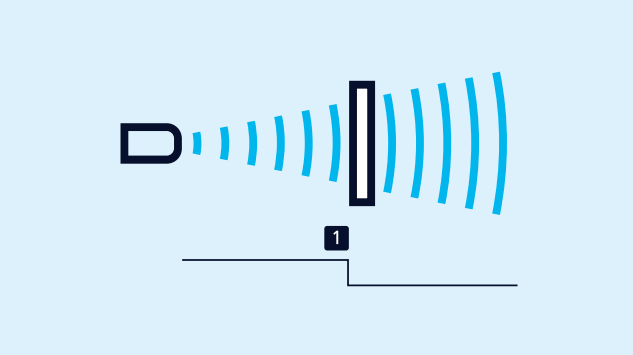
Teach-in of a switching point Method A and Method B

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

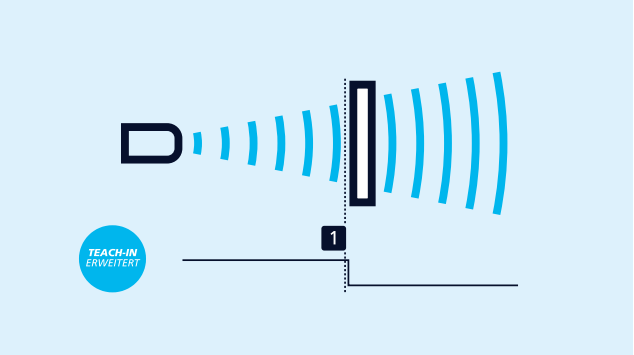
is recommended by objects, which move into the detection area from the side. In this case the switching distance is set 8 % further than the actual measured distance to the object. This ensures a reliable switching distance even if the height of the objects varies slightly.

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 switching point +8% (Method B)

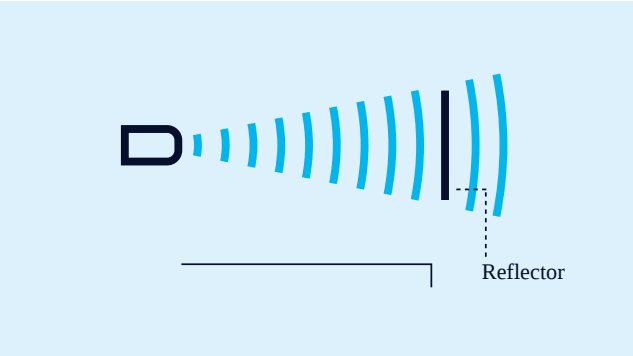
Teach-in of a single switching point +8% (Method B)

- 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.

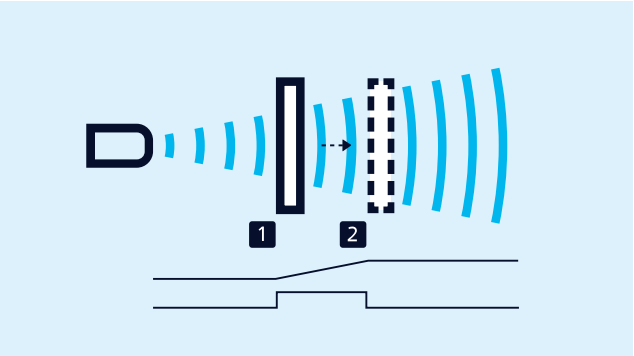
Teach-in of a two-way reflective barrier

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



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

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.

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.

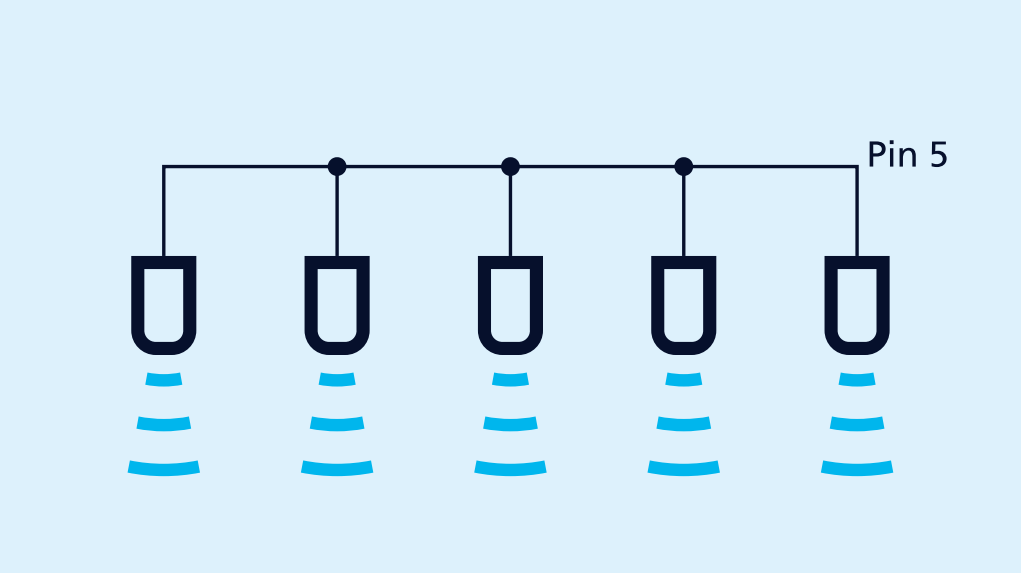


cube sensor connected to the PC via LCA-2 for programming

Easy to synchronise

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

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.



Synchronisation via pin 5

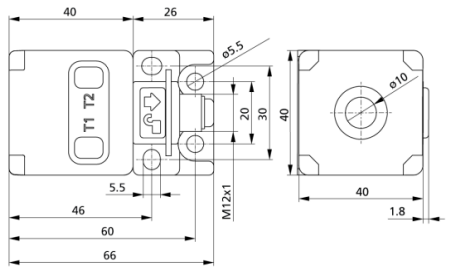
You have special requirements?

Nothing as simple as that.

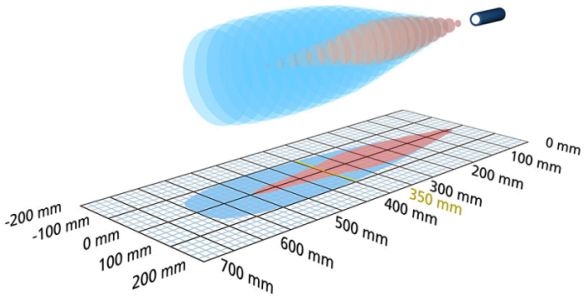
With us, you can easily find an individual solution. Let us talk about your application: +49 231 97 51 51-82.

cube-35/F

scale drawing



detection zone



1 x Push-Pull

600 mm

design	cuboidal
operating mode	IO-Link proximity switch/reflective mode reflective barrier window mode
particularities	small cuboidal design IO-Link version 1.1 Smart Sensor Profile UL Listed QuickLock mounting bracket

Ultrasonic-Specific

means of measurement	echo propagation time measurement
transducer frequency	400 kHz
blind zone	65 mm
operating range	350 mm
max. range	600 mm
resolution	0.056 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

Outputs

output 1	switching output Push-Pull, U_B-3 V, -U_B+3 V,I_{max} = 100 mA NOC/NCC adjustable, short-circuit-proof
switching hysteresis	5 mm
switching frequency	12 Hz
response delay	64 ms
delay prior to availability	< 300 ms

Inputs

input 1	com input synchronisation input teach-in input

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

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
synchronization	yes
multiplex	yes
indicators	2 x LED green, 2 x LED yellow

Accessories

deployable accessory	KST5A-2/M12 KST5A-5/M12 KST5G-2/M12 KST5G-5/M12 LCA-2 LCA-2 Koffer

pin assignment

