



Operating manual

Lcs-Ultrasonic Sensors with two switched outputs

Ics-25/DD/QP

Ics-35/DD/QP

Ics-130/DD/QP

Product description

- The Ics sensor with two switched outputs measures the distance to an object within the detection zone contactless. Depending on the adjusted detect distance the switched outputs are set.
- The output functions are changeable from NOC to NCC.
- Light emitting diodes (three-colour LEDs) indicate the switching status.
- The sensors can be trained using Teach-in processes.
- Using the LinkControl adapter (optional accessory) all sensor parameter settings may be made by a Windows-Software.

sensor that can be applied with normal reflectors with sufficient function reserve. When using good reflectors, such as a calm water surface, the sensor can also be used up to its **maximum range**. Objects that strongly absorb (e.g. plastic foam) or diffusely reflect sound (e.g. pebble stones) can also reduce the defined operating range.

Assembly instructions

- Assemble the sensor at the installation location.
- Plug in the connector cable to the M 12 connector, see fig.1.

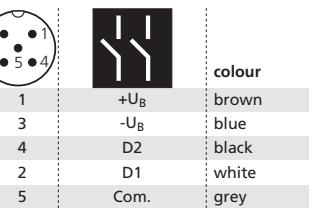


Fig. 1: Pin assignment with view onto sensor plug and colour coding of the microsonic connection cable

Start-up

Ics sensors are delivered factory made with the following settings:

- Switched outputs on NOC
- Detecting distances at operating range and half operating range
- Measurement range set to maximum range

Set the parameters of the sensor using the Teach-in procedure.

Operation

Ics sensors work maintenance free. Small amounts of dirt on the surface do not influence function. Thick layers of dirt and caked-on dirt affect sensor function and therefore must be removed.

Notes

- Ics sensors have internal temperature compensation. Because the sensors heat up on their own, the temperature compensation reaches its optimum working point after approx. 30 minutes of operation.
- During normal mode operation, a yellow LED signals that the corresponding switched output has connected.
- During Teach-in mode, the hysteresis loops are set back to factory settings.
- If no signal is transmitted to the Com input for 20 s during parameter setting mode the made changes are stored and the sensor returns to normal mode operation.
- You can reset the factory settings at any time, see »Lock Teach-in & factory setting«.
- Ics-sensors optional can be programmed using the LinkControl adapter LCA-2, see «Optional setting of parameters using the LinkControl Adapter LCA-2».

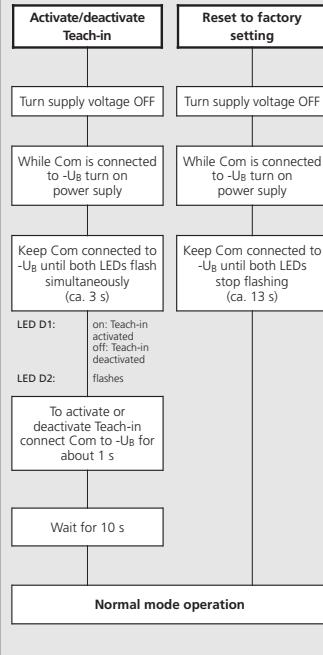
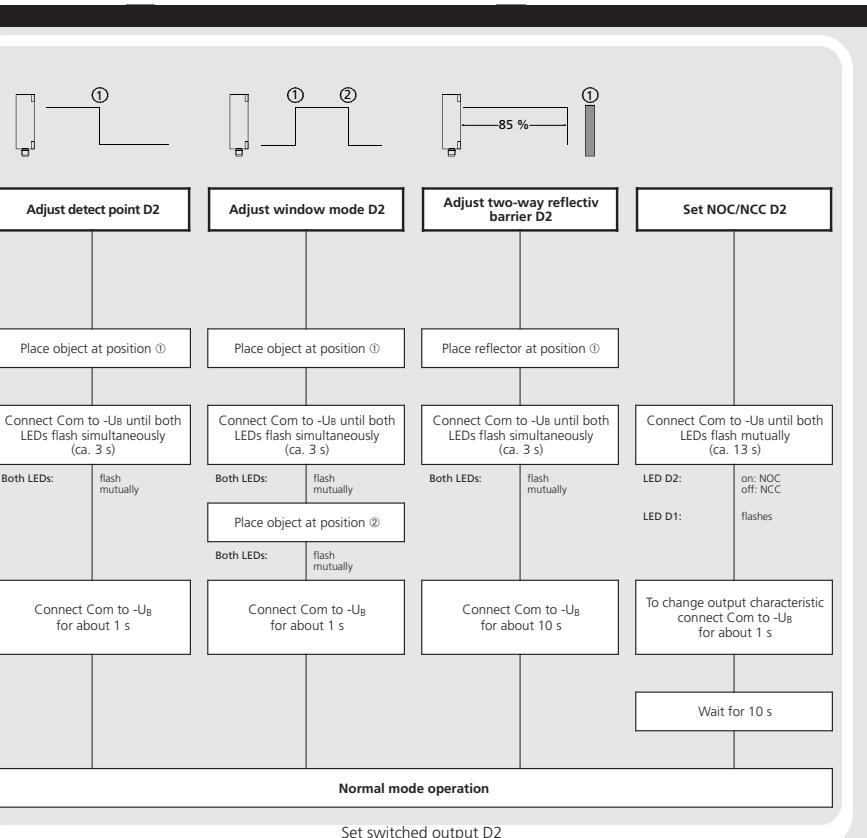
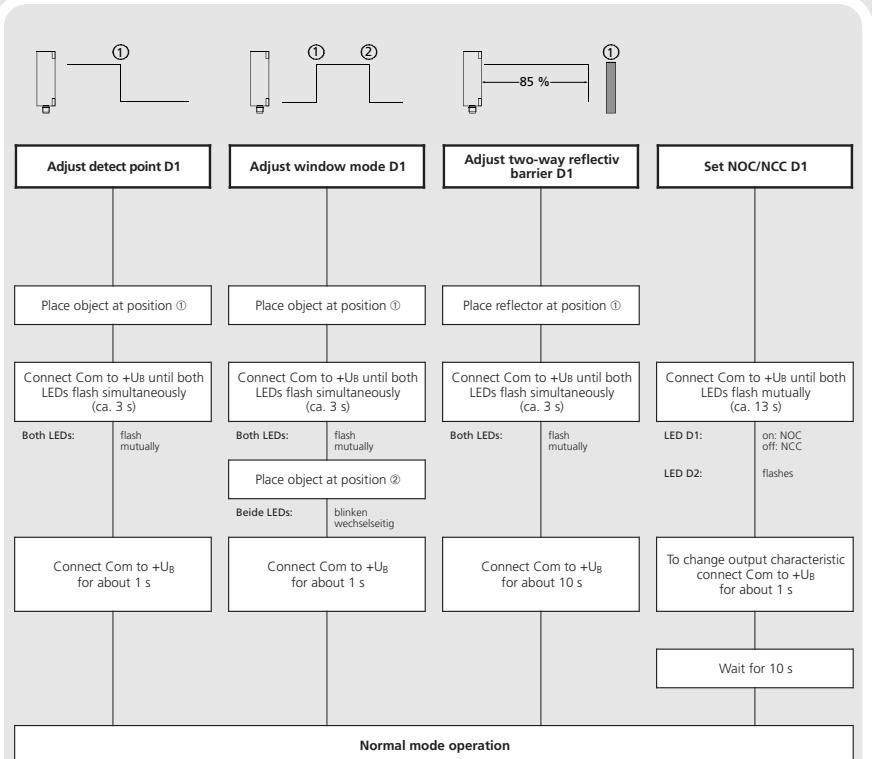


2014/30/EU

Barcode: MV-DO-074380-629224

Lock Teach-in & factory setting

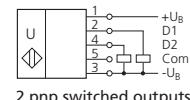
Sensor adjustment with Teach-in procedure



Set switched output D1

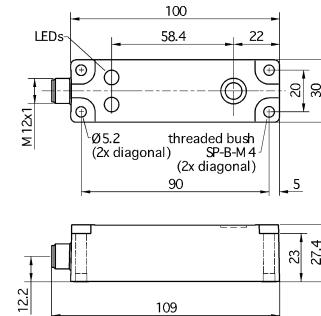
Set switched output D2

Technical data

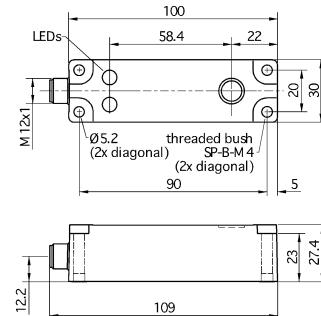


2 pnp switched outputs

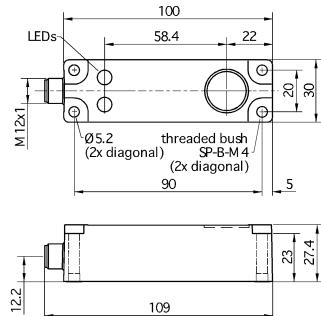
D... lcs-25...



D... lcs-35...



D... lcs-130...



Blind zone

0 to 30 mm

Operating range

250 mm

Maximum range

350 mm

Angle of beam spread

See detection zone

Transducer frequency

320 kHz

Resolution, sampling rate

0.18 mm

Reproducibility

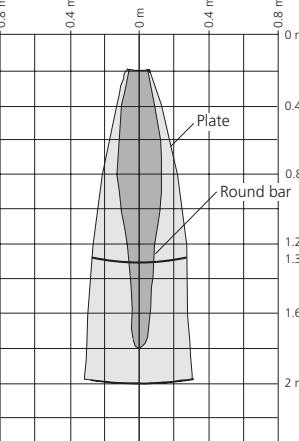
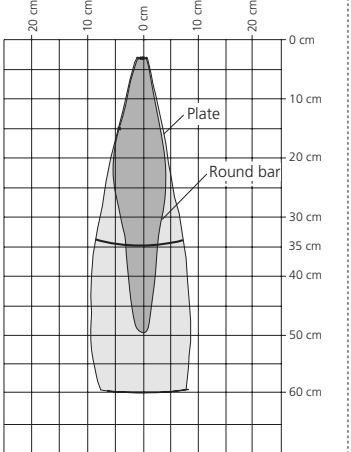
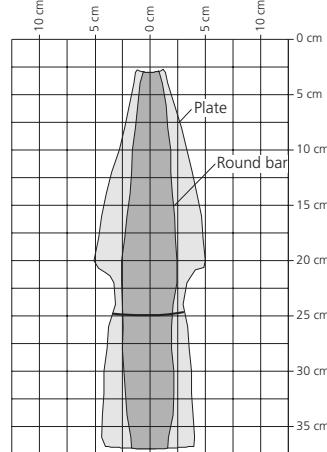
± 0.15 %

Detection zones

for different objects:
The dark grey areas are determined
with a thin round bar (10 mm dia.)

and indicate the typical operating range
of a sensor. In order to obtain the light grey
areas, a plate (100 x 100 mm) is introduced
into the beam spread from the side.

In doing so, the optimum angle between
plate and sensor is always employed.
This therefore indicates the maximum
detection zone of the sensor.
It is not possible to evaluate ultrasonic
reflections outside this area.



Accuracy

Temperature drift internal compensated, ≤ 2%, may be deactivated¹⁾ (0.17%/K without compensation

9 V to 30 V DC, reverse polarity protection

Operating voltage U₈

Voltage ripple

±10 %

No-load current consumption

< 60 mA

Housing

PBT

ultrasonic transducer: polyurethane foam,

epoxy resin with glass content

IP 65

Class of protection to EN 60 529

Norm conformity

EN 60947-5-2

Type of connection

5-pin M12 initiator plug

Indicators

2 three-colour LEDs

Programmable

Yes, with LCA-2 & LinkControl

Operating temperature

-25°C to +70°C

Storage temperature

-40°C to +85°C

Weight

120 g

Switching hysteresis¹⁾

3 mm

Switching frequency¹⁾

11 Hz

Response time¹⁾

50 ms

Time delay before availability

< 300 ms

Order no.

Switched output

lcs-25/DD/QP

pnp, U₈-2 V, I_{max} = 200 mA

switchable NOC/NCC, short-circuit-proof

Temperature drift internal compensated, ≤ 2%, may be deactivated¹⁾ (0.17%/K without compensation

9 V to 30 V DC, reverse polarity protection

Operating voltage U₈

Voltage ripple

±10 %

No-load current consumption

< 60 mA

Housing

PBT

ultrasonic transducer: polyurethane foam,

epoxy resin with glass content

IP 65

Class of protection to EN 60 529

Norm conformity

EN 60947-5-2

Type of connection

5-pin M12 initiator plug

Indicators

2 three-colour LEDs

Programmable

Yes, with LCA-2 & LinkControl

Operating temperature

-25°C to +70°C

Storage temperature

-40°C to +85°C

Weight

120 g

Switching hysteresis¹⁾

5 mm

Switching frequency¹⁾

8 Hz

Response time¹⁾

70 ms

Time delay before availability

< 300 ms

Order no.

Switched output

lcs-35/DD/QP

pnp, U₈-2 V, I_{max} = 200 mA

switchable NOC/NCC, short-circuit-proof

Temperature drift internal compensated, ≤ 2%, may be deactivated¹⁾ (0.17%/K without compensation

9 V to 30 V DC, reverse polarity protection

Operating voltage U₈

Voltage ripple

±10 %

No-load current consumption

< 60 mA

Housing

PBT

ultrasonic transducer: polyurethane foam,

epoxy resin with glass content

IP 65

Class of protection to EN 60 529

Norm conformity

EN 60947-5-2

Type of connection

5-pin M12 initiator plug

Indicators

2 three-colour LEDs

Programmable

Yes, with LCA-2 & LinkControl

Operating temperature

-25°C to +70°C

Storage temperature

-40°C to +85°C

Weight

120 g

Switching hysteresis¹⁾

5 mm

Switching frequency¹⁾

6 Hz

Response time¹⁾

110 ms

Time delay before availability

< 300 ms

Order no.

Switched output

lcs-130/DD/QP

pnp, U₈-2 V, I_{max} = 200 mA

switchable NOC/NCC, short-circuit-proof

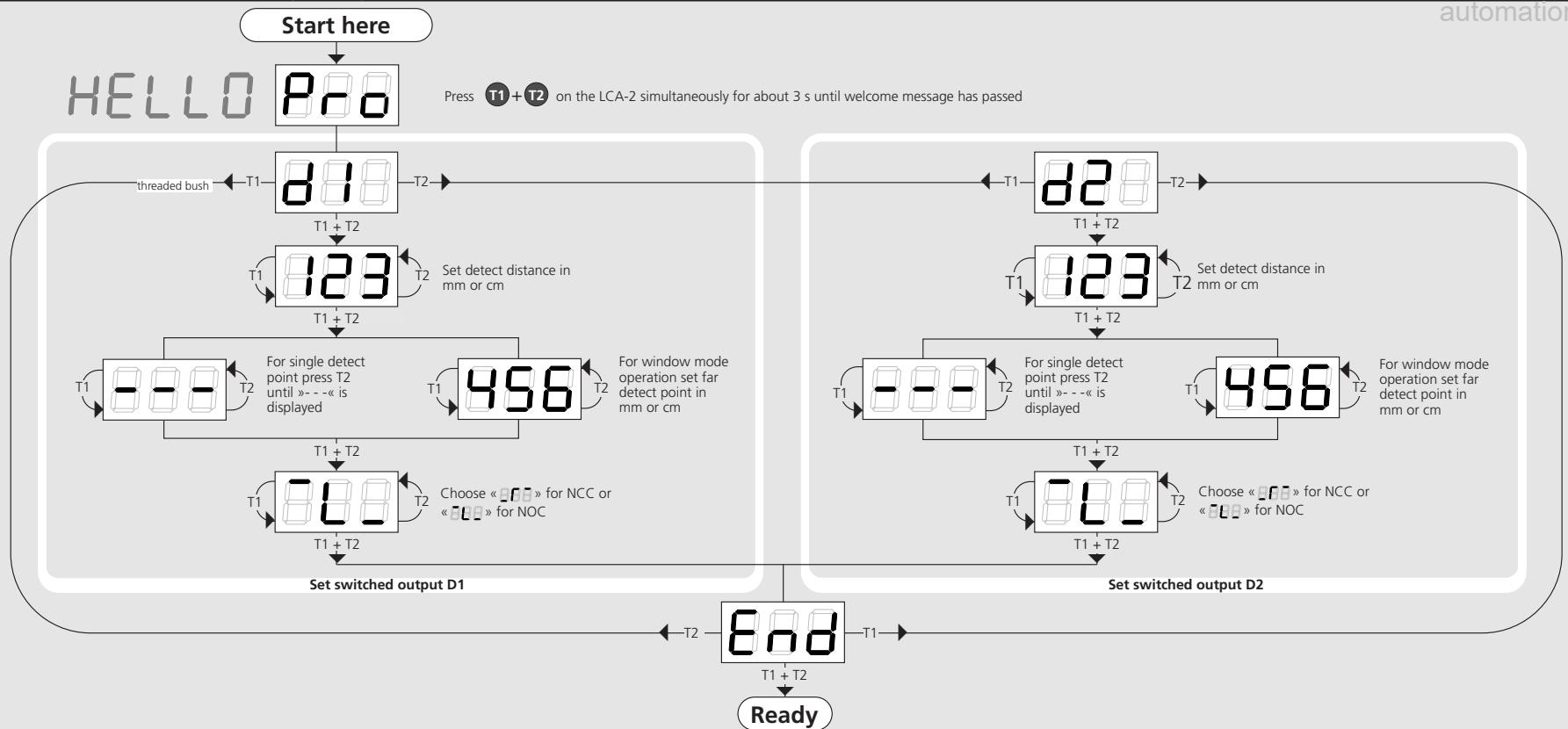
¹⁾ Can be programmed with LinkControl

Optional setting of parameters using the LinkControl Adapter LCA-2 (Offline programming)

Offline programming

- Load sensor parameters in the LinkControl Adapter LCA-2
- Change parameters and additional functions as described here
- Write changed parameters back into the lcs sensor

Please refer to the quick reference guide on the LCA-2.



Setting of additional functions in the LCA-2

