



Operating Instructions

sks-15/D sks-15/E
sks-15/CD sks-15/CE

Ultrasonic proximity switch with one switched output

Product Description

The sks sensor offers a non-contact measurement of the distance to an object which must be positioned within the sensor's detection zone. The switched output is set in dependence of the adjusted detect distance.

Via the push-button, the detect distance and operating mode can be adjusted (teach-in). Two LEDs indicate operation and the state of the switched output.

The output function is changeable from NOC to NCC.

Safety Notes

- Read the operating instructions prior to start-up.
- Connection, installation and adjustment works may only be carried out by expert personnel.
- No safety component in accordance with the EU Machine Directive

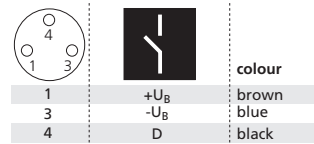
Proper use

sks ultrasonic sensors are used for non-contact detection of objects.

Installation

- Mount the sensor at the installation site.
Maximum torque: 0,5 Nm
- Connect a connection cable to the M8 device plug.

3-pin initiator plug



4-pin initiator plug

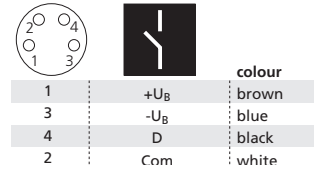


Fig. 2: Pin assignment with view onto sensor plug and colour coding of the microsonic connection cable

Start-Up

- Connect the power supply.
- Carry out the adjustment in accordance with the diagram.

Factory Setting

- Operation with one detect point
- Switched output on NOC
- Detect points at operating range

Operating modes

Three operating modes are available for the switched output:

- Operation with one detect point
The switched output is set if the object falls below the set detect point.
- Window mode
The switched output is set if the object is outside the set window margins.
- Two-way reflective barrier

The switched output is set if the object is between sensor and reflector.

Checking operation mode

- In normal mode shortly press the push-button.

The green LED stops shining for one second, then it will show the current operation mode:

- 1 x flashing = operation with one switching point
- 2 x flashing = window mode
- 3 x flashing = reflective barrier

After a break of 3 s the green LED shows the output function:

- 1 x flashing = NOC
- 2 x flashing = NCC

Maintenance

microsonic sensors are maintenance-free. In case of excess caked-on dirt we recommend cleaning the white sensor surface

Notes

- sks-15/CD and sks-15/CE sensors have internal temperature compensation. Because the sensors heat up on their own, the temperature compensation reaches its optimum working point after approximately 30 minutes of operation. The sensors sks-15/D and sks-15/E have no temperature compensation.
- The sks sensor has a blind zone, within which distance measurements are not possible.
- In the normal operating mode, an illuminated yellow LED signals the switched output is switched through.
- If the object to be sensed moves into the detection area from the side, the switching distance should be set 8-10 % further than the desired switch point to obtain a reliable object detection. If the object moves towards the sensor (e.g. level control) the detect point can be taught to the actual distance at which the sensor has to switch the output.

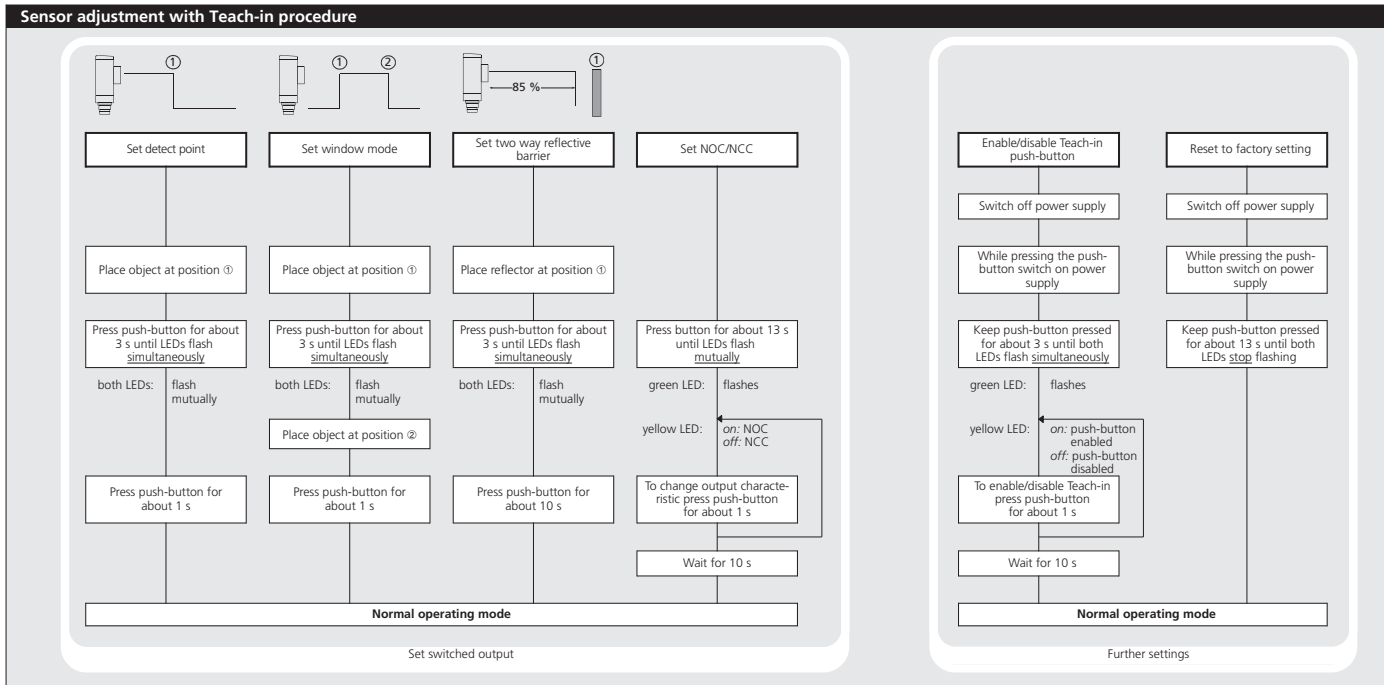
Contact

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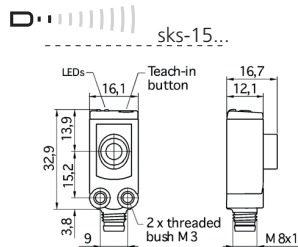
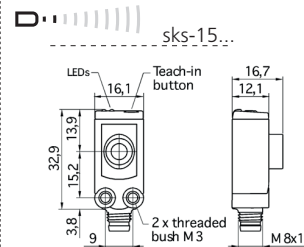
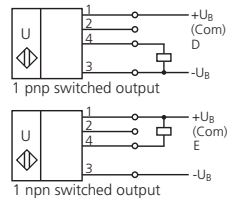
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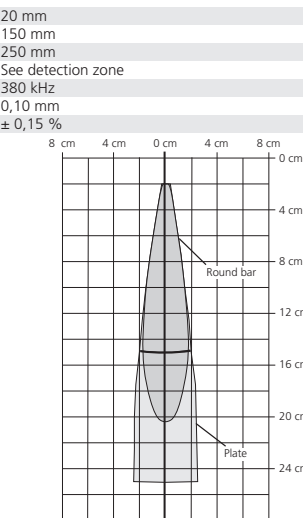
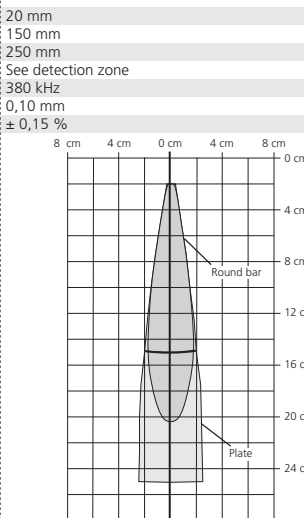
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Technical data



blind zone 20 mm
operating range 150 mm
maximum range 250 mm
angle of beam spread See detection zone
transducer frequency 380 kHz
resolution, sampling rate 0,10 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 0,17 % / °C

± 1% (Temperature drift internal compensated)

operating voltage U_B

20 - 30 V DC, reverse polarity protection

20 - 30 V DC, reverse polarity protection

voltage ripple

±10 %

±10 %

no-load current consumption

< 25 mA

< 25 mA

housing

ABS
 ultrasonic transducer: polyurethane foam,
 epoxy resin with glass content

ABS
 ultrasonic transducer: polyurethane foam,
 epoxy resin with glass content

class of protection to EN 60 529

IP 67

IP 67

type of connection

3-pin M8 initiator plug

4-pin M8 initiator plug

controls

Teach-in push-button

Teach-in push-button

indicators

LED green (operation)

LED green (operation)

LED yellow (state of output)

LED yellow (state of output)

programmable

No

No

operating temperature

-25°C to +70°C

-25°C to +70°C

storage temperature

-40°C to +85°C

-40°C to +85°C

weight

8 g

8 g

switching hysteresis

2 mm

2 mm

switching frequency

25 Hz

25 Hz

response time

32 ms

32 ms

time delay before availability

< 300 ms

< 300 ms

norm conformity

EN 60947-5-2

EN 60947-5-2

order no.

SKS-15/D

SKS-15/CD

switched output

pnp, U_B=2 V, I_{max} = 200 mA
 switchable NOC/NCC, short-circuit-proof

pnp, U_B=2 V, I_{max} = 200 mA
 switchable NOC/NCC, short-circuit-proof

order no.

SKS-15/E

SKS-15/CE

switched output

npn, -U_B+2 V, I_{max} = 200 mA
 switchable NOC/NCC, short-circuit-proof

npn, -U_B+2 V, I_{max} = 200 mA
 switchable NOC/NCC, short-circuit-proof

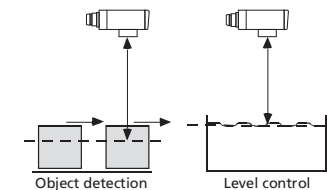


Fig. 4: Set the detect point for different directions of movement of the object

- In the »Two-way reflective barrier« operating mode, the object has to be within the range of 0-85 % of the set distance.
- If the push-button is not pressed for 10 minutes during the teach-in setting, the settings made hitherto are deleted.
- The sensor can be reset to its factory setting.

