



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 switching output is set in dependence of the adjusted detect distance. Via the push-button, the distance and operating mode can be adjusted (Teach-in). Two LEDs indicate the state of the switching output. The output function is changeable from NOC to NCC.

Operation Manual
Ultrasonic proximity switch with one switching output
 sks-15/CF/A

IO-Link
 The sks sensor is IO-Link-capable in accordance with IO-Link specification V1.1 and supports Smart Sensor Profile like Digital Measuring Sensor.

Safety Notes

- Read the operation manual 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, use in the area of personal and machine protection not permitted

Use for intended purpose only
 sks ultrasonic sensors are used for non-contact detection of objects.

Installation

- ➔ Mount the sensor at the place of fitting. Maximum torque of attachment screw: 0,5 Nm.
- ➔ Connect a connection cable to the M8 device plug, see Fig. 1.

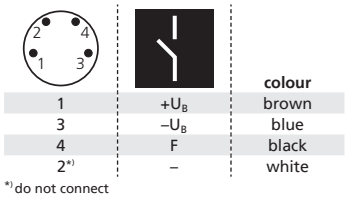


Fig. 1: Pin assignment with view onto sensor plug and colour coding of the microsonic connection cables

Start-Up

- ➔ Connect the power supply.
- ➔ Set the sensor parameters using the Teach-in procedure, see Diagram 1.

Factory Setting

- Operating with one switching point
- Switching output on NOC
- Switching points at operating range
- Filter F01
- Filter strength P00

Operating modes
 Three operating modes are available for the switching output:

- **Operation with one switching point**
 The switching output is set if the object falls below the set switching point.
- **Window mode**
 The switching output is set if the object is inside the set window limits.
- **Two-way reflective barrier**
 The switching output is set if there is an object between sensor and reflector.

Checking operating mode

- ➔ In normal operating mode shortly press the push-button. The green LED stops shining for one second, then it will show the current operating mode:
- 1x flashing = operation with one switching point
- 2x flashing = window mode
- 3x flashing = reflective barrier

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

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

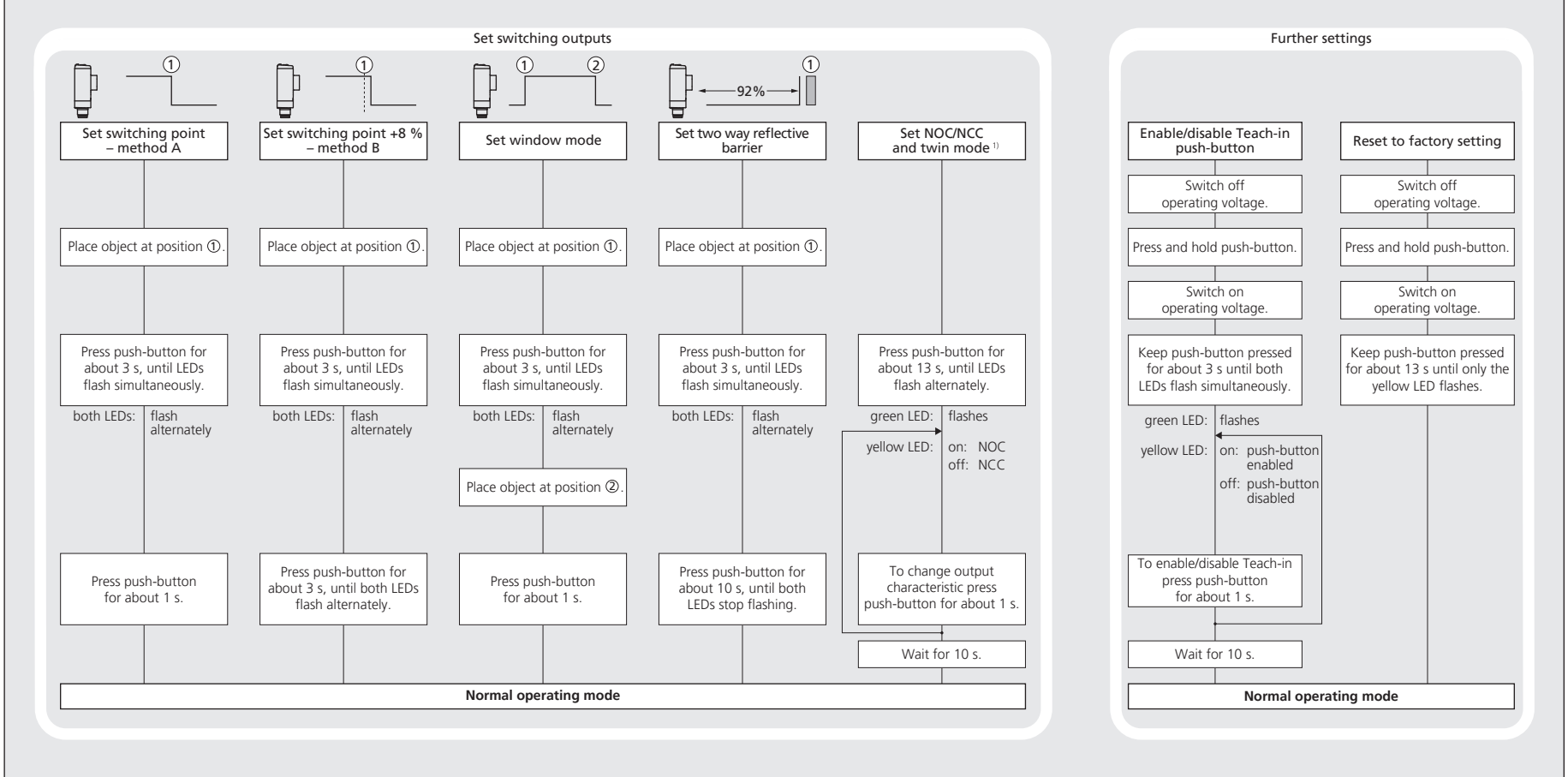
Maintenance
 microsonic sensors are maintenance-free. In case of excess caked-on dirt we recommend to clean the white sensor surface.

Notes

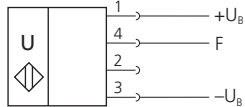
- Every time the power supply is switched on, the sensor detects its actual operating temperature and transmits it to the internal temperature compensation. The adjusted value is taken over after 45 seconds.

- If the sensor was switched off for at least 30 minutes and after power on the the switching output is not set for 30 minutes a new adjustment of the internal temperature compensation to the actual mounting conditions takes place.
- 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 switching output is switched through.
- In the »Set switching point – method A« Teach-in procedure the actual distance to the object is taught to the sensor as the switching point. If the object moves towards the sensor (e.g. with level control) then the taught distance is the level at which the sensor has to switch the output (see Fig. 2).

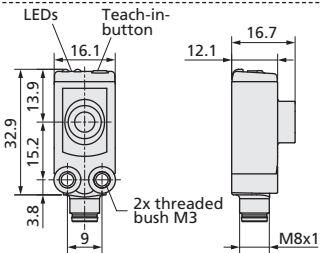
Diagram 1: Set sensor parameters via Teach-in procedure



Technical data



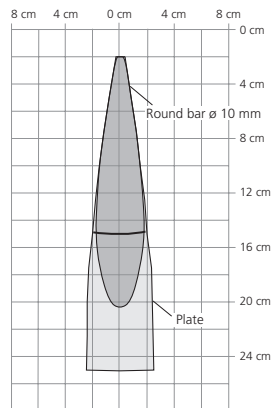
sks-15...



blind zone	: 20 mm
operating range	: 150 mm
maximum range	: 250 mm
angle of beam spread	: see detection zone
transducer frequency	: 380 kHz
resolution	: 0.10 mm
reproducibility	: ±0.15 %

detection zones

for different objects:
The dark grey areas represent the zone where it is easy to recognise the normal reflector (round bar). This indicates the typical operating range of the sensors. The light grey areas represent the zone where a very large reflector – for instance a plate – can still be recognised. The requirement here is for an optimum alignment to the sensor. It is not possible to evaluate ultrasonic reflections outside this area.



accuracy	: Temperature drift 0.17 %/K
operating voltage U_B	: 20 to 30 V DC, reverse polarity protection (Class 2)
voltage ripple	: ±10 %
no-load current consumption	: <30 mA
housing	: ABS ultrasonic transducer: polyurethane foam, epoxy resin with glass content
class of protection to EN 60529	: IP 67
norm conformity	: EN 60947-5-2
type of connection	: 4-pin M8 initiator plug
scope of settings	: Teach-in-Taster
indicators	: LED green (operation) LED yellow (state of output)
operating temperature	: -25 to +70 °C
storage temperature	: -40 to +85 °C
weight	: 8 g
switching hysteresis	: 2 mm
switching frequency	: 25 Hz
response time	: 32 ms
switch-off delay time	: <300 ms
order no.	: sks-15/CF/A
switching output	: Push pull, $U_B-3 V$, $-U_B+3 V$, $I_{max} = 100 mA$ switchable NOC/NCC, short-circuit-proof

- If the object to be scanned moves into the detection area from the side, the »Set switching point +8 % – method B« Teach-in procedure should be used. In this way 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, (see Fig. 2).

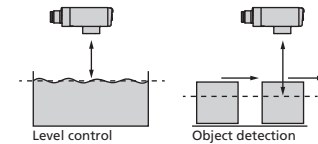


Fig. 2: Teach-in for different directions of movement of the object

- In the »Two-way reflective barrier« operating mode, the object has to be within the range of 0-92 % of the set distance.
- If the push button is not pressed for 30 seconds during the Teach-in setting, the settings made hitherto are deleted.
- The sensor can be reset to its factory setting (see »Further settings«, Diagram 1).
- The current IODD library and information on start-up with IO-Link are available on the Internet at microsonic.de/en/sks.

