

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 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.

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 operating instructions prior to

start-up.

- Connection, installation and adjustment works may only be carried out by expert personnel
- No safety component according to EU Machinery Directive

Proper use

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

Mounting

- Mount the sensor at installation site, Maximum torque: 0.5 Nm
- Connect a connection cable to the M8 device plug

Start-Up

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

Factory setting

- Operating with one detect point
- Switched output on NOC
- Detect points at operating range
- Filter F01
- Filter strength P00

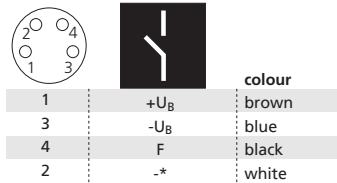


Fig. 1: Pin assignment with view of the sensor plug and color coding of the microsonic connection cables

* Do not connect

Operating modes

Three operating modes are available for the switches output:

- Operation with one switching 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 located between the 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 operating mode:

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

After a break of three seconds, 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.

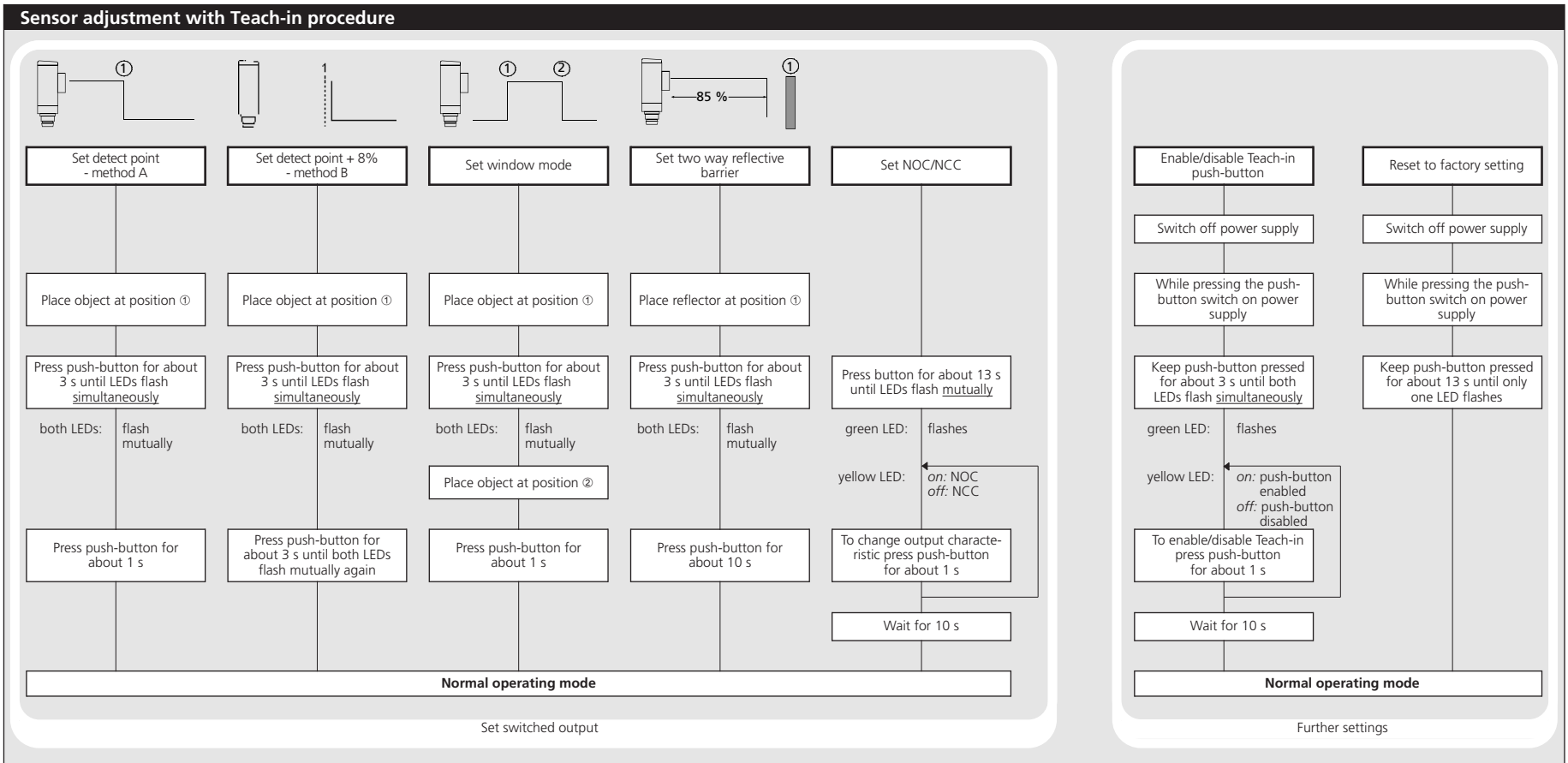
Notes

- 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 switched 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 switched output is switched through.
- In the »Set detect point – method A« Teach-in procedure the actual distance to the object is taught to the sensor as the detect 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.
- If the object to be scanned moves into the detection area from the side, the »Set detect 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.
- In the »Two-way reflective barrier« operating mode, the object has to be within the range of 0-85 % of the set distance.

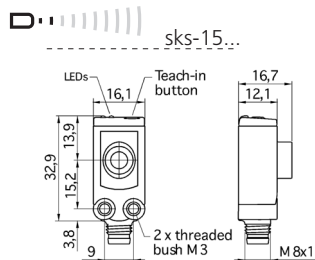
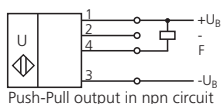
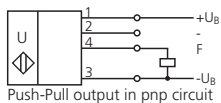
Operating manual

sks-15/CF/A

Ultrasonic proximity switch with one switching output and IO-Link interface



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

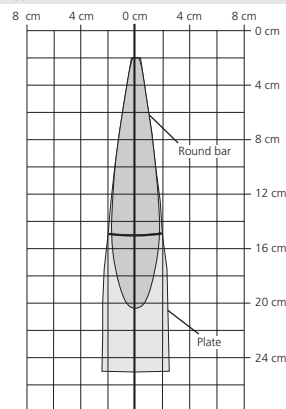
resolution, sampling rate 0.10 mm

reproducibility $\pm 0.15\%$

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 $\pm 1\%$ (Temperature drift internal compensated)

operating voltage U_B 10 - 30 V DC, reverse polarity protection

voltage ripple $\pm 10\%$

no-load current consumption < 30 mA

housing ABS

ultrasonic transducer: polyurethane foam, epoxy resin with glass content

class of protection to EN 60 529 IP 67

type of connection 4-pin M8 initiator plug

controls Teach-in push-button

indicators LED green (operation)

LED yellow (state of output)

programmable IO-Link

operating temperature -25°C to +70°C

storage temperature -40°C to +85°C

weight 8 g

switching hysteresis 2 mm

switching frequency 25 Hz

response time 32 ms

time delay before availability < 300 ms

norm conformity EN 60947-5-2

order no. sks-15/CF/A

switched output Push-Pull, $U_B \pm 3\text{ V}$, $-U_B \pm 3\text{ V}$, $I_{max} = 100\text{ mA}$
switchable NOC/NCC, short-circuit-proof

- 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.

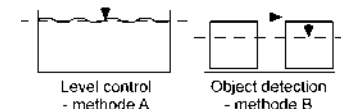


Fig. 2: Adjustment of the switching point when the object moves in different directions

Notes on IO-Link

- In IO-Link mode, teach-in via the push-button is not available.
- For further information on IO-Link, please contact microsonic sales.
- The current IODD library and information on commissioning with IO-Link are available on the Internet at www.microsonic.de/sks.



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