



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.

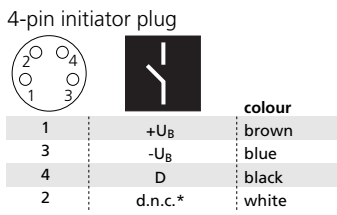
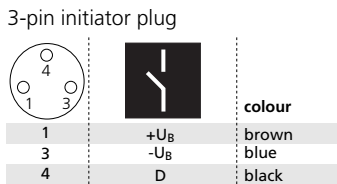
Via the push-button, the detect distance and operating mode can be adjusted (Teach-in). Two LEDs indicate operation and the state of the switching output.

The output function is changeable from NOC to NCC.

Safety Notes
 ■ Read the operating 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.

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, see figure 1.



*Do not connect

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

Start-Up
 ■ Connect the power supply.
 ■ Set the parameters of the sensor using the Teach-in procedure, see diagram »Set sensor parameters with the Teach-in procedure«.

Factory Setting
sks sensors are delivered factory made with the following settings:
 ■ Operation with one switching point
 ■ Switching output on NOC
 ■ Switching point at operating range

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 outside the set window limits.
 ■ Two-way reflective barrier
The switching output is set if the object is between sensor and reflector.

Checking operation mode
 ■ In normal operating 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

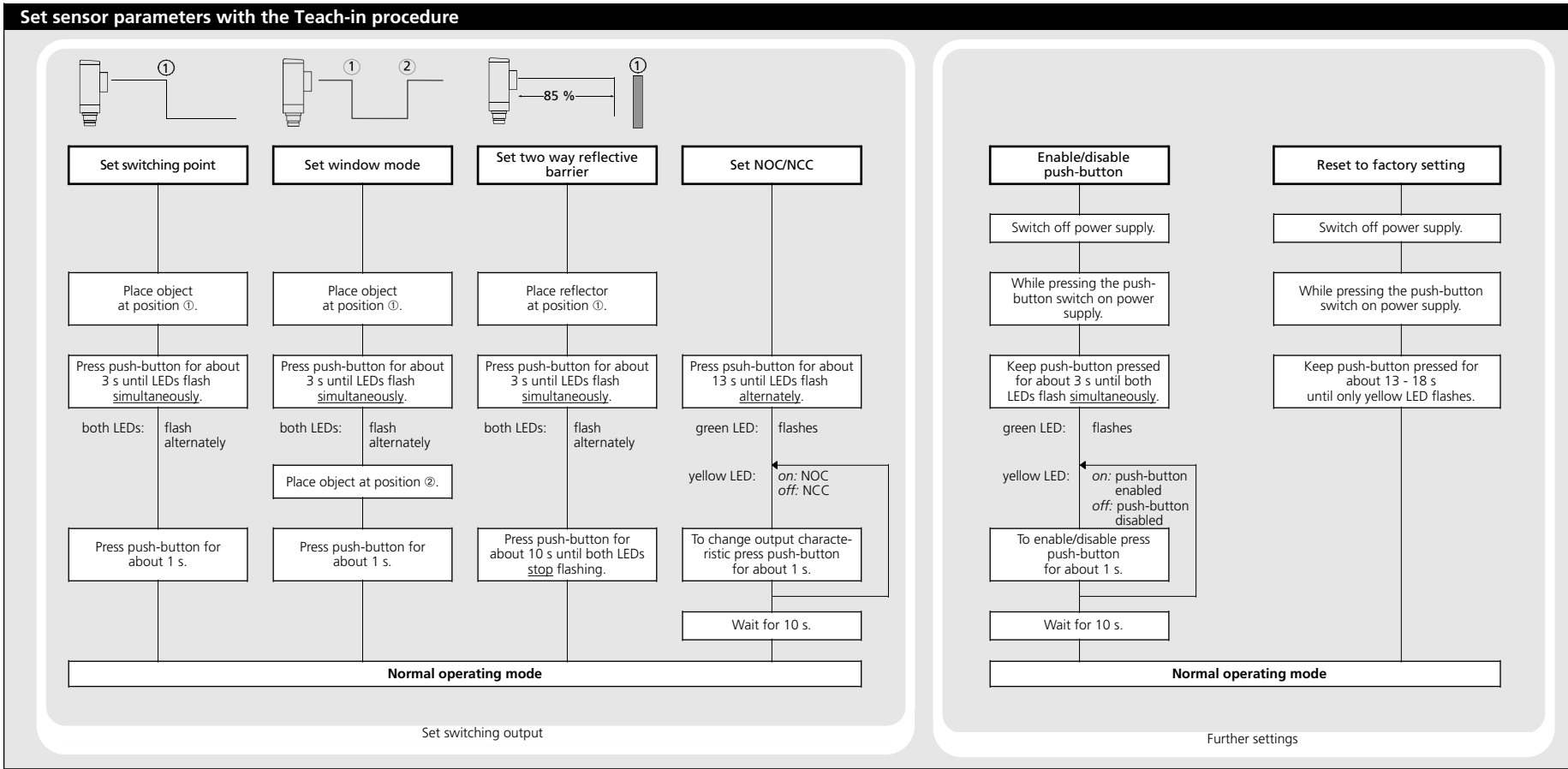
After a break of 3 s the green LED shows the output function:
 1 x flashing = NOC
 2 x flashing = NCC

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 switching 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 switching point

Operating manual
Ultrasonic proximity switch with one switching output

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



Technical data

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blind zone	20 mm	20 mm
operating range	150 mm	150 mm
maximum range	250 mm	250 mm
angle of beam spread	See detection zone	See detection zone
transducer frequency	380 kHz	380 kHz
resolution	0.10 mm	0.10 mm
reproducibility	± 0.15 %	± 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.	<div> </div>	<div> </div>
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	ABS
class of protection to EN 60529	ultrasonic transducer: polyurethane foam, epoxy resin with glass content	ultrasonic transducer: polyurethane foam, epoxy resin with glass content
norm conformity	IP 67	IP 67
type of connection	EN 60947-5-2	EN 60947-5-2
controls	3-pin M8 initiator plug	4-pin M8 initiator plug
scope of settings	push-button	push-button
indicators	Teach-in via push-button	Teach-in via push-button
operating temperature	LED green (operation)	LED green (operation)
storage temperature	LED yellow (state of output)	LED yellow (state of output)
weight	-25°C to +70°C	-25°C to +70°C
switching hysteresis	-40°C to +85°C	-40°C to +85°C
switching frequency	8 g	8 g
response time	2 mm	2 mm
time delay before availability	25 Hz	25 Hz
	32 ms	32 ms
	< 300 ms	< 300 ms
order no.	sks-15/D	sks-15/CD
switching 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
switching 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

can be taught to the actual distance at which the sensor has to switch the output.

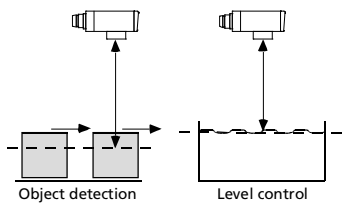


Fig. 2: Set the switching point for different directions of movement of the object

- 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 30 seconds during the Teach-in setting, the settings made hitherto are deleted.
- The sensor can be reset to its factory setting.