sks

Our “smallest sensor”: the sks sensor in miniature housing.

HIGHLIGHTS

› Very small housing dimensions with two M3 threaded sleeves
› Installation-compatible with many optical sensors › a true alternative for critical applications
› IO-Link interface › for support of the new industry standard
› Optionally with SoundPipe sks1 waveguide attachment
› Improved temperature compensation › adjustment to working conditions within 45 seconds

BASICS

› 1 Push-Pull switching output › pnp or npn basis
› Analogue output 4–20 mA or 0–10 V
› microsonic Teach-in using a button
› 0.1 mm resolution
› 20–30 V operating voltage

IO-Link integrated

Also see the chapter “Function and advantages”

The sks sensors

are the smallest ultrasonic sensors from microsonic and feature a housing design reduced by 33% compared to the zws sensors.

The miniature housing of the sks ultrasonic sensor fits in constricted installation locations e.g. for sampling conductor boards and wafer in the electronics industry, for presence checks on conveyor bands or fill-level measurement in small containers. When capacitive or optical sensors come up against their physical limits, installation compatibility of ultrasonic sensors with many optical sensors enable their deployment: simply secured with two M3 screw sockets.

For the sks sensor range

two output versions are available:

- 1 switching output, optionally in pnp-, npn- or Push-Pull circuitry
- 1 analogue output 4–20 mA or 0–10 V

The temperature compensation

of the analogue sensors profits from a significant improvement. The sensors reach their operating point only 45 seconds after activation of the operating voltage. We now compensate for the influence of self-heating and installation conditions. This brings improved precision shortly after activation of the supply voltage and in running operation.

The Teach-in button

on the top of the sensor allows for the convenient configuration of the desired switching distance and operating mode.

Two LEDs

show the operating state of the sensor.

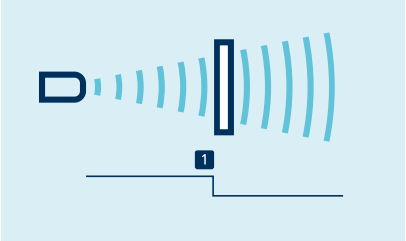
The sks sensor with switching output has three operating modes:

- Single switching point,
- Two-way reflective barrier and
- Window mode

permit configuration using the usual microsonic Teach-in procedure.

The switched output is set by

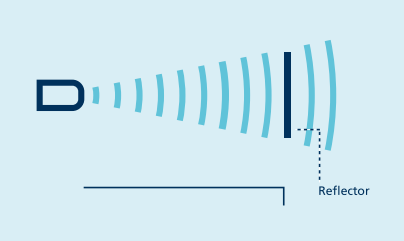
positioning the object to be detected within the desired distance 1 to the sensor, pressing the button for approx. 3 seconds and then pressing it once more for approx. 1 second. Ready.



Teach-in of a switching point

A two-way reflective barrier

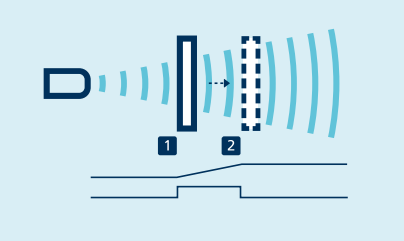
can be set up with the help of a permanently mounted reflector by mounting the sks sensor and the reflector. Then press the button for approx. 3 seconds and then pressing it once more for approx. 10 seconds. Now, the two-way reflective barrier has been set.



Teach-in of a two-way reflective barrier

Set the analogue output

by initally positioning the object to be detected on the sensor-close window limit 1, pressing the button for approx. 3 seconds, shifting the object to the sensor-distant window limit and pressing the button once more for approx. 1 second. Ready.



Teach-in of an analogue characteristic or a with two switching points

To set a window

with two detection points on a single switched output, the procedure is the same as setting the analogue.

NCC/NOC

and rising/ falling analogue characteristic curve can also be set using the button.

SoundPipe sks1

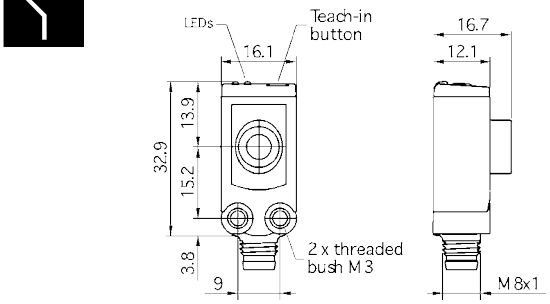
intensively bundles the sound field and allows measurements in openings with small diameters. The SoundPipe sks1 (see in the chapter "Accessoires") is pushed on the transducer of the sks.

IO-Link integrated

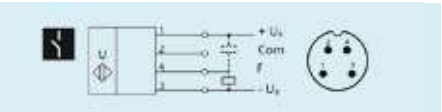
in version 1.1 for sensors with Push-Pull output.

sks-15

measuring range	20–250 mm	

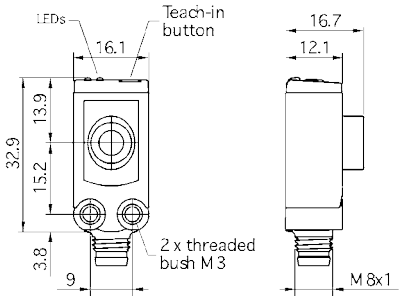


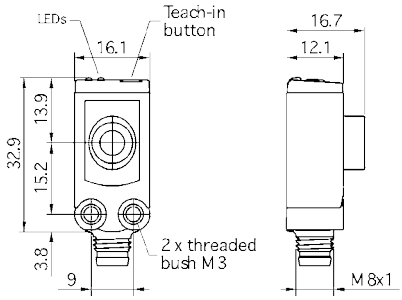
blind zone	20 mm	
operating range	150 mm	
maximum range	250 mm	
angle of beam spread	please see ⓘ	
transducer frequency	380 kHz	
resolution/sampling rate	0.1 mm	
reproducibility	± 0.15 %	
accuracy	± 1 % (temperature drift internally compensated)	
operating voltage U_B	20 V to 30 V DC, reverse polarity protection	
no-load current consumption	≤ 25 mA	
housing	ABS; ultrasonic transducer: polyurethane foam, epoxy resin with glass content	
class of protection according to EN 60529	IP 67	
type of connection	4-pin M8 initiator plug	
controls	push-button	
scope for settings	• Teach-in via push-button	
	• IO-Link	
indicators	LED green: working,	
	LED yellow: switch status	
IO-Link	V 1.1	
IO-Link SIO mode support	yes	
IO-Link min. cycle time	8 ms	
Smart Sensor Profile	yes	
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	
delay prior to availability	< 300 ms	
order number	**sks-15/CF/A**	
switching output	Push-Pull, U_B-3 V, -U_B+3 V, I_{max} = 100 mA	



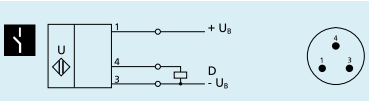
1 Push-Pull switching output

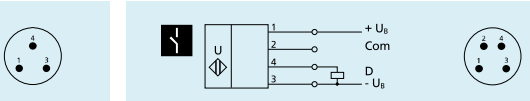
	sks-15	sks-15
	0.15 m	0.15 m
measuring range	**20–250 mm**	**20–250 mm**





blind zone	20 mm	20 mm
operating range	150 mm	150 mm
maximum range	250 mm	250 mm
angle of beam spread	please see ⓘ	please see ⓘ
transducer frequency	380 kHz	380 kHz
resolution/sampling rate	0.1 mm	0.1 mm
reproducibility	± 0.15 %	± 0.15 %
accuracy	temperature drift 0.17 %/K	± 1 % (temperature drift internally compensated)
operating voltage U_B	20 V to 30 V DC, reverse polarity protection	20 V to 30 V DC, reverse polarity protection
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 according to EN 60529	IP 67	IP 67
type of connection	3-pin M8 initiator plug	4-pin M8 initiator plug
controls	push-button	push-button
scope for settings	• Teach-in via push-button	• Teach-in via push-button
indicators	LED green: working, LED yellow: switch status	LED green: working, LED yellow: switch status
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
delay prior to availability	< 300 ms	< 300 ms
order number	**sks-15/D**	**sks-15/CD**
switching output	pnp, U_B-2 V, I_{max} = 200 mA, NOC/NCC adjustable, short-circuit-proof	pnp, U_B-2 V, I_{max} = 200 mA, NOC/NCC adjustable, short-circuit-proof

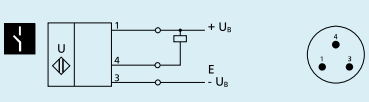


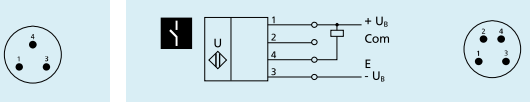


1 pnp switching output

1 pnp switching output

order number	**sks-15/E**	**sks-15/CE**
switching output	npn, -U_B+2 V, I_{max} = 200 mA, NOC/NCC adjustable, short-circuit-proof	npn, -U_B+2 V, I_{max} = 200 mA, NOC/NCC adjustable, short-circuit-proof



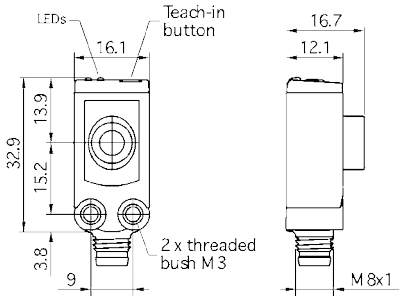


1 npn switching output

1 npn switching output

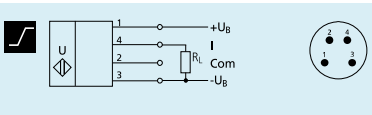
sks-15

measuring range	**20–250 mm**	



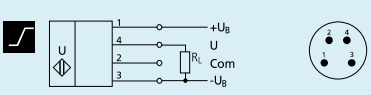
blind zone	20 mm
operating range	150 mm
maximum range	250 mm
angle of beam spread	please see ⓘ
transducer frequency	380 kHz
resolution/sampling rate	0.1 mm
reproducibility	± 0.15 %
accuracy	± 1 % (temperature drift internally compensated)
operating voltage U_B	15 V to 30 V DC, reverse polarity protection
no-load current consumption	≤ 25 mA
housing	ABS; ultrasonic transducer: polyurethane foam, epoxy resin with glass content
class of protection according to EN 60529	IP 67
type of connection	4-pin M8 initiator plug
controls	push-button
scope for settings	• Teach-in via push-button
indicators	LED green: working, LED yellow: switch status
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	8 g
response time	24 ms
delay prior to availability	< 300 ms

order number	**sks-15/CI**
analogue output	current output 4–20 mA switchable rising/falling



analogue output 4–20 mA

order number	**sks-15/CU**
analogue output	voltage output 0–10 V short-circuit-proof, switchable rising/falling



analogue output 0–10 V