

Technical Data

Ultrasonic sensors (switch output)



Ultrasonic sensors (switch output)

Setting the switching points:

The ultrasonic sensor is provided with a switch output with 2 teachable switch points. These are set by applying the supply voltage $-U_B$ or $+U_B$ at the teach-in input. The supply voltage should be applied to the teach-in input for at least 1 s. During the teach-in process, the LEDs indicate whether the sensor has detected the target. The switch points A1 and A2 are taught by voltage $-U_B$ and $+U_B$ respectively.

Five different modes can be set:

1. Window mode, NO function
2. Window mode, NC function
3. One switch point, NO function
4. One switch point, NC function
5. Detection of presence of an object

1. Teach-in Window mode, NO function

- Set object at near switch point
- Teach in switch point A1 with $-U_B$
- Set object at far switch point
- Teach in switch point A2 with $+U_B$

2. Teach-in Window mode, NC function

- Set object at near switch point
- Teach in switch point A2 with $+U_B$
- Set object at far switch point
- Teach in switch point A1 with $-U_B$

3. Teach-in one switch point, NO function

- Set object at near switch point
- Teach in switch point A2 with $+U_B$
- Cover sensor with the palm of your hand or remove all objects from the detection range of sensor
- Teach in switch point A1 with $-U_B$

4. Teach-in one switch point, NC function

- Set object at near switch point
- Teach in switch point A1 with $-U_B$
- Cover sensor with the palm of your hand or remove all objects from the detection range of sensor
- Teach in switch point A2 with $+U_B$

5. Teach-in detection of presence of object

- Cover sensor with the palm of your hand or remove all objects from the detection range of sensor
- Teach in switch point A1 with $-U_B$
- Teach in switch point A2 with $+U_B$

Presetting the switch points:

A1: near range
A2: nominal range

Synchronisation:

The sensor features a synchronisation input in order to suppress mutual interference. If the input is not connected, the sensor operates with an internally generated pulse rate. The sensor can be synchronised by applying a square-wave voltage. A synchronisation pulse at the synchronisation input enables one measuring cycle to be completed. The pulse width must be greater than 100 μ s. The measuring cycle commences with the falling edge. The state of the switch output changes after the switching threshold has been exceeded five times, as determined internally by five measurements. A low level 1 s or an open synchronisation input result in normal operation of the sensor. Synchronisation cannot be carried out during teach-in and vice versa.

10

Indication as a function of operating condition	LED green	LED red	LED yellow
Teach-in switch point			
Object detected	flashing	off	off
No object detected	flashing	off	off
Object uncertain (teach-in invalid)	off	flashing	off
Normal operation	off	off	output status
Fault (e.g. compressed air)	off	flashing	last status

Mode of operation of the switch output depending on setting

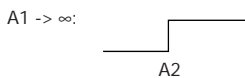
Window mode, NO function



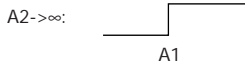
Window mode, NC function



one switch point, NO function



one switch point, NC function



A, $\rightarrow \infty$, A2 $\rightarrow \infty$: Detection for presence of object

Object detected: switch output closed / no object detected: switch output open

Two operating modes are possible:

1. Multiple sensors are controlled with the same synchronising signal but the sensors operate on the same pulse
2. The synchronising pulses are fed cyclically to only one sensor at one time. The sensors operate in multiplex mode. A high level at the synchronisation input deactivates the sensor.

Accessory: Programming device SZP2>PROG

The programming device ZP2>PROG is available as accessory for the easy programming of ultrasonic sensors with switch output. The device is equipped with a 2 m cable, whose connector/socket can be placed between the connector of the ultrasonic sensor and its connection cable. The sensing range of the sensor can be memorized with two keys A1 and A2. Otherwise follow the teach-in process according to the description above.

Technical data:

Dimensions:
H x W x D [mm]: 22 x 39 x 69
Electric connection:
2 m cable with device connector and socket M12