

Technical data

Discrete output



Ultrasonic sensors — switching output

To set the switching points:

The ultrasonic sensor is provided with a switching output with two teachable switch points. These are set up by applying the supply voltage $-V_B$ or $+V_B$ to the teaching input. The supply voltage should be applied to the teaching input for at least 1 second. During the teaching process the LEDs indicate whether the sensor has recognized the target. The switch points A1 and A2 are taught by voltage $-V_B$ and $+V_B$ respectively.

Five functions can be set:

1. Window mode, normally open function
2. Window mode, normally closed function
3. One switch point, normally open function
4. One switch point, normally closed function
5. Detection of presence of object

1. Teach window operation, normally open function

- Set target at near switch point
- Teach switch point A1 with $-V_B$
- Set target at far switch point
- Teach switch point A2 with $+V_B$

2. Teach window operation, normally closed function

- Set target at near switch point
- Teach switch point A2 with $+V_B$
- Set target at far switch point
- Teach switch point A1 with $-V_B$

3. Teach one switch point, normally open function

- Set target at near switch point
- Teach switch point A2 with $+V_B$
- Cover sensor with the palm of the hand, or remove all objects from the detection range of sensor
- Teach switch point A1 with $-V_B$

4. Teach one switch point, normally closed function

- Set target at near switch point
- Teach switch point A1 with $-V_B$
- Cover sensor with the palm of the hand, or remove all objects from the detection range of sensor
- Teach switch point A2 with $+V_B$

5. Teach detection of presence of object

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

Presetting of the switch points:

- A1: Near range
- A2: Nominal range

Note:

A programming unit SZP1/PROG is obtainable for the basic setting of the switch points and output functions.

Synchronization:

In order to suppress mutual interference, the sensor has the ability to operate via one synchronized input. If the input is unswitched, the sensor operates at an internally generated pulse rate. The sensor can be synchronized by an externally triggered square wave pulse.

One synchronizing pulse at the synchronization input enables one measuring cycle to be completed. The pulse width must be greater than $100\mu s$. The sensor is enabled on the falling edge of the square wave. The state of the switching output changes after the switching threshold has been exceeded five times, as determined internally by five measurements. A low level greater than 1 s, or an open synchronization input results in normal operation of the sensor. Synchronization cannot take place during teaching and vice versa.

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

10

Operating condition – indications	LED green	LED red	LED yellow
Switch point teaching			
Object detected	flashing	off	off
No object detected	flashing	off	on
Object uncertain (teaching invalid)	off	flashing	off
Normal operation	on	off	switch condition
Interference (e.g. comp. air)	off	flashing	last condition

Programmed switching output function

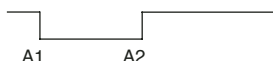
Window operation, normally open function

A1 < A2:



Window operation, normally closed function

A2 < A1:



One switch point, normally open function

A1 → ∞:



One switch point, normally open function

A2 → ∞:



SZP1/PROG Programming unit