



## Operating Instructions

ucs-24/CDD/QM  
ucs-24/CEE/QM

## Ultrasonic Proximity Switch with Two Antivalent Switched Outputs

### Product Description

The usc sensor offers a non-contact measurement of the distance to an object which must be positioned within the sensor's detection zone. Both switched outputs are set antivalent in dependence of the adjusted detect distance. Via a button, the detect distance and the operating mode can be adjusted (teach-in). One LED indicates the state of the switched outputs. With the LinkControl adapter, which is available as accessory, all sensor parameters can optionally be set via a PC.

### Safety Notes

- Read the operating instructions 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.

### Installation

- Mount the sensor at the installation site.
- Connect a connection cable to the M12 device plug.

### Start-Up

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

### Factory Setting

- Synchronous mode deactivated
- D1 = NCC, D2 = NOC
- Detect points on operating range

### Operation

Three operating modes are available for both switched outputs:

- Operation with one detect point
- Window mode
- Two-way reflective barrier

Both switched outputs are antivalent switching outputs.

### Synchronisation

With the synchronous mode activated and an electrical interconnection of the Sync/Com inputs (pin 5), up to 10 sensors can be synchronised.

### Maintenance

microsonic sensors are maintenance-free. With heavy dirt deposits, we recommend a cleaning of the white sensor surface.

### Note

- The usc sensor has a blind zone, within which distance measurements are not possible.
- The usc sensor is equipped with an internal temperature compensation. Due to the sensor's self-heating, the temperature compensation reaches its optimum working point after approx. 30 minutes of operation.

Technical data	
<b>Blind zone</b>	55 mm
<b>Operating range</b>	240 mm
<b>Maximum range</b>	350 mm
<b>Angle of beam spread</b>	See detection zone
<b>Transducer frequency</b>	500 kHz
<b>Resolution, sampling rate</b>	0.08 mm
<b>Reproducibility</b>	± 0,15 %
<b>Accuracy</b>	Temperature drift internal compensated, ≤ 2 % may be deactivated <sup>1)</sup>
<b>Operating voltage U<sub>B</sub></b>	10 - 30 V DC, reverse polarity protection
<b>Voltage ripple</b>	±10 %
<b>No-load current consumption</b>	< 45 mA
<b>Housing</b>	Zink die-cast, plastic parts: PBT, ultrasonic transducer: polyurethane foam, epoxy resin with glass content
<b>Class of protection to EN 60529</b>	IP 67
<b>Type of connection</b>	5-pin M12 initiator plug
<b>Controls</b>	Yes, 1 Teach-in button
<b>Indicators</b>	1 duo-LED
<b>Programmable</b>	Yes, with LinkControl
<b>Synchronization</b>	Yes, internal
<b>Operating temperature</b>	-25°C to +70°C
<b>Storage temperature</b>	-40°C to +85°C
<b>Weight</b>	65 g
<b>Switched output</b>	2 x pnp, U <sub>B</sub> -2 V ; 2 x npn, -U <sub>B</sub> +2 V I <sub>max</sub> = 2 x 200 mA, antivalent switchable, short-circuit-proof
<b>Switching hysteresis <sup>1)</sup></b>	2 mm
<b>Switching frequency <sup>1)</sup></b>	25 Hz
<b>Response time <sup>1)</sup></b>	30 ms
<b>Time delay before availability</b>	< 300 ms
<b>Norm conformity</b>	EN 60947-5-2
<b>Order no.</b>	ucs-24/CDD/QM ; ucs-24/CEE/QM
	2 pnp switched outputs ; 2 npn switched outputs

<sup>1)</sup> Can be programmed with LinkControl

- In the normal operating mode, a yellow LED signals that the switched output D2 is switched through.
- In the teach-in mode, the hystereses are reset to the factory setting.
- In the »Two-way reflective barrier« operating mode, the reflector is sur-

- rounded by a symmetrical window of ± 8 % of the distance value.
- If the button is not pressed for 30 seconds during the teach-in setting, the setting made hitherto is deleted.
- The sensor can be reset to its factory setting.

## Contact

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### Sensor adjustment with Teach-in procedure

Set switched output	Set window mode	Set two way reflective barrier	Set NOC/NCC
Place object at position ①	Place object at position ①	Place reflector at position ①	
Press button for about 3 seconds, until LED flashes yellow	Press button for about 3 seconds, until LED flashes yellow	Press button for about 3 seconds, until LED flashes yellow	Press button for about 13 seconds, until LED flashes yellow/green in turn
LED: flashes green/yellow	LED: flashes green/yellow	LED: flashes green/yellow	LED: flashes yellow. NOC flashes green. NCC
Press button for about 1 second	Place object at ② Press button for about 1 second	Press button for about 10 seconds	Press button for about 1 second in order to change setting
			Wait for 10 s
Normal operating mode			
Set antivalent switched output D1 and D2			

  

Enable/disable Teach-in pushbutton	Reset to factory setting
Switch off power supply	Switch off power supply
Switch on power supply while pressing down and holding the pushbutton	Switch on power supply while pressing down and holding the pushbutton
Keep button pressed down for about 3 seconds, until LED flashes yellow	Keep button pressed down for about 13 seconds, until LED stops flashing
LED: flashes yellow. pushbutton enabled flashes green: pushbutton disabled	
Press button for about 1 second in order to change setting	Press button for about 1 second in order to change setting
Wait for 10 s	Wait for 10 s
Normal operating mode	
Further settings	