

## Ultrasonic sensor UB400-F42S-UK-V95

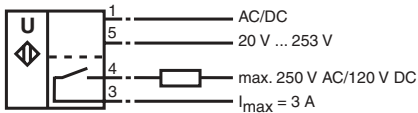


### Features

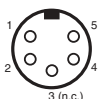
- Relay output for high power
- Extremely small unusable area
- 4 operating modes can be set
- Temperature compensation
- NO/NC selectable

### Electrical connection

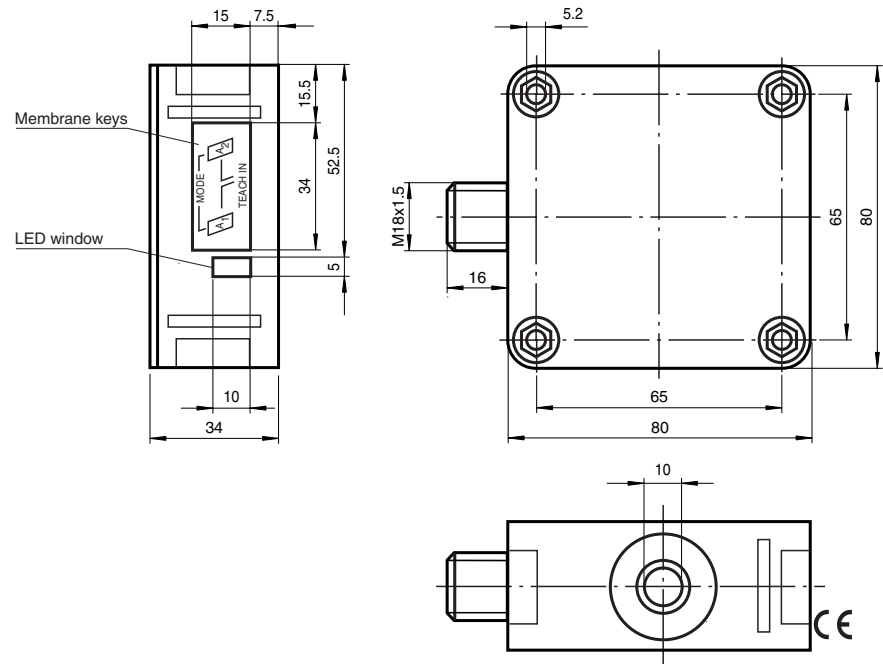
Standard symbol/Connections:  
(version U)



Plug connector -V95



### Dimensions



### Technical data

#### General specifications

Sensing range	30 ... 400 mm
Adjustment range	50 ... 400 mm
Unusable area	0 ... 30 mm
Standard target plate	100 mm x 100 mm
Transducer frequency	approx. 390 kHz
Response delay	approx. 50 ms

#### Indicators/operating means

LED green	permanently green: Power on
LED yellow	permanent: switching state switch output
	flashing: TEACH-IN function
LED red	normal operation: "fault"
	TEACH-IN function: no object detected

#### Electrical specifications

Operating voltage	20 ... V DC ... 230 V AC
No-load supply current $I_0$	≤ 60 mA

#### Output

Output type	1 relay output
Repeat accuracy	≤ 0,5 % of switching point
Rated operational current $I_e$	3 A
Switching frequency $f$	≤ 8 Hz
Range hysteresis H	1 % of the set operating distance
Temperature influence	± 1 % of final value

#### Standard conformity

Standards	EN 60947-5-2
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#### Climatic conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

#### Mechanical specifications

Protection degree	IP65
Connection type	connector V15 (M12 x 1), 5 pin
Material	
Housing	PBT
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
Mass	260 g

Notes

<b>TEACH-IN for switching points</b>		LED layout	
		<input type="radio"/> green (gn) <input type="radio"/> red (rd) <input type="radio"/> yellow (ye)	
<b>Switching point 1</b>			
Position the target object at the desired position/distance. Press the A1 key > 2 s (time lock)		Target detected 	Target not detected  Correct the object position or sensor alignment until object is detected.
Acknowledge when target is detected.			The value of the object distance will be stored.
<b>Switching point 2</b>			
Position the target object at the desired position/distance. Press the A2 key > 2 s (time lock)		Target detected 	Target not detected  Correct the object position or sensor alignment until object is detected.
Acknowledge when target is detected.			The value of the object distance will be stored.
If TEACH-IN mode is not acknowledged within 5 min., the sensor goes back into normal mode and retains the last values to be stored.			

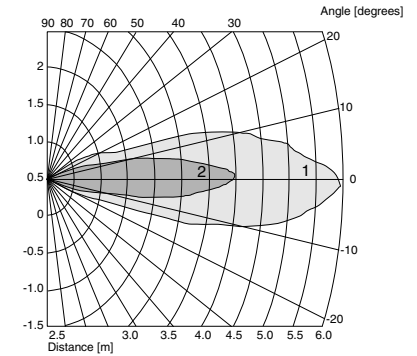
<b>Switching between hysteresis mode - switching point mode or window mode</b>		LED layout	
		<input type="radio"/> green (gn) <input type="radio"/> red (rd) <input type="radio"/> yellow (ye)	
Hold down both keys at the same time. (time lock)		Current operating mode 	or 
		Hysteresis mode	Switching point mode
		New operating mode 	or 
		Switching point mode	Hysteresis mode
Release keys		5 s	5 s
If switching is not acknowledged within 5 min., the sensor goes back into normal mode and retains the last values to be stored.			

Model number

UB400-F42S-UK-V95

Characteristic curves/additional information

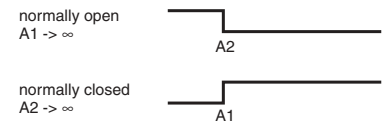
Characteristic response curves



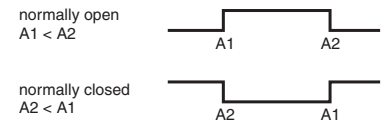
Curve 1: flat plate 100 mm x 100 mm  
Curve 2: round bar, Ø 25 mm

Possible operating modes

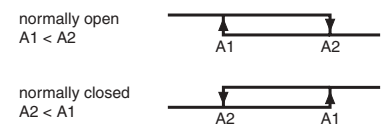
1. Switch point operation



2. Window operation



3. Hysteresis operation



4. Object presence detection mode

A1 -> ∞, A2 -> ∞: Sensor detects object presence within sensing range  
**Note** A1 -> ∞, A2 -> ∞ means: cover sensor with hand or remove all objects from sensing range

**Interference target masking**

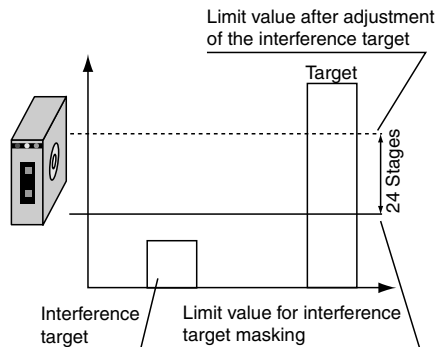
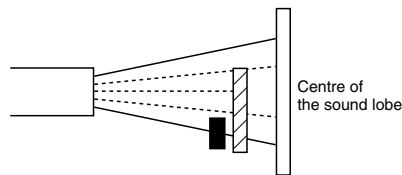
Interference target masking can be adjusted in 24 steps. Each brief keystroke on (A1) increase or (A2) decreases the limit value.

Permanently lighting red LED: max. or min. adjustment limit reached. Go back one step.

**What is an interference target**

- Small distance to the sensor as the actual target
- must not completely cover the actual goal
- The amplitude of the interference signal must be less than the amplitude of the usable signal.
- The interference target must be positioned only at the edge of the sound lobe and not in the center.

Sound lobe



Interference target masking		LED layout
Remove the target object from the detection range.		<input type="radio"/> green (gn) <input type="radio"/> red (rd) <input type="radio"/> yellow (ye)
Turn off the operating voltage  Hold down both keys while turning on the operating voltage  The interference target masking mode is now active		Interference target detected  (ye)
Adjust the limit value  <b>Please note:</b> Press the keys only briefly. When the end of the adjustable range is reached, the red LED is lit continuously	or  A1: Raise the limit A2: Lower the limit	Interference target detected  Limit value OK  (ye) →  (rd)    (rd)
Press both keys briefly		Exit interference mode, store the target value.
Check target detection		
If interference target mode is not acknowledged within 5 min., the sensor goes back into normal mode and retains the last values to be stored.		

Preliminary data sheet - only for information