

## Ultrasonic sensor UB1000-18GM75-E23-V15

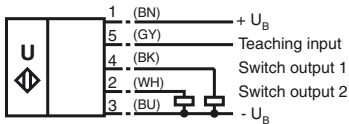


## Features

- 2 switch outputs
- TEACH-IN input
- Temperature compensation
- Very small unusable area

## Electrical connection

Standard symbol/Connections:  
(version E23, pnp)

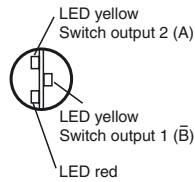
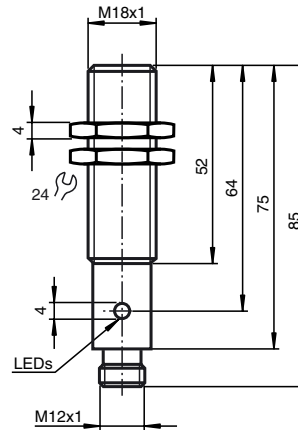


Core colours in accordance with EN 60947-5-2.

## Connector V15



## Dimensions



## Technical data



### General specifications

Sensing range	80 ... 1000 mm
Adjustment range	110 ... 1000 mm
Unusable area	0 ... 80 mm
Standard target plate	100 mm x 100 mm
Transducer frequency	approx. 205 kHz
Response delay	approx. 100 ms

### Indicators/operating means

LED yellow	indication of the switching state flashing: TEACH-IN function object detected
LED red	"Error", object uncertain in TEACH-IN function: No object detected

### Electrical specifications

Operating voltage	10 ... 30 V DC, ripple 10 % <sub>SS</sub>
No-load supply current I <sub>0</sub>	≤ 50 mA

### Input

Input type	1 TEACH-IN input, operating range 1: -U <sub>B</sub> ... +1 V, operating range 2: +4 V ... +U <sub>B</sub> input impedance: > 4.7 kΩ; TEACH-IN pulse: ≥ 1 s
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### Output

Output type	2 switch outputs pnp, NO/NC
Repeat accuracy	≤ 1 %
Rated operational current I <sub>e</sub>	2 x 100 mA, short-circuit/overload protected
Voltage drop U <sub>d</sub>	≤ 3 V
Switching frequency f	max. 4 Hz
Range hysteresis H	1 % of the set operating distance
Temperature influence	± 1,5 % of full-scale value

### Standard conformity

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

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

### Mechanical specifications

Protection degree	IP65
Connection	connector V15 (M12 x 1), 5 pin
Material	
Housing	brass, nickel-plated
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
Mass	60 g

### Adjusting the switching points

The ultrasonic sensor features two switch outputs with one teachable switching point. The switching points are set by applying the supply voltage  $-U_B$  or  $+U_B$  to the TEACH-IN input. The supply voltage must be applied to the TEACH-IN input for at least 1 s. LEDs indicate whether the sensor has recognised the target during the TEACH-IN procedure. Switching point A1 is taught with  $-U_B$ , A2 with  $+U_B$ .

#### TEACH-IN switching point for switch output 1

- Set target of desired switching point for switch output 1
- TEACH-IN switching point for switch output 1 with  $-U_B$

#### TEACH-IN switching point for switch output 2

- Set target of desired switching point for switch output 2
- TEACH-IN switching point for switch output 2 with  $+U_B$

#### TEACH-IN detection of object presence

- Cover the sensor with your hand, or remove all objects from the sensing range
- TEACH-IN switching point for switch output 1 with  $-U_B$
- TEACH-IN switching point for switch output 2 with  $+U_B$

#### Comments

Only one switch output can be configured for detection of presence of objects. If the sensor detects an objects within the maximum detection range, the switch output switches.

#### Default setting of switching points

Switch output 1: unusable area

Switch output 2: nominal sensing range

#### LED Displays

Displays in dependence on operating mode	Red LED	LED 1 yellow	LED 2 yellow
<b>TEACH-IN switching point 1</b>			
Object detected	off	flashes	off
No object detected	flashes	off	off
Object uncertain (TEACH-IN invalid)	on	off	off
<b>TEACH-IN switching point 2:</b>			
Object detected	off	off	flashes
No object detected	flashes	off	off
Object uncertain (TEACH-IN invalid)	on	off	off
Normal operation	off	switch state 1	switch state 2
Fault	on	previous state	previous state

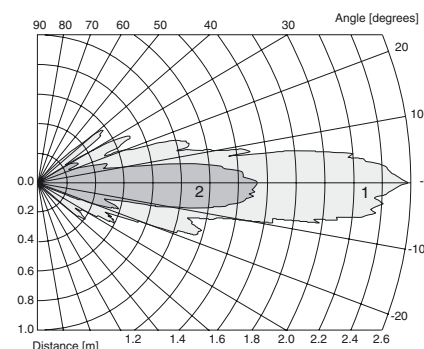
#### Installation conditions

If the sensor is installed at places, where the environment temperature can fall below  $0\text{ }^{\circ}\text{C}$ , for the sensors fixation, one of the mounting flanges BF18, BF18-F or BF 5-30 must be used. In case of direct mounting of the sensor in a through hole, it has to be fixed at the middle of the housing thread.

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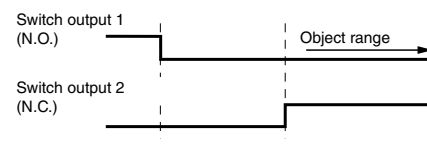
### Characteristic curves/additional information

#### Characteristic response curves



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

#### Programmed switching output function



Switch point 1  $\rightarrow \infty$ : Switch output 1, (N.O.)  
Detection of object presence  
Switch point 2  $\rightarrow \infty$ : Switch output 2, (N.C.)  
Detection of object presence

### Accessories

#### Programming device

UB-PROG3

#### Mounting aids/fixing flanges

OMH-04

BF 18

BF 18F

BF 5-30

#### Sound deflector

UVW90-K18

#### Cable sockets<sup>\*)</sup>

V15-G-2M-PVC

V15-W-2M-PUR

<sup>\*)</sup> For additional cable sockets see section „Accessories“.