



## Model Number

**UB1000-18GM75-E6-V15**

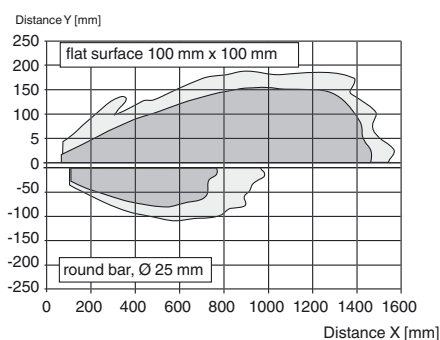
Single head system

## Features

- 2 switch outputs
- 3 different output functions can be set
- Selectable sound lobe width
- Program input
- Temperature compensation
- Very small unusable area

## Diagrams

### Characteristic response curve



## Technical data

### General specifications

Sensing range	70 ... 1000 mm
Adjustment range	90 ... 1000 mm
Dead band	0 ... 70 mm
Standard target plate	100 mm x 100 mm
Transducer frequency	approx. 255 kHz
Response delay	approx. 125 ms

### Indicators/operating means

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

### Electrical specifications

Operating voltage $U_B$	10 ... 30 V DC, ripple 10 % <sub>SS</sub>
No-load supply current $I_0$	≤ 50 mA

### Input

Input type	1 program input, operating range 1: $-U_B$ ... +1 V, operating range 2: +4 V ... + $U_B$ input impedance: > 4.7 kΩ; program pulse: ≥ 1 s
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### Output

Output type	2 switch outputs PNP, NO/NC, programmable
Rated operating current $I_e$	2 x 100 mA, short-circuit/overload protected
Voltage drop $U_d$	≤ 3 V
Repeat accuracy	≤ 1 %
Switching frequency $f$	max. 3 Hz
Range hysteresis $H$	1 % of the set operating distance
Temperature influence	± 1.5 % of full-scale value

### Ambient conditions

Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Storage temperature	-40 ... 85 °C (-40 ... 185 °F)

### Mechanical specifications

Connection type	Connector plug M12 x 1, 5-pin
Degree of protection	IP67
Material	
Housing	brass, nickel-plated
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
Mass	60 g

### Factory settings

Output 1	Switching point: 90 mm output function: Switch point operation mode output behavior: NO contact
Output 2	Switching point: 1000 mm output function: Switch point operation mode output behavior: NO contact
Beam width	wide

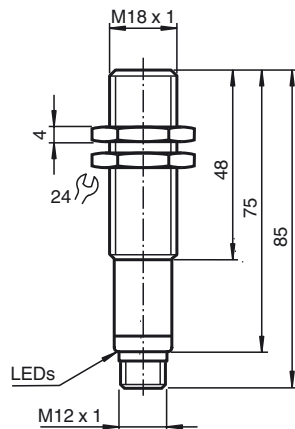
### Compliance with standards and directives

Standard conformity	
Standards	EN 60947-5-2:2007+A1:2012 IEC 60947-5-2:2007 + A1:2012

### Approvals and certificates

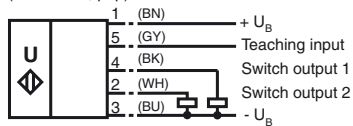
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	CCC approval / marking not required for products rated ≤ 36 V

## Dimensions



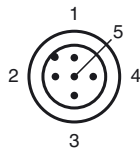
## Electrical Connection

Standard symbol/Connections:  
(version E6, pnp)



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

## Pinout

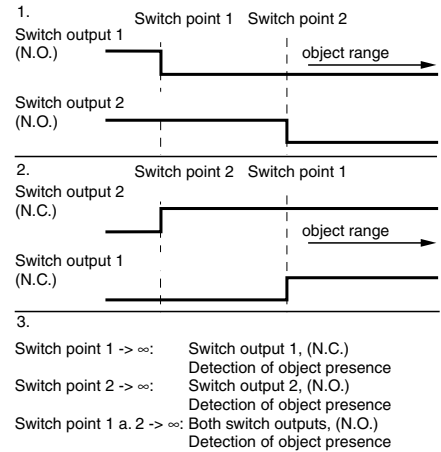


Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)
5	GY	(gray)

## Additional Information

### Programmed switching output function



## Accessories

### UB-PROG3

Programming unit

### OMH-04

Mounting aid for round steel  $\varnothing$  12 mm or sheet 1.5 mm ... 3 mm

### BF 18

Mounting flange, 18 mm

### BF 18-F

Plastic mounting adapter, 18 mm

### BF 5-30

Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm

### UVW90-K18

Ultrasonic -deflector

### V15-G-2M-PVC

Female cordset, M12, 5-pin, PVC cable

### M18K-VE

## Description of Sensor Functions

### Programming procedure

The sensor features two programmable switch outputs with one programmable switch point, each. Programming the switch point and the operating mode is done by applying the supply voltage  $-U_B$  or  $+U_B$  to the Program input. The supply voltage must be applied to the Program input for at least 1 s. LEDs indicate whether the sensor has recognized the target during the programming procedure.

#### Note:

Switching points may only be specified directly after Power on. A time lock secures the adjusted switching points against unintended modification 5 minutes after Power on. To modify the switching points later, the user may specify the desired values only after a new Power On.

#### Note:

If a programming adapter UB-PROG3 is used for the programming procedure, button A1 is assigned to  $-U_B$  and button A2 is assigned to  $+U_B$ .

### Programming switch outputs

#### Normally open (NO) output

The switch point of switch output 1 has to be closer to the sensor than the switch point of switch output 2

1. Place the target at the desired switch point position of switch output 1
2. Program the switch point by applying  $-U_B$  to the Program input (corresponding yellow LED flashes)
3. Disconnect the Program input from  $-U_B$  to save the switch point
4. Place the target at the desired switch point position of switch output 2
5. Program the switch point by applying  $+U_B$  to the Program input (corresponding yellow LED flashes)
6. Disconnect the Program input from  $+U_B$  to save the switch point

**Note:** The order doesn't make any difference. If you want, you can set only one switching point.

#### Normally closed (NC) output

The switch point of switch output 2 has to be closer to the sensor than the switch point of switch output 1

1. Place the target at the desired switch point position of switch output 1
2. Program the switch point by applying  $-U_B$  to the Program input (corresponding yellow LED flashes)
3. Disconnect the Program input from  $-U_B$  to save the switch point
4. Place the target at the desired switch point position of switch output 2
5. Program the switch point by applying  $+U_B$  to the Program input (corresponding yellow LED flashes)
6. Disconnect the Program input from  $+U_B$  to save the switch point

**Note:** The order doesn't make any difference. If you want, you can set only one switching point. If both switching points are equal, the sensor works in close function.

### Programming detection of object presence

1. Cover the sensor face with hand or remove all objects from sensing range
2. Apply  $-U_B$  to the Program input (red LED flashes)
3. Disconnect the Program input from  $-U_B$
4. Apply  $+U_B$  to the Program input (red LED flashes)
5. Disconnect the Program input from  $+U_B$

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

### Adjusting the sound cone characteristics:

The ultrasonic sensor enables two different shapes of the sound cone, a wide angle sound cone and a small angle sound cone.

#### 1. Small angle sound cone

- switch off the power supply
- connect the Teach-In input wire to  $-U_B$
- switch on the power supply
- the red LED flashes once with a pause before the next.
- yellow LED: permanently on: indicates the presence of an object or disturbing object within the sensing range
- disconnect the Teach-In input wire from  $-U_B$  and the changing is saved



#### 2. Wide angle sound cone

- switch off the power supply

- connect the Teach-In input wire with +U<sub>B</sub>
- switch on the power supply
- the red LED double-flashes with a long pause before the next.
- yellow LED: permanently on: indicates an object or disturbing object within the sensing range
- disconnect the Teach-In input wire from +U<sub>B</sub> and the changing is saved



## Factory settings

See technical data.

## Display

The sensor provides LEDs to indicate various conditions.

	Red LED	Yellow LED 1	Yellow LED 2
<b>During Normal operation</b>			
Proper operation	Off	Switching state output 1	Switching state output 2
Interference (e.g. compressed air)	On	remains in previous state	remains in previous state
<b>Programming of output 1</b>			
Object detected	Off	Flashes	Off
No object detected	Flashes	Off	Off
Object uncertain (programming invalid)	On	Off	Off
<b>Programming of output 2</b>			
Object detected	Off	Off	Flashes
No object detected	Flashes	Off	Off
Object uncertain (programming invalid)	On	Off	Off

## Installation conditions

If the sensor is installed at places, where the environment temperature can fall below 0 °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 using the steel nuts, it has to be fixed at the middle of the housing thread. If a fixation at the front end of the threaded housing is required, plastic nuts with centering ring (accessories) must be used.