



**Model Number**

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

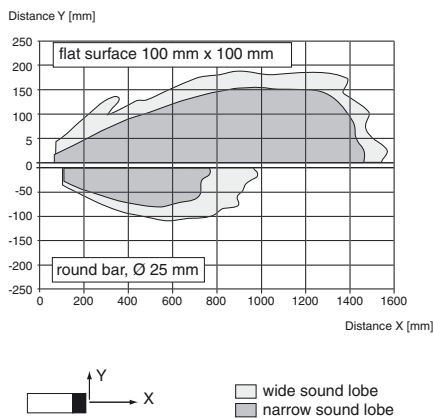
Single head system

**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**



Release date: 2011-08-12 13:07 Date of issue: 2011-08-12 204531\_eng.xml

**Technical data**

**General specifications**

Sensing range	70 ... 1000 mm
Adjustment range	90 ... 1000 mm
Unusable area	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
------------	---

**Output**

Output type	2 switch outputs PNP, NO/NC, programmable
Rated operational 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	Device connector M12 x 1 , 5-pin
Protection degree	IP65
Material	
Housing	brass, nickel-plated
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
Mass	60 g

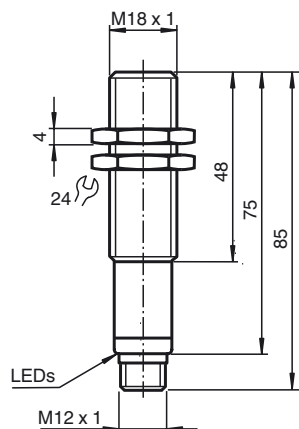
**Compliance with standards and directives**

Standard conformity	
Standards	EN 60947-5-2:2007 IEC 60947-5-2:2007

**Approvals and certificates**

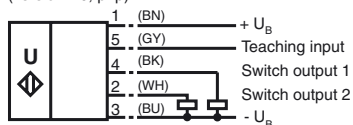
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose

**Dimensions**



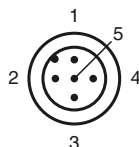
**Electrical Connection**

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

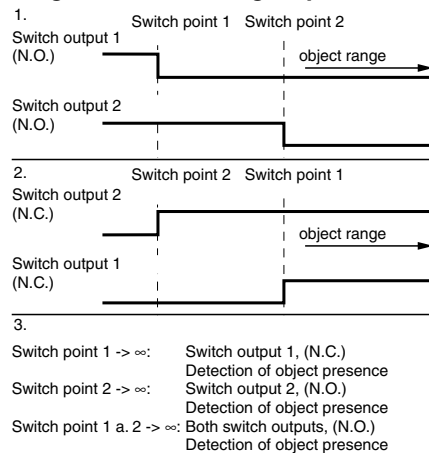
1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)
5	GY	(gray)

**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<sub>B</sub> or +U<sub>B</sub> to the TEACH-IN input.

**Additional Information**

**Programmed switching output function**



**Accessories**

**UB-PROG3**

Programming unit

**OMH-04**

Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm

**BF 18**

Mounting flange, 18 mm

**BF 18-F**

Mounting flange with dead stop, 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**

Cable socket, M12, 5-pin, PVC cable

**V15-W-2M-PUR**

Cable socket, M12, 5-pin, PUR cable

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  $+U_B$ .

Three different output functions can be set:

1. normally-open function
2. normally-closed function
3. Detection of object presence



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.

**TEACH-IN normally-open function**

Switching point for switch output 1 < switching point for switch output 2

- Set target of desired switching point for switch output 1
- TEACH-IN switching point for switch output 1 with  $-U_B$
- Set target of desired switching point for switch output 2
- TEACH-IN switching point for switch output 2 with  $+U_B$

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

**TEACH-IN normally-closed function**

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

Comments: 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.

**TEACH-IN detection of object presence**

- Cover the sensor with the palm, or remove all objects from the detection range of the sensor
- 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 object 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

**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.

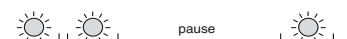
**1. Small angle sound cone**

- switch off the power supply
- connect the Teach-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-input wire from  $-U_B$  and the changing is saved



**2. Wide angle sound cone**

- switch off the power supply
- connect the Teach-input wire with  $+U_B$
- 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-input wire from  $+U_B$  and the changing is saved



Release date: 2011-08-12 13:07 Date of issue: 2011-08-12 204531\_eng.xml

**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.