



Model Number

UB1000-18GM75-E6-V15-Y216013

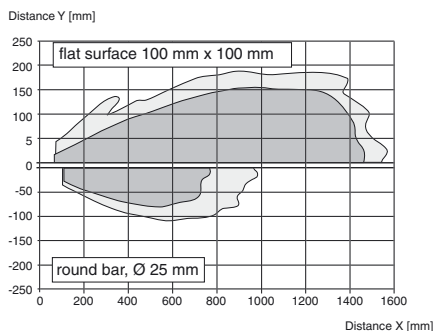
Single head system

Features

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

Curves

Characteristic response curve



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 % $_{SS}$
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 k Ω ; program pulse: ≥ 1 s
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Output

Output type	2 switch outputs PNP, NO/NC selectable
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Rated operational current I_e	2 x 100 mA , short-circuit/overload protected
Default setting	Switch output 1: switch distance = 300 mm, normally open Switch output 2: switch distance = 350 mm, normally open wide sound lobe

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

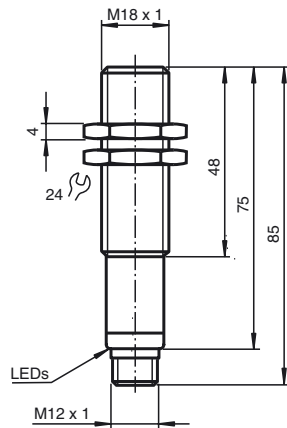
Standard conformity	
Standards	EN 60947-5-2:2007 IEC 60947-5-2:2007

Approvals and certificates

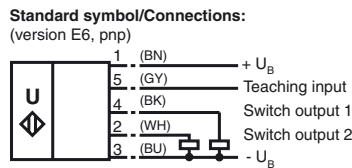
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose

Release date: 2010-11-19 14:28 Date of issue: 2010-11-19 216013_ENG.xml

Dimensions



Electrical Connection



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

Pinout

Connector V15



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 $+U_B$.

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.

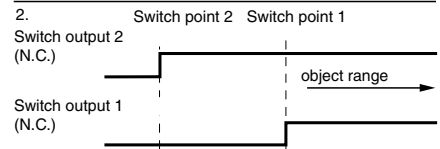
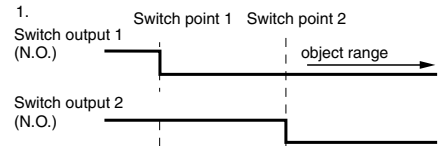
TEACH-IN normally-open function

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 $-U_B$

Additional Information

Programmed switching output function



- 3.
- Switch point 1 $\rightarrow \infty$: Switch output 1, (N.C.)
Detection of object presence
 - Switch point 2 $\rightarrow \infty$: Switch output 2, (N.O.)
Detection of object presence
 - Switch point 1 a. 2 $\rightarrow \infty$: Both switch outputs, (N.O.)
Detection of object presence

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

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

- 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
TEACH-IN switching point 1			
Object detected	off	flashes	off
No object detected	flashes	off	off
Object uncertain (TEACH-IN invalid)	on	off	off
TEACH-IN switching point 2:			
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



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.

Release date: 2010-11-19 14:28 Date of issue: 2010-11-19 216013_ENG.xml