

## Ultrasonic sensor UB300-18GM40-E5-V1

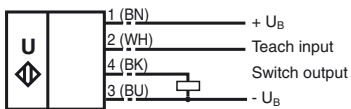


## Features

- Short design, 40 mm
- Function indicators visible from all directions
- Switch output
- 5 different output functions can be set
- TEACH-IN input
- Temperature compensation

## Electrical connection

Standard symbol/Connections:  
(version E5, pnp)

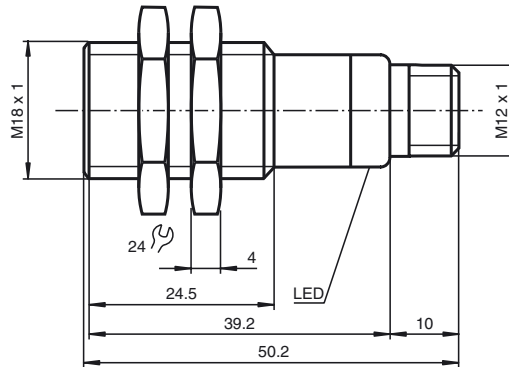


Core colours in accordance with EN 60947-5-2.

## Connector V1



## Dimensions



## Technical data



### General specifications

Sensing range	30 ... 300 mm
Adjustment range	50 ... 300 mm
Unusable area	0 ... 30 mm
Standard target plate	100 mm x 100 mm
Transducer frequency	approx. 390 kHz
Response delay	approx. 30 ms

### Indicators/operating means

LED yellow	indication of the switching state
flashing: TEACH-IN function object detected	
LED red	permanently red: Error
red, flashing: TEACH-IN function, object not detected	

### Electrical specifications

Operating voltage	10 ... 30 V DC, ripple 10 % <sub>SS</sub>
No-load supply current I <sub>0</sub>	≤ 20 mA

### Input

Input type	1 TEACH_IN input
operating distance 1: -U <sub>B</sub> ... +1 V, operating distance 2: +6 V ... +U <sub>B</sub>	
input impedance: > 4,7 kΩ TEACH-IN pulse: ≥ 1 s	

### Output

Output type	1 switch output E5, pnp NO/NC, parameterisable
Default setting	Switch point A1: 50 mm Switch point A2: 300 mm
Repeat accuracy	≤ 1 %
Rated operational current I <sub>e</sub>	200 mA, short-circuit/overload protected
Voltage drop U <sub>d</sub>	≤ 3 V
Switching frequency f	≤ 13 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	IP67
Connection	V1 connector (M12 x 1), 4-pin
Material	
Housing	brass, nickel-plated
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
Mass	25 g

### Adjusting the switching points

The ultrasonic sensor features a switch output with two teachable switching points. These 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  $+U_B$ .

Five different output functions can be set

1. Window mode, normally-open function
2. Window mode, normally-closed function
3. one switching point, normally-open function
4. one switching point, normally-closed function
5. Detection of object presence

### TEACH-IN window mode, normally-open function

- Set target to near switching point
- TEACH-IN switching point A1 with  $-U_B$
- Set target to far switching point
- TEACH-IN switching point A2 with  $+U_B$

### TEACH-IN window mode, normally-closed function

- Set target to near switching point
- TEACH-IN switching point A2 with  $+U_B$
- Set target to far switching point
- TEACH-IN switching point A1 with  $-U_B$

### TEACH-IN switching point, normally-open function

- Set target to near switching point
- TEACH-IN switching point A2 with  $+U_B$
- Cover sensor with hand or remove all objects from sensing range
- TEACH-IN switching point A1 with  $-U_B$

### TEACH-IN switching point, normally-closed function

- Set target to near switching point
- TEACH-IN switching point A1 with  $-U_B$
- Cover sensor with hand or remove all objects from sensing range
- TEACH-IN switching point A2 with  $+U_B$

### TEACH-IN detection of objects presence

- Cover sensor with hand or remove all objects from sensing range
- TEACH-IN switching point A1 with  $-U_B$
- TEACH-IN switching point A2 with  $+U_B$

### Default setting of switching points

A1 = blind range, A2 = nominal distance

### LED Displays

Displays in dependence on operating mode	Red LED	Yellow LED
<b>TEACH-IN switching point:</b>		
Object detected	off	flashes
No object detected	flashes	off
Object uncertain (TEACH-IN invalid)	On	off
Normal operation	off	Switching state
Fault	on	Previous state

### Installation conditions

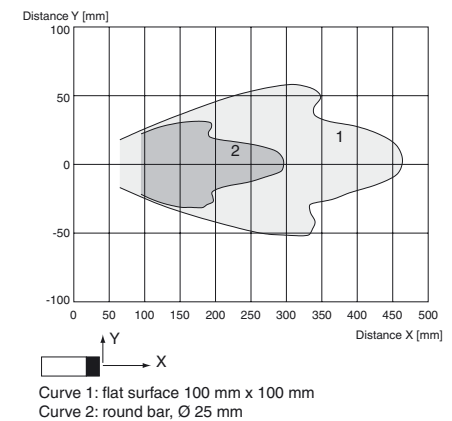
If the sensor is installed at places, where the environment temperature can fall below  $0\text{ }^{\circ}\text{C}$ , for the sensors fixation, one of the mounting flanges BF18, BF18-F or BF 5-30 must be used.

In case of direct mounting of the sensor in a through hole 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.

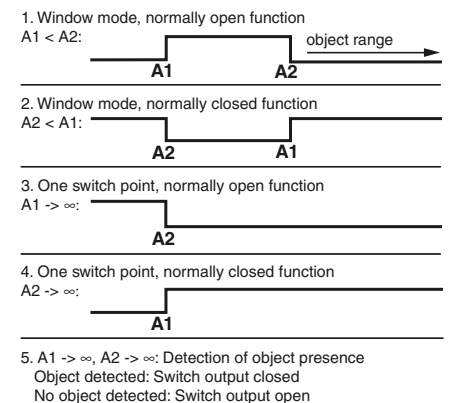
## UB300-18GM40-E5-V1

### Characteristic curves/additional information

#### Characteristic response curve



#### Programmed switching output function



### Accessories

UB-PROG2  
Programming unit

OMH-04  
Mounting aid

BF 18  
Mounting flange

BF 18-F  
Mounting flange

BF 5-30  
Mounting flange

V1-G-2M-PVC  
Cable connector

V1-W-2M-PUR  
Cable connector