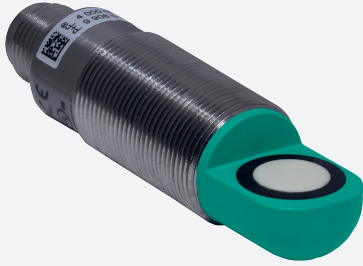


# Ultrasonic sensor

## UB300-18GM40A-E5-V1-Y70147384

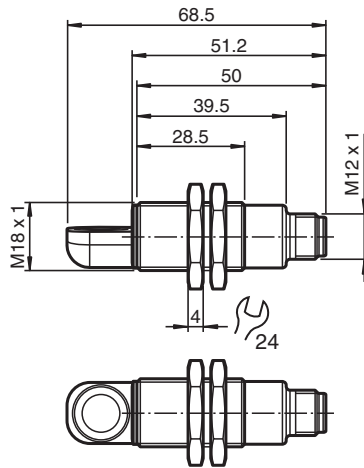


- Short design, 40 mm
- Switching output
- 5 different output functions can be set
- Program input
- Temperature compensation
- Stainless steel version

Single head system



### Dimensions



### Technical Data

| General specifications    |       |   |
|---------------------------|-------|---|
| Sensing range             |       | 35 ... 300 mm   |
| Adjustment range          |       | 50 ... 300 mm   |
| Dead band                 |       | 0 ... 35 mm   |
| Standard target plate     |       | 100 mm x 100 mm   |
| Transducer frequency      |       | approx. 390 kHz   |
| Response delay            |       | approx. 50 ms   |
| Electrical specifications |       |   |
| Operating voltage         | $U_B$ | 10 ... 30 V DC , ripple 10 % <sub>SS</sub>  |
| No-load supply current    | $I_0$ | ≤ 20 mA   |
| Input                     |       |   |
| Input type                |       | 1 program input<br>operating distance 1: $-U_B ... +1$ V, operating distance 2: $+6$ V ... $+U_B$<br>input impedance: > 4,7 kΩ program pulse: ≥ 1 s |
| Output                    |       |   |
| Output type               |       | 1 switching output E5, PNP NO/NC, programmable  |
| Rated operating current   | $I_e$ | 200 mA , short-circuit/overload protected   |
| Default setting           |       | Switch point A1: 50 mm Switch point A2: 300 mm  |

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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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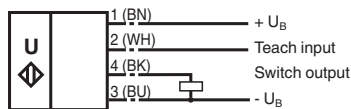
**PEPPERL+FUCHS**

## Technical Data

|   |       |   |
|---|-------|---|
| Voltage drop                                    | $U_d$ | $\leq 3\text{ V}$   |
| Repeat accuracy                                 |       | $\leq 1\ \%$  |
| Switching frequency                             | $f$   | $\leq 13\text{ Hz}$   |
| Range hysteresis                                | $H$   | 1 % of the set operating distance   |
| Temperature influence                           |       | $\pm 1.5\ \%$ of full-scale value   |
| <b>Compliance with standards and directives</b> |       |   |
| Standard conformity                             |       |   |
| Standards                                       |       | EN IEC 60947-5-2:2020<br>IEC 60947-5-2:2019                               |
| <b>Approvals and certificates</b>               |       |   |
| UL approval                                     |       | cULus Listed, Class 2 Power Source  |
| CCC approval                                    |       | CCC approval / marking not required for products rated $\leq 36\text{ V}$ |
| <b>Ambient conditions</b>                       |       |   |
| Ambient temperature                             |       | -25 ... 70 °C (-13 ... 158 °F)  |
| Storage temperature                             |       | -40 ... 85 °C (-40 ... 185 °F)  |
| <b>Mechanical specifications</b>                |       |   |
| Connection type                                 |       | Connector plug M12 x 1 , 4-pin , metal                                    |
| Housing diameter                                |       | 18 mm   |
| Degree of protection                            |       | IP67  |
| Material  |       |   |
| Housing   |       | Stainless steel 1.4305 / AISI 303   |
| Transducer                                      |       | epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT     |
| Mass  |       | 25 g  |

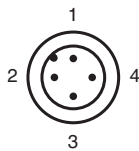
## Connection

Standard symbol/Connections:  
(version E5, pnp)



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

## Connection Assignment

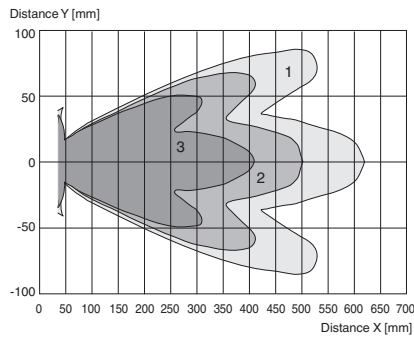


Wire colors in accordance with EN 60947-5-2

|   |    |         |
|---|----|---------|
| 1 | BN | (brown) |
| 2 | WH | (white) |
| 3 | BU | (blue)  |
| 4 | BK | (black) |

## Characteristic Curve

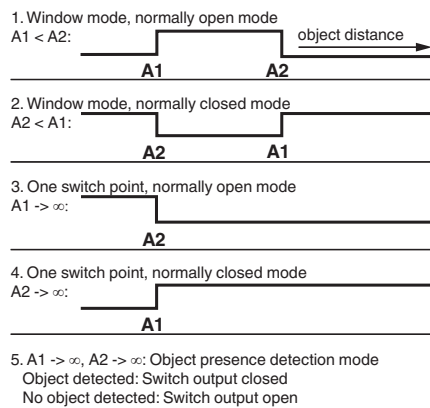
### Characteristic response curve



Curve 1: flat surface 100 mm x 100 mm  
 Curve 2: flat surface 10 mm x 10 mm  
 Curve 3: round bar, Ø 25 mm



### Programmable output modes



## Accessories

|  |                    |   |
|--|--------------------|---|
|  | <b>UB-PROG2</b>    | Programming unit  |
|  | <b>OMH-04</b>      | Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm                           |
|  | <b>BF 18</b>       | Mounting flange, 18 mm  |
|  | <b>BF 18-F</b>     | Plastic mounting adapter, 18 mm   |
|  | <b>BF 5-30</b>     | Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm       |
|  | <b>V1-G-2M-PVC</b> | Female cordset single-ended M12 straight A-coded, 4-pin, PVC cable grey                 |
|  | <b>V1-W-2M-PUR</b> | Female cordset single-ended M12 angled A-coded, 4-pin, PUR cable grey                   |
|  | <b>UVW90-K18</b>   | Ultrasonic -deflector   |
|  | <b>M18K-VE</b>     | Plastic nuts with centering ring for the vibration-free mounting of cylindrical sensors |

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**Teach-In**

**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  $+U_B$

**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  |

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