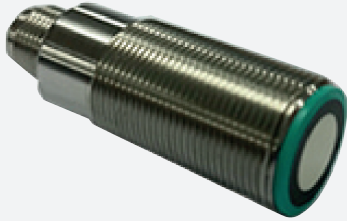


# Ultrasonic sensor

## UB300-18GM40-E5-V1-Y287031

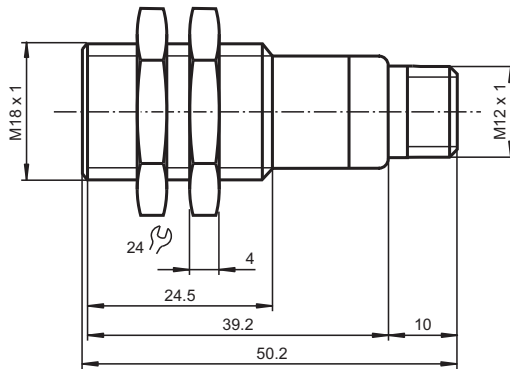


- Short design, 40 mm
- Switching output
- 5 different output functions can be set
- Program input
- Temperature compensation

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 operating distance 1: $-U_B \dots +1$ V, operating distance 2: $+6$ V ... $+U_B$ input impedance: > 4,7 k $\Omega$ 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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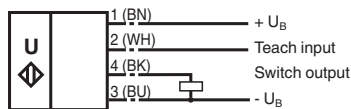
**PF** PEPPERL+FUCHS

## 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 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

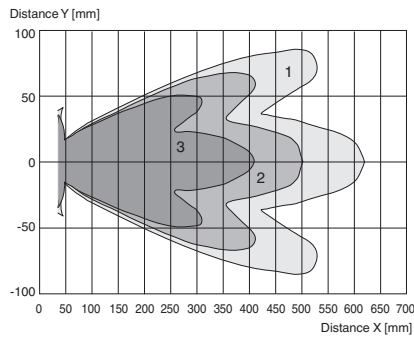
### Connector V1



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## Characteristic Curve

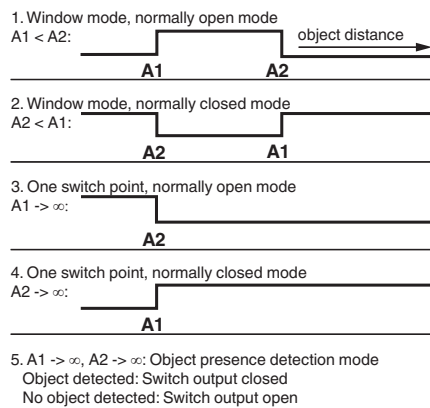
### Characteristic response curve



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

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## Commissioning

### 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.

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  $+U_B$

## 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.