



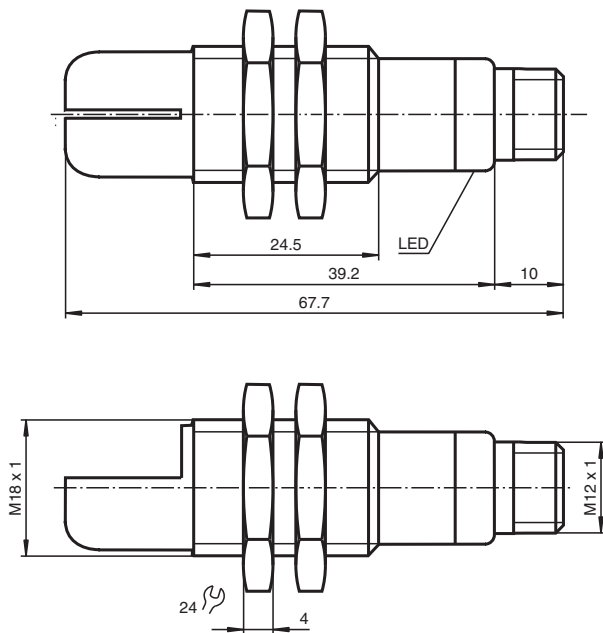
Ultrasonic sensor UB300-18GM40A-I-V1

- Short design, 40 mm
- Function indicators visible from all directions
- Analog output 4 mA ... 20 mA
- Measuring window adjustable
- 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 |

Indicators/operating means

| | |
|------------|---|
| LED green | Power on |
| LED yellow | solid yellow: object in the evaluation range yellow, flashing: program function, object detected |
| LED red | solid red: Error red, flashing: program function, object not detected |

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

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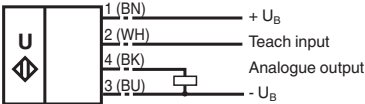
 **PEPPERL+FUCHS**

Technical Data

| | | |
|---|-------|---|
| Electrical specifications | | |
| Operating voltage | U_B | 10 ... 30 V DC , ripple 10 % _{SS} |
| No-load supply current | I_0 | ≤ 20 mA |
| Input | | |
| Input type | | 1 program input lower evaluation limit A1: $-U_B \dots +1$ V, upper evaluation limit A2: $+4$ V ... $+U_B$ input impedance: > 4.7 kΩ, pulse duration: ≥ 1 s |
| Output | | |
| Output type | | 1 analog output 4 ... 20 mA |
| Default setting | | evaluation limit A1: 50 mm evaluation limit A2: 300 mm |
| Resolution | | 0.4 mm at max. sensing range |
| Deviation of the characteristic curve | | ± 1 % of full-scale value |
| Repeat accuracy | | ± 0.5 % of full-scale value |
| Load impedance | | 0 ... 300 Ohm |
| Temperature influence | | ± 1.5 % of full-scale value |
| Compliance with standards and directives | | |
| Standard conformity | | |
| Standards | | EN IEC 60947-5-2:2020 IEC 60947-5-2:2019 EN 60947-5-7:2003 IEC 60947-5-7:2003 |
| Approvals and certificates | | |
| UL approval | | cULus Listed, Class 2 Power Source |
| CCC approval | | CCC approval / marking not required for products rated ≤36 V |
| Ambient conditions | | |
| Ambient temperature | | -25 ... 70 °C (-13 ... 158 °F) |
| Storage temperature | | -40 ... 85 °C (-40 ... 185 °F) |
| Mechanical specifications | | |
| Connection type | | Connector plug M12 x 1 , 4-pin |
| Degree of protection | | IP67 |
| Material | | |
| Housing | | brass, nickel-plated |
| Transducer | | epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT |
| Mass | | 25 g |
| Dimensions | | |
| Length | | 40 mm |
| Diameter | | 18 mm |

Connection Assignment

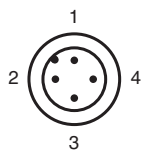
Standard symbol/Connections:
(version I)



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

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Connection Assignment

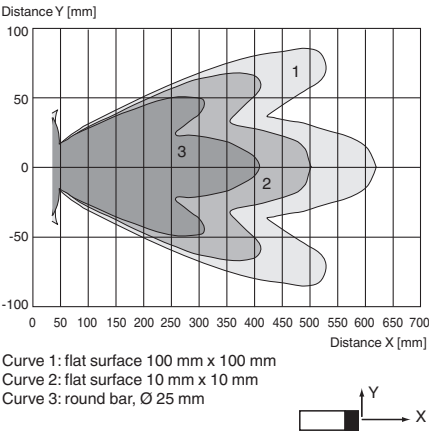


Wire colors in accordance with EN 60947-5-2

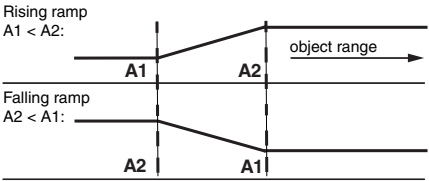
| | | |
|---|----|---------|
| 1 | BN | (brown) |
| 2 | WH | (white) |
| 3 | BU | (blue) |
| 4 | BK | (black) |

Characteristic Curve

Characteristic response curve



Programming the analog output mode



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Programming

Programming procedure

The sensor features a programmable analog output with two programmable evaluation boundaries. Programming the evaluation boundaries and the operating mode is done 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 recognized the target during the programming procedure.

Note:

Evaluation boundaries 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 evaluation boundaries later, the user may specify the desired values only after a new Power On.

Note:

If a programming adapter UB-PROG2 is used for the programming procedure, button A1 is assigned to $-U_B$ and button A2 is assigned to $+U_B$.

Programming the analog output

Rising ramp

1. Place the target at the near end of the desired evaluation range
2. Program the evaluation boundary by applying $-U_B$ to the Teach-In input (yellow LED flashes)
3. Disconnect the Teach-In input from $-U_B$ to save the evaluation boundary
4. Place the target at the far end of the desired evaluation range
5. Program the evaluation boundary by applying $+U_B$ to the Teach-In input (yellow LED flashes)
6. Disconnect the Teach-In input from $+U_B$ to save the evaluation boundary

Falling ramp

1. Place the target at the far end of the desired evaluation range
2. Program the evaluation boundary by applying $-U_B$ to the Teach-In input (yellow LED flashes)
3. Disconnect the Teach-In input from $-U_B$ to save the evaluation boundary
4. Place the target at the near end of the desired evaluation range
5. Program the evaluation boundary by applying $+U_B$ to the Teach-In input (yellow LED flashes)
6. Disconnect the Teach-In input from $+U_B$ to save the evaluation boundary