



Ultrasonic sensor

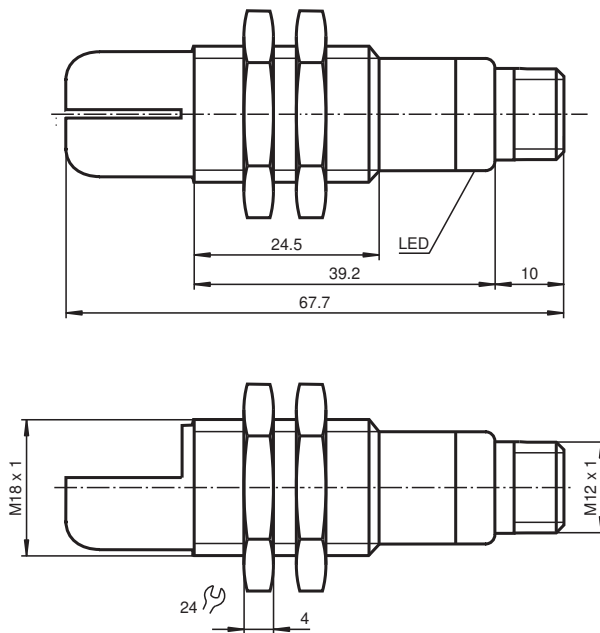
UB500-18GM40A-I-V1-Y70103911

- Short design, 40 mm
- Function indicators visible from all directions
- Analog output 4 mA ... 20 mA
- Measuring window adjustable
- Program input
- Temperature compensation
- Customer-specific configuration

Single head system



Dimensions



Technical Data

General specifications

Sensing range	40 ... 500 mm
Adjustment range	40 ... 500 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
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Release date: 2023-07-13 Date of issue: 2023-07-14 Filename: 70103911_eng.pdf

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

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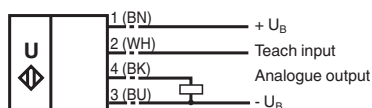
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Technical Data

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
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, short-circuit/overload protected
Default setting		evaluation limit A1: 40 mm evaluation limit A2: 420 mm
Resolution		0.4 mm at max. sensing range
Deviation of the characteristic curve		± 2 % of full-scale value
Repeat accuracy		± 1 % of full-scale value
Load impedance		0 ... 300 Ω at $U_B > 10$ V; 0 ... 500 Ω at $U_B > 15$ V
Temperature influence		± 3 % 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		
EAC conformity		TR CU 020/2011 TR CU 037/2016
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 ... 50 °C (-13 ... 122 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
Mechanical specifications		
Connection type		Connector plug M12 x 1 , 4-pin
Housing diameter		18 mm
Degree of protection		IP67
Material		
Housing		brass, nickel-plated
Transducer		epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
Mass		25 g

Connection

Standard symbol/Connections: (version I)



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

Connection Assignment

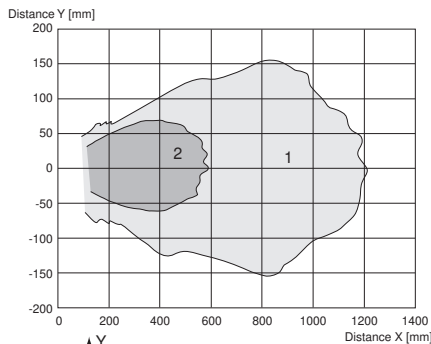


Wire colors in accordance with EN 60947-5-2

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

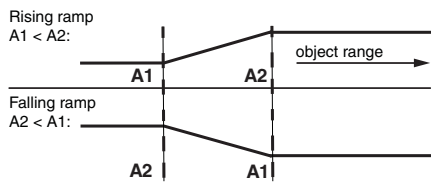
Characteristic Curve

Characteristic response curve



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

Programmed analogue output function



A1 -> ∞, A2 -> ∞: Detection of object presence

Object detected: 20 mA
No object detected: 4 mA






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Accessories

	UB-PROG2	Programming unit
	OMH-04	Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm

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

Accessories

	BF 18	Mounting flange, 18 mm
	BF 18-F	Plastic mounting adapter, 18 mm
	BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm
	V1-G-2M-PVC	Female cordset single-ended M12 straight A-coded, 4-pin, PVC cable grey
	V1-W-2M-PUR	Female cordset single-ended M12 angled A-coded, 4-pin, PUR cable grey

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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