



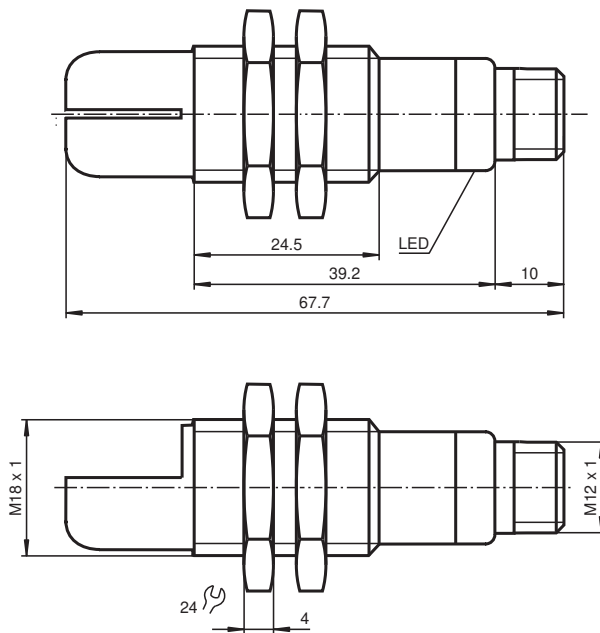
## Ultrasonic sensor

UB800-18GM40A-U-V1-Y70109111

- Short design, 40 mm
- Function indicators visible from all directions
- Temperature compensation
- Analog output 0 ... 10 V DC
- Near analog limit 10 V, far limit 0 V
- Preset, customized range limits

Single head system

## Dimensions



## Technical Data

### General specifications

Sensing range	60 ... 438 mm (fixed)
Dead band	0 ... 50 mm
Standard target plate	100 mm x 100 mm
Transducer frequency	approx. 255 kHz
Response delay	approx. 100 ms

### Indicators/operating means

LED green	Power on
LED yellow	solid yellow: object in the evaluation range yellow, flashing: program function, object detected

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

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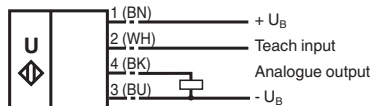
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## Technical Data

LED red	solid red: Error red, flashing: program function, object not detected	
<b>Electrical specifications</b>		
Operating voltage	$U_B$	15 ... 30 V DC , ripple 10 % <sub>SS</sub>
No-load supply current	$I_0$	≤ 20 mA
<b>Input</b>		
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
<b>Output</b>		
Output type		1 analog output 0 ... 10 V
Default setting		evaluation limit A2: 60 mm evaluation limit A1: 438 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		> 1 kΩ
Temperature influence		± 1.5 % of full-scale value
<b>Compliance with standards and directives</b>		
Standard conformity		
Standards		EN 60947-5-2:2007+A1:2012 IEC 60947-5-2:2007 + A1:2012 EN 60947-5-7:2003 IEC 60947-5-7:2003
<b>Approvals and certificates</b>		
CCC approval		CCC approval / marking not required for products rated ≤36 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
Housing length		57 mm
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 U)



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

## Connection Assignment

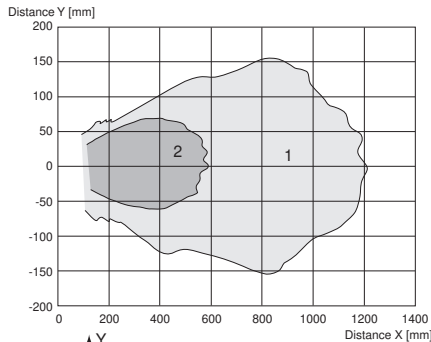


Wire colors in accordance with EN 60947-5-2

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

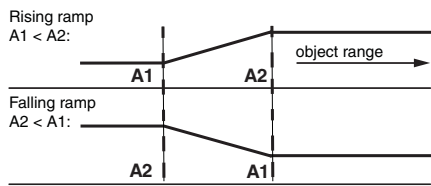
## Characteristic Curve

### Characteristic response curve



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

### Programming the analog output mode



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

Object detected: 10 V  
No object detected: 0 V

## Programming

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  $+U_B$ .

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## Programming

### 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