



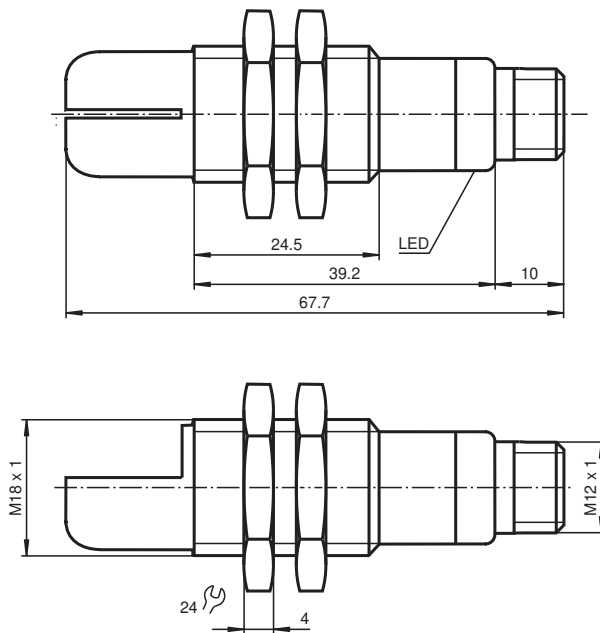
## Ultrasonic sensor

UB800-18GM40A-E5-V1-Y70109108

- Short design, 40 mm
- Function indicators visible from all directions
- Temperature compensation
- Normally Open Output
- Preset, customized range limits

Single head system

## Dimensions



## Technical Data

### General specifications

Sensing range	50 ... 300 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	indication of the switching state flashing: program function object detected

Release date: 2023-02-15 Date of issue: 2023-02-15 Filename: 70109108\_eng.pdf

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

Pepperl+Fuchs Group  
www.pepperl-fuchs.com

USA: +1 330 486 0001  
fa-info@us.pepperl-fuchs.com

Germany: +49 621 776 1111  
fa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091  
fa-info@sg.pepperl-fuchs.com

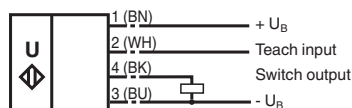
**PEPPERL+FUCHS**

## Technical Data

LED red		solid red: Error red, flashing: program function, object not detected
<b>Electrical specifications</b>		
Operating voltage	$U_B$	10 ... 30 V DC , ripple 10 % <sub>SS</sub>
No-load supply current	$I_0$	≤ 20 mA
<b>Input</b>		
Input type		1 program input operating distance 1: $-U_B \dots +1$ V, operating distance 2: $+6$ V ... $+U_B$ input impedance: > 4,7 kΩ program pulse: ≥ 1 s
<b>Output</b>		
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
Voltage drop	$U_d$	≤ 3 V
Repeat accuracy		≤ 1 %
Switching frequency	f	≤ 4 Hz
Range hysteresis	H	1 % of the set operating distance
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
<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 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

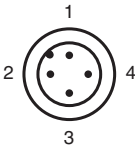
## Connection

**Standard symbol/Connections:**  
(version E5, pnp)



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

Connection Assignment

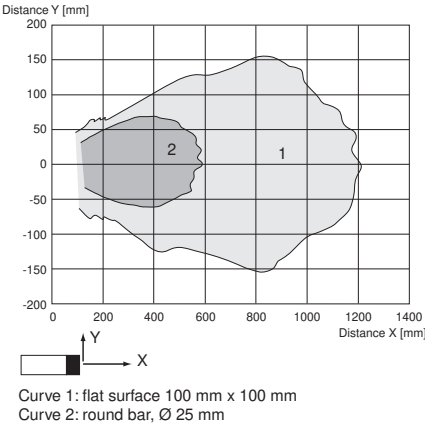


Wire colors in accordance with EN 60947-5-2

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

Characteristic Curve

Characteristic response curve



Programmable output modes

1. Window mode, normally open mode  
 $A1 < A2$ :
2. Window mode, normally closed mode  
 $A2 < A1$ :
3. One switch point, normally open mode  
 $A1 \rightarrow \infty$ :
4. One switch point, normally closed mode  
 $A2 \rightarrow \infty$ :
5.  $A1 \rightarrow \infty, A2 \rightarrow \infty$ : Object presence detection mode  
Object detected: Switch output closed  
No object detected: Switch output open

Release date: 2023-02-15 Date of issue: 2023-02-15 Filename: 70109108\_eng.pdf

## 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