



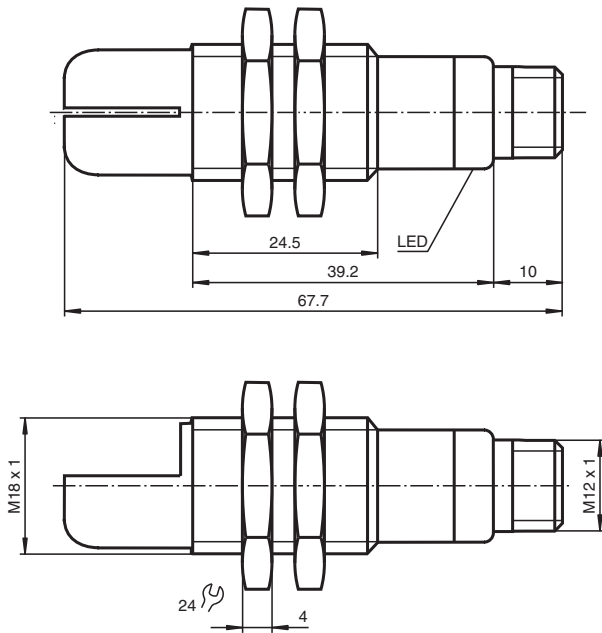
## Ultrasonic sensor UB800-18GM40A-E5-V1

- Short design, 40 mm
- Function indicators visible from all directions
- Switching output
- 5 different output functions can be set
- Program input
- Temperature compensation

Single head system



### Dimensions



### Technical Data

#### General specifications

Sensing range	50 ... 800 mm
Adjustment range	70 ... 800 mm
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
LED red	solid red: Error red, flashing: program function, object not detected

Release date: 2025-05-16 Date of issue: 2025-05-16 Filename: 205344\_eng.pdf

## Technical Data

### 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: $-U_B$ ... +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: 70 mm Switch point A2: 800 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

### Compliance with standards and directives

Standard conformity	
Standards	EN IEC 60947-5-2:2020 IEC 60947-5-2:2019

### 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

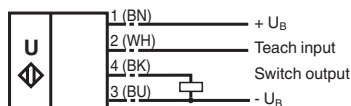
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Storage temperature	-40 ... 85 °C (-40 ... 185 °F)

### 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	57 mm
Diameter	18 mm

## Connection Assignment

Standard symbol/Connections:  
(version E5, pnp)



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

## Connection Assignment

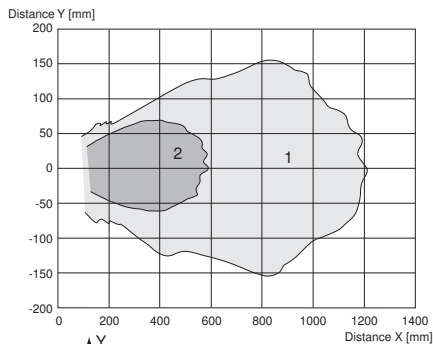


Wire colors in accordance with EN 60947-5-2

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

## Characteristic Curve

### Characteristic response curve



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

### Programmable output modes

1. Window mode, normally open mode  
 $A1 < A2$ : object distance →
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: 2025-05-16 Date of issue: 2025-05-16 Filename: 205344\_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

Release date: 2025-05-16 Date of issue: 2025-05-16 Filename: 205344\_eng.pdf