Technical data

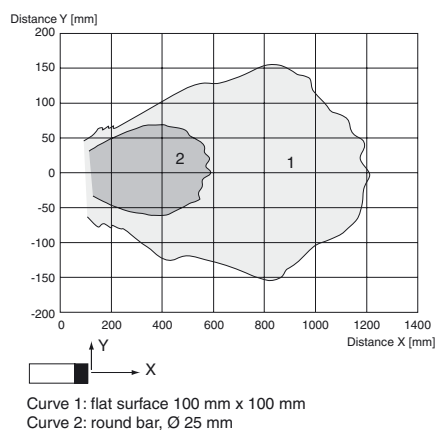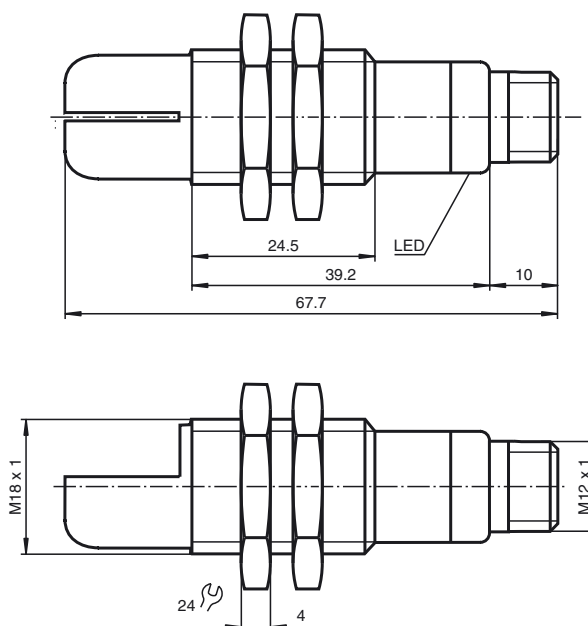| General specifications	
Sensing range	60 ... 300 mm (fixed)
Dead band	0 ... 50 mm
Standard target plate	100 mm x 100 mm
Transducer frequency	approx. 255 kHz
Response delay	approx. 100 ms
Indicators/operating means	
LED green	Power on
LED yellow	solid yellow: object in the evaluation range
	yellow, flashing: program function, object detected
LED red	solid red: Error
	red, flashing: program function, object not detected
Electrical specifications	
Operating voltage U_B	15 ... 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 ... +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 0 ... 10 V
Default setting	evaluation limit A2: 60 mm evaluation limit A1: 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	> 1 kOhm
Temperature influence	± 1.5 % of full-scale value
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
Compliance with standards and directives	
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
Approvals and certificates	
CCC approval	CCC approval / marking not required for products rated ≤36 V

Model Number

UB800-18GM40A-U-V1-Y70109110

Single head system

Features

- **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**

Diagrams

Characteristic response curve

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

Dimensions

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

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Electrical Connection

Standard symbol/Connections:
(version U)

```
        1 (BN) ──────── + U_B
  ┌───┐ 2 (WH) ──────── Teach input
  │ U │ 4 (BK) ──────── Analog output
  │◇│ 3 (BU) ──[▭]──── - U_B
  └───┘
```
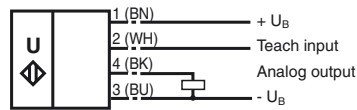
Core colors in accordance with EN 60947-5-2.

Pinout

```
        1
    ┌───────┐
  2 │  ( )  │ 4
    └───────┘
        3
```
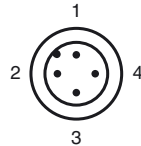
Wire colors in accordance with EN 60947-5-2

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

Adjusting the evaluation limits

The ultrasonic sensor features an analogue output with two teachable evaluation limits. 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. The lower evaluation limit A1 is taught with $-U_B$, A2 with $+U_B$.

Two different output functions can be set:
1. Analogue value increases with rising distance to object (rising ramp)
2. Analogue value falls with rising distance to object (falling ramp)

TEACH-IN rising ramp (A2 > A1)
- Position object at lower evaluation limit
- TEACH-IN lower limit A1 with $- U_B$
- Position object at upper evaluation limit
- TEACH-IN upper limit A2 with $+ U_B$

TEACH-IN falling ramp (A1 > A2):
- Position object at lower evaluation limit
- TEACH-IN lower limit A2 with $+ U_B$
- Position object at upper evaluation limit
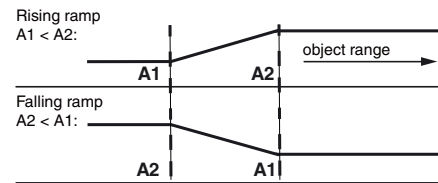- TEACH-IN upper limit A1 with $- U_B$

Default setting

A1:	unusable area
A2:	nominal sensing range
Mode of operation:	rising ramp

LED Displays

Additional Information

Programming the analog output mode

Rising ramp
A1 < A2:

```
              ╱────── object range ──▶
        ╱────
  ──────╱
    A1      A2
```

Falling ramp
A2 < A1:

```
  ─────╲
        ╲────
              ╲──────
    A2      A1
```

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

Object detected: 10 V
No object detected: 0 V

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Displays in dependence on operating mode	Red LED	Yellow LED
TEACH-IN evaluation limit Object detected No object detected Object uncertain (TEACH-IN invalid)	 off flashes on	 flashes off off
Normal mode (evaluation range)	off	on
Fault	on	previous state

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