



**Model Number**

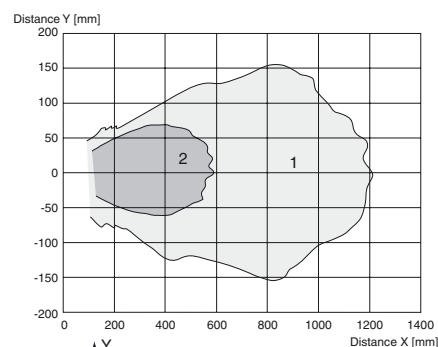
**UB800-18GM40-I-V1**  
Single head system

**Features**

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

**Curves**

**Characteristic response curve**



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

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**Technical data**

**General specifications**

Sensing range	50 ... 800 mm
Adjustment range	70 ... 800 mm
Unusable area	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	permanently yellow: object in the evaluation range yellow, flashing: program function, object detected
LED red	permanently red: Error red, flashing: program function, object not detected

**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 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
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**Output**

Output type	1 analogue output 4 ... 20 mA, short-circuit/overload protected
Default setting	evaluation limit A1: 70 mm evaluation limit A2: 800 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	0 ... 300 Ω at $U_B > 10$ V; 0 ... 500 Ω at $U_B > 15$ V
Temperature influence	± 1.5 % of full-scale value

**Ambient conditions**

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

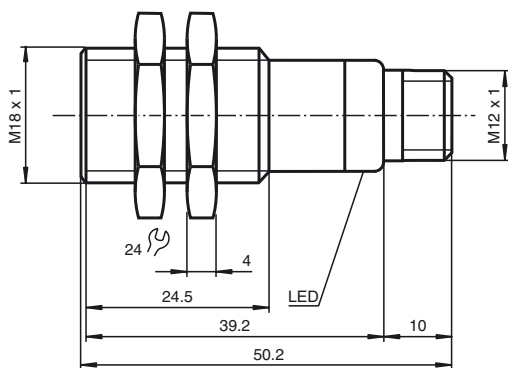
**Mechanical specifications**

Protection degree	IP67
Connection	V1 connector (M12 x 1), 4-pin
Material	
Housing	brass, nickel-plated
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
Mass	25 g

**Compliance with standards and directives**

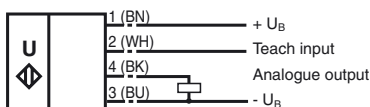
Standard conformity	
Standards	EN 60947-5-2:2007 IEC 60947-5-2:2007

**Dimensions**



**Electrical Connection**

Standard symbol/Connections:  
(version I)



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

**Pinout**

**Connector V1**



**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)**

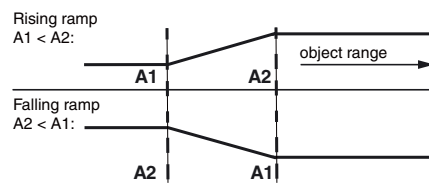
- Position object at lower evaluation limit
- TEACH-IN lower limit A1 with  $-U_B$
- Position object at upper evaluation limit
- TEACH-IN upper limit A2 with  $+U_B$

**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

**Additional Information**

**Programmed analogue output function**



A1  $\rightarrow \infty$ , A2  $\rightarrow \infty$ : Detection of object presence

Object detected: 20 mA  
No object detected: 4 mA

**Accessories**

- UB-PROG2**  
Programming unit
- OMH-04**  
Mounting aid
- BF 18**  
Mounting flange
- BF 18-F**  
Mounting flange
- BF 5-30**  
Mounting flange
- V1-G-2M-PVC**  
Cable connector
- V1-W-2M-PUR**  
Cable connector

- TEACH-IN upper limit A1 with - U<sub>B</sub>

**Default setting**

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

**LED Displays**

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

**Installation conditions**

If the sensor is installed at places, where the environment temperature can fall below 0 °C, for the sensors fixation, one of the mounting flanges BF18, BF18-F or BF 5-30 must be used.

In case of direct mounting of the sensor in a through hole using the steel nuts, it has to be fixed at the middle of the housing thread. If a fixation at the front end of the threaded housing is required, plastic nuts with centering ring (accessories) must be used.

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