



**Model Number**

**UB800-18GM40-I-V1**

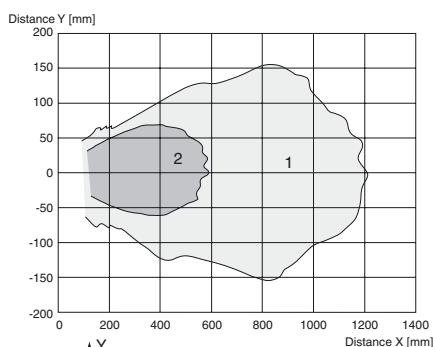
Single head system

**Features**

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

**Diagrams**

**Characteristic response curve**



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

**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	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 $U_B$	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 analog 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 (-13 ... 158 °F)
Storage temperature	-40 ... 85 °C (-40 ... 185 °F)

**Mechanical specifications**

Connection type	Connector 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**

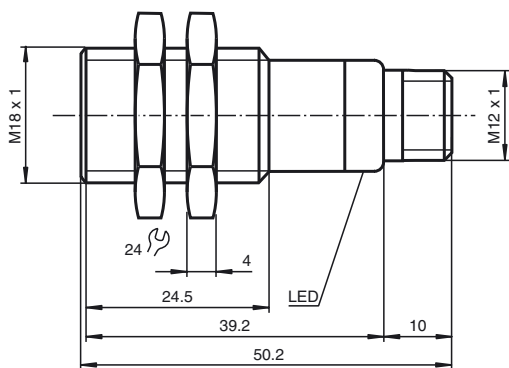
Standard conformity	
Standards	EN 60947-5-2:2007+A1:2012 IEC 60947-5-2:2007 + A1:2012 EN 60947-5-7:2003 IEC 60947-5-7:2003

**Approvals and certificates**

EAC conformity	TR CU 020/2011
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	CCC approval / marking not required for products rated ≤36 V

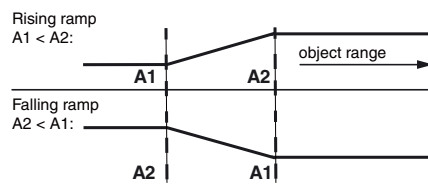
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**Dimensions**



**Additional Information**

**Programmed analogue output function**

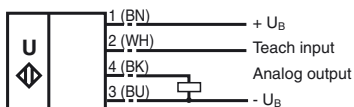


A1 -> ∞, A2 -> ∞: Detection of object presence

Object detected: 20 mA  
No object detected: 4 mA

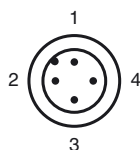
**Electrical Connection**

Standard symbol/Connections:  
(version I)



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

**Pinout**



Wire colors in accordance with EN 60947-5-2

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

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**Accessories**

**UB-PROG2**

Programming unit

**OMH-04**

Mounting aid for round steel  $\varnothing$  12 mm or sheet 1.5 mm ... 3 mm

**BF 18**

Mounting flange, 18 mm

**BF 18-F**

Mounting flange with dead stop, 18 mm

**BF 5-30**

Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm

**V1-G-2M-PVC**

Female cordset, M12, 4-pin, PVC cable

**V1-W-2M-PUR**

Female cordset, M12, 4-pin, PUR cable

**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**

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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