



Model Number

UB800-18GM40-U-V1

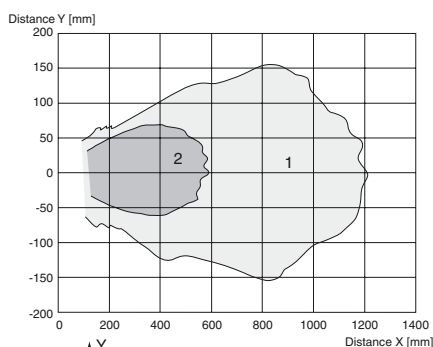
Single head system

Features

- Short design, 40 mm
- Function indicators visible from all directions
- Analog output 0 ... 10 V
- 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 | 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 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 | > 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 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

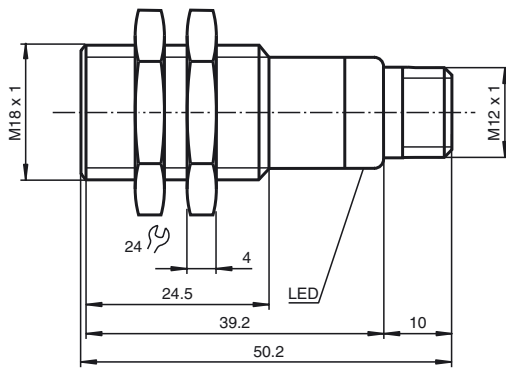
| | |
|---------------------|--|
| Standard conformity | |
| Standards | EN 60947-5-2:2007 + A1:2012 IEC 60947-5-2:2007 + A1:2012 EN 60947-5-7:2003 IEC 60947-5-7:2003 |

Approvals and certificates

| | |
|--------------|--|
| UL approval | cULus Listed, General Purpose |
| CSA approval | cCSAus Listed, General Purpose |
| CCC approval | CCC approval / marking not required for products rated ≤36 V |

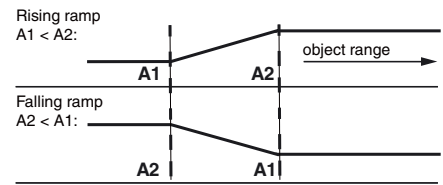
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Dimensions



Additional Information

Programming the analog output mode

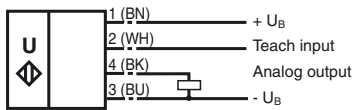


A1 -> ∞, A2 -> ∞: Detection of object presence

Object detected: 10 V
No object detected: 0 V

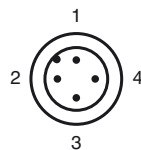
Electrical Connection

Standard symbol/Connections:
(version U)



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) |

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 |
|--|---------|----------------|
| TEACH-IN evaluation limit | | |
| 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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