

Ultrasonic sensor UB300-18GM40-U-V1

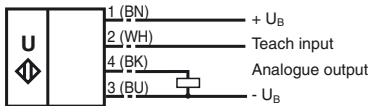


Features

- Short design, 40 mm
- Function indicators visible from all directions
- Analogue output 0 V ... 10 V
- Measuring window adjustable
- TEACH-IN input
- Temperature compensation

Electrical connection

Standard symbol/Connections:
(version U)

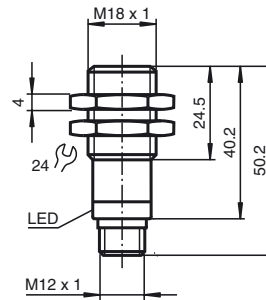


Core colours in accordance with EN 60947-5-2.

Connector V1



Dimensions



Technical data



General specifications

Sensing range	30 ... 300 mm
Adjustment range	50 ... 300 mm
Unusable area	0 ... 30 mm
Standard target plate	100 mm x 100 mm
Transducer frequency	approx. 390 kHz
Response delay	approx. 30 ms

Indicators/operating means

LED yellow	permanently yellow: object in the evaluation range yellow, flashing: TEACH-IN function, object detected
LED red	permanently red: Error red, flashing: TEACH-IN function, object not detected

Electrical specifications

Operating voltage	15 ... 30 V DC, ripple 10 % _{SS}
No-load supply current I ₀	≤ 20 mA

Input

Input type	1 TEACH-IN 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 0 ... 10 V
Default setting	evaluation limit 1: 50 mm evaluation limit 2: 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 kΩ
Temperature influence	± 1.5 % of full-scale value

Standard conformity

Standards	EN 60947-5-2
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Ambient conditions

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

Mechanical specifications

Protection degree	IP65
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

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

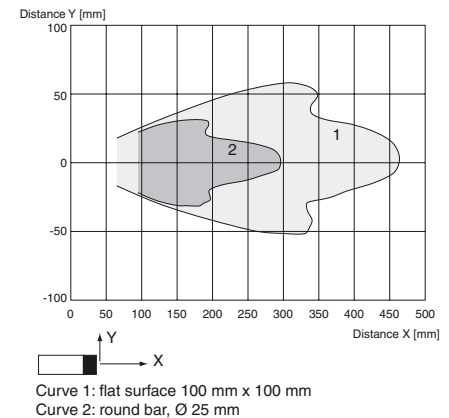
If the sensor is installed at places, where the environment temperature can fall below $0\text{ }^{\circ}\text{C}$, for the sensors fixation, one of the mounting flanges BF18, BF18-F or BF 5-30 must be used.

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.

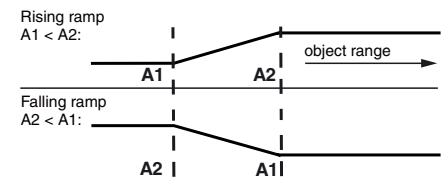
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Characteristic curves/additional information

Characteristic response curve



Programmed analogue output function



Accessories

Programming device

UB-PROG2

Mounting aids/fixing flanges

OMH-04

BF 18

BF 18F

BF 5-30

Sound deflector

UVW90-K18

Cable sockets^{*)}

V1-G-2M-PVC

V1-W-2M-PUR

^{*)} For additional cable sockets see section „Accessories“.