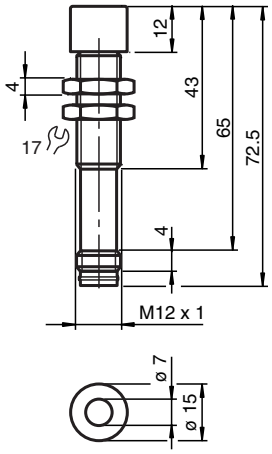
Ultrasonic sensor

UBC250-12GM-I-V1

- High chemical resistance through PTFE coated transducer surface
- Stainless Steel enclosure
- Analog output 4 mA ... 20 mA
- Temperature compensation
- Measuring window adjustable
- Program input

Single head system

Dimensions



Technical Data

General specifications		
Sensing range		30 ... 250 mm
Adjustment range		50 ... 250 mm
Dead band		0 ... 30 mm
Standard target plate		100 mm x 100 mm
Transducer frequency		approx. 310 kHz
Response delay		approx. 50 ms
Electrical specifications		
Operating voltage	U_B	10 ... 30 V DC , ripple 10 %$_{SS}$
No-load supply current	I_0	≤ 30 mA

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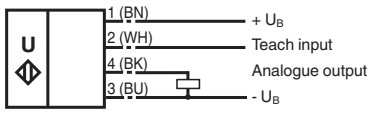
Technical Data

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 4 ... 20 mA
Resolution	0.17 mm
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
Compliance with standards and directives	
Standard conformity	
Standards	EN IEC 60947-5-2:2020 IEC 60947-5-2:2019 EN 60947-5-7:2003 IEC 60947-5-7:2003
Approvals and certificates	
UL approval	cULus Listed, Class 2 Power Source
CCC approval	CCC approval / marking not required for products rated ≤36 V
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
Housing diameter	12 mm
Degree of protection	IP68 / IP69K
Material	
Housing	Stainless steel 1.4404 / AISI 316L O-ring for cover seal: Viton
Transducer	PTFE (diaphragm surface)
Mass	35 g
Factory settings	
Output	evaluation limit A1: 50 mm evaluation limit A2: 250 mm output function: rising ramp

Connection

Standard symbol/Connections:
(version I)



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

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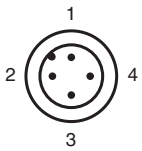
Connection Assignment

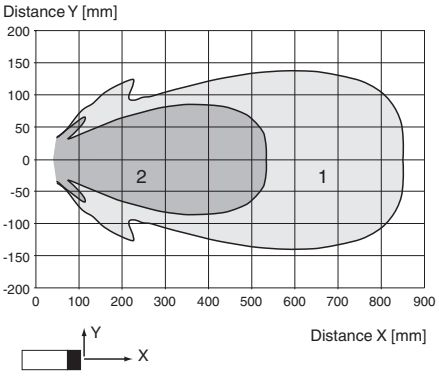


Wire colors in accordance with EN 60947-5-2

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

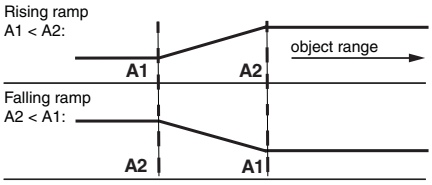
Characteristic Curve

Characteristic response curve



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

Programming the analog output mode



Accessories

	**UB-PROG2**	Programming unit
	**BF 5-30**	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm

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Accessories

	**BF 12**	Mounting flange, 12 mm
	**V1-G-2M-PVC**	Female cordset single-ended M12 straight A-coded, 4-pin, PVC cable grey
	**V1-W-2M-PUR**	Female cordset single-ended M12 angled A-coded, 4-pin, PUR cable grey
	**UVW90-M12**	Ultrasonic -deflector
	**M12K-VE**	Plastic nuts with centering ring for the vibration-free mounting of cylindrical sensors

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Teach-In

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. The 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

Installation Conditions

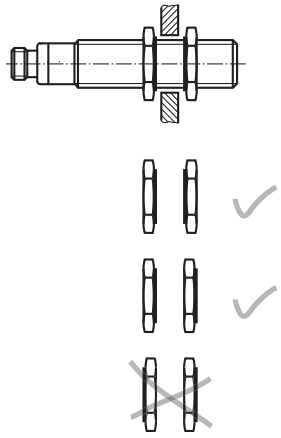
Installation conditions

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 BF 12 or BF 5-30 must be used. In case of direct mounting of the sensor in a through hole, it has to be fixed at the middle of the housing thread.

Installation Conditions

Note

If the sensor is used in an environment with strong electromagnetic interference, we recommend non-conductive mounting. For this, use the accompanying plastic nuts or the BF12 mounting flange.
Please observe proper application when using the accompanying plastic nuts. The hole for the sensor must be ≥ 14 mm.



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