Ultrasonic sensor

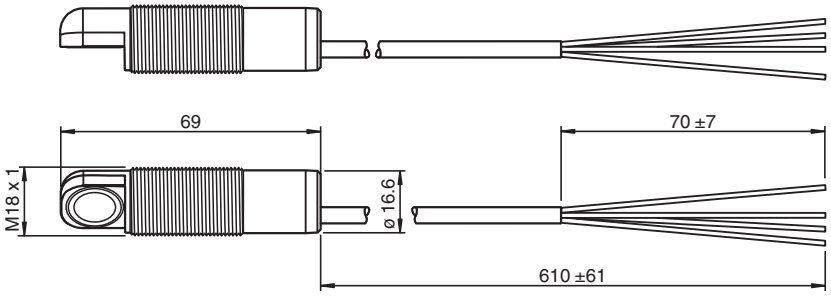
UB800-18GM40A-U-610MM-Y

- Analog output 0.5 ... 4.5 V
- Measuring window adjustable
- Program input
- Temperature compensation
- Customer-specific cable length
- Deutsch 4-pin, DT04 connector

Single head system

CE

Dimensions



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		

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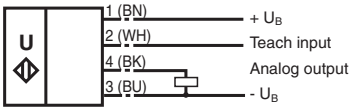
Technical Data

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 0.5 ... 4.5 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
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		
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		cable
Degree of protection		IP67
Material		
Housing		brass, nickel-plated
Transducer		epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
Cable		
Sheath diameter		4.8 mm
Bending radius		> 38.4 mm , fixed > 72 mm , moving
Material		PVC
Core cross-section		4 x 0.5 mm^2
Length	L	610 mm
Mass		65 g
General information		
Scope of delivery		Deutsch connector DT04-4P-CE01

Connection

Standard symbol/Connections:
(version U)



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

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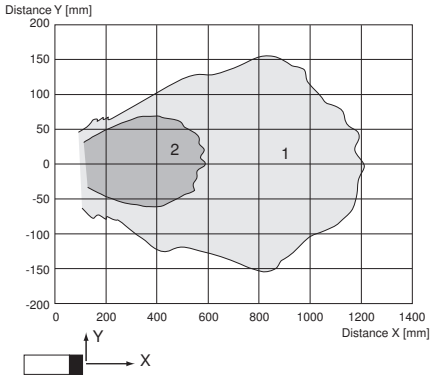
Characteristic Curve

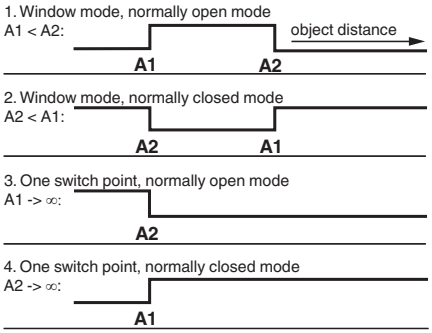
Characteristic response curve



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

Programming

Programmable output modes



5. A1 -> ∞, A2 -> ∞: Object presence detection mode
Object detected: Switch output closed
No object detected: Switch output open

Accessories

	**UB-PROG2**	Programming unit
	**BF 5-30**	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm
	**BF 12**	Mounting flange, 12 mm
	**BF 12-F**	Plastic mounting adapter, 12 mm
	**UVW90-M12**	Ultrasonic -deflector
	**M12K-VE**	Plastic nuts with centering ring for the vibration-free mounting of cylindrical sensors

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Programming

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

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, BF 12-F 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.

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