Dimensions

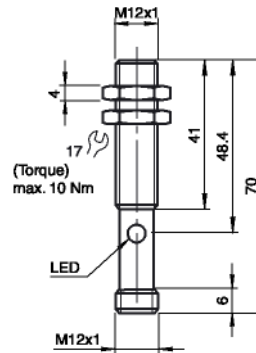## Order Code

UB120-12GM-U-V1

Features

- Extremely narrow projection cone
- Analogue output 0 V... 10 V
- Very small unusable area
- Measuring window adjustable
- short response time

Technical Data

General specifications	
Sensing range	15 ... 120 mm
Adjustment range	20 ... 120 mm
Unusable area	0 ... 15 mm
Standard target plate	10 mm x 10 mm
Transducer frequency	approx. 850 kHz
Response delay	approx. 27 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	~ 30 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 k~, pulse duration: ~ 1 s

Output	
Output type	1 analogue output 0 ... 10 V
Resolution	0.17 mm

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

Standard conformity	
Standards	EN 60947-5-7

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

Electrical Connection

Standard symbol/Connections:
(version U)

1 (BN)	+ U_B
2 (WH)	Teach input
4 (BK)	Analogue output
3 (BU)	- U_B
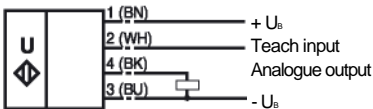
Core colours in accordance with EN 60947-5-2.

Connector V1

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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 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.

Characteristic Curves/Additional Information

Characteristic response curve

Curve 1: flat surface 10 mm x 10 mm
Curve 2: round bar, Ø 8 mm
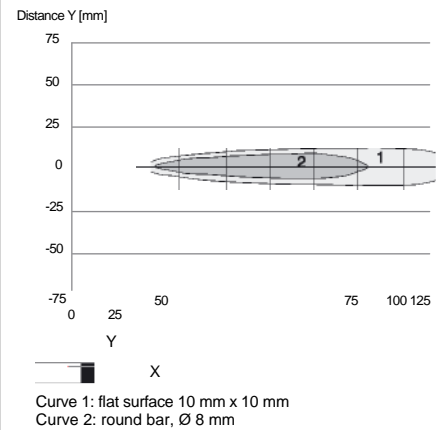
Programmed analogue output function

Accessories

UB-PROG2
Programming unit

BF 5-30
Mounting flange

BF 12
Mounting flange

BF 12-F
Mounting flange

V1-G-2M-PVC
Cable connector

V1-W-2M-PUR
Cable connector

UVW90-M12
Ultrasonic -deflector