Dimensions

M12x1
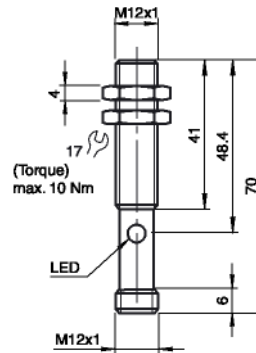
4

17 (Torque) max. 10 Nm

41

48.4

70

LED

6

M12x1

Order Code

UB120-12GM-I-V1

Features

- Extremely narrow projection cone
- Analogue output 4 mA ... 20 mA
- 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	10 ... 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 4 ... 20 mA, short-circuit/overload protected
Resolution	0.17 mm
Deviation of the characteristic curve	± 1 % of full-scale value
Repeat accuracy Load impedance	± 0.5 % of full-scale value 0 ... 300 Ohm ± 1.5 % of
Temperature influence	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 I)

U ◇

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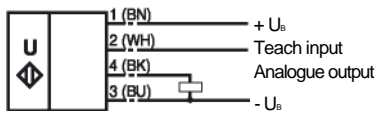
Core colours in accordance with EN 60947-5-2.

Connector V1

2
3   1
4

Subject to reasonable modifications due to technical advances.

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
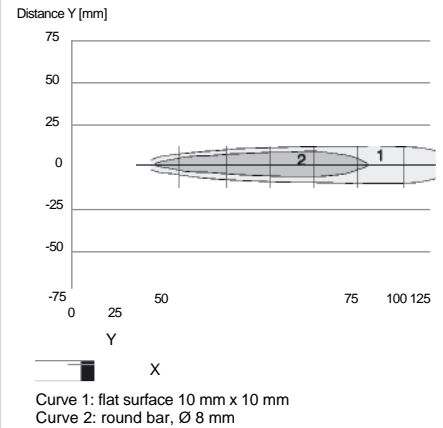
Programmed analogue output function

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

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