CE · CSA · UL

Model Number

UB200-12GM-U-V1

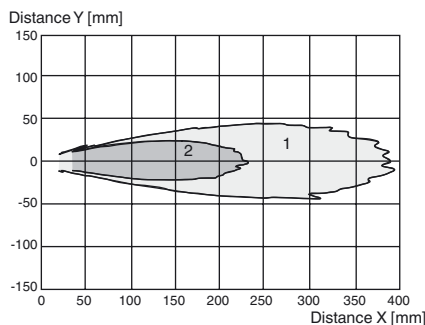Single head system

Features

- **Analog output 0 ... 10 V**
- **Very small unusable area**
- **Measuring window adjustable**
- **Program input**
- **Temperature compensation**

Diagrams

Characteristic response curve

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

Technical data

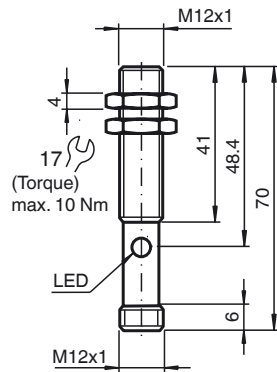| General specifications	
Sensing range	15 ... 200 mm
Adjustment range	20 ... 200 mm
Unusable area	0 ... 15 mm
Standard target plate	100 mm x 100 mm
Transducer frequency	approx. 400 kHz
Response delay	approx. 30 ms
Indicators/operating means	
LED yellow	solid yellow: object in the evaluation range yellow, 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	$\leq$ 30 mA
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: $\geq$ 1 s
Output	
Output type	1 analog output 0 ... 10 V
Resolution	0.17 mm
Deviation of the characteristic curve	$\pm$ 1 % of full-scale value
Repeat accuracy	$\pm$ 0.5 % of full-scale value
Load impedance	> 2 kOhm
Temperature influence	$\pm$ 1.5 % of full-scale value
Ambient conditions	
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Storage temperature	-40 ... 85 °C (-40 ... 185 °F)
Mechanical specifications	
Connection type	Connector M12 x 1 , 4-pin
Protection degree	IP67
Material	
Housing	brass, nickel-plated
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
Mass	25 g
Compliance with standards and directives	
Standard conformity	
Standards	EN 60947-5-2:2007 IEC 60947-5-2:2007 EN 60947-5-7:2003 EN 60947-5-7:2003

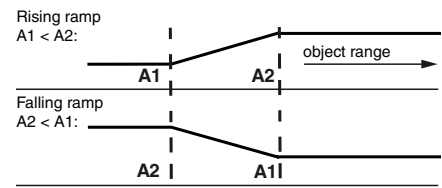| Approvals and certificates	
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	CCC approval / marking not required for products rated ≤36 V

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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1

Dimensions

M12x1

4

41

48.4

70

17 (Torque)
max. 10 Nm

LED

6

M12x1

Additional Information

Programmed analogue output function

Rising ramp
A1 < A2:

A1   A2   object range

Falling ramp
A2 < A1:

A2   A1

Electrical Connection

Standard symbol/Connections:
(version U)

U

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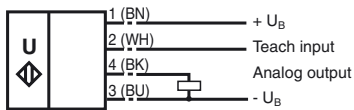
Core colors in accordance with EN 60947-5-2.

Pinout

1

2   4

3
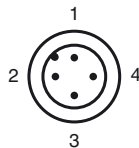
Wire colors in accordance with EN 60947-5-2

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

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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
Mounting flange with dead stop, 12 mm

V1-G-2M-PVC
Female cordset, M12, 4-pin, PVC cable

V1-W-2M-PUR
Female cordset, M12, 4-pin, PUR cable

UVW90-M12
Ultrasonic -deflector

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.

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