Model Number

UBH60/30-12GM-I-V1-Y266698

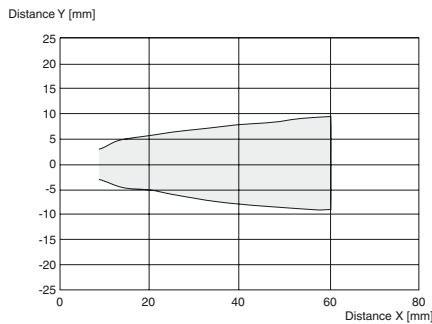Single head system

Features

- **Thickness measurement with analog output 4 ... 20 mA**
- **Extremely narrow projection cone**
- **Short response time**
- **Calibration of the reference distance via function input**

Diagrams

Characteristic response curve

Technical data

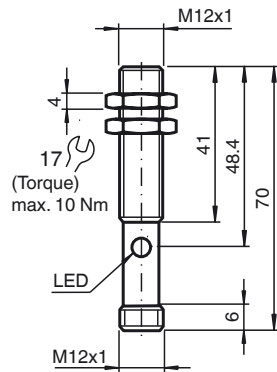|	
General specifications	
Measurement range	object thickness (d) : 0 ... 30 mm
Dead band	0 ... 15 mm
Reference distance h	50 ... 60 mm
Standard target plate	10 mm x 10 mm
Transducer frequency	approx. 850 kHz
Response delay	approx. 12 ms
Indicators/operating means	
LED yellow	solid yellow: object in 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	10 ... 30 V DC , ripple 10 %$_{SS}$
No-load supply current I_0	≤ 30 mA
Time delay before availability t_v	≤ 200 ms
Input	
Input type	1 funtion input 0-level: -$U_B$or unwired 1-level: +4 V ... +U_B input impedance: > 4.7 kΩ
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 Ohm
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
Degree of protection	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+A1:2012 IEC 60947-5-2:2007 + A1:2012 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

CE   cULus

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

Pepperl+Fuchs Group
www.pepperl-fuchs.com

USA: +1 330 486 0001
fa-info@us.pepperl-fuchs.com

Germany: +49 621 776 4411
fa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091
fa-info@sg.pepperl-fuchs.com

PEPPERL+FUCHS
SENSING YOUR NEEDS

1

Dimensions

Additional Information

Mounting
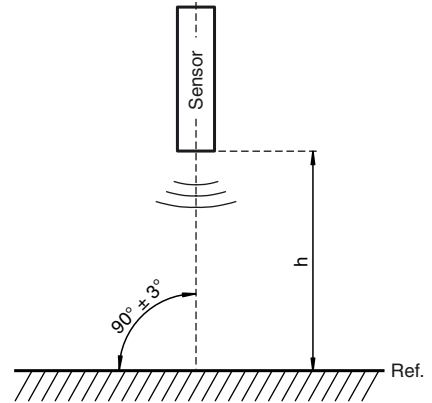
Normal mode
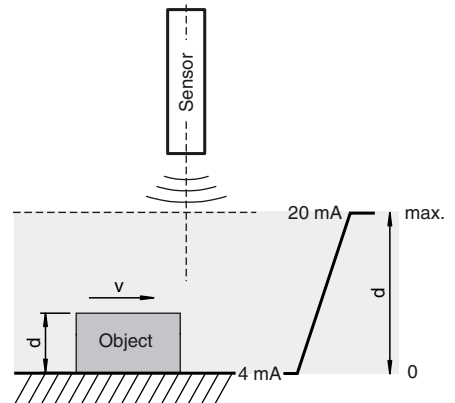
Electrical Connection

Standard symbol/Connections:

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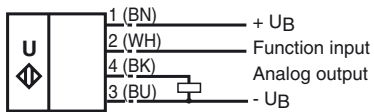
Core colors in accordance with EN 60947-5-2.

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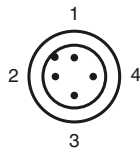
Wire colors in accordance with EN 60947-5-2

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

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

Pepperl+Fuchs Group
www.pepperl-fuchs.com

USA: +1 330 486 0001
fa-info@us.pepperl-fuchs.com

Germany: +49 621 776 4411
fa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091
fa-info@sg.pepperl-fuchs.com

PEPPERL+FUCHS
SENSING YOUR NEEDS

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

Functional description

This sensor is used to measure the thickness of objects. It teaches itself by independently switching to a reference object. The distance h to this object serves as a reference distance and defines the object thickness 0 mm. This reference distance can be dynamically tracked in order to compensate for external influences. This guarantees a high measurement accuracy of the sensor over the entire temperature range.

Automatic teach-in process

Immediately after the supply voltage is connected, the sensor automatically references itself to the reference object and teaches in the distance as the reference distance. The distance h between the sensor surface and the reference object must lie within the valid range for the reference distance (see Technical Data). The sensor then immediately reverts to normal operation.

If no reference object is detected, the red LED flashes (Fault).

Normal operation

In normal operation, the sensor outputs a value at the analog output, which is proportional to the thickness of the object. The object thickness 0 mm (measurement to the reference object) is represented in this by the minimum analog value and the largest measurable object thickness (see Technical Data) is represented by the maximum analog value.

Manual tracking of the reference distance

A manual tracking of the reference distance can be triggered by means of the functional input.

Triggering the manual tracking:
(connect functional input to $+U_B$)
The automatically during the start-up procedure adjusted reference distance can be overwritten during normal operation. Therefore the functional input has to be connected to $+U_B$. This causes the current measured distance to be taken as the new reference distance. After this manual replacement of the reference distance the functional input has to be disconnected or connected to -U_B, again.

Manual tracking de-activated:
(Functional imput unconnected or connected to -U_B)
The sensor operates in normal operation mode with the last reference distance adjustment.

Functional input

The functional input can be used to trigger the manual reference distance tracking (see above).

LED indicator

Indication as a function of operating status	red LED	yellow LED
Teach-in control limit: No reference object detected or reference object at an incorrect distance	Flashes	Off
Normal operation: Measurement on object Measurement on reference	 Off Off	 On Off
Fault	On	Last valid status

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.

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

| Pepperl+Fuchs Group
www.pepperl-fuchs.com | USA: +1 330 486 0001
fa-info@us.pepperl-fuchs.com | Germany: +49 621 776 4411
fa-info@de.pepperl-fuchs.com | Singapore: +65 6779 9091
fa-info@sg.pepperl-fuchs.com | PEPPERL+FUCHS
SENSING YOUR NEEDS | **3** |