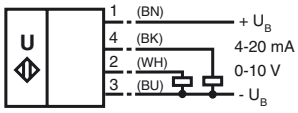
Ultrasonic sensor
UCC1000-30GM-IU-V1

Features

- Current and voltage output
- High chemical resistance through teflon-coated transducer surface
- 12 bit D/A transducer
- Evaluation limits can be taught-in
- Temperature compensation
- Compact design
- Plug connection

Electrical connection

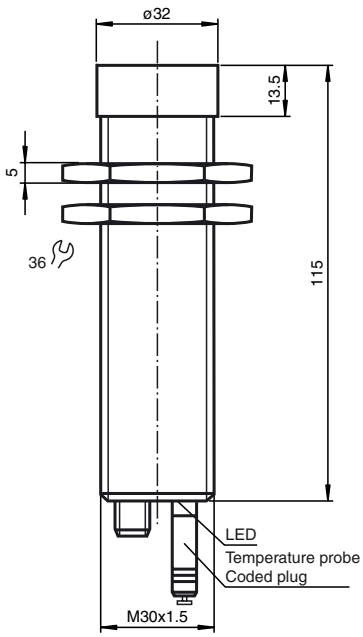
Standard symbol/Connection:
(version IU)



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

Connector V1

Dimensions



Technical data

CE

General specifications	
Sensing range	200 ... 1000 mm
Unusable area	0 ... 200 mm
Standard target plate	100 mm x 100 mm
Transducer frequency	approx. 175 kHz
Response delay	≤ 100 ms
Indicators/operating means	
LED yellow	permanently yellow: object in the evaluation range yellow, flashing: TEACH-IN function evaluation limits, slope
LED red/green	permanently green: Power on green, flashing: TEACH-IN function, object detected permanently red: Connector removed red, flashing: error, TEACH-IN function object not detected
Temperature/TEACH-IN connector	temperature compensation , TEACH-IN for evaluation range , output function setting
Electrical specifications	
Operating voltage	10 ... 30 V DC , ripple 10 $\%_{SS}$
Power consumption P_0	≤ 800 mW
Output	
Output type	1 current output 4 ... 20 mA 1 voltage output 0 ... 10 V
Resolution	depending on the set evaluation range: 0.172 mm , if evaluation range < 705 mm , evaluation range [mm] / 4096, if evaluation range > 705 mm
Deviation of the characteristic curve	≤ 0.2 % of full-scale value
Repeat accuracy	≤ 0.1 % of full-scale value
Load impedance	current output: ≤ 500 Ohm Voltage output: ≥ 1000 Ohm
Temperature influence	< 2 % of full-scale value (≤ 0.2 % / K without temperature compensation)
Standard conformity	
Standards	EN 60947-5-2
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	high grade steel (stainless), PTB
Transducer	epoxy resin/hollow glass bead mixture; Polyurethane foam, PTFE coated
Mass	188 g

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Notes

Description of the sensor functions

This ultrasonic sensor features a four-pole temperature/TEACH-IN plug, that can be connected in four different positions. These have the following significance.

Plug position	Meaning
A1	TEACH-IN evaluation limit A1
A2	TEACH-IN evaluation limit A2
E2/E3	Switching: falling/rising ramp
T	Temperature compensation

Description of the TEACH-IN procedure

- Remove temperature plug
- Cut and restore supply voltage (e.g. by removing and replacing unit plug)

TEACH-IN of evaluation limits A1 and A2

- Set object to desired evaluation limit
- Connect TEACH-IN plug in pos. A1 or A2
- Green LED flashes when object detected, red LED flashes when no object detected
- Pull the plug (the current object position is taught and stored when the plug is removed!!)

TEACH-IN of output function

- Connect TEACH-IN plug in pos. E2/E3
- The yellow LED indicates the output function
  E2: falling ramp
  E3: rising ramp
- Pull the plug when the desired function is activated, otherwise reconnect the TEACH-IN plug in pos. E2/E3
- Pull plug

Completing the TEACH-IN procedure

- Connect TEACH-IN plug in pos. T. Temperature compensation is now activated.

If the temperature plug has not been plugged in within 5 minutes, the sensor will return to normal mode without temperature compensation.

Default setting

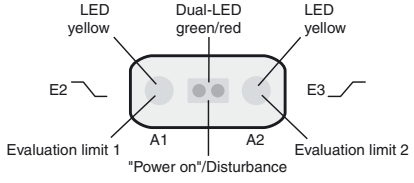
A1: unusable area
A2: nominal sensing range
Mode of operation: rising ramp

LED Displays

Displays depending on position of temperature/TEACH-IN plug position	Green dual LED	Red dual LED	Yellow LED A1/ ⅂	Yellow LED A2/ ⅃
TEACH-IN evaluation limit A1 Object detected No object detected	 flashes off	 off flashes	 flashes flashes	 off off
TEACH-IN evaluation limit A2 Object detected No object detected	 flashes off	 off flashes	 off off	 flashes flashes
TEACH-IN mode of operation rising ramp falling ramp	 on on	 off off	 flashes off	 off flashes
Normal operation temperature compensated Plug pulled or shorted	 on off	 off on	on/off [1)]	on/off[2)]
Interference (e.g. compressed air)	off	flashes	previous state	previous state

[1)] ON, when object in evaluation range
[2)] ON, when object in detection range

LED-Window



Mounting conditions

If the sensor is installed in places where the operating temperature can fall below 0 °C, the BF30, BF30-F or BF 5-30 fixing clamp must be used.

Model number

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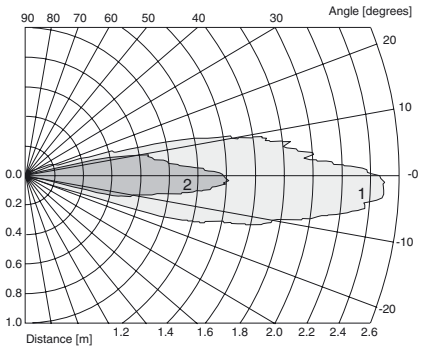
Characteristic curves/additional information

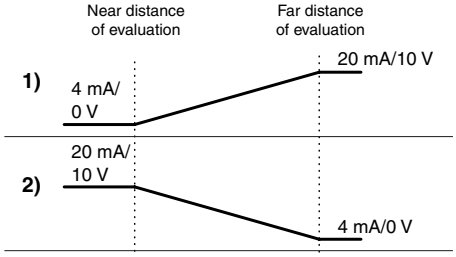
Characteristic response curves



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

Programmed analogue output function

Analogue function



Accessories

Mounting aids

BF30
BF5-30

External temperature probe

UC-30GM-TEMP

Extension cable

UC-30GM-PROG

Process indication- and control unit

DA5-IU-2K-V

Cable sockets *)

V1-G-2M-PVC
V1-W-2M-PVC

*) For additional cable sockets see section „Accessories".