

Ultrasonic sensor UC500-30GM-IU-V1

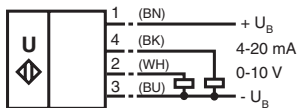


Features

- Current and voltage output
- 12 bit D/A transducer
- Evaluation limits can be taught-in
- Temperature compensation
- Compact design
- Plug connection

Electrical connection

Standard symbol/Connection:
(version IU)

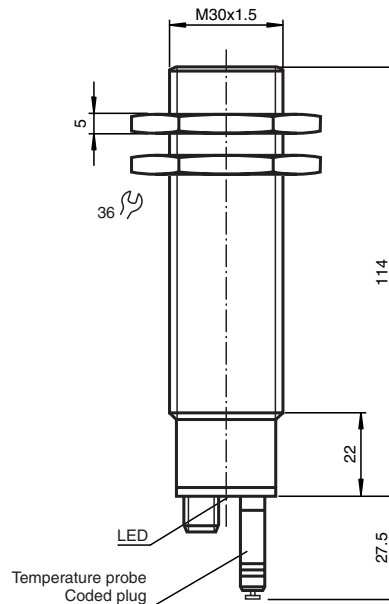


Core colours in accordance with EN 60947-5-2.

Connector V1



Dimensions



Technical data

General specifications

Sensing range	60 ... 500 mm
Unusable area	0 ... 60 mm
Standard target plate	100 mm x 100 mm
Transducer frequency	approx. 380 kHz
Response delay	≤ 35 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	0,172 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)
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
Mass	175 g

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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 or 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

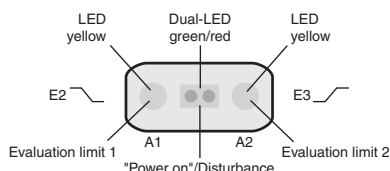
LED Displays

Displays depending on position of temperature/TEACH-IN plug	Green dual LED	Red dual LED	Yellow LED A1/ \	Yellow LED A2/ /
TEACH-IN evaluation limit A1				
Object detected	flashes	off	flashes	off
No object detected	off	flashes	flashes	off
TEACH-IN evaluation limit A2				
Object detected	flashes	off	off	flashes
No object detected	off	flashes	off	flashes
TEACH-IN mode of operation				
rising ramp	on	off	flashes	off
falling ramp	on	off	off	flashes
Normal operation				
temperature compensated	on	off	on/off ¹⁾	on/off ²⁾
Plug pulled or shorted	off	on		
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

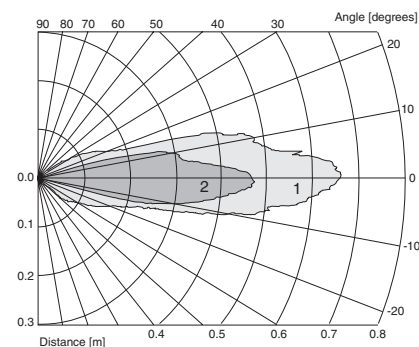
LED-Window



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Characteristic curves/additional information

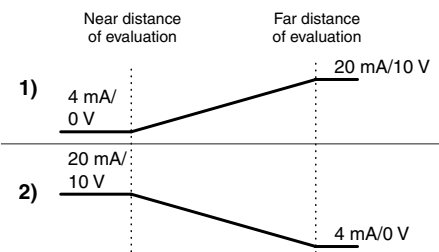
Characteristic response curves



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
BF30F
BF5-30
M-105

Sound deflectors

UVW90-M30
UVW90-K30

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“.