

## Ultrasonic sensor UC300-30GM-IU-V1

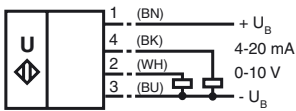


## Features

- Extremely small unusable area - only 15 mm
- 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)

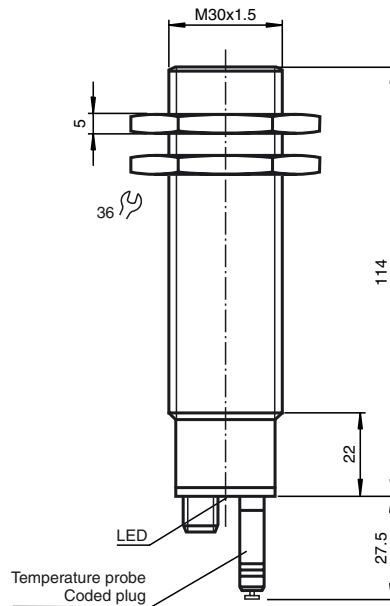


Core colours in accordance with EN 60947-5-2.

## Connector V1



## Dimensions



## Technical data



### General specifications

Sensing range	15 ... 300 mm
Unusable area	0 ... 15 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 % <sub>SS</sub>
Power consumption P <sub>0</sub>	≤ 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	0 ... 50 °C (273 ... 323 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

### 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

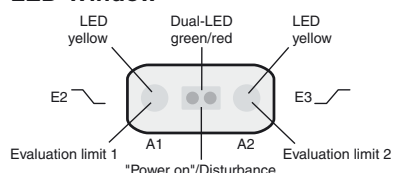
### LED Displays

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 <sup>1)</sup>	on/off <sup>2)</sup>
Plug pulled or shorted	on	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

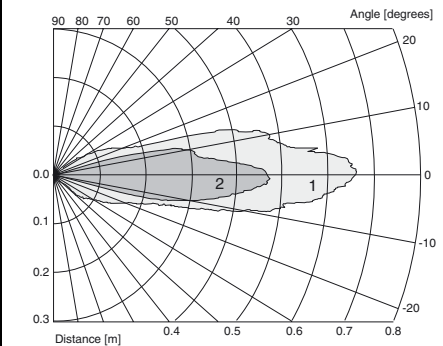
### LED-Window



## UC300-30GM-IU-V1

### Characteristic curves/additional information

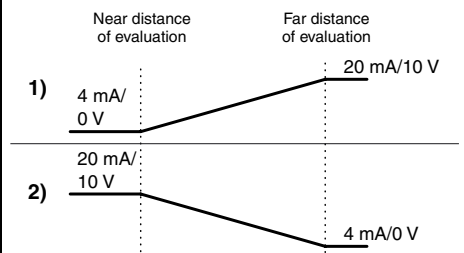
### Characteristic response curves



Curve 1: flat surface 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