Model Number

UC4000-30GM-IU-V1
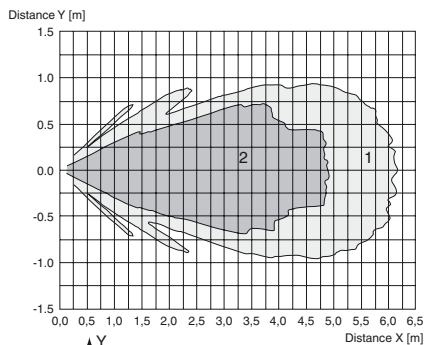
Single head system

Features

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

Diagrams

Characteristic response curve

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

Technical data

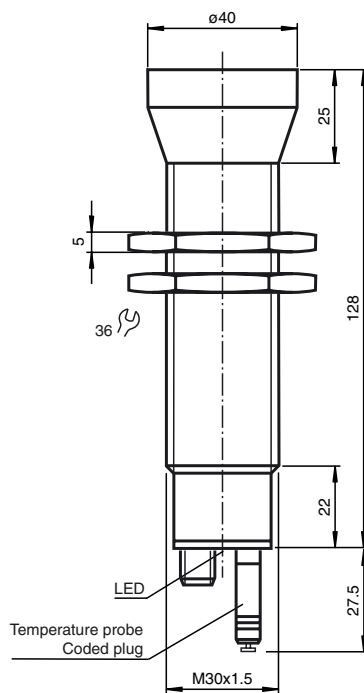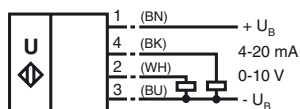| General specifications	
Sensing range	500 ... 4000 mm
Unusable area	0 ... 500 mm
Standard target plate	100 mm x 100 mm
Transducer frequency	approx. 85 kHz
Response delay	≤ 300 ms
Indicators/operating means	
LED yellow	solid yellow: object in the evaluation range yellow, flashing: program function evaluation limits, slope
LED red/green	solid green: Power on green, flashing: program function, object detected solid red: Connector removed red, flashing: error, program function object not detected
Temperature/TEACH-IN connector	Temperature compensation , Evaluation range programming , output function setting
Electrical specifications	
Operating voltage U_B	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 (-13 ... 158 °F)
Storage temperature	-40 ... 85 °C (-40 ... 185 °F)
Mechanical specifications	
Connection type	Connector M12 x 1 , 4-pin
Protection degree	IP65
Material	
Housing	High grade stainless steel
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover and head PBT
Mass	210 g

Dimensions

Subject to reasonable modifications due to technical advances.

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Electrical Connection

Standard symbol/Connection:
(version IU)

U ◊	1	(BN)	+ U_B
	4	(BK)	4-20 mA
	2	(WH)	0-10 V
	3	(BU)	- U_B

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

Pinout

Connector V1

```
      2
  3  ( : : )  1
      4
```

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.
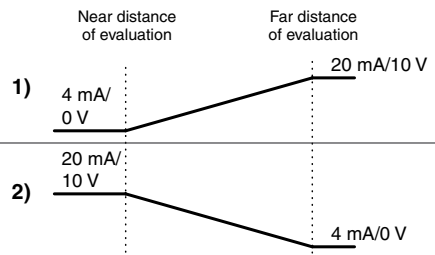
Default setting

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

LED Displays

Additional Information

Programmed analogue output function

Analogue function

Near distance of evaluation — Far distance of evaluation

1) 4 mA/ 0 V .... 20 mA/10 V

2) 20 mA/ 10 V .... 4 mA/0 V

LED-Window

LED yellow — Dual-LED green/red — LED yellow

E2 — E3

Evaluation limit 1 — A1 — A2 — Evaluation limit 2

"Power on"/Disturbance
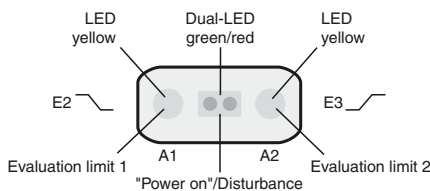
Displays depending on position of temperature/ TEACH-IN plug position	Green dual LED	Red dual LED	Yellow LED A1/ ⌐	Yellow LED A2/ ⌐
TEACH-IN evaluation limit A1 Object detected No object detected	flashes off	off flashes	flashes flashes	off off
TEACH-IN evaluation limit A2 Object detected No object detected	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

LED yellow   Dual-LED green/red   LED yellow

E2 ⌐   E3 ⌐

Evaluation limit 1   A1   A2   Evaluation limit 2

"Power on"/Disturbance