Model Number

UC2000-30GM-IU-V1-HB

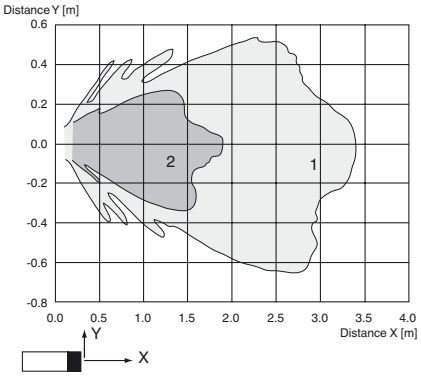
Single head system

Features

- **Parameterization interface for the application-specific adjustment of the sensor setting via the service program ULTRA 3000**
- **Analog current and voltage output**
- **Adjustable acoustic power and sensitivity**
- **Temperature compensation**
- **UL and CSA NRTL certified for hazardous area installation**

Diagrams

Characteristic response curve



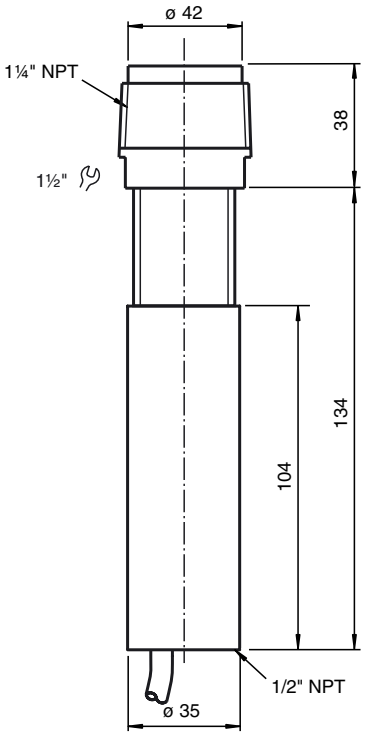
Curve 1: flat surface 100 mm x 100 mm
Curve 2: round bar, Ø 25 mm

Technical data

General specifications	
Sensing range	80 ... 2000 mm
Adjustment range	120 ... 2000 mm
Dead band	0 ... 80 mm
Standard target plate	100 mm x 100 mm
Transducer frequency	approx. 180 kHz
Response delay	65 ms minimum 195 ms factory setting
Indicators/operating means	
LED green	solid: Power-on flashing: Standby mode or program function object detected
LED yellow 1	solid: object in evaluation range flashing: program function
LED yellow 2	solid: object in detection range flashing: program function
LED red	solid: temperature/program plug not connected flashing: fault or 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	≤ 900 mW
Interface	
Interface type	RS 232, 9600 Bit/s , no parity, 8 data bits, 1 stop bit
Input/Output	
Synchronization frequency	
Common mode operation	≤ 30 Hz
Multiplex operation	≤ 30/n Hz, n = number of sensors
Output	
Output type	1 current output 4 ... 20 mA 1 voltage output 0 ... 10 V
Resolution	evaluation range [mm]/4000, but ≥ 0.35 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 % from full-scale value (with temperature compensation) ≤ 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	Cable connector , M12 x 1 , 5-pin , 4-wire
Degree of protection	IP65
Material	
Housing	1.4303 stainless steel plastic parts PBT
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Note	Individual components: UC-2000-30GM-IUR2-V15; V1-G-2M-PVC; M-106 impact adapter; ADAPT-ALUM*-M30X1/2" NPT/HB****
Compliance with standards and directives	
Standard conformity	
Standards	EN 60947-5-2:2007 IEC 60947-5-2:2007 EN 60947-5-7:2003 IEC 60947-5-7:2003
Approvals and certificates	
UL approval	all Div 2 hazardous areas
CSA approval	NRTL certified all Div 2, Class II Div 1, Class III Div 1 hazardous areas
CCC approval	CCC approval / marking not required for products rated ≤36 V

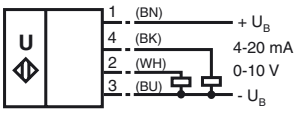
Release date: 2018-02-27 15:58 Date of issue: 2018-02-27 094540_eng.xml

Dimensions



Electrical Connection

Standard symbol/Connection:
(version IU)



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

Accessories

ULTRA3000
Software for ultrasonic sensors, comfort line

UC-30GM-R2

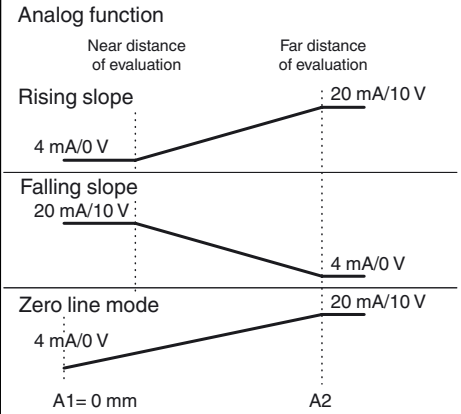
V1-W-2M-PUR
Female cordset, M12, 4-pin, PUR cable

V1-G-2M-PVC
Female cordset, M12, 4-pin, PVC cable

Description of Sensor Functions

Additional Information

Analogue output function



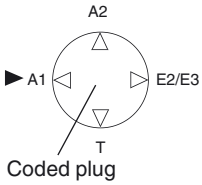
Release date: 2018-02-27 15:58 Date of issue: 2018-02-27 094540_eng.xml

Programming procedure

The sensor features 2 programmable analog outputs with programmable evaluation range. Programming the evaluation range and the operating mode is done either via the sensor's RS232 interface and ULTRA3000 software (see the ULTRA3000 software description) or by means of the programming plug at the sensor's back end which is described here.

Programming of Evaluation Range

1. Disconnect supply voltage
2. Remove the programming plug to activate program mode.
3. Reconnect supply voltage (Reset)
4. Place the target at the desired position for A1
5. Momentarily insert the programming plug in position A1 and then remove. This will program the position A1.
6. Place the target at the desired position for A2
7. Momentarily insert the programming plug in position A2 and then remove. This will program the position A2.



Coded plug

Notes:

- Removing the programming plug saves the new position into the device memory.
- The programming status is indicated by the LED. A flashing green LED indicates that the target is detected; a flashing red LED indicates that no target is detected.

Programming the Operation Mode

If the program mode is still activated, continue at number 4. If not, activate program mode by performing the sequence numbers 1 to 3.

1. Disconnect supply voltage
2. Remove the programming plug to activate program mode.
3. Reconnect supply voltage (Reset)
4. Insert the programming plug in position E2/E3. By removing and reinserting the plug, the user can toggle through the three different modes of operation. The selected mode is indicated by the LEDs as shown below:
   - Rising slope mode, LED A2 flashes
   - Falling slope mode, LED A1 flashes
   - Zero line mode, LEDs A1 and A2 flash
5. Once the desired mode is selected, insert the programming plug in position T. This completes the programming procedure and saves the switch points and mode of operation.
6. The sensor now operates in normal mode.

Note:

The programming plug also functions as the temperature compensation. If the programming plug has not been inserted in the T position within 5 minutes, the sensor will return to normal operating mode with the latest saved values, without temperature compensation.

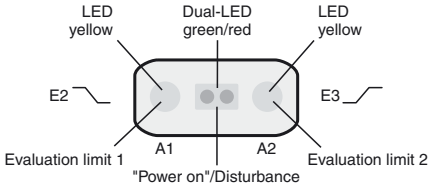
Factory settings

Operation mode = rising slope mode
A1 = end of unusable area (see technical data)
A2 = nominal sensing range (see technical data)

Display

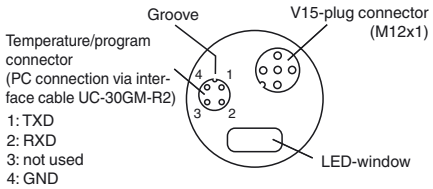
The sensor provides LEDs to indicate various conditions.

	Green LED	Red LED	Yellow LED A1	Yellow LED A2
During Normal Operation				
- Temperature compensated	On	Off	Object in evaluation range	Object in sensing range
- with removed programming plug	Off	On	Object in evaluation range	Object in sensing range
Interference (e.g. compressed air)	Off	Flashing	remains in previous state	remains in previous state
During Sensor Programming				
Evaluation limit A1:				
Object detected	Flashing	Off	Flashing	Off
No object detected	Off	Flashing	Flashing	Off
Evaluation limit A2:				
Object detected	Flashing	Off	Off	Flashing
No object detected	Off	Flashing	Off	Flashing
Operation mode:				
Rising slope mode	On	Off	Off	Flashing
Falling slope mode	On	Off	Flashing	Off
Zero line mode	On	Off	Flashing	Flashing
Standby	Flashing	Off	remains in previous state	remains in previous state



Release date: 2018-02-27 15:58 Date of issue: 2018-02-27 094540_eng.xml

Note on communication with the UC-30GM-R2 interface cable



The UC-30GM-R2 interface cable allows for communication with the ultrasonic sensor using ULTRA3000 software. The cable creates a connection between a PC RS-232 interface and the programming plug socket on the sensor. When connecting to the sensor, make certain the plug is lined up correctly; otherwise no communication will be possible. The key of the cable's plug must be aligned to the groove of the socket on the sensor (not with the arrow symbol on the sensor).

Programmable parameters with the ULTRA3000 software

- Evaluation limits A1 and A2
- Operation mode
- Sonic speed
- Temperature offset (The inherent temperature-rise of the sensor can be considered in the temperature compensation)
- Expansion of the unusable area (for suppression of unusable area echoes)
- Reduction of the detection range (for suppression of remote range echoes)
- Time of measuring cycle
- Acoustic power (interference of the burst duration)
- Sensitivity
- Behavior of the sensor in case of echo loss
- Behavior of the sensor in case of a fault
- Average formation via an allowed number of measuring cycles
- Selection of the parameter set, RS 232 or manually

Note:

When connected to a PC and running the ULTRA3000 software, the sensor can act as a long term data logger as well.

Release date: 2018-02-27 15:58 Date of issue: 2018-02-27 094540_eng.xml