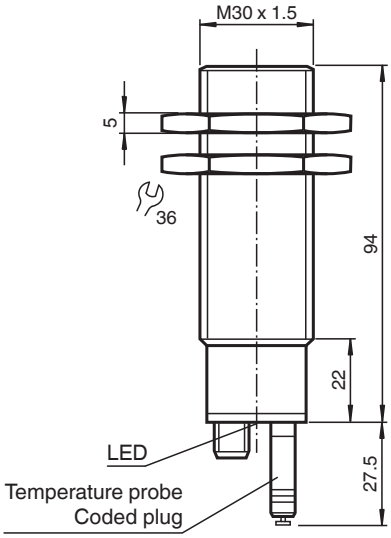
Ultrasonic sensor

UC2000-30GM-E6R2-V15-Y234253

- Synchronization options
- Temperature compensation
- Customer-specific configuration
- Programming plug permanently bonded and not removable

Single head system

Dimensions



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		195 ms
Indicators/operating means		
LED green		solid: Power-on
LED yellow 1		solid Switching state switch output 1

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Technical Data

LED yellow 2		solid: Switching state switch output 2
LED red		flashing: error
Temperature/TEACH-IN connector		Temperature compensation
Electrical specifications		
Operating voltage	U_B	10 ... 30 V DC , ripple 10 %$_{SS}$
No-load supply current	I_0	≤ 50 mA
Interface		
Interface type		RS 232, 9600 Bit/s , no parity, 8 data bits, 1 stop bit
Input/Output		
Synchronization		bi-directional 0 level -U_B...+1 V 1 level: +4 V...+U_B input impedance: > 12 KOhm synchronization pulse: ≥ 100 µs, synchronization interpulse period: ≥ 2 ms
Synchronization frequency		
Common mode operation		max. 30 Hz
Multiplex operation		≤ 30 Hz / n , n = number of sensors , n ≤ 5
Output		
Output type		2 switch outputs PNP, NO
Rated operating current	I_e	200 mA , short-circuit/overload protected
Voltage drop	U_d	≤ 2.5 V
Repeat accuracy		≤ 0.1 % of full-scale value
Switching frequency	f	≤ 2.5 Hz
Range hysteresis	H	1 % of the set operating distance
Temperature influence		≤ 2 % from full-scale value (with temperature compensation)
Compliance with standards and directives		
Standard conformity		
Standards		EN IEC 60947-5-2:2020 IEC 60947-5-2:2019
Approvals and certificates		
UL approval		cULus Listed, General Purpose
CCC approval		CCC approval / marking not required for products rated ≤36 V
Ambient conditions		
Ambient temperature		-25 ... 70 °C (-13 ... 158 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
Mechanical specifications		
Connection type		Connector plug M12 x 1 , 5-pin
Housing diameter		30 mm
Degree of protection		IP65
Material		
Housing		stainless steel (1.4305 / AISI 303) PBT plastic parts
Transducer		epoxy resin/hollow glass sphere mixture; polyurethane foam
Mass		140 g
Factory settings		
Output 1		A1: 1500 mm , NO contact
Output 2		A2 : 500 mm , NO contact

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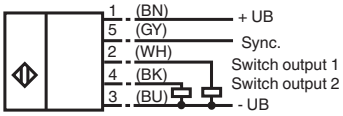
Connection

Standard symbol/Connection:
(version E6, pnp)



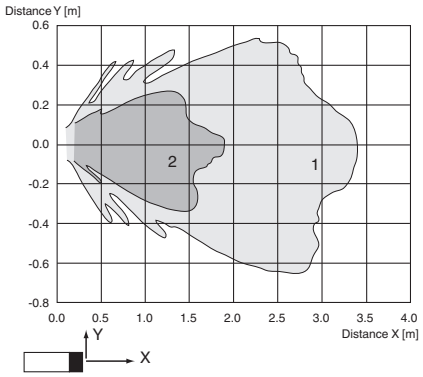
Core colors in accordance with EN 60947-5-2.

Connection Assignment

Connector V15

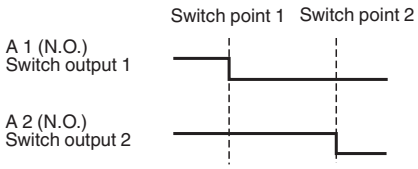
Characteristic Curve

Characteristic response curve



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

Switch point mode



Accessories

	**BF 30**	Mounting flange, 30 mm
	**BF 30-F**	Plastic mounting adapter, 30 mm
	**BF 5-30**	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm
	**V15-G-2M-PVC**	Female cordset single-ended M12 straight A-coded, 5-pin, PVC cable grey

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Accessories

	**UVW90-M30**	Ultrasonic -deflector
	**UVW90-K30**	Ultrasonic -deflector
	**M30K-VE**	Plastic nuts with centering ring for the vibration-free mounting of cylindrical sensors
	**UC-30GM-R2**	Interface cable

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Additional Information

Description of the sensor functions

Synchronization

This sensor features a synchronization input for the possible suppression of ultrasonic mutual interference. If this input is not connected, the sensor will operate using internally generated clock pulses. It can be synchronized by applying an external square wave. The synchronization pulse falling edge triggers each transmission of a single ultrasonic pulse. If the synchronization signal remains low for ≥1 second, the sensor will revert to non-synchronized mode. Non-synchronized mode can also be activated by opening the signal connection to the synchronization input.(See note below)
If the synchronization input goes to a high level for > 1 second, the sensor will switch to standby mode, indicated by green LED. In this mode the outputs will remain in the last valid output state.
The synchronization function cannot be activated during programming mode and vice versa.

The following synchronization modes are possible:

1. Two to five sensors can be synchronized together by interconnecting their respective synchronization inputs. In this case each sensor alternately transmits ultrasonic pulses in a self multiplexing mode. No two sensors will transmit pulses at the same time.
2. Multiple sensors can be controlled by the same external synchronization signal. In this mode the sensors are triggered in parallel and are synchronized by a common external synchronization pulse.
3. A separate synchronization pulse can be sent to each individual sensor. In this mode the sensors operate in external multiplex mode.
4. A high level on the synchronization input disables the sensor.

Sensor response times will increase proportionally to the number of sensors that are in the synchronization string. This is a result of the multiplexing of the ultrasonic transmit and receive signal and the resulting increase in the measurement cycle time.

Note:

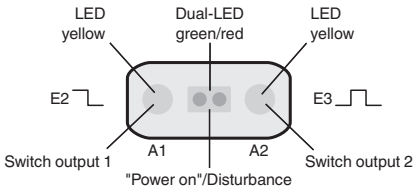
If the option for synchronization is not used, the synchronization input has to be connected to ground (0V) or the sensor has to be operated via a V1 cordset (4-pin).

LED Displays

Displays in dependence on operating mode	Dual LED green	LED red	LED yellow A1	LED yellow A2
Normal mode temperature compensated	on	off	switch state A1	switch state A2
Standby	flashes	off	previous state	previous state

LED ON indicates closed switch output.

LED-Window



Installation 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.

Commissioning

Attention

The programming plug is permanently bonded to the sensor. It may not be solved by violence. Damaging the sensor would be the result.

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