

# Ultrasonic sensor UC4000-L2M-U-T-2M

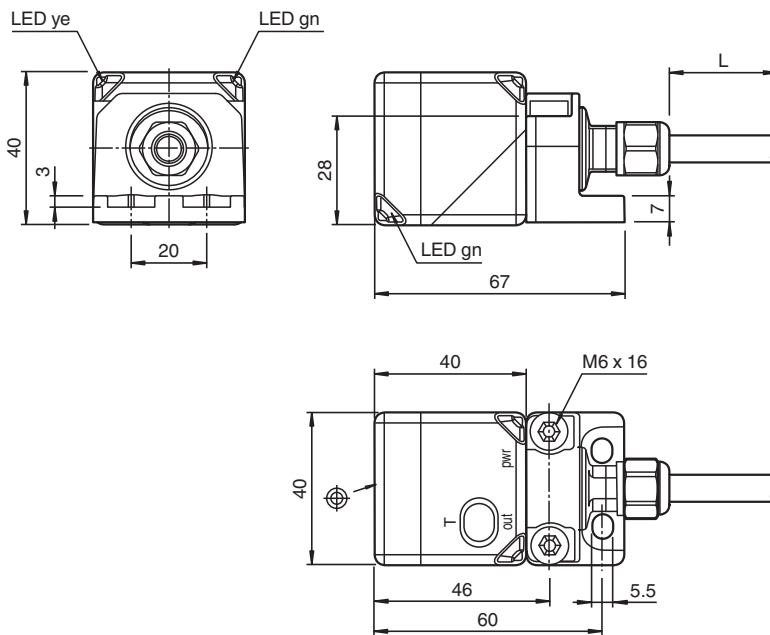


- Extended temperature range
- Cable connection
- Rugged metal base
- Sensor head bidirectional and rotatable
- Function indicators visible from all directions
- Selectable sound lobe width
- Programmable

Single head system



## Dimensions



## Technical Data

### General specifications

Sensing range	200 ... 4000 mm
Adjustment range	240 ... 4000 mm
Dead band	0 ... 200 mm
Standard target plate	100 mm x 100 mm
Transducer frequency	approx. 85 kHz

### Nominal ratings

Response delay	minimum: 110 ms factory setting: 615 ms
Time delay before availability	$t_v$ ≤ 1600 ms

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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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## Technical Data

<b>Indicators/operating means</b>		
LED green		Operating display
LED yellow		object in evaluation range
LED red		error
<b>Electrical specifications</b>		
Operating voltage	$U_B$	12 ... 30 V DC , ripple 10 % <sub>SS</sub>
No-load supply current	$I_0$	≤ 50 mA
<b>Interface</b>		
Interface type		Serial interface (programming adapter required) 9600 BPS, no parity, 8 data bits, 1 stop bit
<b>Input/Output</b>		
Input/output type		1 synchronization connection, bidirectional
0 Level		0 ... 1 V
1 Level		4 V ... $U_B$
Input impedance		> 12 kΩ
Output rated operating current		< 12 mA
Pulse length		0.5 ... 300 ms (level 1)
Pulse interval		≥ 62.5 ms (level 0)
Synchronization frequency		
Common mode operation		≤ 16 Hz
Multiplex operation		≤ 17 Hz / n , n = number of sensors , n ≤ 10 (factory setting: n = 5 )
<b>Input</b>		
Input type		1 program input
Level (evaluation limit 1)		0 ... 1 V
Level (evaluation limit 2)		4 V ... $U_B$
Input impedance		> 12 kΩ
Pulse length		2 ... 10 s
<b>Output</b>		
Output type		1 analog output 0 ... 10 V
Resolution		evaluation range [mm]/4000, but ≥ 0.4 mm
Deviation of the characteristic curve		≤ 0.2 % of full-scale value
Repeat accuracy		≤ 0.1 % of full-scale value
Load impedance		≥ 500 Ohm
Temperature influence		≤ 1.5 % of full-scale value
<b>Compliance with standards and directives</b>		
Standard conformity		
Standards		EN IEC 60947-5-2:2020 IEC 60947-5-2:2019 EN 60947-5-7:2003 IEC 60947-5-7:2003
<b>Approvals and certificates</b>		
UL approval		cULus Listed, General Purpose
CCC approval		CCC approval / marking not required for products rated ≤36 V
<b>Ambient conditions</b>		
Ambient temperature		-40 ... 70 °C (-40 ... 158 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
<b>Mechanical specifications</b>		
Connection type		cable , 5-pin
Degree of protection		IP67
Material		
Housing		PA-GF35
Cable		PUR
Transducer		epoxy resin/hollow glass sphere mixture; polyurethane foam
Cable		

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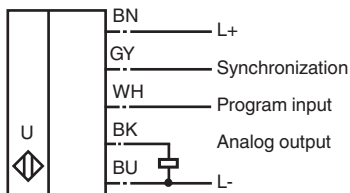
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## Technical Data

Sheath diameter	7.25 mm	
Bending radius		> 37.3 mm , fixed > 74.7 mm , moving
Core cross section	5 x 0.82 mm <sup>2</sup>	
Length	L	2 m
Mass	355 g	
<b>Factory settings</b>		
Output	near limit: 240 mm far limit: 4000 mm Output mode: rising ramp	
Beam width	wide	
Evaluation procedure	low-pass behavior	
<b>General information</b>		
Supplementary information	Switch settings of the external programming adapter: "output load": pull-down "output logic": noninv	

## Connection

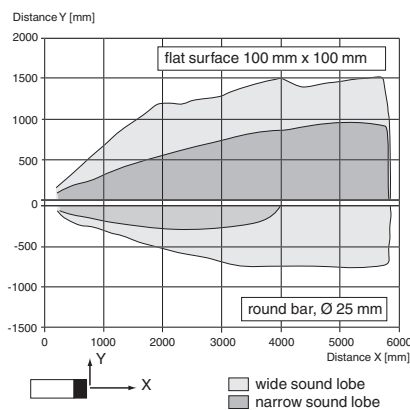


Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)
5	GY	(gray)

## Characteristic Curve

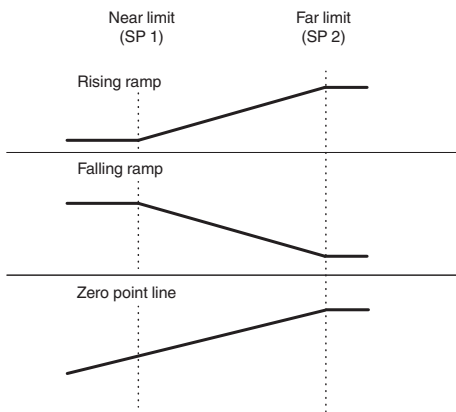
### Characteristic response curve





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## Characteristic Curve

### Analog output modes



## Accessories

	<p><b>UC-PROG1-USB</b></p>	<p>Programming adapter</p>
	<p><b>V15S-G-0,3M-PUR-WAGO</b></p>	<p>Male cordset, M12, 5-pin, PUR cable with WAGO terminals</p>

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## Commissioning

### Adjustment possibilities

The sensor is equipped with 1 analog output with 2 programmable limits. The programming of the limits, the output mode and the beam width can be done in 3 different ways:

- Using the teach input of the sensor
- By means of the sensor's programming button
- Using the sensor's serial interface. This method requires an external programming adapter and the corresponding software. You will find the download link for the software at [www.pepperl-fuchs.com](http://www.pepperl-fuchs.com) on the product page of the sensor.

### Synchronization

The sensor features a synchronization input for suppressing ultrasonic mutual interference ("crosstalk"). The following synchronization modes are available:

1. Automatic multiplex mode
2. Automatic master slave common mode
3. Externally controlled synchronization

### Further Documentation

For information on programming via programming button and synchronisation you may refer to the commissioning instruction.