



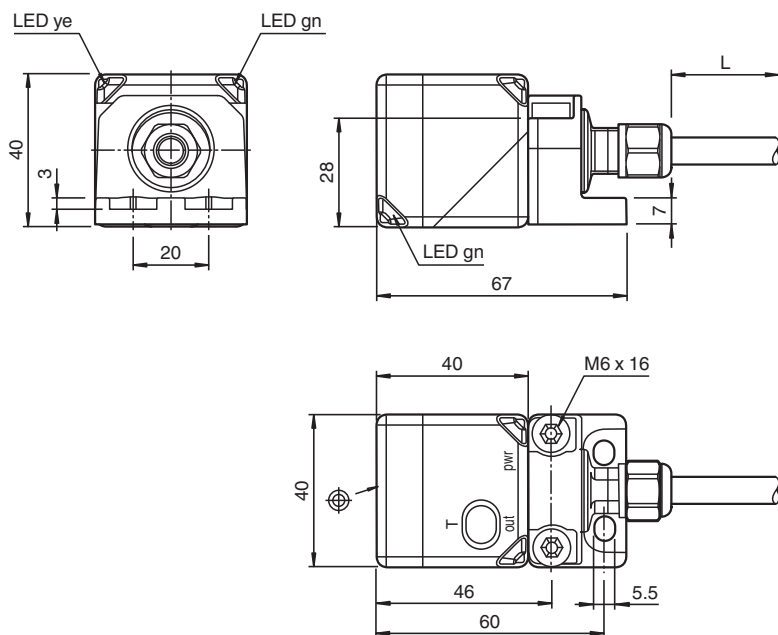
## Ultrasonic sensor UC2000-L2M-U-T-2M

- 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         | 60 ... 2000 mm                             |
| Adjustment range      | 80 ... 2000 mm                             |
| Dead band             | 0 ... 60 mm                                |
| Standard target plate | 100 mm x 100 mm                            |
| Transducer frequency  | approx. 175 kHz                            |
| Response delay        | minimum : 60 ms<br>factory setting: 330 ms |

#### Indicators/operating means

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

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**PEPPERL+FUCHS**

## Technical Data

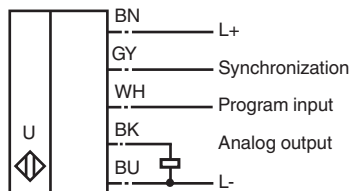
|                                                 |       |                                                                                                      |
|-------------------------------------------------|-------|------------------------------------------------------------------------------------------------------|
| 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)<br>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                                  |       | ≥ 33 ms (level 0)                                                                                    |
| Synchronization frequency                       |       |                                                                                                      |
| Common mode operation                           |       | ≤ 30 Hz                                                                                              |
| Multiplex operation                             |       | ≤ 33 Hz / n , n = number of sensors , n ≤ 10<br>(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 60947-5-2:2007+A1:2012<br>IEC 60947-5-2:2007 + A1:2012<br>EN 60947-5-7:2003<br>IEC 60947-5-7:2003 |
| <b>Approvals and certificates</b>               |       |                                                                                                      |
| EAC conformity                                  |       | TR CU 020/2011<br>TR CU 037/2016                                                                     |
| 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                                           |

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## Technical Data

|                            |   |                                                                                                            |
|----------------------------|---|------------------------------------------------------------------------------------------------------------|
| <b>Cable</b>               |   |                                                                                                            |
| Sheath diameter            |   | 7.25 mm                                                                                                    |
| Bending radius             |   | > 37.3 mm , fixed<br>> 74.7 mm , moving                                                                    |
| Core cross-section         |   | 5 x 0.82 mm <sup>2</sup>                                                                                   |
| Length                     | L | 2 m                                                                                                        |
| Mass                       |   | 345 g                                                                                                      |
| <b>Factory settings</b>    |   |                                                                                                            |
| Output                     |   | near limit: 80 mm<br>far limit: 2000 mm<br>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:<br>"output load": pull-down<br>"output logic": noninv |

## Connection

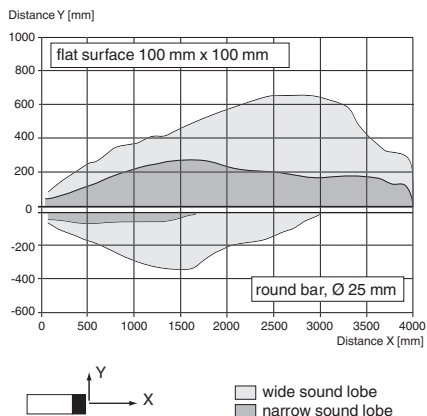


Wire colors in accordance with EN 60947-5-2

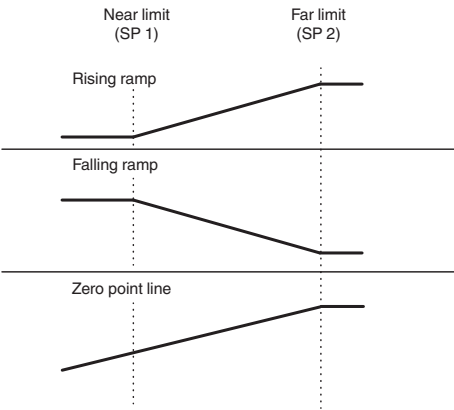
|   |    |         |
|---|----|---------|
| 1 | BN | (brown) |
| 2 | WH | (white) |
| 3 | BU | (blue)  |
| 4 | BK | (black) |
| 5 | GY | (gray)  |

## Characteristic Curve

### Characteristic response curve



Analog output modes



Accessories

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

## Function

### Description of Sensor Functions

## 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.