



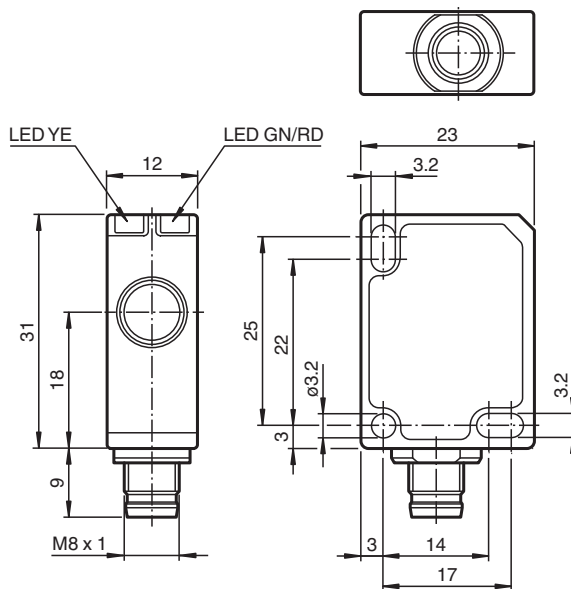
## Ultrasonic sensor UC400-F77-IU-IO-V31

- IO-Link interface for parameterization
- Programmable via DTM with PACTWARE
- Selectable sound lobe width
- Synchronization options
- Temperature compensation
- Analog output

Single head system



### Dimensions



### Technical Data

#### General specifications

Sensing range	30 ... 400 mm
Adjustment range	40 ... 400 mm
Dead band	0 ... 30 mm
Standard target plate	20 mm x 20 mm
Transducer frequency	approx. 310 kHz
Response delay	minimum : 10 ms factory setting: 37 ms
Sensor cycle time	≥ 10 ms (factory setting) ; programmable to 60 s

#### Memory

Release date: 2020-12-17 Date of issue: 2021-02-05 Filename: 261247\_eng.pdf

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

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## Technical Data

Non-volatile memory	EEPROM	
Write cycles	300000	
<b>Indicators/operating means</b>		
LED green	solid: power on flashing: standby mode or IO-Link communication	
LED yellow	solid: object in evaluation range flashing: programming of the limits, object detected	
LED red	solid: fault flashing: programming limits, object not detected	
<b>Electrical specifications</b>		
Operating voltage	$U_B$	18 ... 30 V DC , ripple 10 % <sub>SS</sub>
No-load supply current	$I_0$	≤ 50 mA
Power consumption	$P_0$	≤ 500 mW
Time delay before availability	$t_v$	≤ 300 ms
<b>Interface</b>		
Interface type	IO-Link (available after activation via programming button until next reset)	
<b>Input/Output</b>		
Input/output type	1 synchronization connection, bidirectional	
0 Level	0 ... 1 V	
1 Level	2.5 V ... $U_B$	
Input impedance	> 22 kΩ	
Output rated operating current	current source < 2.5 mA	
Pulse length	≥ 1 ms with external control, low active	
Synchronization frequency		
Common mode operation	≤ 109 Hz	
Multiplex operation	≤ 109 Hz / n , n = number of sensors , n ≤ 10	
<b>Output</b>		
Output type	1 analog output 0 (4) ... 20 mA or 1 analog output 0 ... 10 V	
Resolution	current output: evaluation range [mm]/3200 but ≥ 0.35 mm voltage output: evaluation range [mm]/4000 but ≥ 0.35 mm	
Deviation of the characteristic curve	≤ ± 1 % of full-scale value	
Repeat accuracy	≤ ± 0.1 % of full-scale value	
Load impedance	current output: ≤ 500 Ohm voltage output: ≥ 1000 Ohm	
Temperature influence	≤ ± 0.75 % of the end value (with temperature compensation) from 10 minutes after switching on the sensor ; 0.17 %/K (without temperature compensation)	
<b>Compliance with standards and directives</b>		
Standard conformity		
Standards	EN 60947-5-2:2007+A1:2012 IEC 60947-5-2:2007 + A1:2012 EN 60947-5-7:2003 IEC 60947-5-7:2003	
<b>Approvals and certificates</b>		
UL approval	cULus Listed, Class 2 Power Source	
CCC approval	CCC approval / marking not required for products rated ≤36 V	
<b>Ambient conditions</b>		
Ambient temperature	current output -25 ... 60 °C (-13 ... 140 °F) voltage output -25 ... 70 °C (-13 ... 158 °F)	
Storage temperature	-40 ... 85 °C (-40 ... 185 °F)	
<b>Mechanical specifications</b>		
Connection type	Connector plug M8 x 1 , 4-pin	
Degree of protection	IP67	
Material		
Housing	Polycarbonate	
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam	

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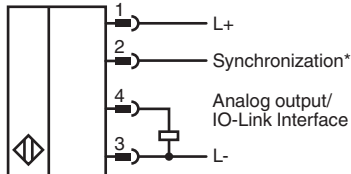
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## Technical Data

Installation position	any position
Mass	9 g
Tightening torque, fastening screws	max. 0.2 Nm
<b>Factory settings</b>	
Output	near limit: 40 mm far limit: 400 mm Output mode: rising ramp output type: 4 ... 20 mA
Beam width	wide

## Connection



\*if not used connect to ground (0V)

## Connection Assignment

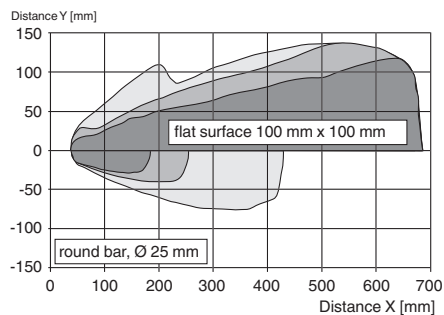


Wire colors in accordance with EN 60947-5-2

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

## Characteristic Curve

### Characteristic response curve

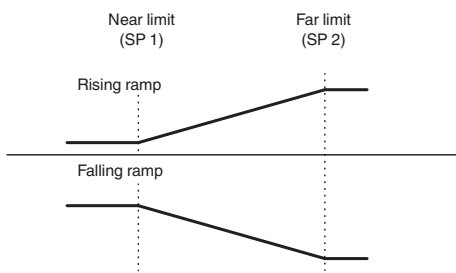


- wide sound beam
- medium-sized sound beam
- narrow sound beam






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## Programming

### Analog output modes



## Accessories

	<b>IO-Link-Master02-USB</b>	IO-Link master, supply via USB port or separate power supply, LED indicators, M12 plug for sensor connection
	<b>V31-GM-2M-PVC</b>	Female cordset single-ended M8 straight A-coded, 4-pin, PVC cable grey
	<b>V31-GM-1M-PVC-V1-G</b>	Cordset M8 socket straight to M12 plug straight A-coded, 4-pin, PVC cable grey
	<b>OMH-ML7-01</b>	Mounting aid for ML7 and ML8 series, Mounting bracket
	<b>OMH-ML7-02</b>	Mounting aid for ML7 and ML8 series, Mounting bracket

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## Function

### Adjustment possibilities

The sensor features an analog output with 2 programmable limits. Programming the limits, the output mode, the output type and the beam width can be done in two different ways:

- Using the sensor's programming button
- Using the IO-link interface of the sensor. This method requires an IO-link master (e.g. IO-link-Master02-USB) and the associated software. The download link is available on the product page for the sensor at [www.pepperl-fuchs.de](http://www.pepperl-fuchs.de)

### Synchronization

The sensor features a synchronization input for suppressing ultrasonic mutual interference („cross talk“).

The following synchronization modes are available:

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

### Further Documentation

- For information on programming via programming button and synchronisation you may refer to the commissioning instruction.
- For detailed information on application and programming via IO-Link we provide a manual.