

# Ultrasonic sensor

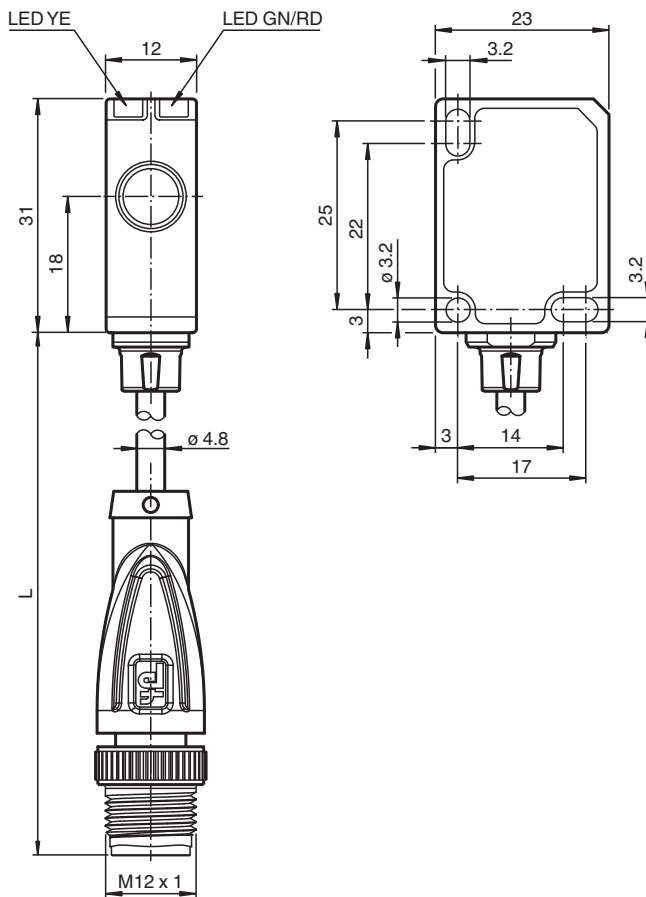
## UC250-F77-IU-IO-0,2M-V1

- IO-Link interface for parameterization
- Programmable via DTM with PACTWARE
- Selectable sound lobe width
- Cable with M12 plug
- Synchronization options
- Temperature compensation
- Analog output

Single head system



### Dimensions



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### Technical Data

#### General specifications

Sensing range	20 ... 250 mm
Adjustment range	25 ... 250 mm

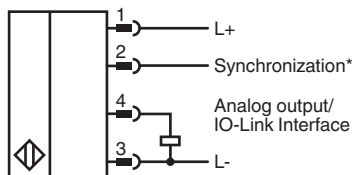
## Technical Data

Dead band	0 ... 20 mm	
Standard target plate	10 mm x 10 mm	
Transducer frequency	approx. 400 kHz	
Response delay	minimum : 8 ms factory setting: 29 ms	
Sensor cycle time	≥ 8 ms (factory setting) ; programmable to 60 s	
<b>Memory</b>		
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 current	current source < 2.5 mA	
Pulse length	≥ 1 ms with external control, low active	
Synchronization frequency		
Common mode operation	≤ 141 Hz	
Multiplex operation	≤ 141 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 IEC 60947-5-2:2020 IEC 60947-5-2:2019 EN 60947-5-7:2003 IEC 60947-5-7:2003 IEC 61131-9:2013	
<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>		

## Technical Data

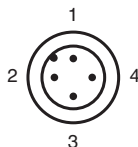
Ambient temperature		current output -25 ... 60 °C (-13 ... 140 °F) voltage output -25 ... 70 °C (-13 ... 158 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
<b>Mechanical specifications</b>		
Connection type		fixed cable with plug
Degree of protection		IP67
Material		
Housing		Polycarbonate
Transducer		epoxy resin/hollow glass sphere mixture; polyurethane foam
Connector		
Threading		M12
Number of pins		4
Cable		
Length	L	200 mm
Installation position		any position
Mass		20.5 g
Tightening torque, fastening screws		max. 0.2 Nm
Dimensions		
Height		31 mm
Width		12 mm
Length		23 mm
<b>Factory settings</b>		
Output		near limit: 25 mm far limit: 250 mm Output mode: rising ramp output type: 4 ... 20 mA
Beam width		wide

## Connection



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

## Connection Assignment

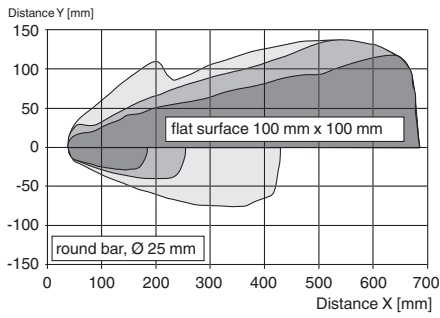


Wire colors in accordance with EN 60947-5-2

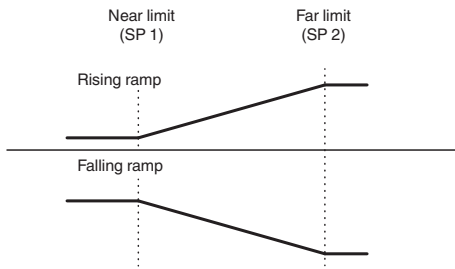
1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

# Characteristic Curve

## Characteristic response curve



## Analog output modes



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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.