

Ultrasonic sensor

UB500-F42-2EP-IO-V15

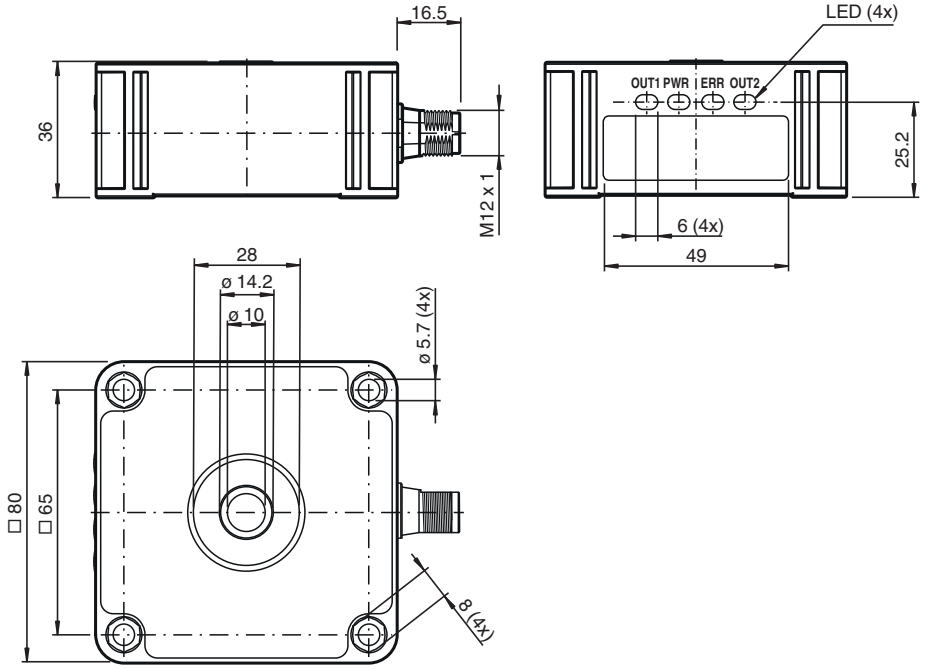
- IO-Link Interface for process data, parameterization and diagnosis
- Selectable sound lobe width
- TEACH-IN
- 2 Push-pull outputs
- Degree of protection IP67

Ultrasonic sensor with IO-Link interface in cubic design and 2 push-pull output

Function

The ultrasonic sensor combines versatility with a wide range of functions and a universal measuring principle.
All functions can be conveniently parameterized via IO-Link. The adjustable sound beam width enables optimal adaptation to your application without loss of range. Process and service data can be transmitted via IO-Link, enabling easy integration into Industry 4.0 applications.

Dimensions



Technical Data

General specifications	
Sensing range	30 ... 500 mm
Adjustment range	50 ... 500 mm
Dead band	0 ... 30 mm
Standard target plate	100 mm x 100 mm
Transducer frequency	approx. 400 kHz
Response delay	40 ms

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Technical Data

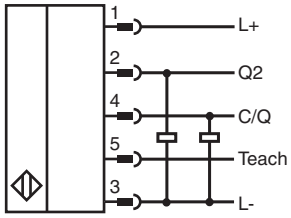
Sensor cycle time		≥ 10 ms
Temperature influence		≤ ± 0,75 % of the full-scale value 20 min after switching on
Memory		
Non-volatile memory		EEPROM
Write cycles		300000
Indicators/operating means		
LED green		solid: power on flashing with short break: IO-Link mode
LED yellow		solid: object in evaluation range flashing: switch point programming
LED red		solid: error flashing: switch point programming, object not detected fast flashes: short-circuit or overtemperature
Electrical specifications		
Operating voltage	U_B	10 ... 30 V DC , ripple 10 $\%_{SS}$
No-load supply current	I_0	≤ 85 mA
Power consumption	P_0	≤ 1200 mW
Time delay before availability	t_v	≤ 300 ms
Interface		
Interface type		IO-Link
IO-Link revision		1.1.4
Device profile		Smart Sensor - SSP 4.1.1
Process data		Input: 32 Bit - measurement value 16 Bit - scale 8 Bit - switching signals 2 Bit
Vendor ID		1 (0x0001)
Device ID		3147522 (0x300702)
Transfer rate		COM2 (38.4 kBit/s)
Min. cycle time		3.3 ms
SIO mode support		yes
Compatible master port type		Class A (use adapter cable listed in accesories) Class B (use 3-pole adapter or 3-wire cable)
Input		
Input type		1 program input
Level (evaluation limit 1)		0 ... 0.6 V
Level (evaluation limit 2)		3.7 V ... U_B
Input impedance		> 4.7 kΩ
Pulse length		≥ 1 s
Switching output		
Output type		2 push-pull (4 in 1) outputs, short-circuit protected, reverse polarity protected
Rated operating current	I_e	100 mA , short-circuit/overload protected
Switching frequency		14 Hz
Voltage drop		≤ 2.5 V
Repeat accuracy		≤ ± 0.1 % of full-scale value
Range hysteresis		1 % of the adjusted operating range (default settings), programmable , min. 1 mm
Off-state current		≤ 100 µA
Compliance with standards and directives		
Standard conformity		
Standards		EN 60947-5-2 IEC 61131-9 / IO-Link V1.1.4
Approvals and certificates		
UL approval		cULus Listed, Class 2 Power Source
CCC approval		CCC approval / marking not required for products rated ≤36 V

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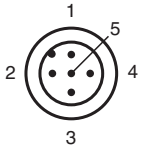
Technical Data

Ambient conditions		
Ambient temperature		-25 ... 70 °C (-13 ... 158 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
Mechanical specifications		
Connection type		Connector plug
Degree of protection		IP67
Material		
Housing		PC-GF10
Transducer		epoxy resin/hollow glass sphere mixture; polyurethane foam
Connector		
Threading		M12 x 1
Number of pins		5
Material		Diecast zinc
Mass		135 g
Tightening torque, fastening screws		max. 3 Nm
Dimensions		
Height		36 mm
Width		80 mm
Length		80 mm
Factory settings		
Output 1		near switch point: 50 mm far switch point: 500 mm output function: Switch point operation mode output behavior: NO contact
Output 2		near switch point: 500 mm far switch point: 500 mm output function: Switch point operation mode output behavior: NO contact
Beam width		wide

Connection Assignment



Connection Assignment



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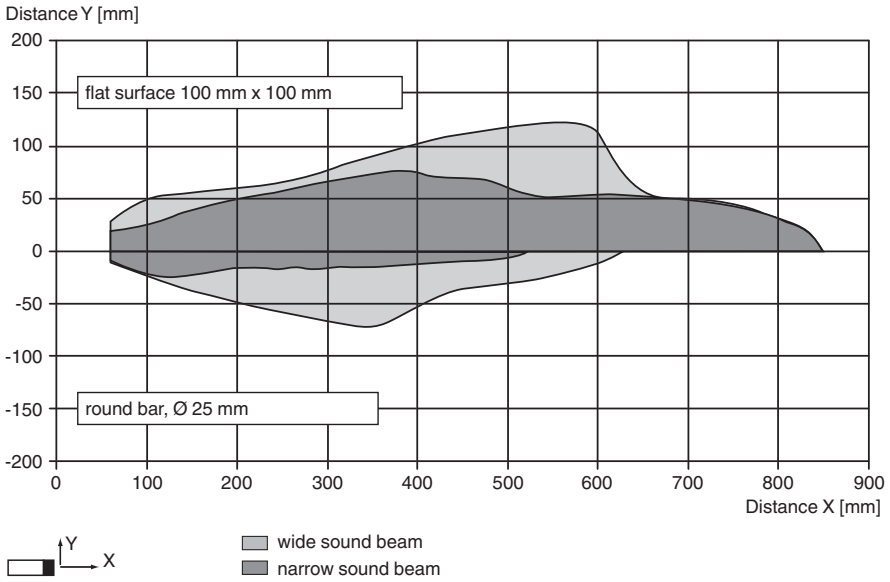
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Wire colors in accordance with EN 60947-5-2

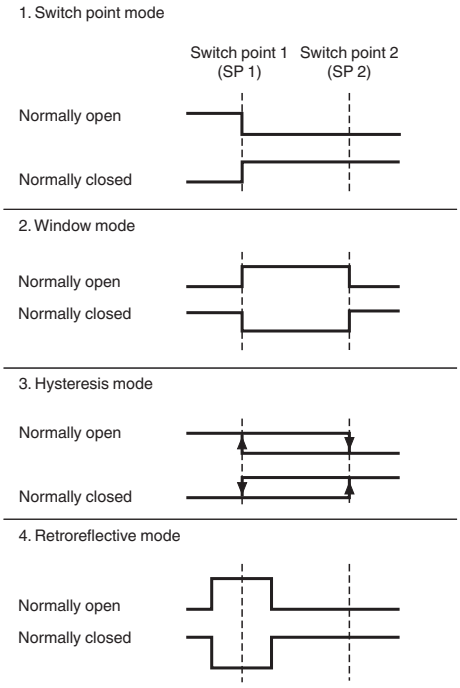
1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)
5	GY	(gray)

Characteristic Curve

Characteristic response curve



Switching output modes



Documentation

For information on programming you may refer to the commissioning instruction.

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Programming

The sensor features 2 switching outputs with each 2 programmable switch points. Programming the switch points, the output mode, the output logic and the beam width can be done in 2 different ways:

- Using the sensor's "Teach" input.
- 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.

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