

Ultrasonic sensor

UB2000-F42S-2EP-IO-V15

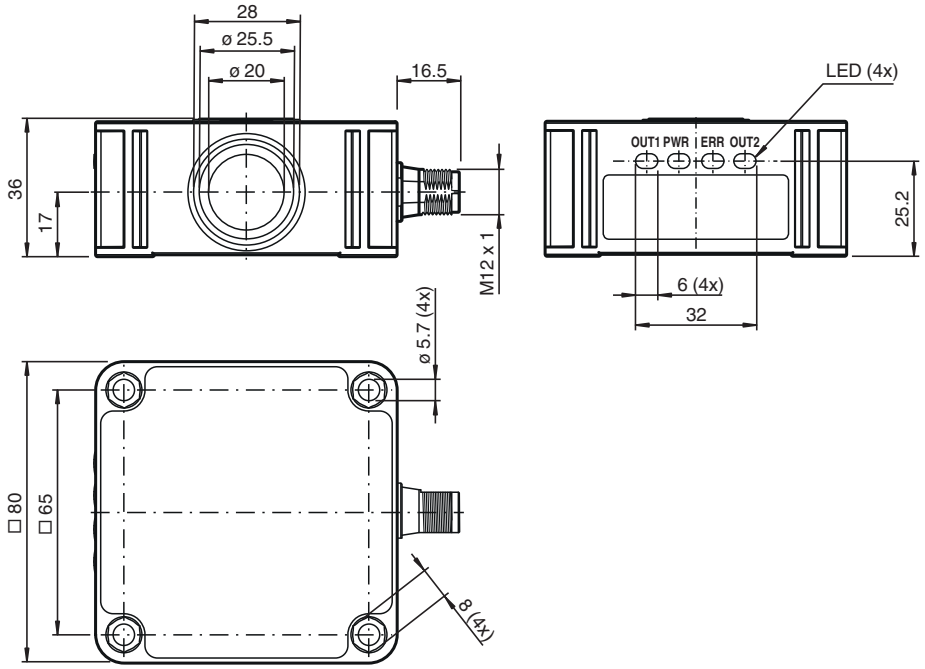
- IO-Link Interface for process data, parameterization and diagnosis
- Selectable sound lobe width
- TEACH-IN
- 2 Push-pull outputs
- Degree of protection IP67

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	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	108 ms

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Technical Data

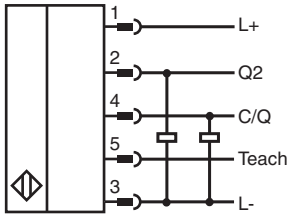
Sensor cycle time		≥ 27 ms
Temperature influence		≤ ± 0,75 % of the full-scale value 20 min after switching on
Memory		
Non-volatile memory		EEPROM
Write cycles		300000
Indicators/operating means		
LED green		solid: power on flashing with short break: IO-Link mode
LED yellow		solid: object in evaluation 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	≤ 75 mA
Power consumption	P_0	≤ 1000 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		3147524 (0x300704)
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		5 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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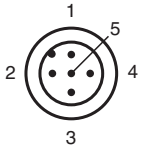
Technical Data

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		130 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: 80 mm far switch point: 2000 mm output function: Switch point operation mode output behavior: NO contact
Output 2		near switch point: 2000 mm far switch point: 2000 mm output function: Switch point operation mode output behavior: NO contact
Beam width		wide

Connection Assignment



Connection Assignment



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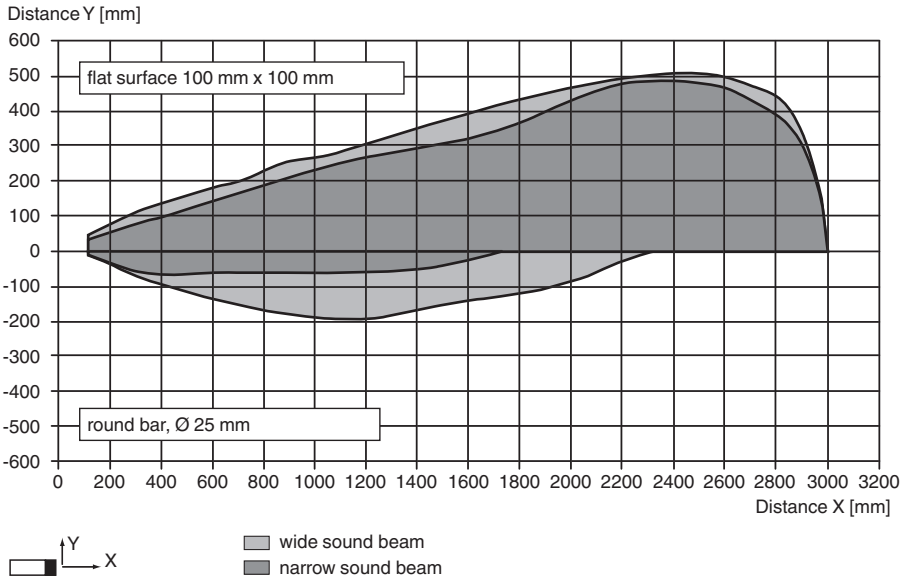
Connection Assignment

Wire colors in accordance with EN 60947-5-2

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

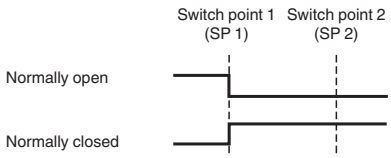
Characteristic Curve

Characteristic response curve

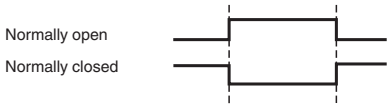


Switching output modes

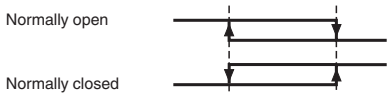
1. Switch point mode



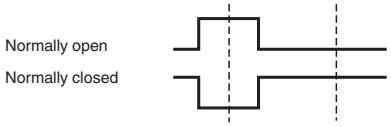
2. Window mode



3. Hysteresis mode



4. Retroreflective mode



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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