

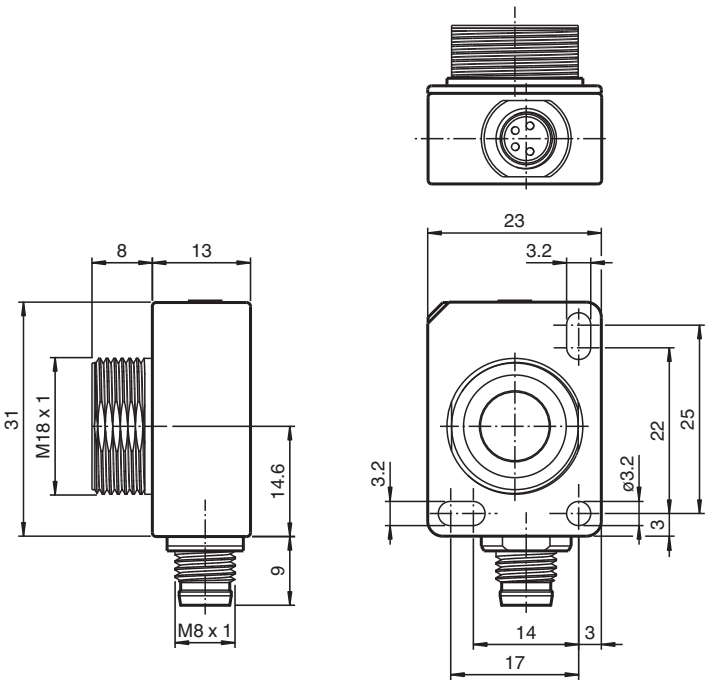
Ultrasonic sensor

UC800-F77S-EP-IO-V31

- IO-Link interface for service and process data
- Programmable via DTM with PACTWARE
- Continuous distance value via IO-Link process data
- Selectable sound lobe width
- Synchronization options
- Temperature compensation
- Push-pull output

Single head system

Dimensions



Technical Data

General specifications	
Sensing range	60 ... 800 mm
Adjustment range	70 ... 800 mm
Dead band	0 ... 60 mm
Standard target plate	100 mm x 100 mm
Transducer frequency	approx. 255 kHz
Response delay	minimum : 13 ms factory setting: 49 ms
Sensor cycle time	≥ 13 ms (factory setting) ; programmable to 60 s
Memory	
Non-volatile memory	EEPROM

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Technical Data

Write cycles		300000
Indicators/operating means		
LED green		solid: power on flashing: standby mode or IO-Link communication
LED yellow		solid: object in evaluation range flashing: switch point programming, object detected
LED red		solid: error flashing: switch point programming, object not detected
Electrical specifications		
Operating voltage	U_B	10 ... 30 V DC , ripple 10 $\%_{SS}$
No-load supply current	I_0	≤ 40 mA
Power consumption	P_0	≤ 400 mW
Time delay before availability	t_v	≤ 300 ms
Interface		
Interface type		IO-Link (via C/Q = Pin 4)
IO-Link revision		1.1
Device profile		Smart Sensor
Device ID		0x300302 (3146498)
Transfer rate		COM2 (38.4 kBit/s)
Min. cycle time		2.3 ms
Process data width		16 bit
SIO mode support		yes
Compatible master port type		A
Input/Output		
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		≤ 82 Hz
Multiplex operation		≤ 82 Hz / n , n = number of sensors , n ≤ 10
Output		
Output type		1 push-pull (4 in 1) output, short-circuit protected, reverse polarity protected
Rated operating current	I_e	100 mA , short-circuit/overload protected
Voltage drop	U_d	≤ 2.5 V
Repeat accuracy		≤ ± 0.1 % of full-scale value
Switching frequency	f	factory setting: 12 Hz programmable max. 27 Hz
Range hysteresis	H	1 % of the adjusted operating range (default settings), programmable , min. 1 mm
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)
Compliance with standards and directives		
Standard conformity		
Standards		EN IEC 60947-5-2:2020 IEC 60947-5-2:2019 IEC 61131-9:2013
Approvals and certificates		
UL approval		cULus Listed, Class 2 Power Source
CCC approval		CCC approval / marking not required for products rated ≤36 V
Ambient conditions		
Ambient temperature		-25 ... 70 °C (-13 ... 158 °F) When fixing with one M18 nut, the temperature range begins with 0 °C (32 °F).
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
Mechanical specifications		

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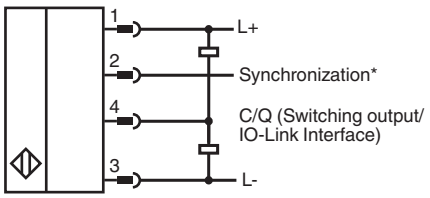
Connection type		Connector plug M8 x 1 , 4-pin
Degree of protection		IP67
Material		
Housing		Polycarbonate
Transducer		epoxy resin/hollow glass sphere mixture; polyurethane foam
Installation position		any position
Mass		13 g
Tightening torque, fastening screws		with M3 nuts max. 0.2 Nm with M18 nuts max. 1 Nm
Dimensions		
Height		31 mm
Width		21 mm
Length		23 mm
Factory settings		
Output		near switch point: 70 mm far switch point: 800 mm Output mode: Window mode Output logic: normally open
Beam width		wide
General information		
Scope of delivery		1 Nut plastic

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)

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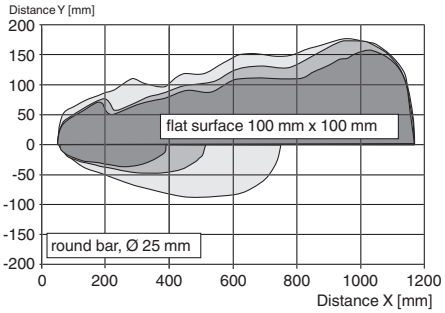
Characteristic Curve

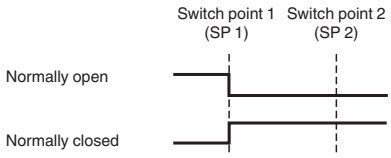
Characteristic response curve



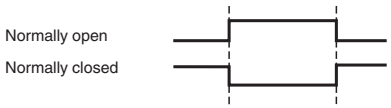


Switching output modes

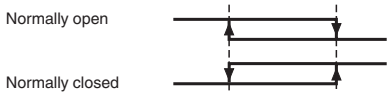
1. Switch point mode



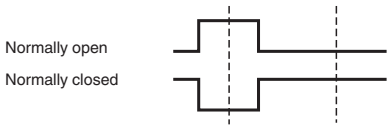
2. Window mode



3. Hysteresis mode



4. Retroreflective mode



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Function

Adjustment possibilities

The sensor features a switching output with 2 programmable switch points. Programming the switch points, the output mode, the output logic 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.

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.

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