



Reflex ultrasonic sensor UBR400-F77-E2-V31

- Miniature design
- Program input
- Degree of protection IP67
- Switching status indicator, yellow LED

Reflex ultrasonic sensor

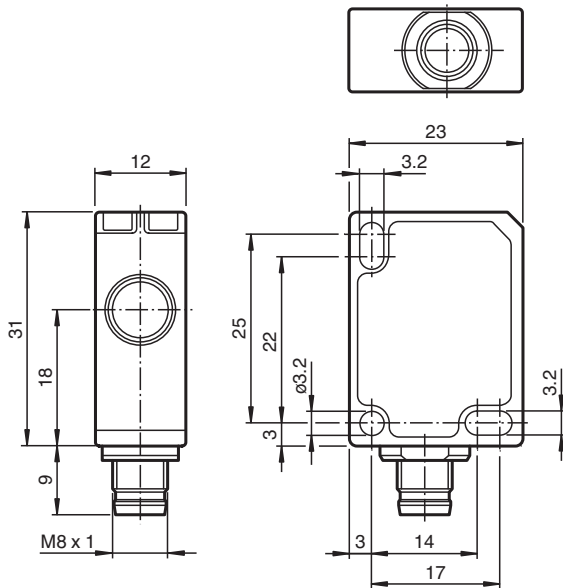


Function

The ultrasonic sensor works like a retroreflective sensor. It transmits ultrasonic packages in quick succession and responds to their reflection off a reference object at a defined distance.

The distance T to the reference object can be taught in. The sensor has a switching output. The output switches when the sensor either no longer receives the echo from its reflector or no longer receives it as the first echo.

Dimensions



Technical Data

General specifications

Sensing range	0 ... 400 mm
Adjustment range	53 ... 400 mm
Standard target plate	20 mm x 20 mm
Transducer frequency	approx. 300 kHz
Response delay	≤ 75 ms

Limit data

Permissible cable length	max. 300 m
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Indicators/operating means

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

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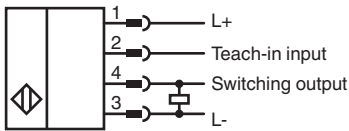
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Technical Data

LED yellow		switching state and flashing: Teach-In	
Electrical specifications			
Rated operating voltage	U _e	24 V DC	
Operating voltage	U _B	20 ... 30 V DC , ripple 10 % _{SS} ; 12 ... 20 V DC sensitivity reduced to 90 %	
No-load supply current	I ₀	≤ 20 mA	
Time delay before availability	t _v	≤ 150 ms	
Input			
Input type		1 program input	
Level		low level : 0 ... 0.7 V (Teach-In active) high level : U _B or open input (Teach-In inactive)	
Input impedance		16 kΩ	
Pulse length		≥ 3 s	
Output			
Output type		1 switch output PNP, NO	
Rated operating current	I _e	200 mA , short-circuit/overload protected	
Voltage drop	U _d	≤ 2 V	
Switching frequency	f	5 Hz	
Off-state current	I _r	≤ 0.01 mA	
Temperature influence		0.17 %/K	
Compliance with standards and directives			
Standard conformity			
Standards		EN IEC 60947-5-2:2020 IEC 60947-5-2:2019	
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)	
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)	
Shock resistance		30 g , 11 ms period	
Vibration resistance		10 ... 55 Hz , Amplitude ± 1 mm	
Mechanical specifications			
Connection type		M8 x 1 connector , 4-pin	
Degree of protection		IP67	
Material			
Housing		Polycarbonate	
Transducer		epoxy resin/hollow glass sphere mixture; polyurethane foam	
Installation position		any position	
Mass		10 g	
Tightening torque, fastening screws		max. 0.2 Nm	
Dimensions			
Height		31 mm	
Width		12 mm	
Length		23 mm	
Factory settings			
Output		reflector distance 400 mm	

Connection Assignment



Connection Assignment

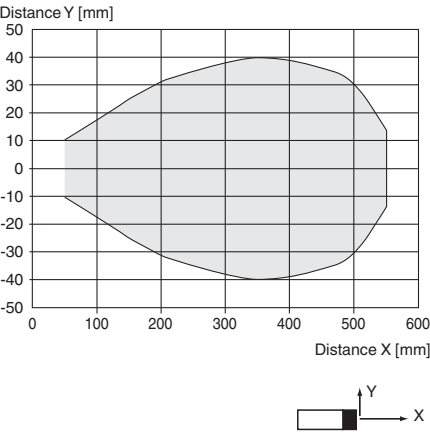


Wire colors in accordance with EN 60947-5-2

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

Characteristic Curve

Characteristic response curve



Commissioning

Adjustement Possibilities

The sensor is equipped with a switching output and operates exclusively in retro-reflective mode. A fixed machine part (plate, conveyor belt....). a wall or the floor is used as a reference object (reflector) and taught-in via the teach-in input of the sensor.

The output of the sensor switches when the sensor either no longer receives the echo from its reflector or no longer receives it as the first echo:

- The first case occurs when there is a sufficiently large, angled or highly sound-absorbing object between the sensor and the reflector.
- The second case occurs when there is an object between the sensor and the reflector that reflects an echo to the sensor. In this case, the object may also be smaller than the reflector.

When teaching-in the reflector distance, the sensor automatically generates a switching window in the range of the taught-in reflector distance +/- 5%. The distance of the reference object (reflector) must not change during operation. Any modifications to the reference object distance require a new teach-in.

Further Documentation

For information on programming via teach-in input you may refer to the commissioning instruction.