



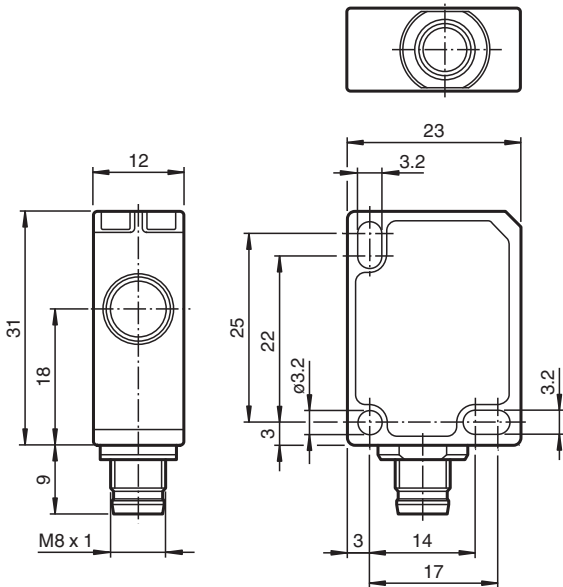
# Ultrasonic direct detection sensor UB250-F77-E2-V31

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

Ultrasonic direct detection sensor



## Dimensions



## Technical Data

### General specifications

Sensing range	20 ... 250 mm
Adjustment range	45 ... 250 mm
Dead band	0 ... 20 mm
Standard target plate	20 mm x 20 mm
Transducer frequency	approx. 400 kHz
Response delay	≤ 50 ms

### Limit data

Permissible cable length	max. 300 m
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### Indicators/operating means

LED yellow	switching state and flashing: Teach-In
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### Electrical specifications

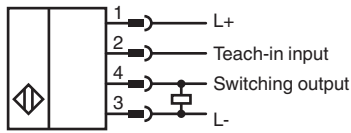
Rated operating voltage	U <sub>e</sub>	24 V DC
Operating voltage	U <sub>B</sub>	20 ... 30 V DC , ripple 10 % <sub>SS</sub> ; 12 ... 20 V DC sensitivity reduced to 90 %

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## Technical Data

No-load supply current	$I_0$	$\leq 20 \text{ mA}$
Time delay before availability	$t_v$	$\leq 150 \text{ ms}$
<b>Input</b>		
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 k $\Omega$
Pulse length		$\geq 3 \text{ s}$
<b>Output</b>		
Output type		1 switch output PNP, NO
Rated operating current	$I_e$	200 mA , short-circuit/overload protected
Voltage drop	$U_d$	$\leq 2 \text{ V}$
Repeat accuracy		$\pm 1 \text{ mm}$
Switching frequency	$f$	10 Hz
Range hysteresis	$H$	typ. 2.5 mm
Off-state current	$I_r$	$\leq 0.01 \text{ mA}$
Temperature influence		0.17 %/K
<b>Compliance with standards and directives</b>		
Standard conformity		
Standards		EN IEC 60947-5-2:2020 IEC 60947-5-2:2019
<b>Approvals and certificates</b>		
UL approval		cULus Listed, Class 2 Power Source
CCC approval		CCC approval / marking not required for products rated $\leq 36 \text{ V}$
<b>Ambient conditions</b>		
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 $\pm 1 \text{ mm}$
<b>Mechanical specifications</b>		
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
<b>Factory settings</b>		
Output		Switching point: 250 mm

## Connection Assignment



## Connection Assignment

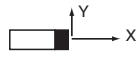
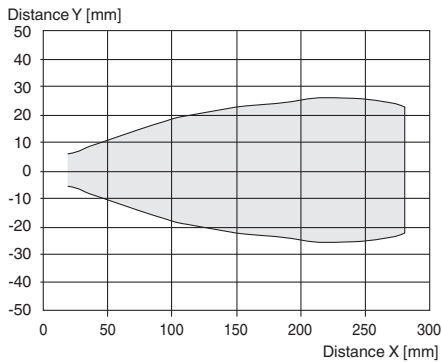


Wire colors in accordance with EN 60947-5-2

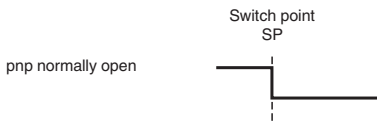
1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

## Characteristic Curve

### Characteristic response curve



### Switch point mode



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## Additional Information

### Adjustment possibilities

The sensor is equipped with a switching output with 1 adjustable switch point. The switch point is adjusted using the teach-in input of the sensor.

### Further Documentation

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