



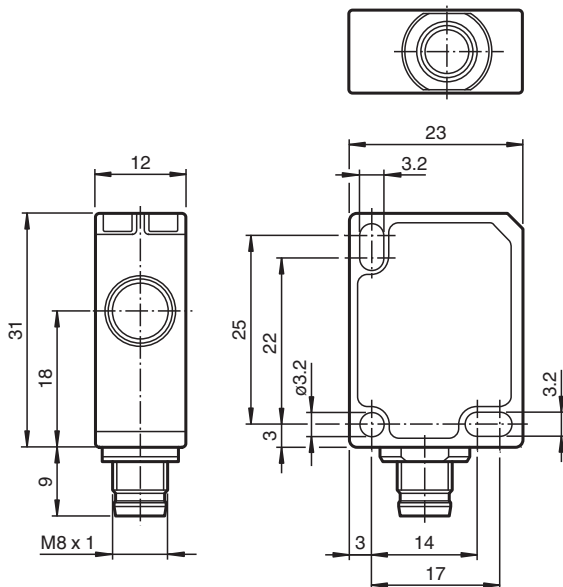
## Ultrasonic direct detection sensor UB400-F77-E3-V31

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

Ultrasonic direct detection sensor



### Dimensions



### Technical Data

#### General specifications

|                       |                 |
|-----------------------|-----------------|
| Sensing range         | 25 ... 400 mm   |
| Adjustment range      | 40 ... 400 mm   |
| Dead band             | 0 ... 25 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 |
|--------------------------|------------|

#### Indicators/operating means

|            |                                        |
|------------|----------------------------------------|
| LED yellow | switching state and flashing: Teach-In |
|------------|----------------------------------------|

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

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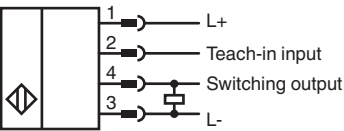
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## Technical Data

|                                                 |       |                                                                                                   |
|-------------------------------------------------|-------|---------------------------------------------------------------------------------------------------|
| 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)<br>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 , NC contact                                                                  |
| 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                             | $f$   | 5 Hz                                                                                              |
| Range hysteresis                                | $H$   | typ. 4 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<br>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: 400 mm                                                                           |

Connection Assignment



Connection Assignment

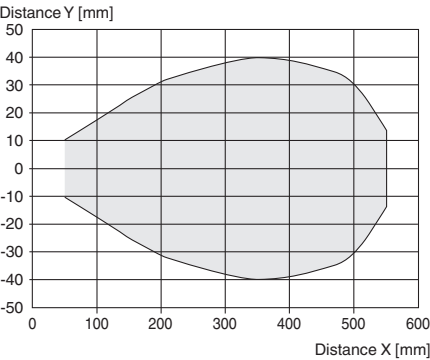


Wire colors in accordance with EN 60947-5-2

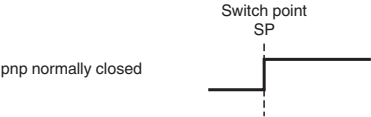
|   |    |         |
|---|----|---------|
| 1 | BN | (brown) |
| 2 | WH | (white) |
| 3 | BU | (blue)  |
| 4 | BK | (black) |

Characteristic Curve

Characteristic response curve



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.