

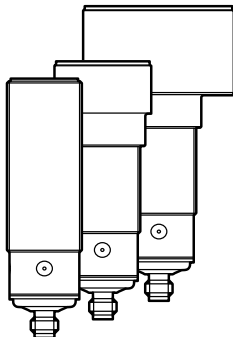


Operating instructions  
Ultrasonic diffuse-reflection sensor  
with IO-Link

UK

**UIT501**  
**UIT502**  
**UIT504**  
**UIT505**  
**UIT507**  
**UIT508**  
**UIT520**

11487725 / 00 10 / 2021



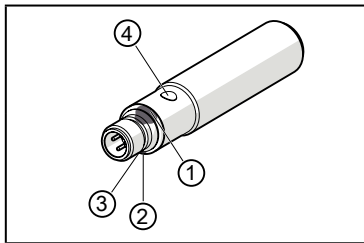
# 1 Safety instructions

- Read this document before setting up the product and keep it during the entire service life.
- The product must be suitable for the corresponding applications and environmental conditions without any restrictions.
- Only use the product for its intended purpose (→ 2 Functions and features).
- If the operating instructions or the technical data are not adhered to, personal injury and/or damage to property may occur.
- The manufacturer assumes no liability or warranty for any consequences caused by tampering with the product or incorrect use by the operator.
- Installation, electrical connection, set-up, operation and maintenance of the product must be carried out by qualified personnel authorised by the machine operator.
- Protect units and cables efficiently against damage.

# 2 Functions and features

Ultrasonic sensor for monitoring levels and detecting objects.

# 3 Installation



► Secure the unit to a bracket.

- 1/2: status LEDs 1/2 (yellow), setting aid and output indication
- 3: echo LED (green), is on when object or background is detected
- 4: teach button



Sound-absorbing surfaces have a negative effect on a reliable function.



► Consider the dead zone (→ Technical data sheet):  
No object detection in the dead zone.



For units with metal housing (according to UL 508):

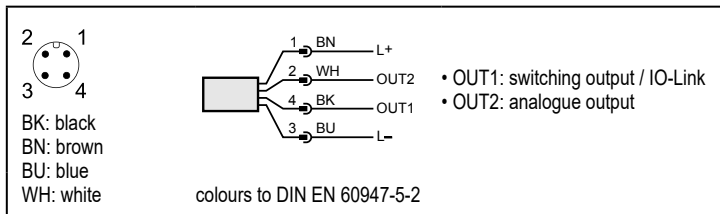
► Observe a minimum distance of 12.7 mm between the sensor and non-insulated live parts.



For further information please refer to [www.ifm.com](http://www.ifm.com)  
→ General information about installation and operation.

## 4 Electrical connection

- ▶ Disconnect power.
- ▶ Connect unit (depending on the type selected):



## 5 Settings



The unit and the parameters are set via the IO-Link interface (→ 5.1) or the teach button (→ 5.2).

### 5.1 IO-Link

This unit has an IO-Link communication interface which enables direct access to process and diagnostic data. In addition it is possible to set the parameters of the unit while it is in operation. Operation of the unit via an IO-Link interface requires an IO-Link master.

With a PC, suitable IO-Link software and an IO-Link adapter cable communication is possible when the system is not in operation.

The IODDs necessary for the configuration of the unit, detailed information about process data structure, diagnostic information, parameter addresses and the necessary information about the required IO-Link hardware and software can be found at [www.ifm.com](http://www.ifm.com).

## 5.2 Teach button

### 5.2.1 Start programming mode

- ▶ Press the teach button for 2 s...6 s.
- > Yellow status LEDs 1/2 flash (1 Hz), the unit is in the programming mode.



If programming has not been completed successfully, the unit returns to the previous setting.

### 5.2.2 Set output response

- ▶ Start programming mode (→ 5.2.1).
- ▶ Position the object in P1 (Fig. 1 or 2).
- ▶ Press the teach button for 1 s.
- > Yellow status LEDs 1/2 flash (2.5 Hz), P1 setting is completed.
- ▶ Position the object in P2 (Fig. 1 or 2).
- ▶ Press the teach button for 1 s.
- > Yellow status LEDs 1/2 flash briefly (4 Hz), P2 setting is completed.

### 5.2.3 Invert output response

- ▶ Press the teach button for > 6 s.
- > Yellow status LEDs 1/2 flash (> 10 Hz).
- > Yellow status LEDs 1/2 flash briefly (> 4 Hz).
- > Output function is inverted.

### 5.2.4 Restore factory setting

- ▶ Align the unit so that no echo is received.
- > Green echo LED off.
- ▶ Start programming mode (→ 5.2.1).
- ▶ Press the teach button for 1 s.
- > Yellow status LEDs 1/2 flash briefly (4 Hz), factory setting is restored.

In case of object recognition, the following output signals are provided:

Fig. 1: Window function  $P1 > P2$

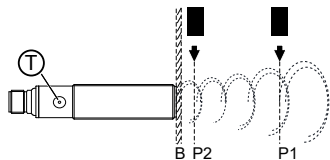
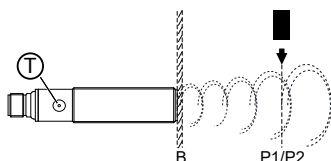
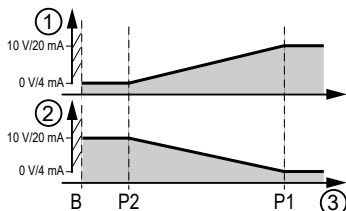


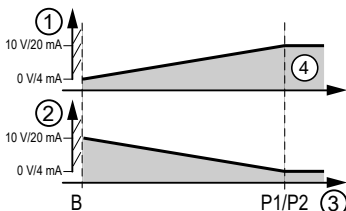
Fig. 2: Hysteresis function  $P1 = P2$



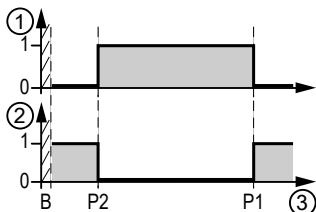
Analogue signal for window function



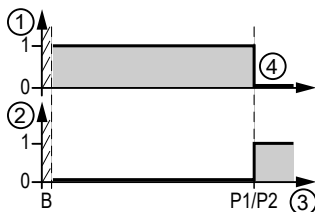
Analogue signal for hysteresis function



Switching signal for window function



Switching signal for hysteresis function



- 1: output response
- 2: inverted output signal
- 3: distance object
- 4: factory setting

- B: blind zone
- P: taught position
- T: teach button