

ifm electronic



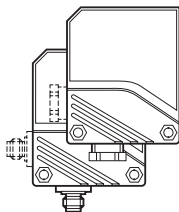
Operating instructions
Diffuse reflection sensor

efector200

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Function and features

The diffuse reflection sensor detects objects and materials without contact and indicates their presence by a switched signal.

Range (r): see type label (value referred to white paper 200 mm x 200 mm).

Electrical connection

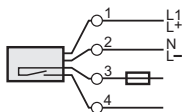


- Isolate power, then connect the unit.
- Connect the unit as follows:

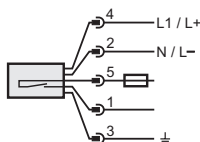
AC/DC Relais

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Sensor with terminals



Sensor with connector



Insert a miniature fuse according to the technical data sheet, if specified.

Core colours (for sensors with cable connection): BN = brown, BU = blue, BK = black, WH = white.

Programming of the output function by push button (see page 7).

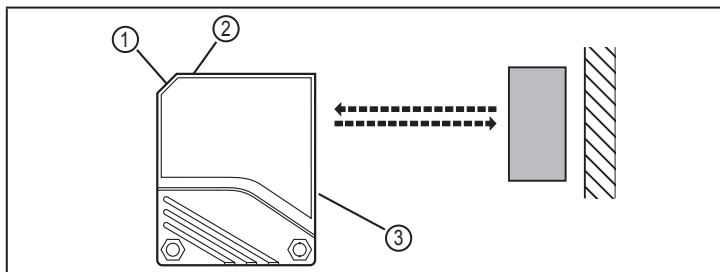
The units with cable gland have a removable terminal block with screw terminals (screws are at the base of the terminal block).

After connection of the wires the terminal block must be reinserted.



Check the unit for reliable function after a short circuit.

Montage



1: LEDs red, green, yellow

2: Pushbutton

3: LED yellow

Align the photocell and fasten it to a mounting bracket.


Maximum range is only possible with precise alignment.

Commissioning


The diffuse reflection sensor is supplied ready to operate (plug and play) set at the max. sensing range. This is sufficient if the diffuse reflection sensor can operate with maximum excess gain (highest contrast).


The following setting procedures should only be necessary in less straightforward applications, for example if a background must be „tuned out“.

Setting of the sensitivity with stationary objects

1	<p>► Activate the programming mode of the unit without object.</p>	
	<p>► Press for about 2 s until the red LED flashes.</p>	
	<p>> The red LED goes out; the yellow and green LEDs flash alternately. > The unit is in the programming mode.</p>	

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2	Setting with object.	
		
	<p>► Press once.</p> <p>> LEDs gelb und grün verlöschen für ca. 1 s, blinken dann wieder im Wechsel.</p>	

3	Setting without object.	
		
	<p>► Press once.</p> <p>> The yellow and green LEDs go out for approx. 1 s. > After approx. 3 s the green LED is on. > The unit is in the operating mode..</p>	


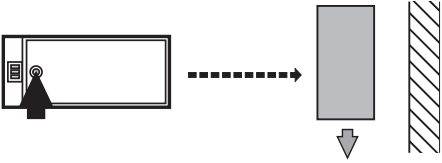
You can also proceed in reverse order: first setting without the object, then with the object.

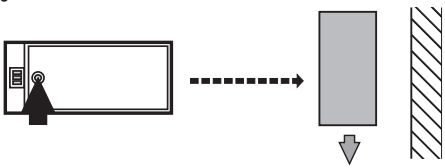


If the setting of the sensitivity is not possible (e.g. object signal and background signal are about the same), the red LED flashes after step 3 for approx. 2 s. The unit then passes into the operating mode with the sensitivity being unchanged.

If the setting button is not activated for 15 minutes during the programming process, the unit passes automatically into the operating mode with the sensitivity being unchanged.

Setting of the sensitivity with moving objects

1	<p>▶ Activate the programming mode of the unit without object.</p>  <p>▶ Press for about 2 s until the red LED flashes.</p> <ul style="list-style-type: none">> The red LED goes out; the yellow and green LEDs flash alternately.> The unit is in the programming mode.
2	<p>▶ During the measurement (approx. 1 s) allow at least two objects to move through the sensing area of the lens.</p>  <p>▶ Press once.</p> <ul style="list-style-type: none">> The yellow and green LEDs go out for approx. 1 s, then flash again alternately.

3	<p>► During the measurement (approx. 1 s) allow at least two objects to move through the sensing area of the lens.</p>  <p>► Press once.</p> <ul style="list-style-type: none"> > The yellow and green LEDs go out for approx. 1 s. > After approx. 3 s the green LED is on. > The unit is in the operating mode.
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If the setting of the sensitivity is not possible (e.g. object signal and background signal are about the same), the red LED flashes after step 3 for approx. 2 s. The unit then passes into the operating mode with the sensitivity being unchanged.

Setting of the maximum sensitivity

- Go into the programming mode (step 1).
- Align the unit so that no light is reflected.
- Press the setting button twice (see steps 2 and 3).

Programming the output function

 <p>► Press for 10 s.</p>	 <p>The red LED starts to flash fast after 2 s. Then the yellow and green LEDs flash alternately. After 8 s all LEDs go off, the output function has changed from light-on mode to dark-on mode (or vice versa).</p>
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Operation

Check the safe functioning of the sensor. Display by LEDs.

LED green lights	Unit is ready for operation.
LED yellow lights	Output is switched.
LED red lights	Error in object detection, e.g. maladjustment, soiling of the lenses.
LEDs yellow + red	Flash alternately, 2 Hz: output short-circuited. Flash alternately, 1 Hz: internal malfunction, (output is not switched).

Maintenance

Keep the lens of the sensor free from soiling.

For cleaning do not use any solvents or cleaning agents which could damage the plastic lenses.

