ifm electronic

$C\epsilon$

Operating instructions
Retro-reflective sensor

efector200
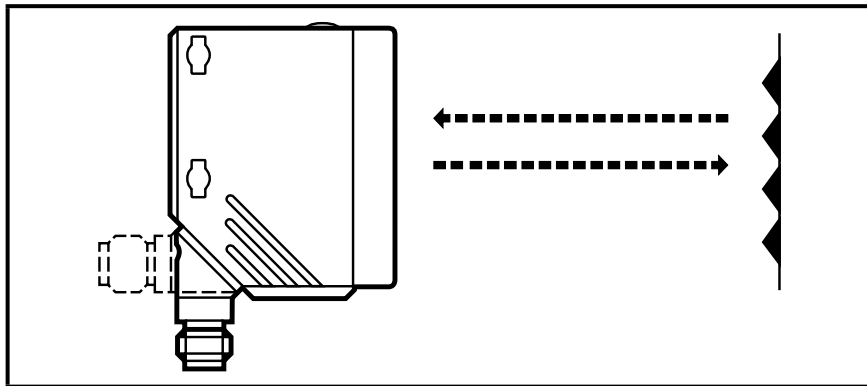
UK

O5PG
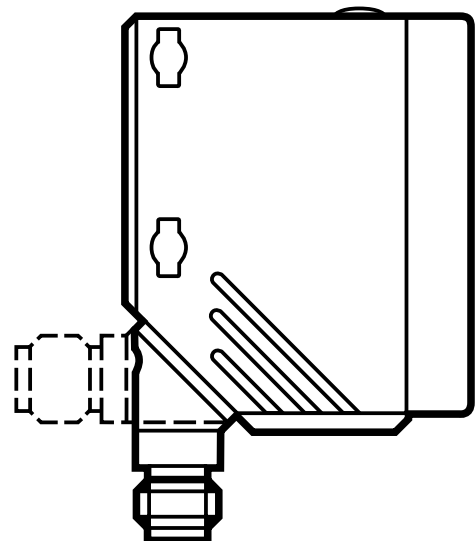
Contents

Functions and features

In conjunction with a prismatic reflector or reflective tape the retro-reflective sensor detects transparent objects and materials without contact and indicates their presence by a switched signal.

Range (r): see type label

(Value refers to prismatic reflector 50 x 50 mm, E20722).

Installation

Operating and display elements
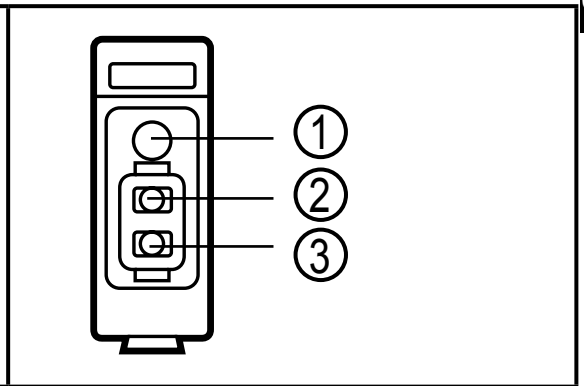
1: LEDs
2: OUTon pushbutton
3: OUToff pushbutton

Fit the prismatic reflector or the reflective tape behind the target object.

Align the retro-reflective sensor to the reflector or tape and fix it by means of a mounting fixture. When selecting the prismatic reflector ensure that the surface area is greater than the light spot.

Maximum range only with accurate alignment.

Optimum excess gain is reached if the excess gain graph on the ifm homepage is adhered to:

→ "Data sheet direct" > "Additional data"

Electrical connection

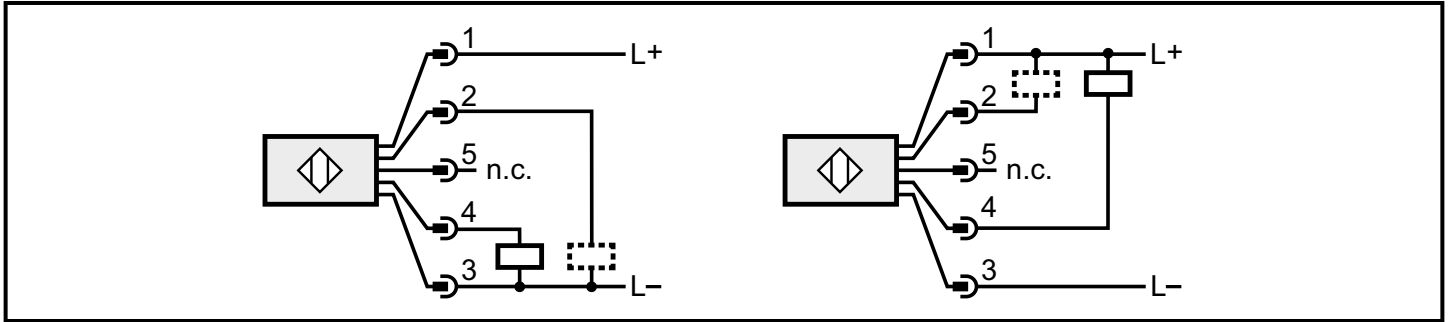⚠️ Disconnect the power supply. Connect the unit.

1: L+
2: function check output
3: L-
4: switching output
5: not connected

On power up, the unit recognises automatically if the switching output is connected to L- (= PNP) or to L+ (= NPN). The polarity of the function check output is set according to the polarity of the switching output.

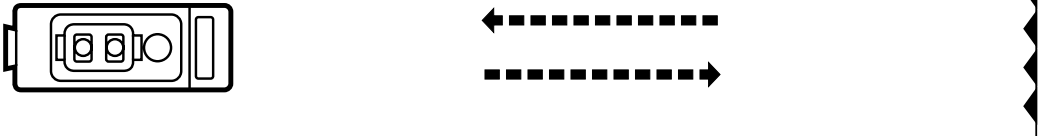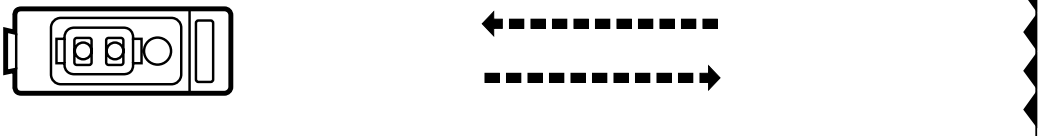Both outputs must be connected with the same polarity:

PNP or NPN!

Set-up

The retro-reflective sensor is set to min. sensitivity and must necessarily be set to the original application using one of the methods described below (1-point teach or 2-point teach). Otherwise the factory setting will not result in an output function.

Sensitivity setting (1-point teach)

Useful if the object is highly transparent or with thin film. However, excess gain is less than using the 2-point teach.

a) Output switched ON when object detected

1	► **Remove** object ► Press [OUToff] for 2 s. > Yellow LED flashes ► Release pushbutton > Sensitivity measurement carried out (1 s) > Yellow LED flash rate doubles
2	 ► Press and release [OUToff] > Sensitivity measurement carried out (1 s) > Yellow LED out. Programming complete.

Sensitivity setting unsuccessful:

> The yellow LED flashes fast, 8Hz. Cause:

• Signal from prismatic reflector unstable (e.g. in case of vibration)

• Max. setting time 15 min. exceeded

> Unit ignores setting attempt
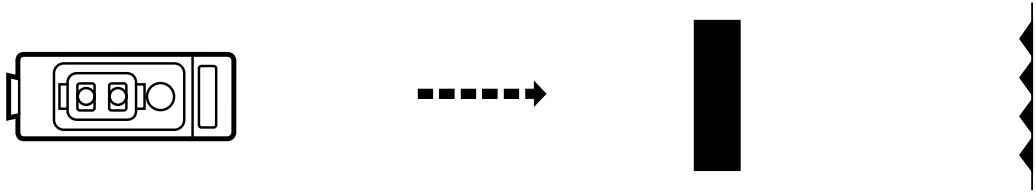
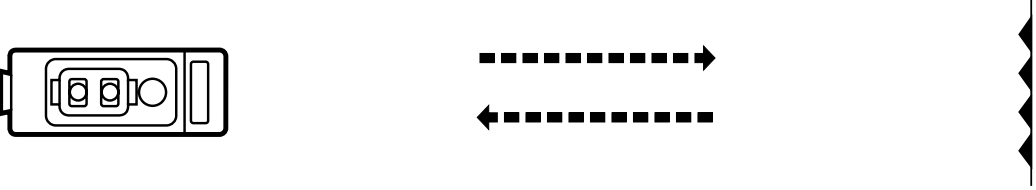## b) Output switched OFF when object detected

Proceed as above, but:

► Each time press [OUTon].

> Yellow LED on.

Sensitivity setting (2-point teach)

Useful when the object has high contrast as compared to the reflector or light and dark objects need to be differentiated. This results in a higher excess gain.

a) Output switched ON when object detected

1	► Position object ► Press [OUTon] for 2 s > Yellow LED flashes ► Release button > Sensitivity measurement carried out (1 s) > Yellow LED flash rate doubles
2	► Remove object ► Press and release [OUToff] > Sensitivity measurement carried out (1 s) > Yellow LED out. Programming complete.

Sensitivity setting unsuccessful:

> The yellow LED flashes fast, 8 Hz. Cause:

• Insufficient difference in measurements

• Max. setting time 15 min. exceeded

> Unit ignores setting attempt

b) Output switched OFF when object detected

Proceed as above, but:

► In step 1 press [OUToff].

► In step 2 press [OUTon].

> Yellow LED on.

Electronic lock

► To lock press [OUTon] and [OUToff] together for 10...20 s.

> Acknowledgement: LED status (yellow) inverted.

► To unlock repeat procedure.

Operation

Check whether the unit operates correctly. Display by LEDs.

Yellow LED on	OUT output is switched
Red LED on	Limit of the switch point compensation reached: e.g. unit out of alignment; lens / reflector dirty FC output switched
Yellow LED flashes	2 Hz: internal fault. 8 Hz: sensitivity setting incorrect. (OUT output is not switched).

Switch point compensation

Once the sensitivity setting has been carried out, the unit automatically compensates for switch point drift.

The red LED lights and the output FC "Function check output" switches as soon as the limit of the switch point compensation is reached. At this point the lens of the unit and the prismatic reflector need to be cleaned (→ Maintenance).

After cleaning new programming of the unit is carried out automatically. To do so, no object is allowed in the beam.

Maintenance

Keep the lens of the unit and the prismatic reflector free from contamination. For cleaning do not use any solvents or cleaning agents which could damage the plastic.