

ifm electronic

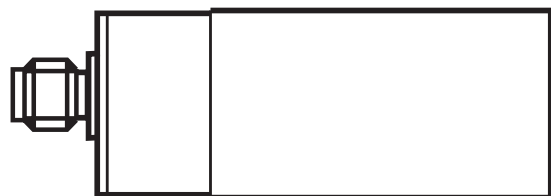


Operating instructions  
Capacitive sensors

**efectoriso**<sup>®</sup>

**UK**

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# Preliminary note

- An instruction is indicated by "▶":  
Example: ▶ Check whether the unit operates correctly.
- A reaction to the action is indicated by ">":  
Example: > Yellow LED lights.



Important note

Non-compliance can result in malfunctions or interference.



Information

Supplementary note.

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## 1 Safety instructions

- Please read the product description prior to set-up of the unit. Ensure that the product is suitable for your application without any restrictions.
- The unit conforms to the relevant regulations and EC directives.
- Improper or non-intended use may lead to malfunctions of the unit or to unwanted effects in your application.
- That is why installation, electrical connection, set-up, operation and maintenance of the unit must only be carried out by qualified personnel authorised by the machine operator.

## 2 Functions and features

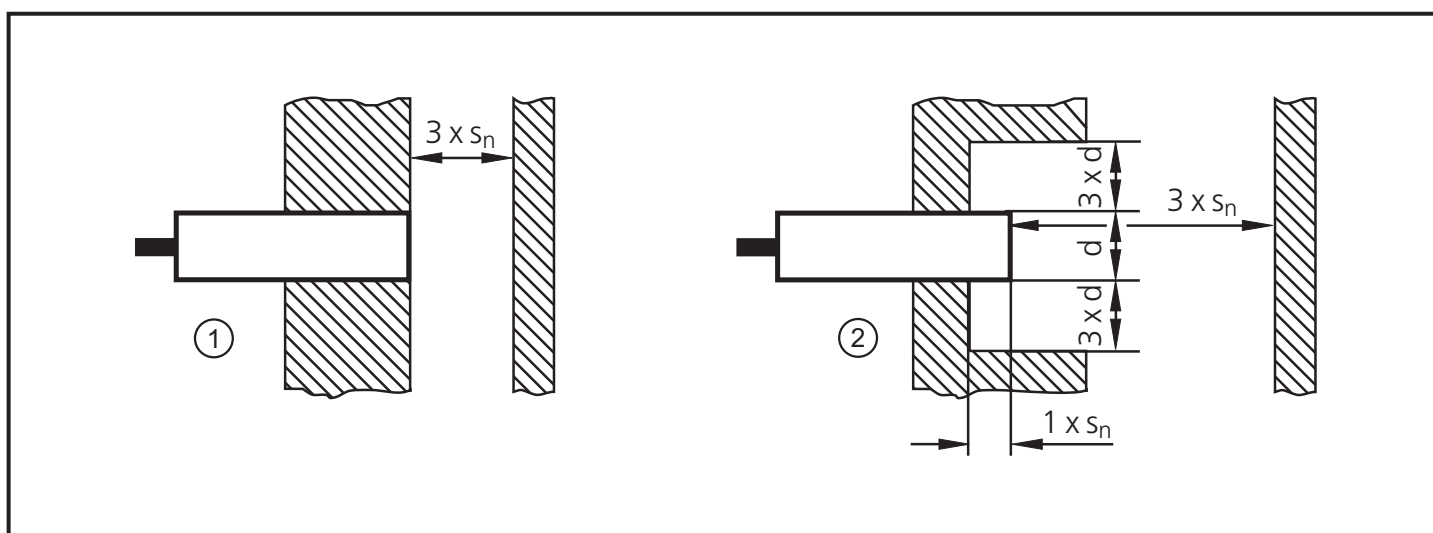
- The capacitive sensor detects without contact metals, almost all plastics, glass, ceramics, wood, paper, oils, greases, water and all hydrous materials and indicates their presence by providing a switched signal.

## 3 Installation

### 3.1 Notes on flush and non-flush installation

In case of flush installation of non-flush units the sensor properties change and the sensor can remain permanently switched (loss of function).

- Observe the free space around the sensing face.



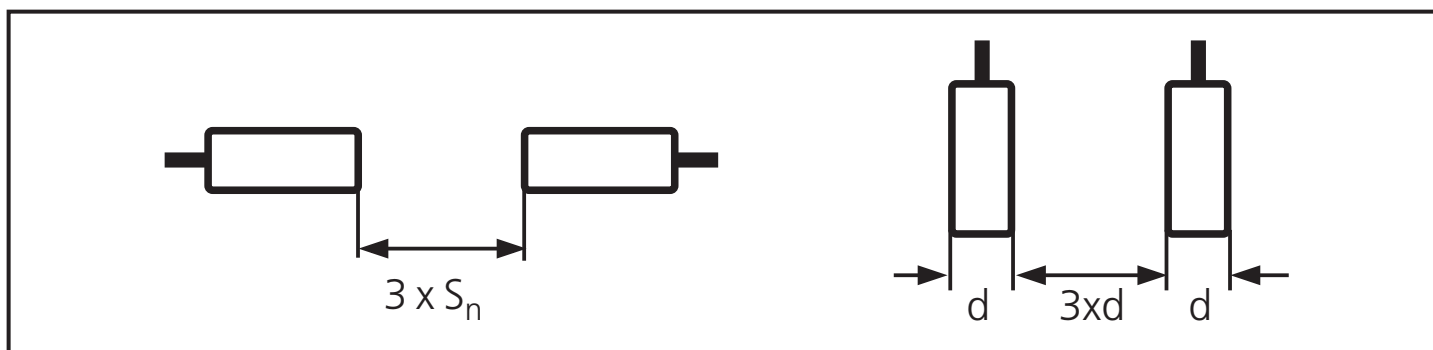
1: flush

2: non-flush

$S_n$ : nominal sensing range (see data sheet)

$d$ : unit diameter

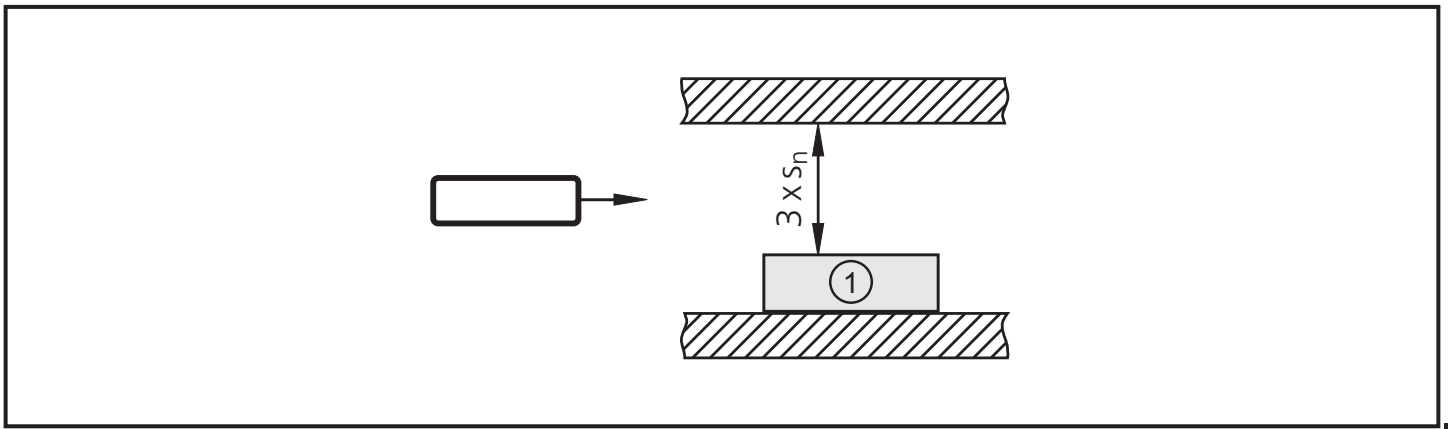
- Observe the minimum distances when installing several sensors of the same type.



$S_n$ : nominal sensing range (see data sheet)

$d$ : unit diameter

- Observe the minimum distance when installing the type KD



1: sensor type KD (only non-flush installation)

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The distances need to be determined by the user in his application.

## 4 Electrical connection



The unit must be connected by a qualified electrician. The national and international regulations for the installation of electrical equipment must be adhered to.

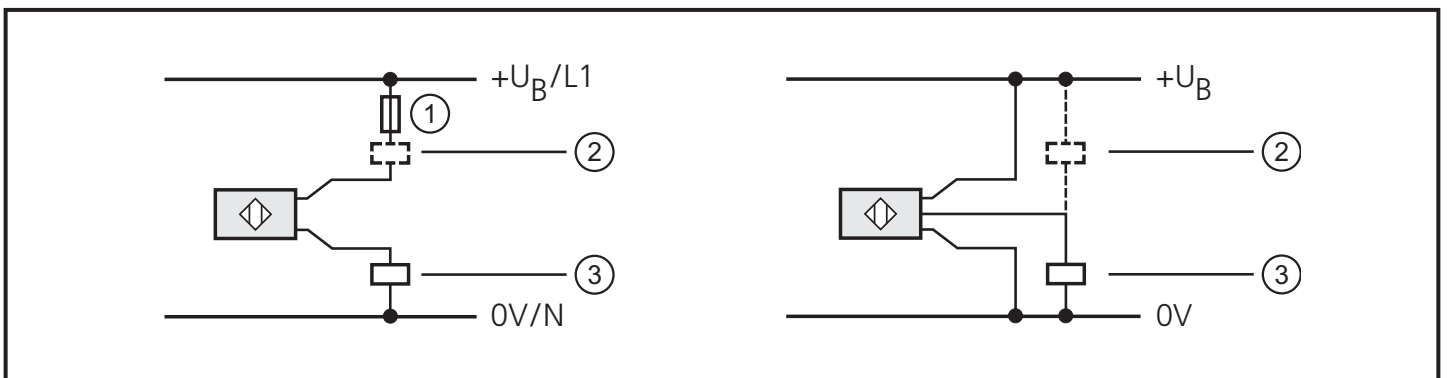
- Disconnect power.
- Connect the sensor according to the indications on the type label.

Note: use a miniature fuse according to the technical data sheet, if specified.  
Recommendation: check the safe functioning of the unit after a short circuit.

### 4.1 Wiring

2-wire technology

3-wire technology



- 1: miniature fuse (for AC units)
- 2: negative switching
- 3: positive switching

## 4.2 Programming

### 4.3 Type KI (with connector)

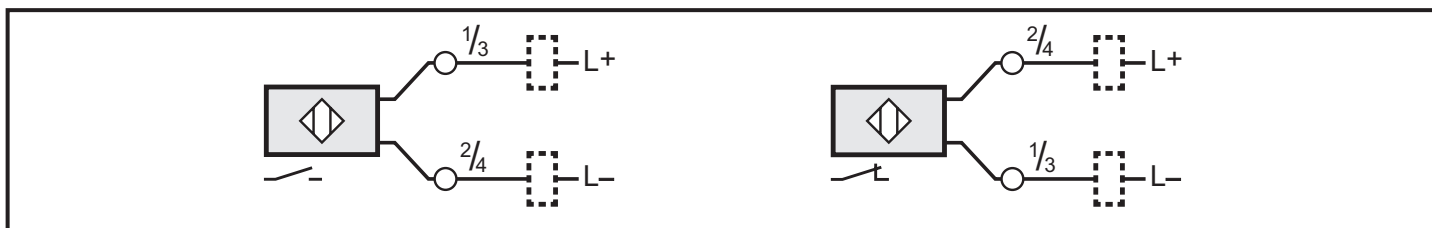
#### 4.3.1 Programming via the link in the connector



1: programmed as normally open (factory setting)

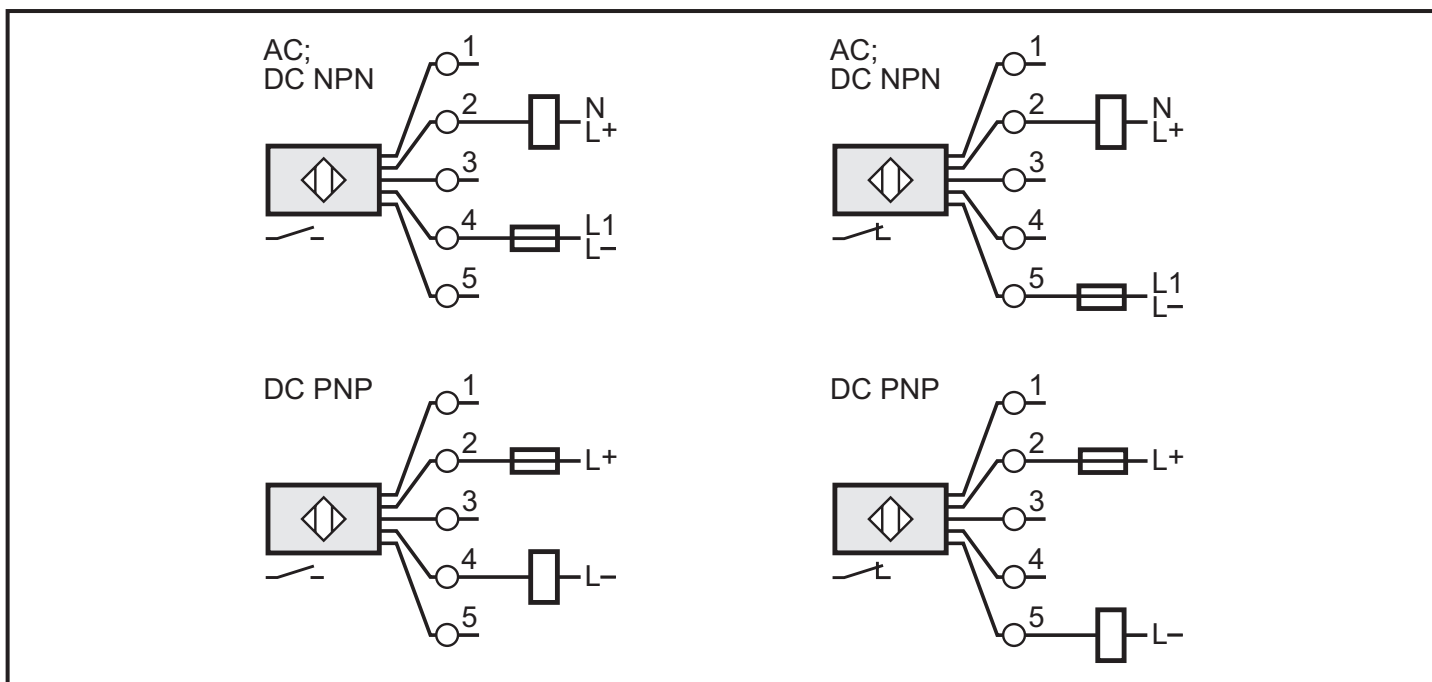
2: programmed as normally closed

#### 4.3.2 Programming via wiring (KGE - DC PNP/NPN)



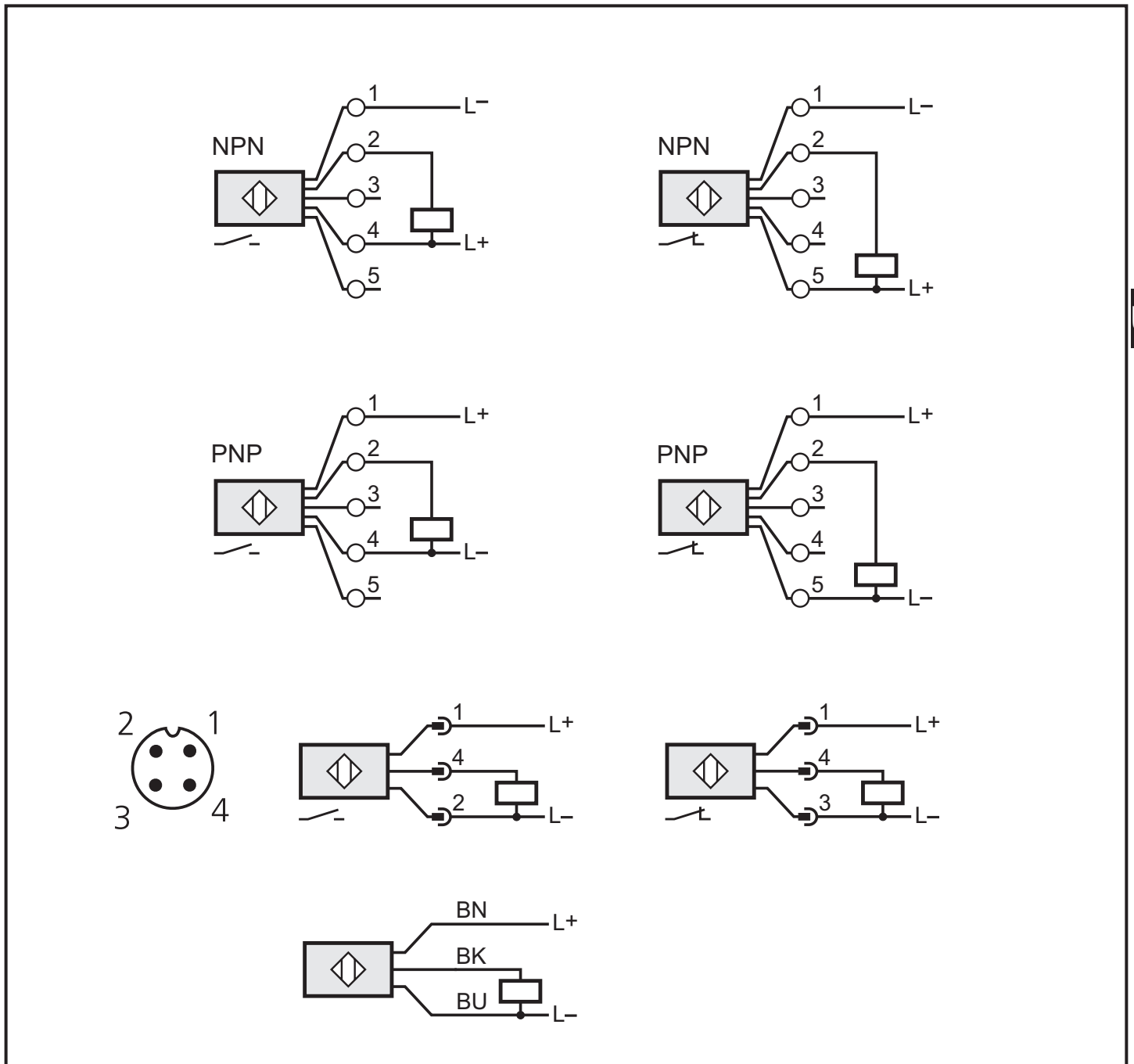
## 4.4 Type KDE - two-wire technology

### 4.4.1 Programming via wiring (KDE - AC/DC PNP/NPN)



## 4.5 Type KDE - three-wire technology

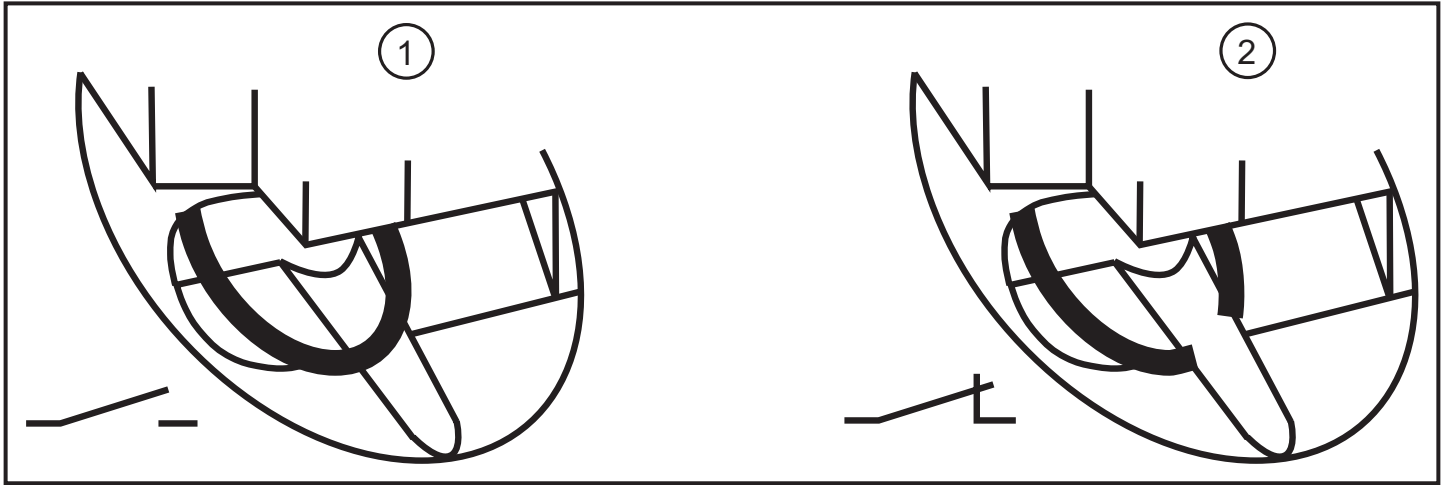
### 4.5.1 Programming via wiring (KDE - DC PNP/NPN)



Core colours of ifm sockets:  
BN (brown), BU (blue), BK (black).

## 4.6 Type KIE / KGE

### 4.6.1 Programming via the wire link



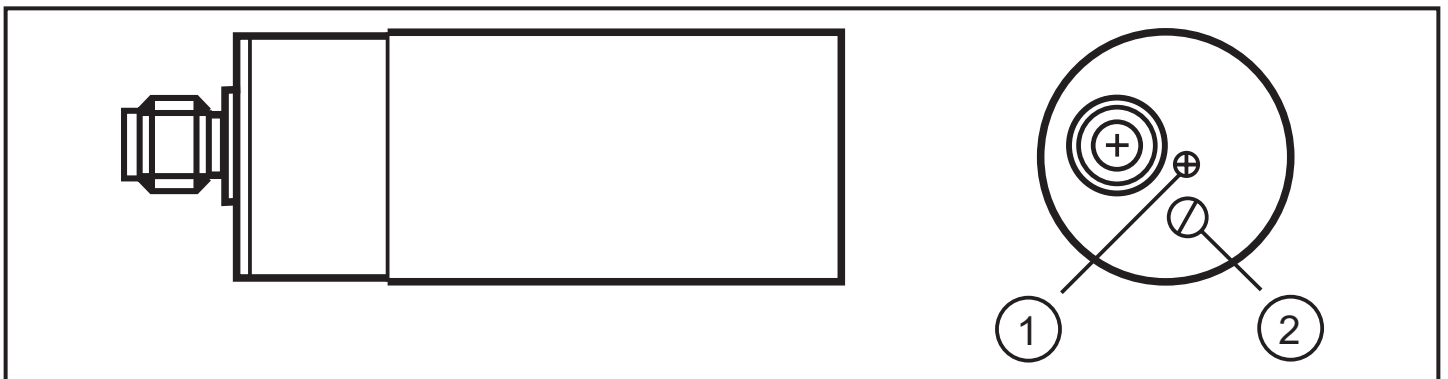
1: programmed as normally open (wire link closed, factory setting)

2: programmed as normally closed (wire link open)

► Use an appropriate tool to disconnect the wire link.

## 5 Operating and display elements

### 5.1 Example type KB



1: LED

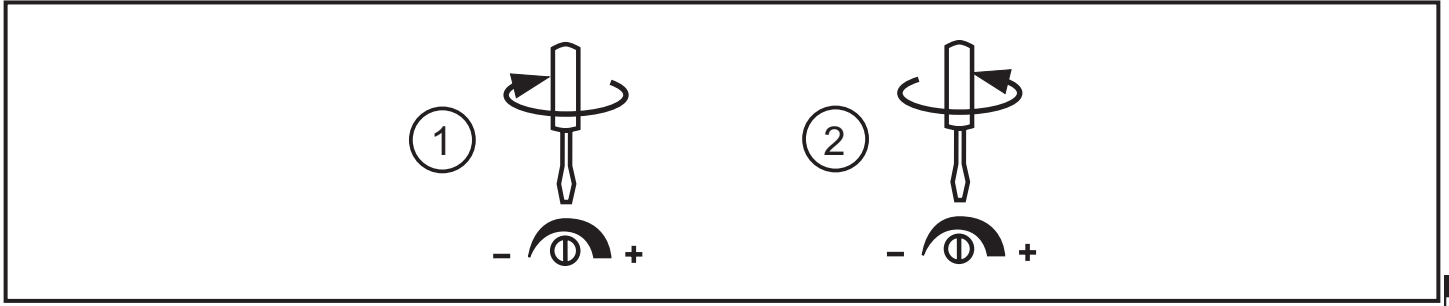
2: potentiometer



## 6 Settings

### 6.1 Sensing range

► Set the sensing range via the potentiometer using the enclosed screwdriver.



1: increase the sensing range

2: reduce the sensing range

## 7 Operation

Check whether the unit operates correctly. Bring about a sensor response by taking suitable measures.

Display by LEDs:

LED yellow out: switching output disabled

LED yellow on switching output enabled

## 8 Maintenance, repair, disposal

The operation of the unit is maintenance-free. To ensure a correct function:

- keep the sensing face and a clear space, if any, free from deposits and foreign bodies.

It is not possible to repair the unit.

After use dispose of the unit in an environmentally friendly way in accordance with the applicable national regulations.

## 9 Definitions

### Active zone

Area above the sensing face in which the sensor reacts to the approach of the target.

## **Output function**

Normally open: object within the active zone - output switched.

Normally closed: object within the active zone - output blocked.

Programmable: choice between normally closed or normally open.

Positive switching: positive output signal (to L-).

Negative switching: negative output signal (to L+).

## **Power-on delay time**

The time the sensor needs to be ready for operation after application of the operating voltage (in the millisecond range).

## **Hysteresis**

Difference between the switch-on and the switch-off point.

## **Leakage current**

Current for the internal supply of 2-wire units, also flows through the load when the output is blocked.

## **Current consumption**

Current for the internal supply of 3-wire DC units.

## **Switch point drift**

Shifting of the switch point owing to changes of the operating conditions (e.g. temperature, pressure, air humidity).

## **Short-circuit protection**

ifm sensors which are protected against excessive current by means of a pulsed short-circuit protection. The inrush current of incandescent lamps, electronic relays and low resistance loads may cause this protection to cut in and turn the sensor off!

## **Operating voltage**

The voltage range in which the sensor functions safely. A stabilised and smoothed direct voltage should be used! Take into account residual ripple!

Technical data and further information at  
[www.ifm.com](http://www.ifm.com) → Select your country → Data sheet direct: