



Operating instructions  
Flow monitor

**GB**

**SI0558**  
**SI0564**

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# 1 Preliminary note

You will find instructions, technical data, approvals and further information using the QR code on the unit / packaging or at [www.ifm.com](http://www.ifm.com).

## 1.1 Symbols used

- ✓ Requirement
- ▶ Instructions
- ▷ Reaction, result
- [...] Designation of keys, buttons or indications
- Cross-reference
-  Important note  
Non-compliance may result in malfunction or interference.
-  Information  
Supplementary note

## 1.2 Warnings used



### CAUTION

Warning of personal injury

- ▷ Slight reversible injuries may result.

## 2 Safety instructions

- The unit described is a subcomponent for integration into a system.
  - The system architect is responsible for the safety of the system.
  - The system architect undertakes to perform a risk assessment and to create documentation in accordance with legal and normative requirements to be provided to the operator and user of the system. This documentation must contain all necessary information and safety instructions for the operator, the user and, if applicable, for any service personnel authorised by the architect of the system.
- 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 (→ Intended use).
- Only use the product for permissible media.
- 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 against damage.

### 3 Intended use

The device monitors liquids and gases.

The device detects flow based on the calorimetric measuring principle and switches the output.

The switch point is adjustable.

The typical response time of the device is 1 ... 10 s. It can be influenced by the setting of the switch point:

- Low switch point = quick reaction with rising flow.
- High switch point = quick reaction with falling flow.

## 4 Installation



### CAUTION

During installation or in case of mechanical failure, high pressure or hot media can leak from the system.

- ▷ Risk of injury caused by pressure or burns.
- ▶ Ensure that the system is free of pressure during installation.
- ▶ Ensure that no media can leak at the mounting location during installation.

### 4.1 Installation position

#### 4.1.1 Immersion depth



Fig. 1: Immersion depth

- The sensor tip must be completely surrounded by the medium.
- Recommended immersion depths: minimum 12 mm.

#### 4.1.2 Recommended mounting position



Fig. 2: Recommended mounting position

- For horizontal pipes: mounting from the side.
- For vertical pipes: mounting in the rising pipe.

#### 4.1.3 Conditionally possible installation position

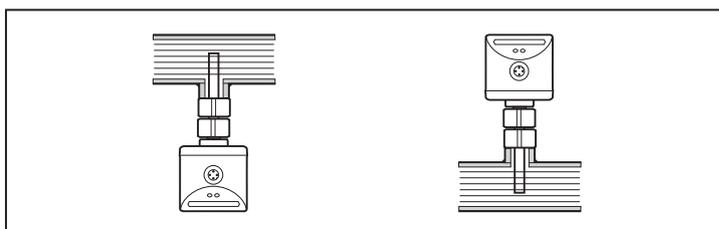


Fig. 3: Conditionally possible installation position

- For horizontal pipes, if the pipe is free from build-up: mounting from below.
- For horizontal pipes, if the pipe is completely filled with medium: mounting from the top.

### 4.1.4 Impermissible installation position

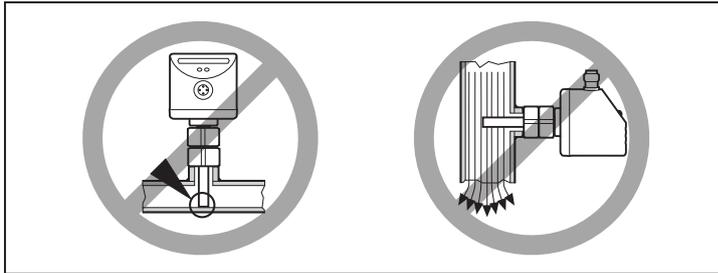


Fig. 4: Impermissible installation position

- The sensor tip must not be in contact with the pipe wall.
- Do not mount in downpipes that are open at the bottom.

## 4.2 Interference

Structures in the pipe, bends, valves, reducing pieces and the like affect the function of the unit.

► Adhere to the distances between sensor and interference.

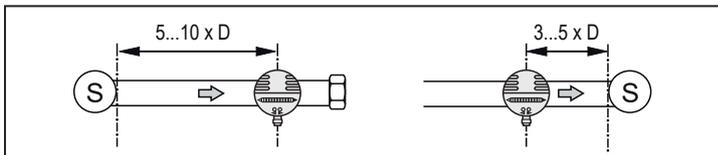


Fig. 5: Inlet and outlet pipe lengths

D: Outside diameter of the pipe  
S: Interference

## 4.3 Process connection

Using process adapters the unit can be adapted to different process connections.

A correct fit of the unit and ingress resistance of the connection are only ensured using ifm adapters.

For small flow rates, ifm adapter blocks are available.



The device is supplied without accessories.

Information about available accessories at [documentation.ifm.com](https://documentation.ifm.com).

The optimum function is not ensured when using components from other manufacturers.

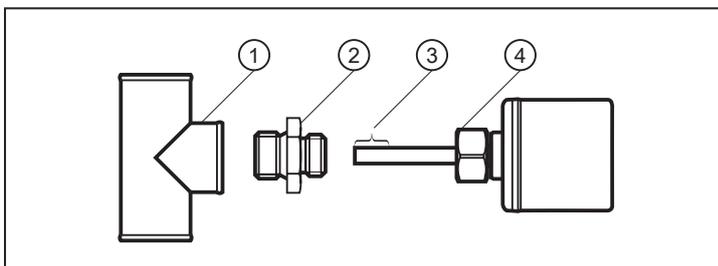


Fig. 6: Connect the device to the process using the adapter

1: Process connection  
2: Adapter  
3: Sensor tip  
4: Coupling nut

► Grease the threads of the process connection, adapter and sensor. Use a lubricating paste which is suitable and approved for the application.



Ensure no grease is applied to the sensor tip.

► Screw the suitable adapter into the process connection.

- ▶ Place the flow monitor onto the adapter and tighten the nut. Tightening torque 25 Nm. Ensure that the unit is correctly oriented.

## 5 Electrical connection



The unit must be connected by a qualified electrician.

- ▶ Observe the national and international regulations for the installation of electrical equipment.
- ▶ For the output circuit take the same protective measures as for the supply circuit.
- ▶ Insert a miniature fuse according to IEC 60127-2 Sheet 1 ( $\leq 5$  A fast acting).
- ▶ Disconnect power.
- ▶ Connect the unit as follows:

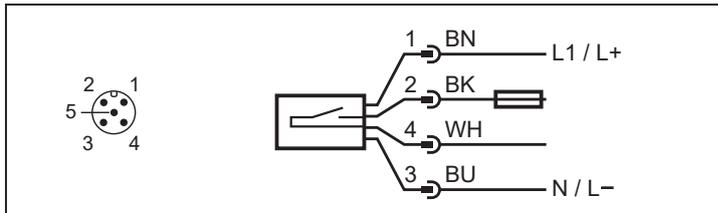


Fig. 7: Wiring diagram (colours to DIN EN 60947-5-2)

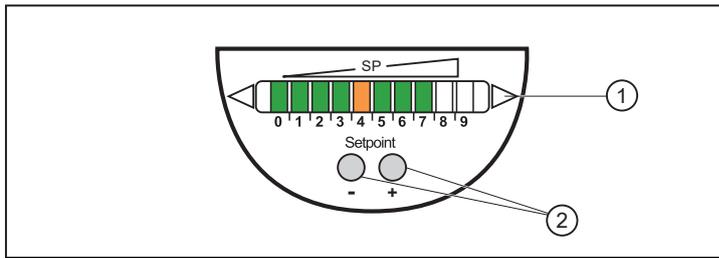
BK: Black  
Cap-  
tion: Blue

BN: Brown  
WH: White



- ▶ Do not connect pin 5.

## 6 Operating and display elements



1:	<p>Operation indication</p> <ul style="list-style-type: none"> <li>• The LEDs 0...9 represent the range of the monitored flow.</li> <li>• The green LEDs show the current flow.</li> <li>• An illuminated LED shows the position of the switching point: <ul style="list-style-type: none"> <li>– Orange = output closed</li> <li>– Red = output open</li> </ul> </li> </ul>
2:	Setting buttons for adjustment and configuration

## 7 Set-up

- ▶ Switch on the supply voltage.
  - ▷ All LEDs light and go out again step by step. During this time the output is closed.
  - ▷ The device is in the operating mode.

## 8 Settings

The switch point is preset → Technical data at [www.documentation.ifm.com](http://www.documentation.ifm.com).

The preset switch point can be changed.

### 8.1 Switch point setting

Changing the preset switch point is useful in the following cases:

- The flow fluctuates strongly or pulsates.
- A faster response time of the device is required.
  - Low switch point = quick reaction with rising flow.
  - High switch point = quick reaction with falling flow.
- ▶ Briefly press [—] or [+].
  - ▷ All LEDs are off.
- ▶ Press [—] or [+] as often as required.
  - ▷ Each press of the pushbutton shifts the flow by one half LED in the indicated direction.
  - ▷ As soon as a button is pressed, the LEDs are switched on. The LEDs of the current process value are flashing.
- ▶ When the required switch point is reached, do not press the button for more than 2 seconds.
  - ▷ The device goes into operating mode with the newly set value.

### 8.2 Teaching the switch point

The switch point can be set to the current flow value (flow adjustment).

- ▶ Let the required flow to pass through the installation.
- ▶ Press the [—] button for at least 15 seconds.
  - ▷ LED 0 and LED 9 first light up green, then flash green.
- ▶ Release the [—] button.
  - ▷ The unit adopts the new value and returns to the operating mode.
- ▷ All LEDs left of the switch point light green.
- ▷ The switch point LED lights up red.

### 8.3 Restoring factory settings (reset)

- ▶ Press the [+] button for at least 15 seconds.
  - ▷ All LEDs first light up orange, then flash orange.
- ▶ Release the button.
  - ▷ All settings are reset to the factory setting:
  - ▷ All LEDs go off for 2 seconds.

### 8.4 Lock / unlock

The unit can be locked electronically to prevent unauthorised setting.

Factory setting: not locked.

- ▶ Press both setting keys for 10 seconds.
  - ▷ The display goes off.
  - ▷ The unit is locked.
- ▶ For unlocking repeat the process.

## 9 Operation

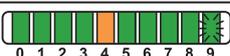
After power on, the unit is ready for operation.

The device detects the flow and switches the output according to the setting.

- Output closed (LED = yellow) if flow  $\geq$  switch point.
- Output open (LED = red), if volumetric flow quantity  $<$  switch point.



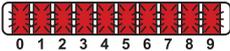
In case of power failure or interruption of the operating voltage, all settings remain.

Operating indicators	Explanation
	Current flow below the display range.
	Current flow below the switch point.
	Current flow corresponds to the switch point.
	Current flow above the switch point.
	current flow above the display range.



LED flashes

## 10 Troubleshooting

Indication	Description	Corrective measures
 <p>The display goes OFF briefly (LEDs go off when a button is pressed)</p>	<p>The sensor is permanently locked. After approx. 0.6 seconds, the last operating status is indicated.</p>	<p>► Unlock unit. See Lock / unlock (→ □ 12)</p>
 <p>Display OFF (no LED on)</p>	<p>Operating voltage too low (&lt; 19 V) or failed.</p>	<p>► Ensure correct voltage supply.</p>
	<p>Automatic adjustment not successful. The switch point is outside the measuring range.</p>	<p>► Check flow and installation, repeat adjustment if necessary. See Teaching the switch point (→ □ 12).</p>

## 11 Maintenance, repair and disposal

Only the manufacturer is allowed to repair the unit.

- ▶ Ensure that the sensor tip is free from build-up:
  - Check the sensor tip for build-up one month after set-up.
  - Repeat check regularly. Determine check intervals based on the application.
  - In case of soiling clean the sensor tip with a soft cloth. Stubborn build-up, such as lime, can be removed using a common vinegar cleaning agent.
- ▶ After use dispose of the device in an environmentally friendly way in accordance with the applicable national regulations.