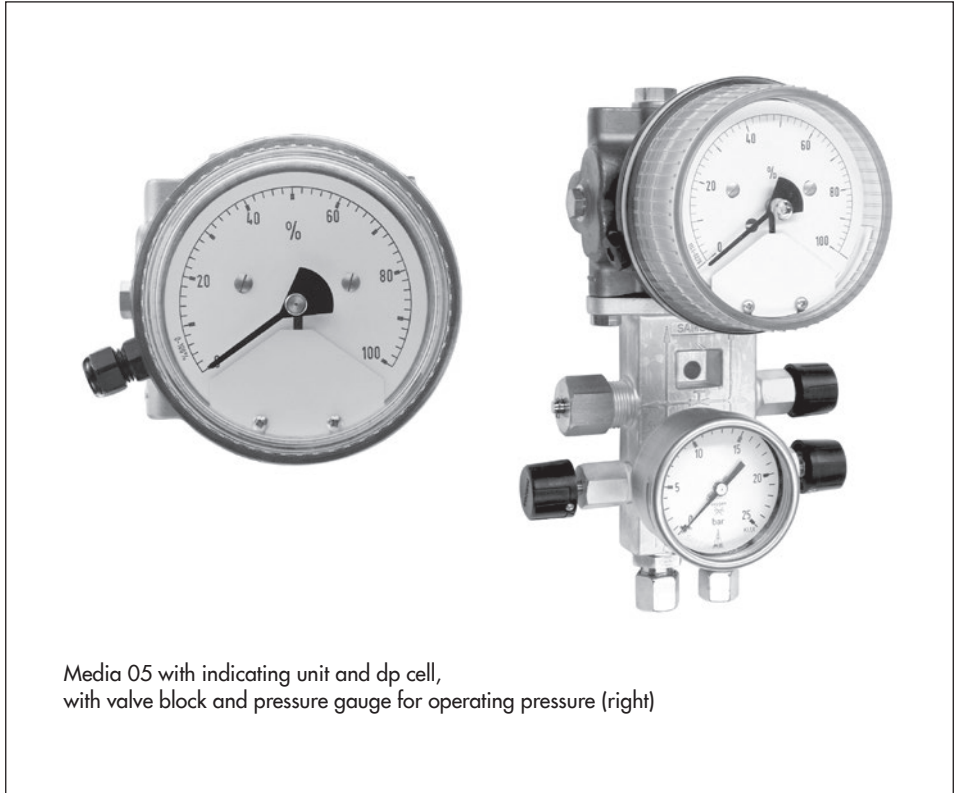


# MOUNTING AND OPERATING INSTRUCTIONS



## EB 9520 EN

### Translation of original instructions



Media 05 with indicating unit and dp cell,  
with valve block and pressure gauge for operating pressure (right)

## Media 05 Differential Pressure and Flow Meter

## Note on these mounting and operating instructions

These mounting and operating instructions assist you in mounting and operating the device safely. The instructions are binding for handling SAMSON devices.

- For the safe and proper use of these instructions, read them carefully and keep them for later reference.
- If you have any questions about these instructions, contact SAMSON's After-sales Service Department (aftersaleservice@samson.de).



The mounting and operating instructions for the devices are included in the scope of delivery. The latest documentation is available on our website at [www.samson.de](http://www.samson.de) > **Service & Support** > **Downloads** > **Documentation**.

## Definition of signal words

### **DANGER**

*Hazardous situations which, if not avoided, will result in death or serious injury*

### **WARNING**

*Hazardous situations which, if not avoided, could result in death or serious injury*

### **NOTICE**

*Property damage message or malfunction*

### **Note**

*Additional information*

### **Tip**

*Recommended action*

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# 1 Safety instructions and measures

## Intended use

The Media 05 Differential Pressure and Flow Meter is used to measure and indicate the differential pressure or derived measuring variables for gases and liquids. Typical applications include liquid level measurement on pressure vessels, differential pressure measurement between flow and return flow pipes, pressure drop measurement on valves and filters as well as flow rate measurement according to the differential pressure method.

The device is designed to operate under exactly defined conditions (e.g. operating pressure, process medium, temperature). Therefore, operators must ensure that the device is only used in operating conditions that meet the specifications used for sizing the device at the ordering stage.

In case operators intend to use the device in other applications or conditions than specified, contact SAMSON.

SAMSON does not assume any liability for damage resulting from the failure to use the device for its intended purpose or for damage caused by external forces or any other external factors.

➔ Refer to the technical data for limits and fields of application as well as possible uses.

The Media 05 Differential Pressure and Flow Meter without limit contacts may be used to measure flammable gases and liquids in which hazardous area conditions of Zone 0 are to be expected, provided the operator observes the applicable regulations for measuring flammable gases and liquids in Zone 0. This means that measuring instrument suited for the connection to Zone 0 can be installed provided:

1. The pipes connecting the instruments have been sized and installed according to the German Technical Regulations for Flammable Liquids TRbF 50 or
2. Flame arresters or endurance burning flame arresters have been installed in the two measuring lines.

Whether you have to install flame arresters or endurance burning flame arresters depends on the conditions on site. However, endurance burning flame arresters are preferably to be installed. You are required to contact the appropriate regulatory authority to agree on the necessary measures.

The operator is responsible for meeting the above specified requirements specified (1 and 2). SAMSON does not assume any responsibility if the operator fails to do so.

### Notes concerning oxygen service

Devices intended to measure gaseous oxygen are labeled

#### Oxygen! Keep free of oil and grease!



These versions are cleaned and assembled under special conditions. When replacing parts that come into contact with gaseous oxygen, e.g. range springs, wear suitable gloves and make sure that the parts do not come into contact with oil or grease.

When returning devices for oxygen service for repair, the sender assumes full responsibility that the devices are handled to meet all requirements stipulated by VBG 62 or similar regulations until they are handed over to the manufacturer. Otherwise, SAMSON does not accept any responsibility.

### Reasonably foreseeable misuse

The Media O5 Differential Pressure and Flow Meter is **not** suitable for the following applications:

- Use outside the limits defined during sizing and by the technical data

Furthermore, the following activities do not comply with the intended use:

- Use of non-original spare parts
- Performing maintenance activities not specified by SAMSON

### Qualifications of operating personnel

The device must be mounted, started up and serviced by fully trained and qualified personnel only; the accepted industry codes and practices are to be observed. According to these mounting and operating instructions, trained personnel refers to individuals who are able to judge the work they are assigned to and recognize possible hazards due to their specialized training, their knowledge and experience as well as their knowledge of the applicable standards.

### Personal protective equipment

We recommend wearing the following protective equipment depending on the process medium:

- Protective clothing, gloves, eye protection and respiratory protection in applications with hot, cold and/or corrosive media
- Check with the plant operator for details on further protective equipment.

## **Safety instructions and measures**

### **Revisions and other modifications**

Revisions, conversions or other modifications of the product are not authorized by SAMSON. They are performed at the user's own risk and may lead to safety hazards, for example. Furthermore, the product may no longer meet the requirements for its intended use. Use of the device is no longer permitted.

### **Warning against residual hazards**

To avoid personal injury or property damage, operators and operating personnel must prevent hazards that could be caused in the device by the process medium and operating pressure by taking appropriate precautions. They must observe all hazard statements, warning and caution notes in these mounting and operating instructions, especially for installation, start-up and service work.

### **Responsibilities of the operator**

The operator is responsible for proper operation and compliance with the safety regulations. Operators are obliged to provide these mounting and operating instructions to the operating personnel and to instruct them in proper operation. Furthermore, the operator must ensure that operating personnel or third persons are not exposed to any danger.

### **Responsibilities of operating personnel**

Operating personnel must read and understand these mounting and operating instructions as well as the specified hazard statements, warning and caution notes. Furthermore, the operating personnel must be familiar with the applicable health, safety and accident prevention regulations and comply with them.

### **Referenced standards and regulations**

Devices with a CE marking fulfill the requirements of the Directive 2014/30/EU. The EU declaration of conformity is included at the end of these instructions.

### **Referenced documentation**

The following documents apply in addition to these mounting and operating instructions:

- Mounting and operating instructions for mounted pipeline valves (strainers, shut-off valves etc.)

## 1.1 Notes on possible property damage

### ! NOTICE

#### Notes concerning oxygen service

- Devices intended to measure gaseous oxygen are labeled  
**Oxygen! Keep free of oil and grease!**



These versions are cleaned and assembled under special conditions. When replacing parts that come into contact with gaseous oxygen, e.g. range springs, wear suitable gloves and make sure that the parts do not come into contact with oil or grease.

- Make sure that the dp cell and all SAMSON accessories only come into contact with gaseous oxygen.
- When returning devices for oxygen service for repair, the sender assumes full responsibility that the devices are handled to meet all requirements stipulated by VBG 62 or similar regulations until they are handed over to the manufacturer. Otherwise, SAMSON does not accept any responsibility.

#### **Risk of damage to the differential pressure and flow meter due to impermissible negative pressure (vacuum) in the measuring chambers.**

A negative pressure in the measuring chambers is not permissible during operation.

- The following applies: **operating pressure  $\geq$  atmospheric pressure.**

A vacuum in both measuring chambers for a brief period of time, e.g. to clean tanks, is permissible.

#### **Incorrect operation in cryogenic applications will damage the differential pressure and flow meter and will lead to malfunction.**

In cryogenic applications, the process medium circulates during measurement when the equalizing valve is opened, causing the valve block to ice up.

- During measurement, the equalizing valve must be closed and the shut-off valves open.

### 2 Design and principle of operation

The Media 05 Differential Pressure and Flow Meter is used to measure and indicate the differential pressure or derived measuring variables for gases and liquids. Typical application include liquid level measurement on pressure vessels, differential pressure measurement between flow and return flow pipes, pressure drop measurement on valves and filters as well as flow rate measurement according to the differential pressure method.

The device comprises a differential pressure cell including a measuring diaphragm and range springs as well as an indicating unit including a pointer mechanism and dial plate.

The differential pressure  $\Delta p = p_1 - p_2$  produced at the orifice plate creates a force at the measuring diaphragm (1.5), which is opposed by the range springs (1.4).

The movement of the measuring diaphragm and lever (1.8), which is proportional to the differential pressure, is routed from the pressure chamber by a flexible disk (1.9) and transmitted to the pointer mechanism (2.2).

The differential pressure is shown linear on the dial and the flow rate is shown as a square root graduation.

#### Version with limit contacts

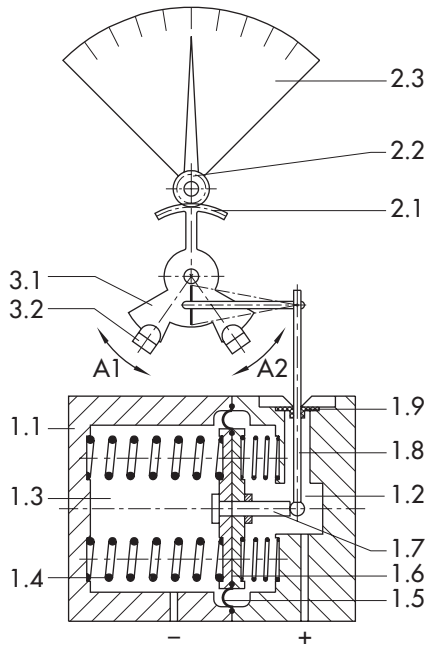
The gear segment (2.1) supports the metal tags (3.1) and activates the alarm contacts by moving the metal tags into the adjustable proximity switches (3.2).

When the metal tag enters the inductive field of the associated proximity switch, it assumes a high resistance (contact open).

When the metal tag leaves the inductive field, it assumes a low resistance (contact closed).

The switching function is triggered when the metal tag leaves or enters the proximity switches (depending on the setting of the contacts).





**Differential pressure cell**

- 1.1 dp cell
- 1.2 High-pressure chamber
- 1.3 Low-pressure chamber
- 1.4 Range springs
- 1.5 Measuring diaphragm
- 1.6 Diaphragm plates
- 1.7 Diaphragm stem
- 1.8 Lever
- 1.9 Flexible disk

**Housing of indicating unit**

- 2.1 Gear segment
- 2.2 Pointer mechanism
- 2.3 Dial plate

**Limit contact (alarm contact)**

- 3.1 Metal tag
- 3.2 Proximity switches for alarm contacts A1 and A2

Fig. 1: Functional diagram: version with two alarm contacts

## 2.1 Technical data

### **i** Note

All pressure in bar (gauge); all errors and deviations are specified in % of the adjusted measuring span.

Media 05 Differential Pressure and Flow Meter											
Nominal range	mbar	0 to 60	0 to 100	0 to 160	0 to 250	0 to 400	0 to 600	0 to 1000	0 to 1600	0 to 2500	0 to 3600
Adjustable measuring span (mbar)	Max.	40 to 66	60 to 110	100 to 176	160 to 275	250 to 440	400 to 660	600 to 1100	1000 to 1760	1600 to 2750	2500 to 3960
	Min.										
Accuracy class in %		±4 ±2.5									
Pressure rating		PN 50, overloadable on one side up to 50 bar									
Indicator		250° scale, approx. 162 mm scale length, 0 to 100 % linear or square root scale division for any linear measured variable, for measured variables based on equations, curve or table									
Characteristic		Characteristic linear to differential pressure, scale linear to tank content									
Deviation from terminal-based linearity		<±2.5 % <sup>1)</sup> (including hysteresis)									
Sensitivity		<0.25 % (with 0 to 60 mbar nominal range: <0.5 %)									
Effect of static pressure		<0.03 %/1 bar <0.5 %									
Limit contacts		Two inductive alarm contacts A1 and A2 acc. to EN 60947-5-6									
Control circuit		Values corresponding to connected isolating switch amplifier e.g. KFA6-SR2-Ex2.W									
Proximity switch		SJ2-SN, for hazardous areas according to PTB 00 ATEX 2049 X									
Switching accuracy		<±2 %									
Dead band, approx.		<0.6 %									
Perm. ambient temperature		-40 to +80 °C; for oxygen -40 to +60 °C									
Perm. storage temperature		-40 to +100 °C									
When used with gaseous oxygen as the process medium		Max. temperature: +60 °C · Max. oxygen pressure: 30 bar									

Degree of protection	IP 54 according to VDE 0470-1/EN 60529
Weight, approx.	2.6 kg without valve block · 4.6 kg with valve block
<b>Materials</b>	
Version	Standard version
Housing	Brass (CW617N) or CrNi steel
Measuring diaphragm and seals	ECO <sup>2)</sup>
Springs, diaphragm plates, functional parts, lever	CrNi steel
Housing of indicating unit	Polycarbonate

<sup>1)</sup> Based on upper measuring range value

<sup>2)</sup> Other on request

### 3 Installation

#### 3.1 Arrangement of instruments for liquid level measurement

In arrangements as illustrated in the second schematic drawing, the additional height  $z$  is included in the measurement. As a result, this height must be as low as possible.

The dimension  $K$  (compensation height, see Fig. 2) can be as large as required by the conditions in the plant.

#### 3.2 Arrangement of devices for flow rate measurement

The decision whether the meter is to be mounted above or below the measuring point or whether compensation chambers are required depends on the process medium and the specific conditions in the plant.

The installation drawing shows standard and reverse installation. Standard installation is preferable in any case.

Reverse installation can only be used when there is no other possibility, particularly for steam measurements.

Refer to VDE/VDI 3512 Sheet 1 for details.

#### 3.3 Media 05 indicating unit

Make sure that the high-pressure line is connected to the high-pressure connection and the low-pressure line to the low-pressure connection.

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#### **i** Note

*Special screw fittings are required to connect the differential pressure lines. Depending on the device arrangement, seal any connections left unused with stoppers or vent plugs (see section 4.4).*

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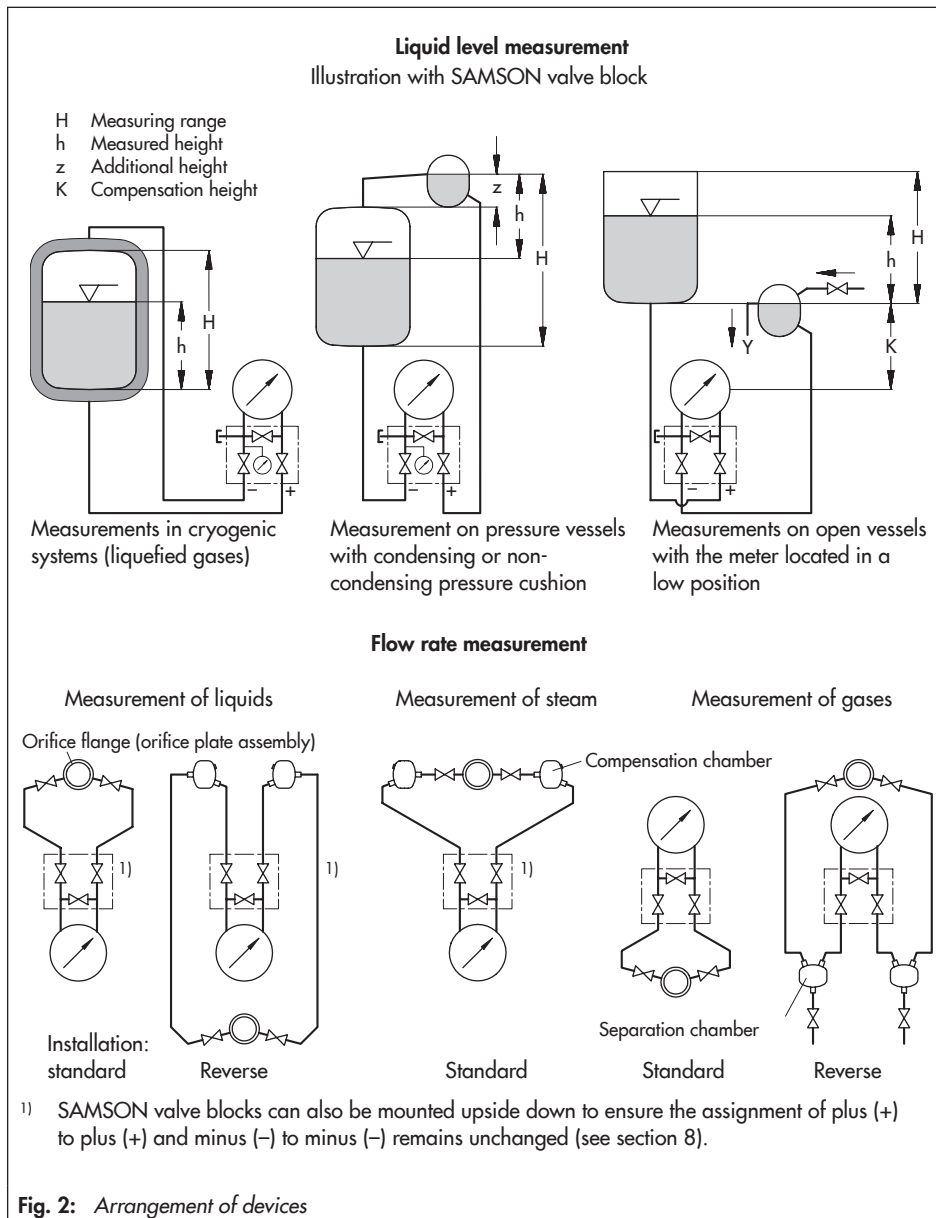
Carefully clean the connections before attaching the differential pressure lines.

Do not rinse the device with compressed air or pressurized water.

Mount the device to a pipe, wall or mounting plate free of vibration.

Use mounting part with clamp for pipe mounting to attach it to a vertical or horizontal pipe. Use a mounting part without clamp for wall mounting.

A mounting bracket is required for panel mounting (see section 8).



### 3.4 Differential pressure lines

- Install the differential pressure lines (pipes with 12 mm outside diameter) as shown in Fig. 2.
- Observe the proper sequence.
- Use appropriate screw fittings to ensure that the lines do not leak.
- Install line sections, which would usually run horizontally, with a constant downward slope of at least 1:20, starting the slope either at the orifice plate or at the point where venting is possible.
- Do not use a smaller bending radius than 50 mm.
- Thoroughly flush the differential pressure lines before connecting them to the device.

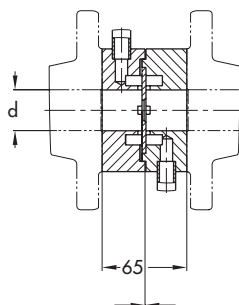
### 3.5 Orifice flange (orifice plate assembly)

- The direction of flow must correspond to the arrow on the orifice plate.
- Unobstructed pipe sections are required upstream and downstream of the orifice plate assembly. For the orifice tubes delivered by SAMSON, these sections are ensured by the weld-on calibration pipes. For orifice flanges, the unobstructed pipe section upstream of the orifice plate is specified in the order confirmation.
- Make sure the orifice plate assembly as well as the gaskets are properly aligned with the pipeline.

- Do not install any control valves that constantly change the operating state of the process medium (e.g. manually operated control valves or temperature regulators) upstream of the orifice plate assembly.

The operating state must match the conditions calculated during sizing as closely as possible. It is, however, favorable to install equipment that keep the operating state constant (e.g. pressure regulators) upstream of the assembly.

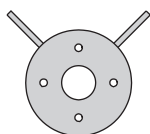
Type 90 Orifice Flange



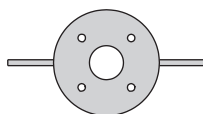
Inlet	20 to 50 x d
Outlet	5 x d

Location of the differential pressure lines on the orifice plate assembly

For gas



For steam



For liquids

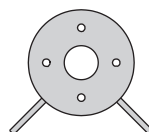


Fig. 3: Orifice flange (orifice plate assembly)

### 4 Accessories

We recommend installing a shut-off valve in the differential pressure lines as well as an equalizing valve. They can be used to shut off both differential pressure lines and to bypass the indicating unit when checking zero.

#### 4.1 Valve block

A valve block comprising three valves (see Fig. 4) is available as SAMSON accessories. It is attached directly to the bottom of the dp cell.

When measuring the flow rate of liquids and gases, the SAMSON valve block can also be mounted upside down to ensure the assignment of plus (+) to plus (+) and minus (-) to minus (-) remains unchanged. Due to this reverse installation, however, the pressure gauge connection cannot be used anymore and must be sealed with an O-ring and a G ½ - LH screw cap (see Dimensions, section 8).

#### 4.2 Shut-off and equalizing valves

As an alternative to the SAMSON valve block, the two shut-off valves as well as the bypass valve/equalizing valve can also be installed as illustrated in Fig. 5.

#### 4.3 Compensation chambers

Compensation chambers that establish a constant liquid column are required when measuring steam. When measuring liquids, they are only required when the indicating unit is mounted above the measuring point.

For gas measurements, separation chambers are required for condensate separation when the indicating unit is installed below the measuring point.

#### 4.4 Accessories for connection

The devices are delivered without screw fittings (oxygen versions are protected against contamination by four NBR blanking plugs).

Required screw fittings, screw plugs or vent screws as well as screw joints with restrictions to dampen medium-induced vibration (particularly when measuring gases) must be ordered separately.

---

##### **i Note**

*The screw fittings and SAMSON valve blocks with their associated order numbers are listed in Data Sheet ► T 9555.*

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##### **! NOTICE**

*Oxygen service: make sure that the dp cell and all SAMSON accessories only come into contact with gaseous oxygen.*

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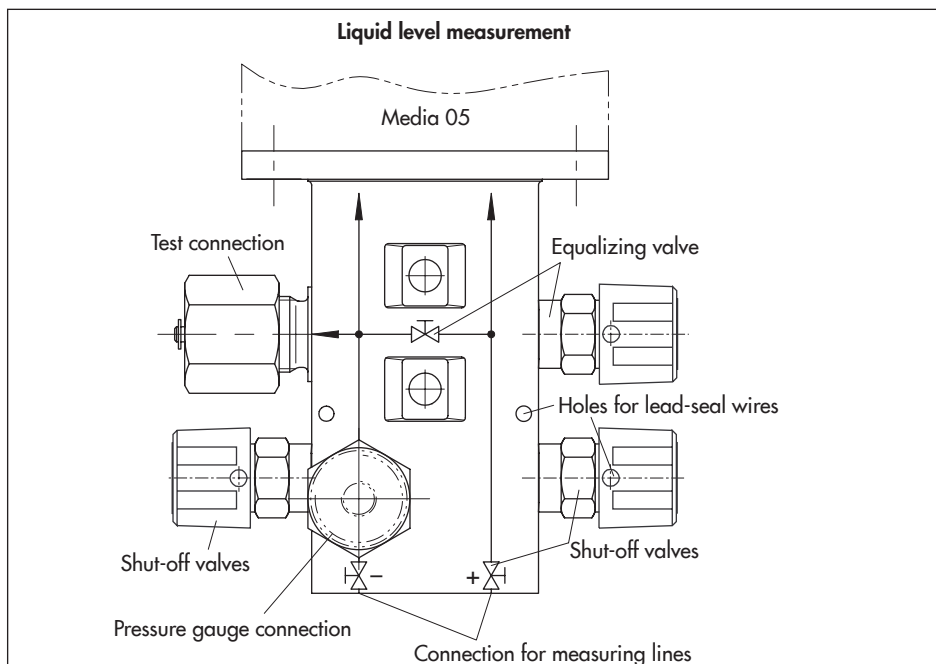


Fig. 4: SAMSON valve block

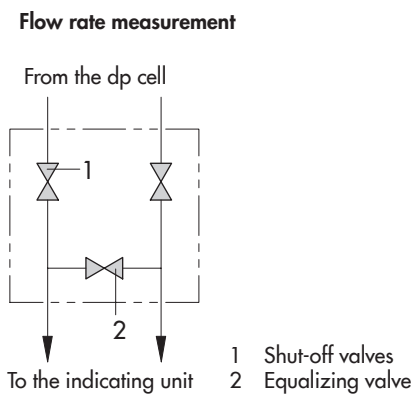


Fig. 5: Shut-off and equalizing valves (separate or combined as a block)

## 5 Start-up

---

### ! NOTICE

*Risk of damage to the differential pressure and flow meter due to impermissible negative pressure (vacuum) in the measuring chambers.*

*A negative pressure in the measuring chambers is not permissible during operation. The following applies:*

#### **Operating pressure $\geq$ atmospheric pressure**

*A vacuum in both measuring chambers for a brief period of time, e.g. to clean tanks, is permissible.*

---

### 5.1 Flow rate measurement

#### **For steam measurement**

Make sure that the steam does not have direct contact with the measuring diaphragm of the device. To prevent this, screw off the differential pressure lines below the shut-off valves or valve block and fill the device with water.

Alternatively, make sure the shut-off and equalizing valves or valve block are shut off and wait approx. 20 minutes after start up of the plant (steam in the system) until condensate has collected in the differential pressure lines above the valve and up to the orifice plate.

1. Slowly open the high-pressure line.
2. Close the equalizing valve or bypass of the valve block.
3. Open the low-pressure line.

4. Wait a while. Open both vent screws of the dp cell one after the other until the escaping condensate is free of bubbles. Retighten the screws. Vent the compensation chambers in the same way. Lightly tap the housing of the indicating unit or the compensation chambers to help let the air escape.
  5. Check zero (see section 6.1) and put the device back into operation.
- 

### ! NOTICE

*When using reverse installation (with the device mounted above the measuring point), the differential pressure lines may partly get drained when depressurizing the system. When starting up the system again, vent the measurement setup to allow it to fill with condensate.*

---

#### **For liquid measurement**

1. Slowly open the high-pressure line.
2. Close the equalizing valve or bypass of the valve block.
3. Open the low-pressure line.
4. Undo the vent screw on the dp cell until all the air has escaped. Retighten the screw.
5. Check zero (see section 6.1) and put the device back into operation.

### 5.2 Liquid level measurement

→ Refer to Fig. 4

1. Slowly open the high-pressure line.

2. Close the equalizing valve or bypass of the valve block.
3. Open the low-pressure line.
4. Check zero (see section 6.1) and put the device back into operation.

**NOTICE**

- During measurement, make sure that the equalizing valve is closed and the shut-off valves are open.
- In cryogenic applications, the process medium circulates during measurement when the equalizing valve is opened, causing the valve block to ice up.

## 6 Operation

### 6.1 Checking zero

Zero can also be checked while the system is running, provided the differential pressure lines are equipped with shut-off and equalizing valves.

1. Close the shut-off valve in the high-pressure line.
  2. Open the equalizing valve.
  3. Close the shut-off valve in the low-pressure line to allow the pressures to equalize in the dp cell.
- The pointer must indicate zero.  
If this is not the case, undo the dial screws and turn the dial (it can be turned by 4° at the maximum).

In case of larger deviations, remove the pointer with an appropriate tool. Align the dial plate in the mid-position. Re-mount the pointer on the axis in the zero position.

**To start-up:**

1. Open the low-pressure line.
  2. Close the equalizing valve.
  3. Slowly but gradually open the high-pressure line all the way.
  4. The device is in operation again.
- If a valve block is installed, proceed as described above.

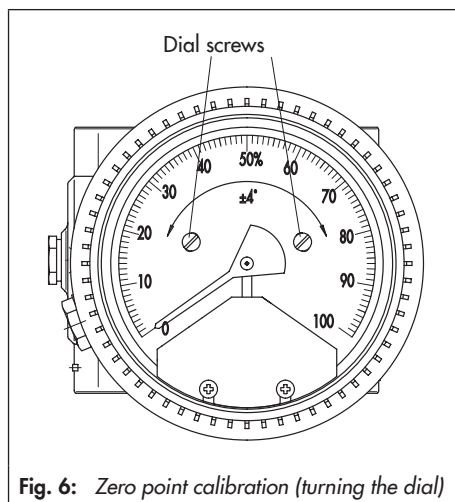


Fig. 6: Zero point calibration (turning the dial)

### 6.2 Water drainage

When measuring gas, drain condensed water from the separation chambers from time to time. Close valves in the differential pressure lines (valve block) before opening the drain plugs.

## 6.3 Adjusting and modifying the measuring range

The measuring range of the differential pressure and flow meter is determined by the installed set of range springs.

The device is delivered with the measuring range specified in the order. This means that, subsequently, it can only be modified continuously up to approx. 60 % of the maximum measuring span (see Technical data on page 10).

We recommend adjusting the device on the test bench (Fig. 7).

### NOTICE

*The test medium must free of oil and grease when the device is used to measure oxygen. Only use oil-free air or other gases ( e.g. N<sub>2</sub>).*

*Gaseous oxygen (process medium):*

*– Max. temperature +60 °C*

*– Max. oxygen pressure 30 bar*

*Make sure that the dp cell and all SAMSON accessories (e.g. valve block) only come into contact with gaseous oxygen.*

### Checking the measuring range

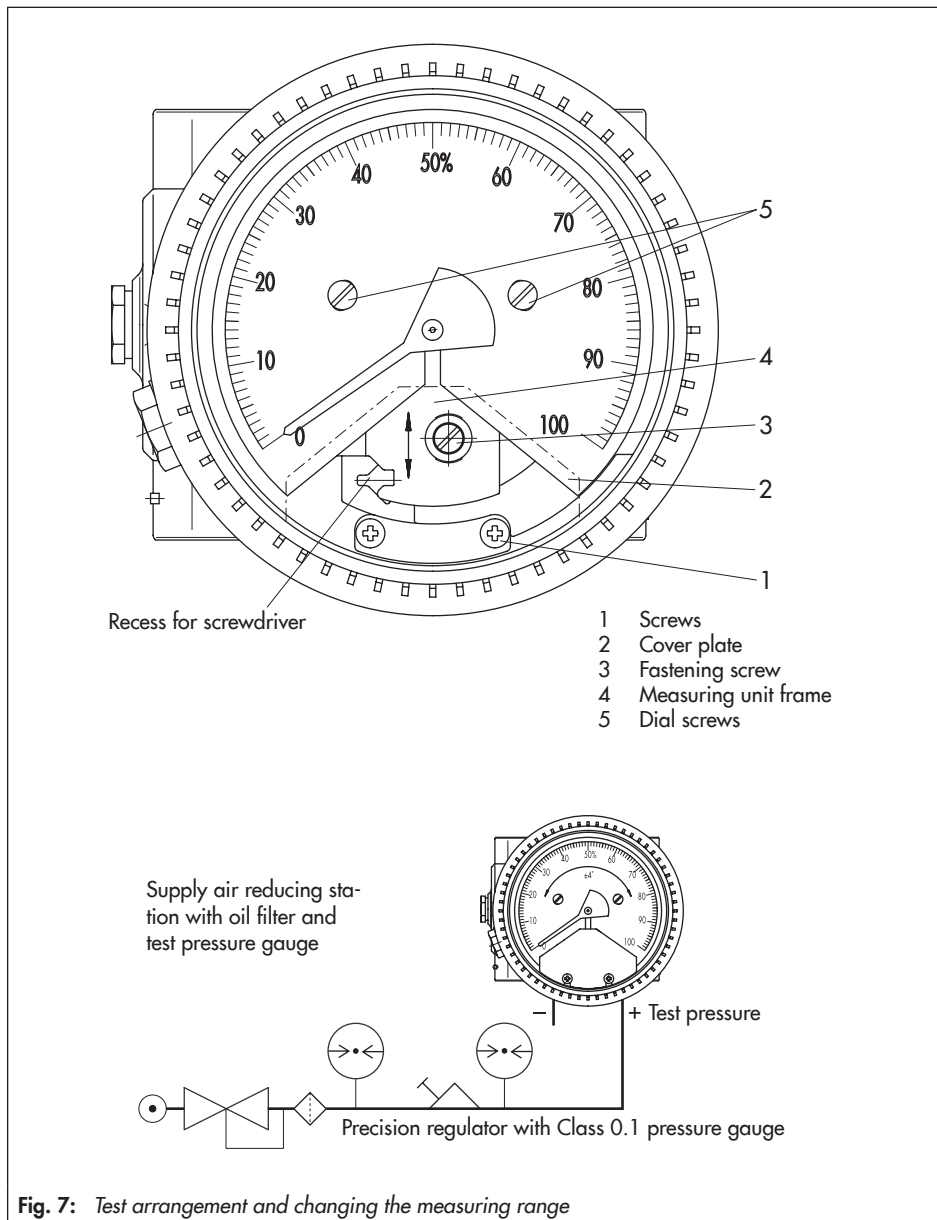
1. Check zero as described in section 6.1 while the measuring chamber is the depressurized state.
2. Apply pressure to the high-pressure measuring chamber until the pointer indicates 100 % while the low pressure connection is open.

Read off the adjusted pressure value at the pressure gauge. It corresponds to the current end value of the measuring range.

3. Disconnect the pressure again.

### Correcting and changing the measuring range

1. Undo the screws (1) and remove the cover plate (2).
2. Undo the fastening screw (3) so that the measuring unit frame (4) can be moved with ease.
3. Insert a suitable screwdriver into the 7 mm recess to change the position of the measuring unit frame.  
If you want to increase the measuring range, turn the screwdriver counterclockwise. Turn the screwdriver clockwise to reduce it.  
Retighten the fastening screw (3).
4. Correct zero as described in section 6.1.
5. Pressurize measuring chamber again until the pointer indicates the end value.
6. Check the end value of the measuring range on the pressure gauge.  
If it does not correspond with the required measuring range, repeat adjustment procedure until zero and end value are properly adjusted.
7. Reinsert the cover plate (2) and tighten with the screws (1).



## 7 Version with limit contacts

One or two proximity switches can be installed as alarm contacts (A1 and A2) as follows:

Contact and function	Contact made with	Image
Min – A1 as main contact	Bottom	9.2
Min – A1 as main contact Min – A2 as pre-alarm contact	Bottom Top	9.2
Min – A1 as main contact Max – A2 as main contact	Bottom Top	9.3

The max. contact can also be used as a second min. contact, i.e. as a pre-alarm contact. However, its switching point can only be at least 15 % away from the switching point of the main contact A1.

### 7.1 Electrical connection

Connect the alarm contacts A1 and A2 of the indicator to an isolating switch amplifier or alarm unit for power supply connection as illustrated in Fig. 8.

The listed maximum values in the table apply concerning the connection of proximity switches to certified intrinsically safe circuits in the type of protection Ex ia IIC T6 (PTB 00 ATEX 2049 X):

	Type 1			Type 2		
U <sub>i</sub>	16 V			16 V		
I <sub>i</sub>	25 mA			25 mA		
P <sub>i</sub>	34 mW			64 mW		
C <sub>i</sub>	30 nF			30 nF		
L <sub>i</sub>	100 mH			100 mH		
T	T6	T5	T4	T6	T5	T4
	73 °C	88 °C	100 °C	66 °C	81 °C	100 °C

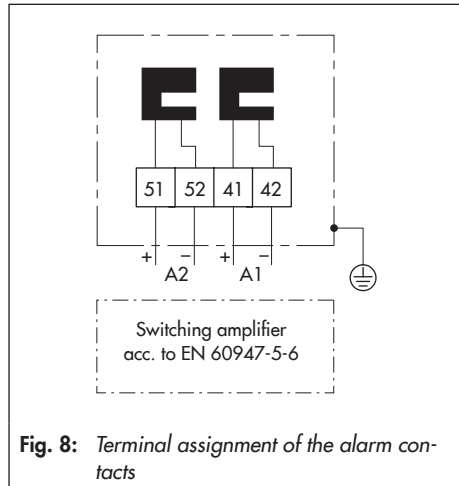


Fig. 8: Terminal assignment of the alarm contacts

### 7.2 Adjusting the alarm contacts

Both the min. contacts A1 and A2 as well as the combination of a min. contact A1 and max. contact A2 can be shifted within 0 to 100 % of the adjusted measuring span to adjust them.

The min. contact and max. contact have different designs. Contact is made when the metal tag moves approx. 6 mm into the proximity switch.

#### Min. contact

Always adjust the switching points according to the decreasing characteristic. The bottom edge of the metal tag causes the contact to be made.

**Max. contact**

Always adjust the switching points according to the rising characteristic. The top edge of the contact causes the contact to be made.

**Adjustment based on pressure specifications**

1. Connect the device to a switching amplifier as described in section 7.1.
  2. Apply a pressure to the high-pressure connection of the dp cell which corresponds to the desired switching point.
- ➔ The low-pressure connection of the dp cell must be open for this purpose.

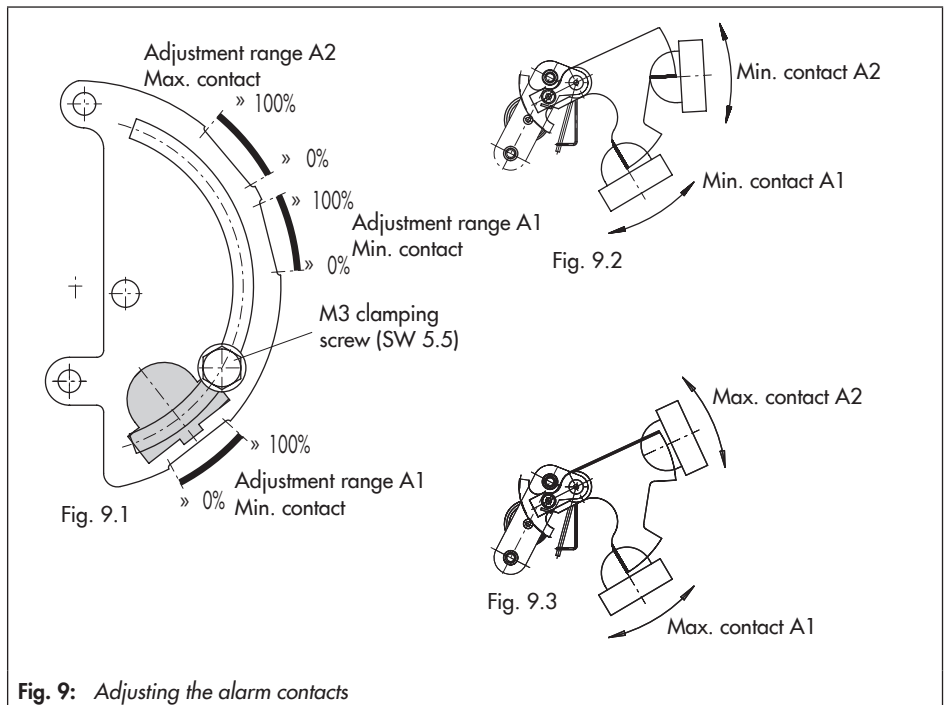
3. Undo the clamping screw (Fig. 9) at the proximity switch bracket and manually move the contact into the desired switching position (note that the middle of the bracket indicates the position).

**Min. contact**

- ➔ From the left, move the proximity switch onto the left side of the tag until contact is made.

**Max. contact**

1. From the right, move the proximity switch onto the right side of the tag until contact is made.



## Version with limit contacts

2. Slightly tighten the clamping screw.
3. Check the switching point and readjust, if necessary.

### Adjustment without pressure specifications (e.g. on site)

1. Connect the device to an isolating switch amplifier as described in section 7.1.
  2. Adjust the tag by carefully moving the pointer manually.
- Do not move the pointer beyond the currently indicated position on the dial.

The described procedure is only possible when the tank is full with 100 % reading. It cannot be performed when the tank is empty and the dial reads 0 %.

## 7.3 Retrofitting or replacing the contact unit

The contacts can only be retrofitted or replaced as a complete unit.

### RoHS-compliant retrofit contact units

Contact unit		Order no.
One min. contact	A1	1402-1773
Two min. contacts	A1/A2	1402-1774
One min. contact	A1	1402-1775
One max. contact	A2	

1. Unscrew the cover.
2. Unscrew cover plate (2, Fig. 7).
3. Unscrew both dial screws (5, Fig. 7). Pull the dial forwards toward the pointer and lift it upwards.
4. Push the contact unit (2) onto the unit frame plate (3) from the right so that the

metal tags reach into the proximity switches without touching the contacts.

5. Fasten the contact unit (2) to the measuring unit frame using two slotted head screws (5).
6. Establish the connecting cable (4.1) for the alarm contact A1 below the measuring unit frame and the connecting cable (4.2) for the alarm contact A2 above the measuring unit frame.  
Ensure that the cables do not prevent the tags from moving into and out of the proximity switches. Moreover, make sure that the cables are not damaged when tightening the case cover.
7. Insert the printed circuit board (1) into the positioning notch from the left and tighten it using a Phillips screw (6).
8. Replace the blanking plug of the indicating unit with an M12x1.5 cable gland (8).  
Protect the cable gland against water entering it until the signal line has been installed.
9. Connect the wiring as shown in section 7.1.
10. Slide back the dial from the top and fasten it to the measuring unit frame using the dial screws (2, Fig. 7). Check zero position according to section 6.1.
11. Place on the cover and fasten it.  
→ Make sure the connecting cables of the proximity switches are not damaged.



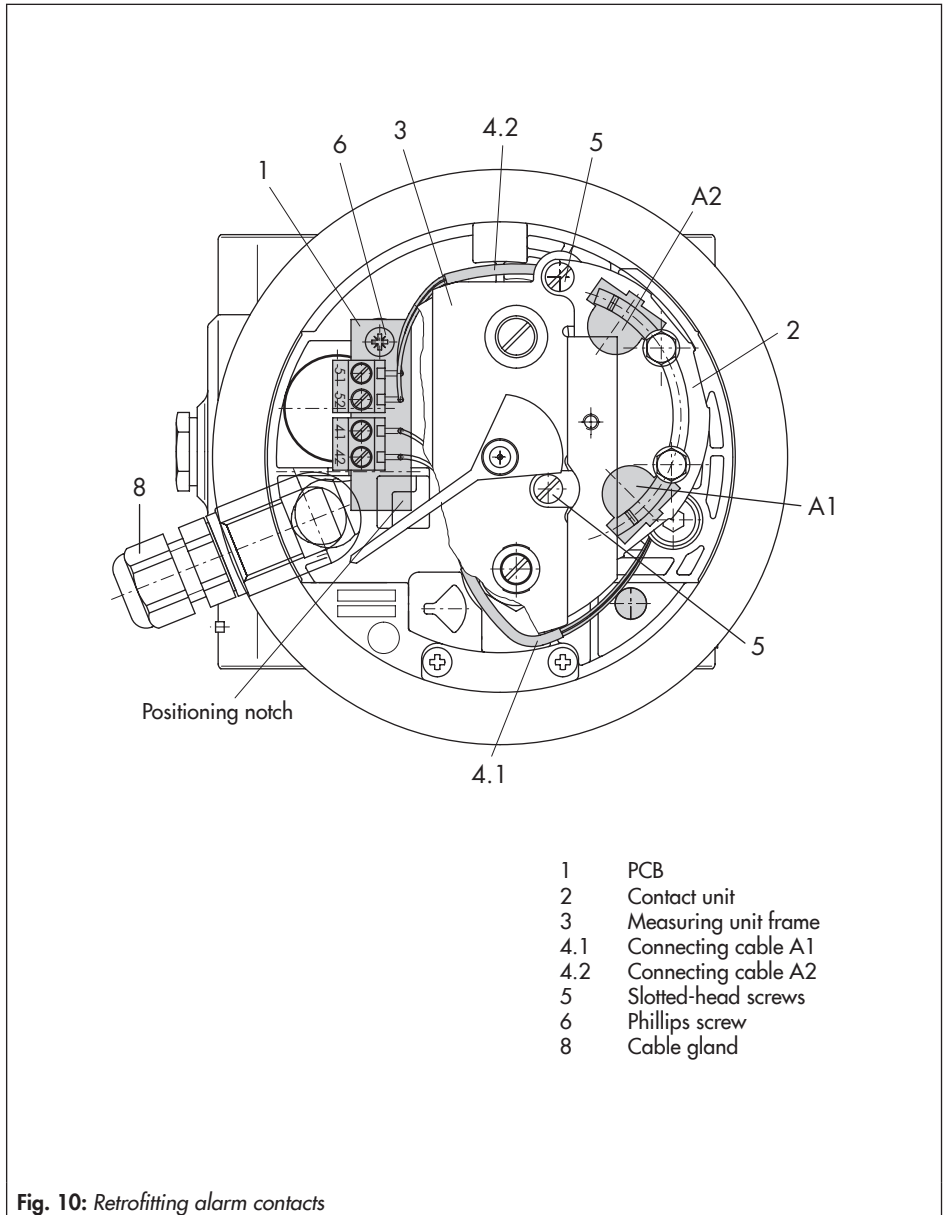
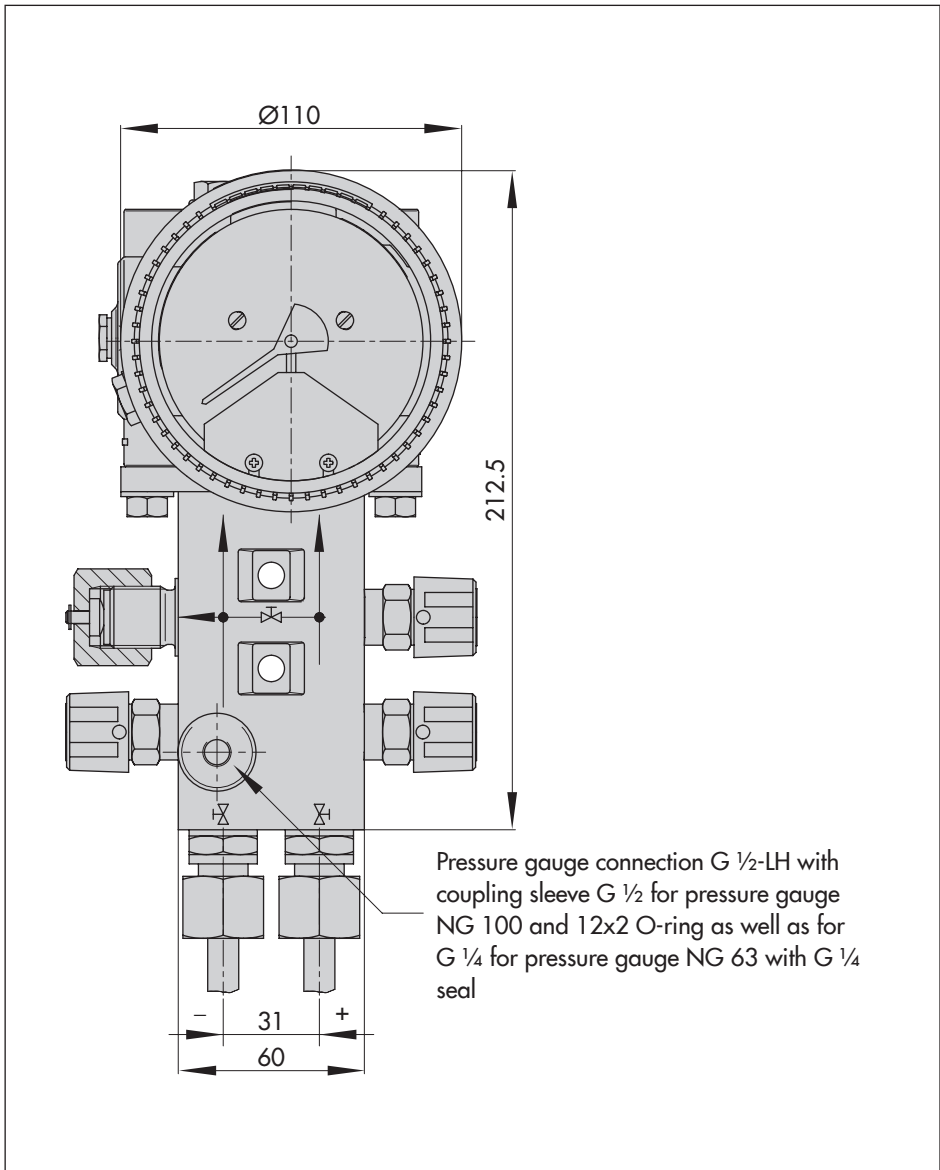
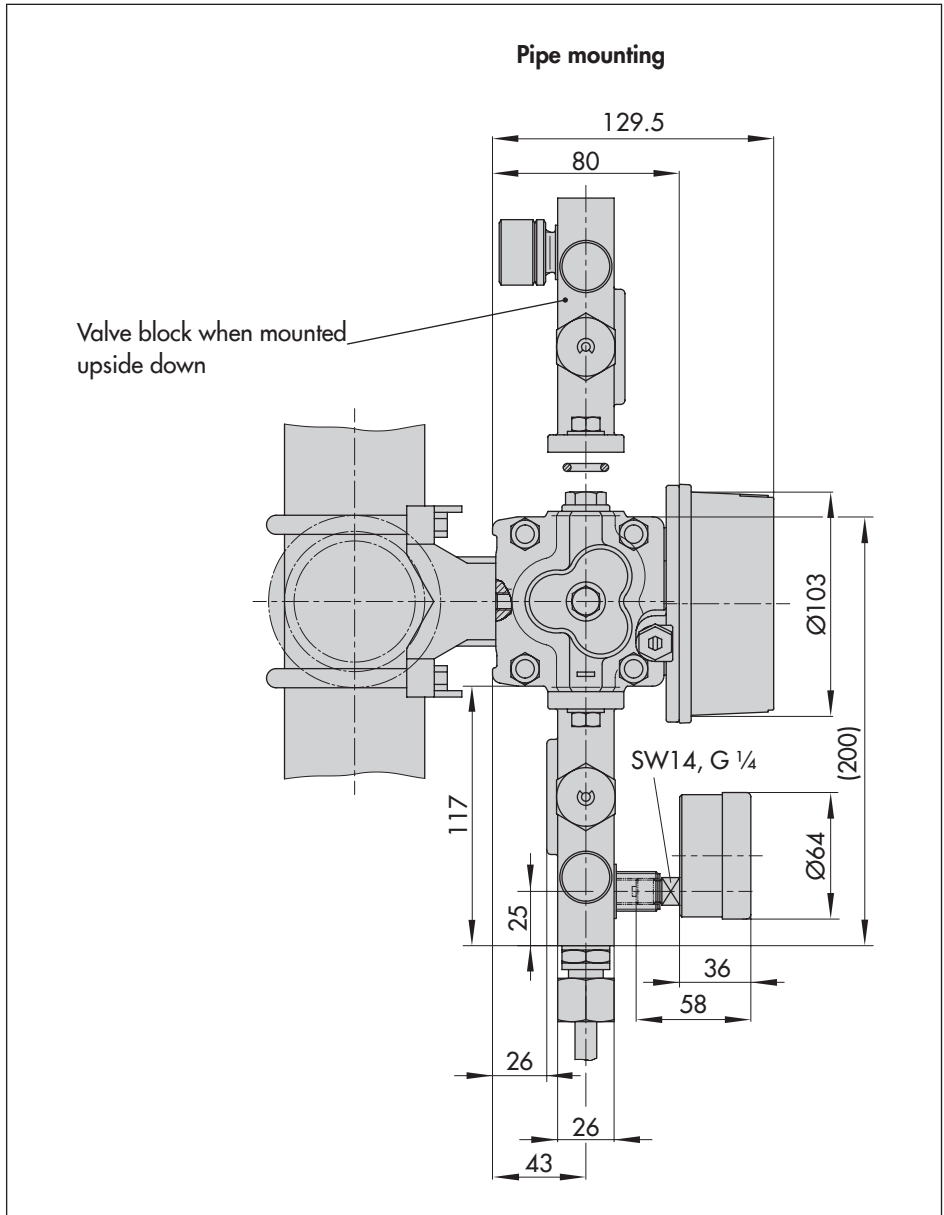


Fig. 10: Retrofitting alarm contacts

## 8 Dimensions









## EU Konformitätserklärung / EU Declaration of Conformity / Déclaration UE de conformité

Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller/  
This declaration of conformity is issued under the sole responsibility of the manufacturer/  
La présente déclaration de conformité est établie sous la seule responsabilité du fabricant.  
Für das folgende Produkt / For the following product / Nous certifions que le produit

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the conformity with the relevant Union harmonisation legislation is declared with /  
est conforme à la législation d'harmonisation de l'Union applicable selon les normes:

EMC 2014/30/EU	EN 61000-6-2:2005, EN 61000-6-3:2007 +A1:2011, EN 61326-1:2013
RoHS 2011/65/EU	EN 50581:2012

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