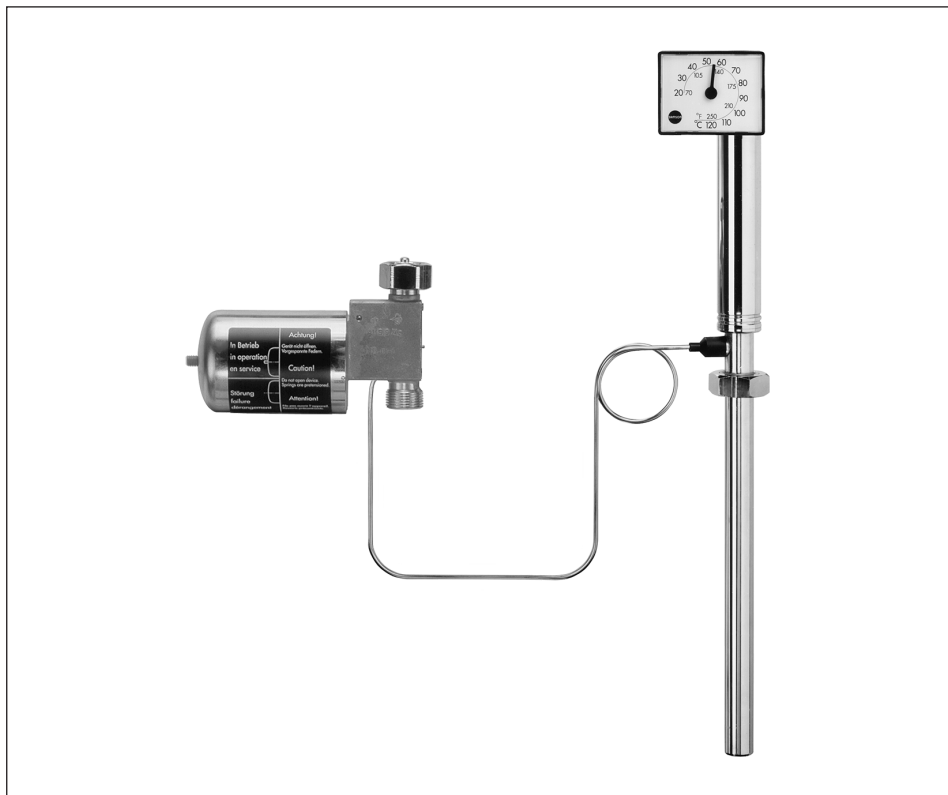


MOUNTING AND OPERATING INSTRUCTIONS



EB 2043 EN

Translation of original instructions



Type 2213 Safety Temperature Monitor (STM)
Self-operated Regulators

Edition July 2024



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. The images shown in these instructions are for illustration purposes only. The actual product may vary.

- 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 (aftersalesservice@samsongroup.com).



Documents relating to the device, such as the mounting and operating instructions, are available on our website at www.samsongroup.com > **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 Type 2213 Safety Temperature Monitor (STM) with valve is designed for temperature monitoring and control of the energy supply to heat generators (e.g. heat exchangers) by closing the valve. The connection of an additional control thermostat (e.g. Type 2231) converts the safety temperature monitor (STM) into a temperature regulator with safety temperature monitor (TR/STM).

The devices are designed to operate under exactly defined conditions (e.g. operating pressure, process medium, temperature). Therefore, operators must ensure that the devices are only used in operating conditions that meet the specifications used for sizing the devices at the ordering stage. In case operators intend to use the devices in applications or conditions other than those 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 and nameplate for limits and fields of application as well as possible uses.

Reasonably foreseeable misuse

The devices are not suitable for use outside the limits defined during configuration and by the technical data. Furthermore, the following activities do not comply with the intended use:

- Use of non-original spare parts
- Performing service and repair work not described

Qualifications of operating personnel

The devices must be mounted, started up, serviced and repaired 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.

Safety features

The Type 2213 Safety Temperature Monitor (STM) is triggered when the sensor system is defective and moves to the fail-safe position.

Safety instructions and measures

Personal protective equipment

SAMSON recommends checking the hazards posed by the process medium being used (e.g.

▶ GESTIS (CLP) hazardous substances database).

- Protective clothing, safety gloves and eye protection in applications with hot, cold and/or corrosive media
 - Wear hearing protection when working near the valve. Follow the instructions given by the plant operator.
 - Hard hat
 - Safety harness, e.g. when working at height
 - Safety footwear, if applicable ESD (electrostatic discharge) footwear
- ➔ Check with the plant operator for details on further protective equipment.

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.

Warning against residual hazards

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

SAMSON also recommends checking the hazards posed by the process medium being used (e.g. ▶ GESTIS (CLP) hazardous substances database).

➔ Observe safety measures for handling the device as well as fire prevention and explosion protection measures.

These mounting and operating instructions deal with the standard version of the device. Components of the device that differ to those used for the standard version described in this document can be exchanged with other certain SAMSON components. The residual hazards of these components are described in the associated mounting and operating instructions (see section 'Referenced documents').

Responsibilities of the operator

Operators are responsible for proper use and compliance with the safety regulations.

Operators are obliged to provide these mounting and operating instructions as well as the referenced documents to the operating personnel and to instruct them in proper operation.

Furthermore, operators must ensure that operating personnel or third parties are not exposed to any danger.

Operators are additionally responsible for ensuring that the limits for the product defined in the technical data are observed. This also applies to the start-up and shutdown procedures. Start-up and shutdown procedures fall within the scope of the operator's duties and, as such, are not part of these mounting and operating instructions. SAMSON is unable to make any statements about these procedures since the operative details (e.g. differential pressures and temperatures) vary in each individual case and are only known to the operator.

Responsibilities of operating personnel

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

Referenced standards, directives and regulations

The device complies with the requirements of the European Pressure Equipment Directive 2014/68/EU, Machinery Directive 2006/42/EC, Directive 2016 No. 1105 Pressure Equipment (Safety) Regulations 2016 and Directive 2008 No. 1597 Supply of Machinery (Safety) Regulations 2008. Valves with a CE marking and/or UKCA marking have a declaration of conformity, which includes information about the applied conformity assessment procedure (see Chapter 11).

Non-electric valve versions whose bodies are not lined with an insulating material coating do not have their own potential ignition source according to the hazard assessment stipulated in Clause 5.2 of ISO 80079-36, even in the rare incident of an operating fault. Therefore, such valve versions do not fall within the scope of Directive 2014/34/EU.

→ For connection to the equipotential bonding system, observe the requirements specified in Clause 6.4 of EN 60079-14 (VDE 0165-1).

Referenced documents

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

- Mounting and operating instructions for valves, e.g. ► EB 2111/2121/2123
- Mounting and operating instructions for the control thermostats, e.g. ► EB 2231
- Mounting and operating instructions for the safety temperature limiter, e.g. ► EB 2046

1.1 Notes on possible severe personal injury

DANGER

Risk of personal injury due to process medium escaping.

While removing the control thermostat/safety temperature monitor (STM)/safety temperature limiter (STL) from the valve, the sealed-off valve is opened. Residual process medium will escape and, depending on its properties, may lead to personal injury, e.g. (chemical) burns.

- Depressurize the plant.
- Do not start up the regulator until all parts have been mounted.
- Wear protective clothing, safety gloves and eye protection.

Risk of bursting in pressure equipment.

Valves and pipelines are pressure equipment. Improper opening can lead to valve components bursting.

- Observe the maximum permissible pressure for regulator and plant.
- If necessary, a suitable overpressure protection must be installed on site in the plant section.
- Before starting any work on the regulator, depressurize all plant sections affected as well as the regulator.
- Drain the process medium from the plant sections affected as well as from the regulator.
- Wear personal protective equipment.

1.2 Notes on possible personal injury

WARNING

Risk of personal injury due to residual process medium in the valve and safety temperature monitor.

While working on the valve/safety temperature monitor, residual medium can flow out of the valve and, depending on its properties, cause personal injury, e.g. (chemical) burns.

- If possible, drain the process medium from the plant sections affected and from the valve.
- Wear protective clothing, safety gloves and eye protection.

Risk of burn injuries due to hot or cold components and pipelines.

Depending on the process medium, valve components and pipelines may get very hot or cold and cause burn injuries.

- Allow components and pipelines to cool down or warm up to the ambient temperature.
- Wear protective clothing and safety gloves.

Damage to health relating to the REACH regulation.

If a SAMSON device contains a substance listed as a substance of very high concern on the candidate list of the REACH regulation, this is indicated on the SAMSON delivery note.

- Information on safe use of the part affected
 - ▶ <https://www.samsongroup.com/en/about-samson/environment-social-governance/material-compliance/reach-regulation/>

1.3 Notes on possible property damage

! NOTICE

Risk of valve damage due to unsuitable medium properties.

The valve is designed for a process medium with defined properties.

→ Only use the process medium specified for sizing the equipment.

Risk of irreparable regulator damage caused by the regulator components being taken apart.

The safety temperature monitor is an inseparable hydraulic unit consisting of a safety thermostat, capillary tube and temperature sensor. If these components are dismantled (e.g. removal of the capillary tube), the regulator will be irreparably damaged and will no longer be able to fulfill its monitoring and control task.

→ Do not dismantle the regulator.

→ Only perform allowed activities on the regulator.

→ Contact SAMSON's After-sales Service before replacing spare parts.

Risk of valve damage due to contamination (e.g. solid particles) in the pipeline.

The plant operator is responsible for cleaning the pipelines in the plant.

→ Flush the pipelines before start-up.

→ Observe the maximum permissible pressure for valve and plant.

Risk of damage to the valve or safety temperature monitor due to over- or under-torquing.

The connection between valve and safety temperature monitor must be tightened with a certain tightening torque.

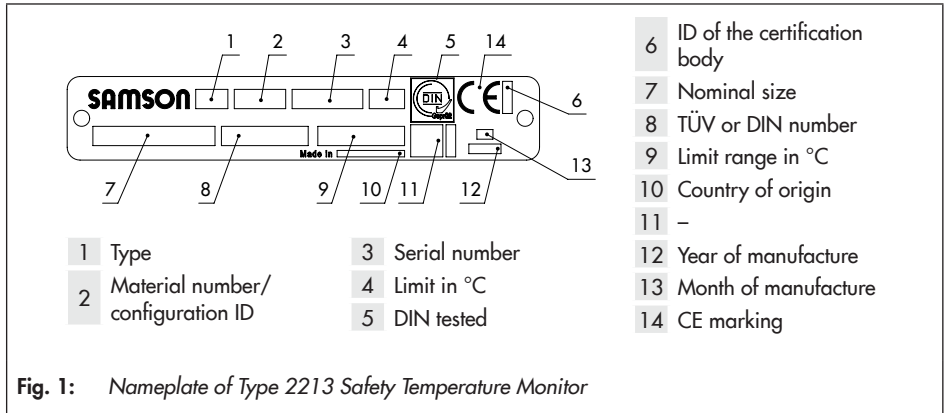
Excessive tightening torques lead to parts wearing out more quickly. Parts that are too loose may cause leakage.

→ Observe the specified tightening torques.

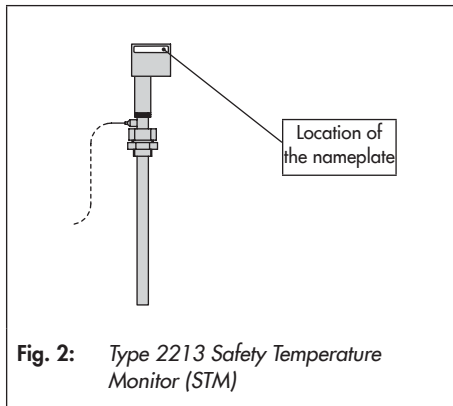
2 Markings on the device

The nameplate shown was up to date at the time of publication of this document. The nameplate on the device may differ from the one shown.

2.1 Nameplate



2.2 Location of the nameplates



2.3 Material identification number

Specifying the material number, you can contact SAMSON to find out which material is used. The material number is specified on the nameplate (item 2). For more details on the nameplate, see Fig. 1

3 Design and principle of operation

See Fig. 3.

The safety temperature monitor (STM) operates according to the liquid expansion principle. The temperature sensor (12), capillary tube (9) and operating element (8) are filled with an expansion liquid.

The temperature-dependent change in volume of the liquid in the bulb sensor (12) causes the piston in the operating element (8) to move. As a result, the pin of the operating element (7) moves the plug stem (5) with the plug (3). The temperature limit can be adjusted by a key (10). This limit value is indicated on the scale (11).

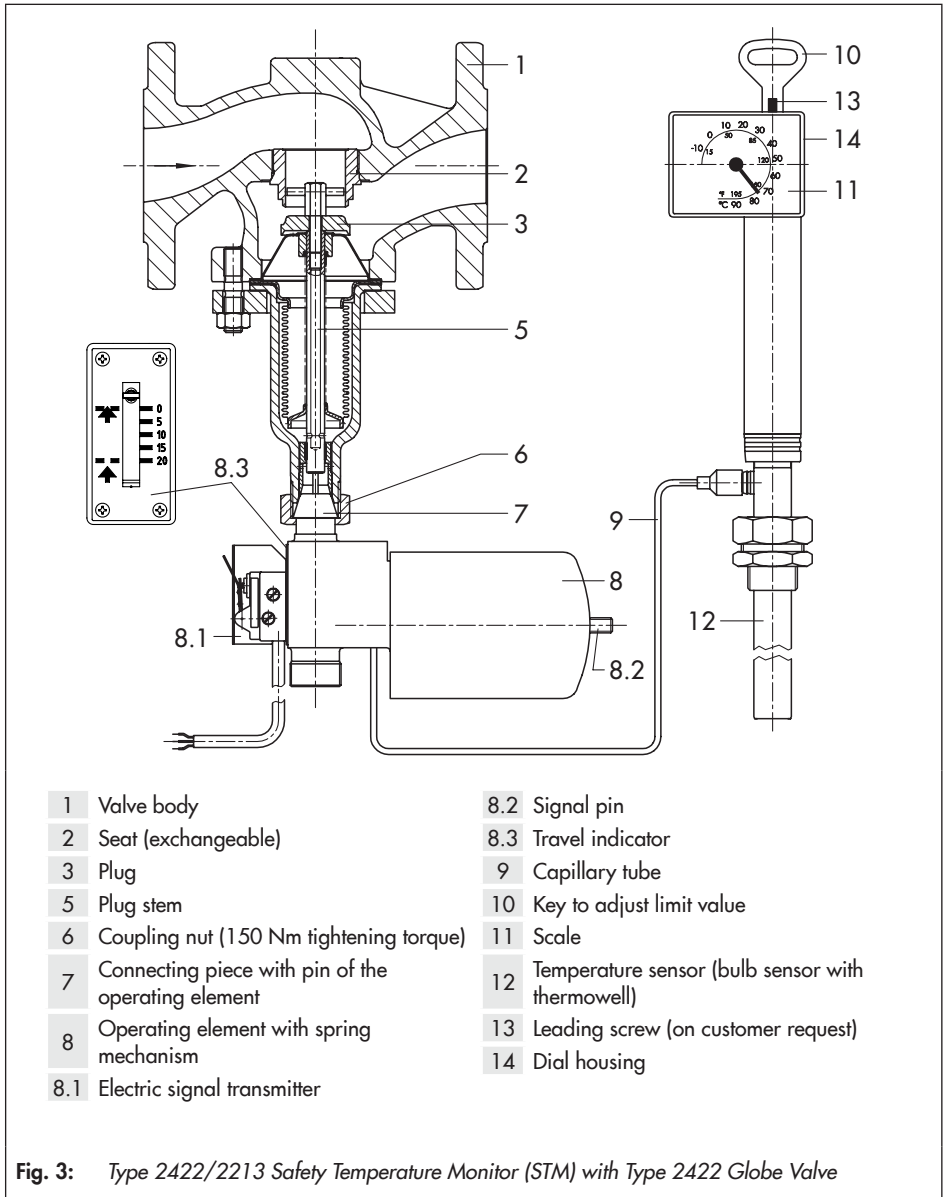
The safety temperature monitor closes the valve when the temperature reaches the adjusted temperature limit. If the monitored temperature falls below the adjusted limit temperature, the safety temperature monitor opens the valve according to its proportional component.

Fail-safe position

The spring mechanism in the operating element is released when the capillary tube breaks or when there is a leak in the sensor. It moves the plug stem (5) with the plug (3) over the pin (7) and closes and locks the valve.

i Note

The adjusted limit temperature must have a minimum temperature difference of 15 K to the set point of the temperature regulator.



3.1 Technical data

3.2 Process medium and scope of application

Safety temperature monitoring of the energy supply to heat generators or heat exchangers by closing the valve.

For limit signals from **-10 to 120 °C (14 to 248 °F)** · Valves **DN 15 to 150 (NPS ½ to 10)** · **PN 16 to 40 (Class 150 to 300)** · Max. **350 °C (660 °C)**

The Type 2213 Safety Temperature Monitor (STM) with a valve operates without auxiliary energy and is designed for extended safety according to DIN EN 14597. The valve is closed by a spring mechanism when the temperature reaches the adjusted limit, when the capillary tube breaks or when leakage occurs in the sensor system. The devices are automatically reset and put back into operation after the temperature has fallen below the limit and the fault has been remedied.

When the safety temperature monitor is combined with a Type 2231 to 2234 Control Thermostat, make sure that there is a minimum difference of approximately +15 K between the adjusted limit temperature of the safety temperature monitor and the set point temperature of the control thermostat.

Dimensions and weights

Fig. 4 provides a summary of the dimensions and weights of the Type 2213 Safety Temperature Monitor as well as the Types 2111, 2422 and 2119 Valves. The lengths and heights in the dimensional drawings are shown on page 17 onwards.




The safety temperature monitor is tested by the German technical surveillance association TÜV according to DIN EN 14597 under the type designation 2213. The registration number is available on request.

i Note

Further details and technical data of the valves and control thermostats are listed in the following mounting and operating instructions:

- *Mounting and operating instructions for valves, e.g. ▶ EB 2111/2121/2123*
 - *Mounting and operating instructions for the control thermostats, e.g. ▶ EB 2231*
 - *Mounting and operating instructions for the safety temperature limiter, e.g. ▶ EB 2046*
-



Table 1: Technical data · Type 2213 Safety Temperature Monitor (STM)

| Type 2213 Safety Temperature Monitor | |
|---|---|
| Adjustment ranges of limit temperature | -10 to +90 °C · +20 to +120 °C (14 to 194 °F · 68 to 248 °F) |
| Permissible ambient temperature range at the limit value adjuster | -40 to +80 °C (-40 to +176 °F) |
| Permissible temperature at sensor | 100 K above the adjusted limit |
| Permissible pressure at the sensor | With G 1 thermowell |
| | Without thermowell |
| Capillary tube length ¹⁾ | 5 m · 10 m ²⁾ (197 in · 394 in ²⁾) |
| Conformity |  |

¹⁾ Special version also in plastic-coated copper

²⁾ Not tested according to DIN EN 14597

Table 2: Technical data · Types 2111, 2422 and 2119 Valves

| Valve | | Type 2111, Type 2422 and Type 2119 | | | | | | | | | | | | | |
|-----------------|-----|---|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|--|
| Nominal size | DN | 15 | 20 | 25 | 32 | 40 | 50 | 65 | 80 | 100 | 125 | 150 | 200 | 250 | |
| Type 2111 | | ▶ T 2111 | | | | | | | — | | | | | | |
| Type 2422 | | ▶ T 2121 | | | | | | | | | | | | | |
| Type 2119 | | ▶ T 2133 | | | | | | | | | | | — | | |
| Pressure rating | | PN 16 to 40 | | | | | | | | | | | | | |
| Conformity | |  | | | | | | | | | | | | | |
| Nominal size | NPS | ½ | ¾ | 1 | 1½ | 2 | 2½ | 3 | 4 | 6 | 8 | 10 | | | |
| Type 2111 | | ▶ T 2115 | | | | | | | — | | | | | | |
| Type 2422 | | ▶ T 2025 | | | | | | | | | | | | | |
| Type 2119 | | ▶ T 2134 | | | | | | | | | | | — | | |
| Pressure rating | | Class 150 to 300 | | | | | | | | | | | | | |
| Conformity | |  | | | | | | | | | | | | | |

Design and principle of operation

Table 3: Dimensions in mm and weights

| Valve | Type 2111 | | | | | |
|---|-------------------------------------|-----|-----|--------------------------------------|------|-----|
| Nominal size DN | 15 | 20 | 25 | 32 | 40 | 50 |
| Length L | 130 | 150 | 160 | 180 | 200 | 230 |
| H1 $\frac{\text{Without}}{\text{With}}$ Extension | 225 ³⁾ /82 ¹⁾ | | | 225 ³⁾ /152 ¹⁾ | | |
| | 365 ³⁾ /— | | | 365 ³⁾ /— | | |
| Weight (PN 16 body) ²⁾ , approx. kg | 4 | 4.5 | 5.5 | 13 | 13.5 | 16 |

| Valve | Type 2422 | | | | | | | | | | |
|---|-----------|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|
| Nominal size DN | 15 | 20 | 25 | 32 | 40 | 50 | 65 | 80 | 100 | 125 | 150 |
| Length L | 130 | 150 | 160 | 180 | 200 | 230 | 290 | 310 | 350 | 400 | 480 |
| H1 $\frac{\text{Without}}{\text{With}}$ Extension | 225 | | | 225 | | | 300 | 355 | 460 | 590 | |
| | 365 | | | 365 | | | 440 | 495 | 600 | 730 | |
| Weight (PN 16 body) ²⁾ , approx. kg | 5 | 5.5 | 6.5 | 13 | 13.5 | 16 | 27 | 32 | 40 | 70 | 113 |

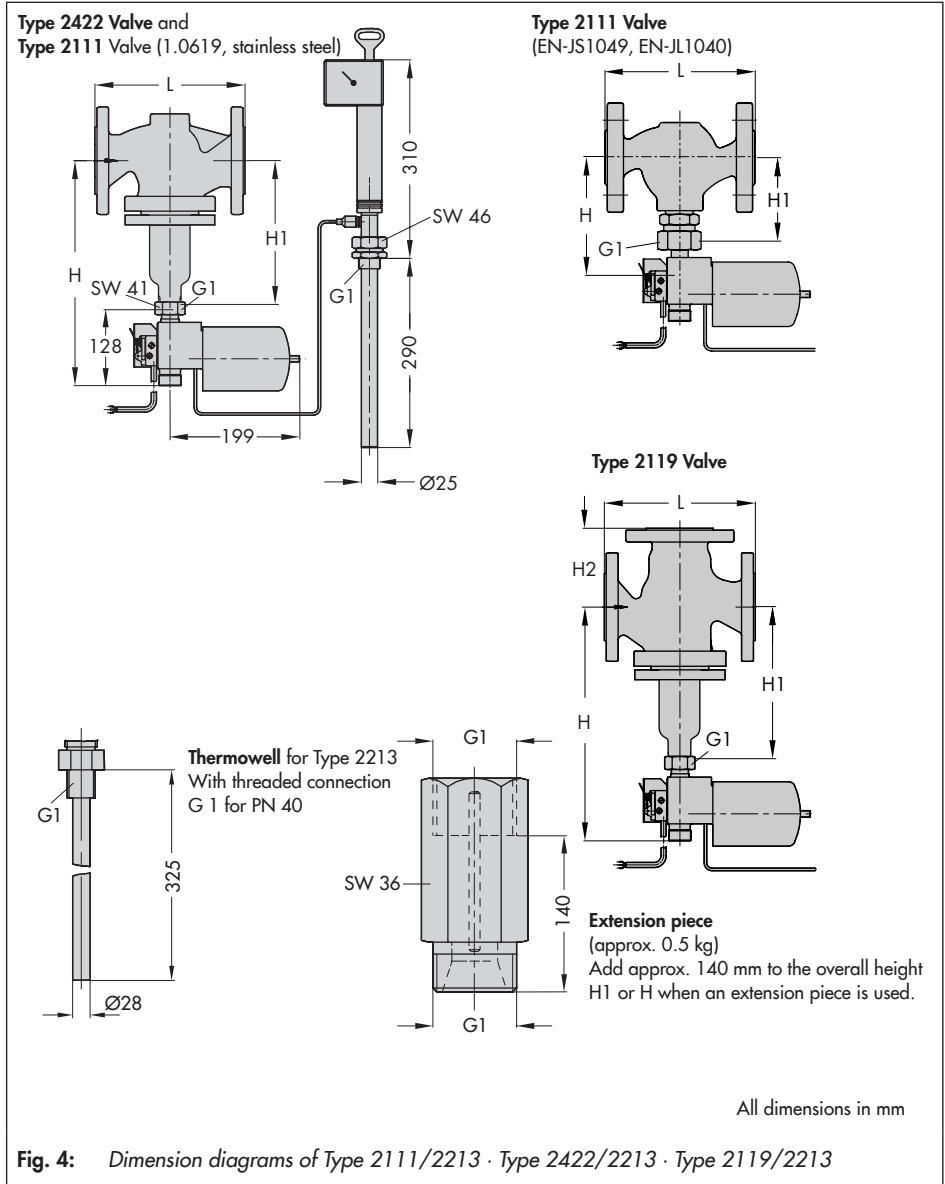
| Valve | Type 2119 | | | | | | | | | | |
|---|-----------|-----|-----|-----|-----|-----|-----|-----|-----|------------|-----|
| Nominal size DN | 15 | 20 | 25 | 32 | 40 | 50 | 65 | 80 | 100 | 125 | 150 |
| Length L | 130 | 150 | 160 | 180 | 200 | 230 | 290 | 310 | 350 | 400 | 480 |
| H2 | 70 | 80 | 85 | 100 | 105 | 120 | 130 | 140 | 150 | 200 | 210 |
| H1 $\frac{\text{Without}}{\text{With}}$ Extension | 235 | | | 245 | | | 320 | 355 | 395 | 500 | |
| | 375 | | | 385 | | | 460 | 495 | 535 | 640 | |
| Weight (PN 16 body) ²⁾ , approx. kg | 6 | 7 | 8.5 | 15 | 17 | 19 | 32 | 50 | 71 | On request | |

| Type 2213 Safety Temperature Monitor | |
|--------------------------------------|--------------|
| Weight | |
| STM | 5 kg |
| Thermowell | 0.5 kg |
| Overall height H | |
| STM | H = H1 + 125 |
| TR/STM | H = H1 + 415 |

¹⁾ Type 2111, valve material EN-GJS-400-18-LT and EN-JL-1040

²⁾ +15 % for PN 25/40

³⁾ Type 2111, valve material 1.0619 and stainless steel



4 Measures for preparation

After receiving the shipment, proceed as follows:

1. Check the scope of delivery. Compare the shipment received with the delivery note.
2. Check the shipment for transportation damage. Report any damage to SAMSON and the forwarding agent (refer to delivery note).

4.1 Unpacking

i Note

Do not remove the packaging until immediately before mounting it onto the valve.

Proceed as follows to lift and mount the device:

1. Remove the packaging from the device.
2. Dispose of the packaging in accordance with the valid regulations.

4.2 Transporting and lifting

Due to the low service weight, lifting equipment is not required to lift and transport the safety temperature monitor (e.g. to mount it onto the valve).

Transport instructions

- Protect the device against external influences (e.g. impact).
- Protect the device against moisture and dirt.
- Do not damage the corrosion protection (paint, surface coatings). Repair any damage immediately.
- Observe the permissible ambient temperatures (see Chapter 3.2).

4.3 Storage

! NOTICE***Risk of device damage due to improper storage.***

- *Observe the storage instructions.*
 - *Avoid long storage times.*
 - *Contact SAMSON in case of different storage conditions or longer storage times.*
-

i Note

SAMSON recommends to regularly check the device and the prevailing storage conditions during long storage periods.

Storage instructions

- Protect the safety temperature monitor against external influences (e.g. impact).
- Do not damage the corrosion protection (paint, surface coatings). Repair any damage immediately.
- Protect the device against moisture and dirt. Store it at a relative humidity of less than 75 %. In damp spaces, prevent condensation. If necessary, use a drying agent or heating.
- Make sure that the ambient air is free of acids or other corrosive media.
- Observe the permissible ambient temperatures (see Chapter 3.2).
- Do not place any objects on the device.



Tip
Our after-sales service can provide more detailed storage instructions on request.

4.4 Preparation for installation

Proceed as follows:

- ➔ Check to ensure that the connection for the safety temperature monitor at the valve is clean.
- ➔ Check the safety temperature monitor for damage.
- ➔ Check to make sure that the type designation, pressure rating and temperature range of the safety temperature monitor match the plant conditions (nominal size and pressure rating of the pipeline, medium temperature etc.).
- ➔ Check any mounted thermometers to make sure they function.

5 Mounting and start-up

ⓘ NOTICE

Risk of overheating due to excessive ambient temperatures or insufficient heat dissipation when components are insulated.
Do not include the safety temperature monitor in the insulation of the pipeline.

5.1 Mounting the safety temperature monitor onto the valve

See Fig. 3.

The Type 2213 Safety Temperature Monitor is always installed in combination with a valve as a safety temperature regulator. The operating element with the spring mechanism (8) can be attached to the valve body using the coupling nut (6) either before or after the valve is installed in the pipeline.

ⓘ Note

Put the safety temperature monitor into operation after mounting the valve and control thermostat.

The following points must be observed during installation:

- Observe the permissible ambient temperature range from -40 to $+80$ °C.
- Make sure that the regulator remains freely accessible after the plant has been completed.

- Install the valve in a horizontal pipeline with the operating element connection suspended downward (see Table 2).

ⓘ NOTICE

Risk of damage to the valve or safety temperature monitor due to over- or under-torquing.

The connection between valve and safety temperature monitor must be tightened with a certain tightening torque. Excessive tightening torques lead to parts wearing out more quickly. Parts that are too loose may cause leakage.

Observe the specified tightening torques.

5.2 Additional fittings

Strainer

A strainer installed upstream in the flow pipe holds back any dirt or other foreign particles carried along by the medium. For example, the SAMSON Type 2 NI Strainer is suitable (▶ T 1015).

The following points must be observed when installing the strainer:

- Do not use the strainer to permanently filter the process medium.
- Install the strainer upstream of the regulator.
- Allow sufficient space to remove the filter.
- Observe the flow direction through the strainer.
- In horizontal pipelines with gases or liquids, the filter element faces downward.

- The filter element faces sideways in applications with steam.
- Install strainers in vertical pipelines with the medium flowing upward with the cover facing upward.

Shut-off valve

Install a hand-operated shut-off valve both upstream of the strainer and downstream of the regulator. This allows the plant to be shut down for cleaning and maintenance, and when the plant is not used for longer periods of time.

Thermometer

Install a thermometer both upstream and downstream of the regulator to monitor the temperatures prevailing in the plant.

5.3 Temperature sensor and capillary tube

⚠ NOTICE

Risk of irreparable regulator damage caused by the regulator components being taken apart.

Do not separate the safety thermostat from the capillary tube or temperature sensor.

Temperature sensor

The temperature sensor may be installed in either a horizontal or vertical position. However, make sure its entire length is immersed in the process medium to be controlled. It must be installed in a location where overheating or considerable idling times cannot occur.

- Weld a welding socket with G 1 female thread at the place of installation.
- Seal the sensor into welded socket.
- When a thermowell is used, SAMSON recommends filling the free space between sensor and thermowell with oil or, when installed horizontally, with grease or any other heat transfer medium to avoid delays during heat transmission. This prevents heat transfer delays. Observe the thermal expansion of the filling medium. Allow some space for expansion and do not fill the entire free space or slightly loosen sensor nut for pressure compensation.

⚠ NOTICE

Galvanic corrosion due to incorrectly selected materials of the mounting parts.

On installing the sensor or thermowell, only use similar materials (e.g. stainless steel with stainless steel or copper together with other copper materials).

Capillary tube

Carefully run the capillary tube (9) without bending or twisting it. Avoid locations with considerable ambient temperature fluctuations along the entire length of the tube.

⚠ NOTICE

Do not damage or shorten the capillary tube. Roll up excess tube to form a ring. The smallest permissible bending radius is 50 mm.

5.4 Excess temperature safeguard of the thermostat

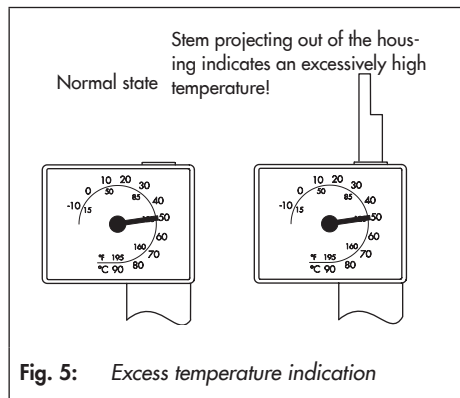


Fig. 5: Excess temperature indication

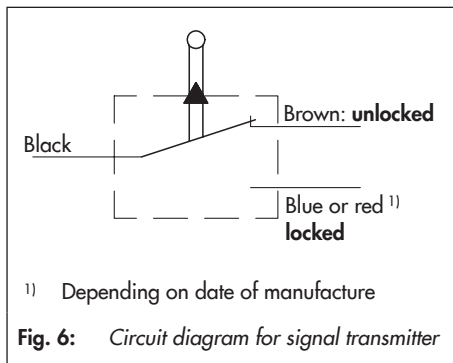
The temperature will exceed the adjusted limit if the valve cannot close due to dirt particles lodged between the seat and plug or due to a defective bellows. In this case, the excess temperature safeguard responds (see Fig. 5). The stem projecting out of the housing indicates a malfunction.

The valve must be repaired or serviced.

5.5 Electric signal transmitter

The safety temperature monitor can be fitted with an electric signal transmitter. The signal transmitter contains a microswitch (max. load 10 A, 125 V, 250 V) which generates a signal if the temperature limit is exceeded or if the sensor fails (capillary tube is broken).

Wire the microswitch according to Fig. 6.



1) Depending on date of manufacture

Fig. 6: Circuit diagram for signal transmitter

5.5.1 Retrofitting and adjusting a signal transmitter

See Fig. 7.

Retrofitting a signal transmitter

The electric signal transmitter (order no. 1690-5724) can be fitted as follows:

1. Unfasten the four screws (1) at the connecting part and remove the scale (2).
2. Take the ready-assembled transmitter out of the packaging. Remove the two bolts (5) and nuts (6). Take the switch (3) off the scale (4).
3. Secure the scale (4) to the connecting part using the four screws (1), ensuring that the pointer (7) of the travel stem is able to move in a straight line in the middle of the left window.
4. Align the switch (3) with the scale and secure the switch to the dial plate by slightly tightening the bolts (5) and nuts (6).

Adjusting the signal transmitter

1. Reduce the limit value of the safety temperature monitor by turning the key (10 in Fig. 3) until the pointer (7) of the travel stem reaches the value '0' on the scale.
2. Connect the black and the blue wires of the supply cable to a continuity tester or a test lamp.

3. Move the switch (3) slightly until the test lamp lights up. Then tighten the bolts (5).
4. For checking purposes, increase the limit value. The test lamp should go out.
5. Reduce the limit value. The test lamp should light up again when the value '0' is indicated on the scale.

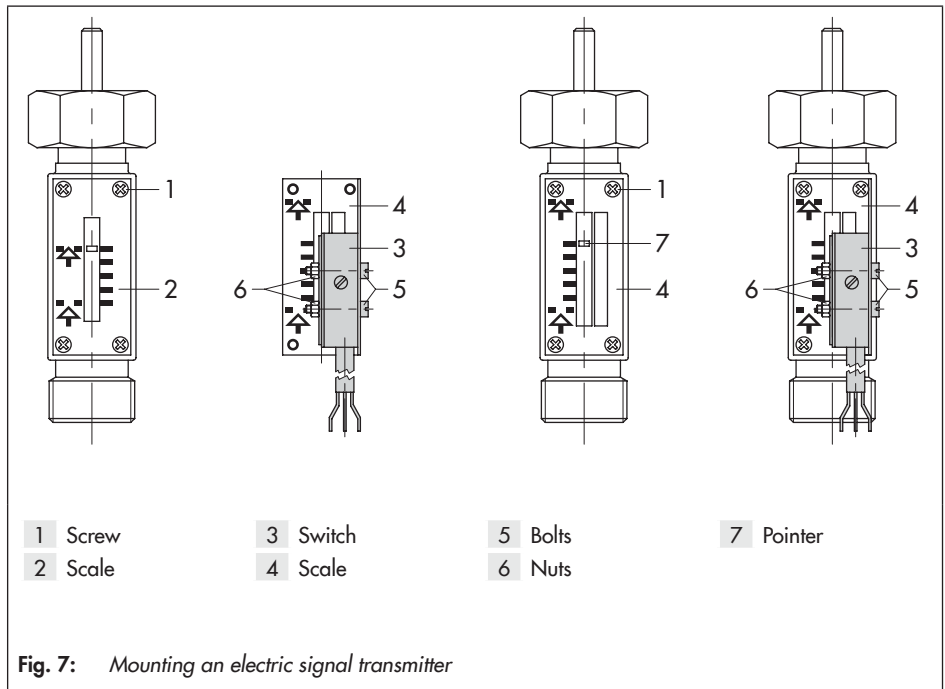


Fig. 7: Mounting an electric signal transmitter

5.6 Combination with differential pressure and flow regulators

If the safety temperature monitor is used in combination with Series 42 Differential Pressure and Flow Regulators, a separating piece must be mounted on the operating element of the safety temperature monitor to connect the actuator (Types 2424, 2427, 2428 and 2429 with force limiter).

i Note

Before installation, remove the snap ring on the pin of the separating piece.

Table 4: Separating pieces

| Version with separating piece | Order no. |
|-------------------------------|-----------|
| Brass (for water) | 1190-9948 |
| Stainless steel (for water) | 1590-7703 |
| Stainless steel (for oil) | 1590-7704 |

5.7 Start-up

⚠ DANGER

Risk of personal injury due to process medium escaping.

Do not start up the regulator until all parts have been mounted.

⚠ WARNING

Risk of burn injuries due to hot or cold components and pipelines.

Depending on the process medium, valve components and pipelines may get very hot or cold and cause burn injuries.

- Allow components and pipelines to cool down or warm up to the ambient temperature.
- Wear protective clothing and safety gloves.

ⓘ NOTICE

Malfunction and damage due to adverse weather conditions (temperature, humidity).

Do not install the safety temperature monitor outdoors or in rooms prone to frost. If such a location cannot be avoided, protect the regulator against freezing up if the process medium flowing through the valve can freeze up. Either heat the regulator or remove it from the plant and completely drain the residual medium.

! NOTICE

Risk of the valve being destroyed by steam hammering.

- Drain off any condensate in the pipeline.
- Vent the plant.

→ Fill the plant very slowly with the process medium on start-up.

Once the safety temperature monitor is mounted onto the valve, it can be put into operation.

5.7.1 Gases and liquids

- Open the shut-off valves slowly preferably starting from the upstream pressure side.
- Avoid pressure surges.

5.7.2 Steam

- Completely drain and dry steam lines to prevent water hammering.
- Slowly allow the steam to enter the plant to ensure that the pipes and valves warm up evenly and to avoid excessive flow velocities.
- Before the full capacity is reached, drain off the start-up condensate.
- Make sure that the air contained in the plant escapes as quickly as possible.
- Open the shut-off valves slowly preferably starting from the upstream pressure side.
- Avoid pressure surges.

6 Operation

See Fig. 3.

6.1 Adjusting the limit temperature

To adjust a different limit temperature in the safety temperature monitor, proceed as follows:

1. If the optional leading screw (13) is used, unscrew it upwards.
2. Use the key (10) to adjust the new limit value according to the dial. Slowly turn the key clockwise (↻) to increase the limit temperature and counterclockwise (↺) to reduce it.
3. Lift off the key (10) and screw the leading screw back into the housing, if applicable.

i Note

When the safety temperature monitor is combined with a Type 2231 to 2234 Control Thermostat, make sure that there is a minimum difference of approximately +15 K between the adjusted limit temperature of the safety temperature monitor and the set point temperature of the control thermostat.

6.2 Sensor failure

Indication of a defective sensor

In the event of a defective sensor (e.g. leakage in the sensor system), the green signal pin (8.2) disappears into the housing. In the normal state, the pin sticks out over the housing by approximately 1.5 cm.

6.3 Correcting the limit value dial

Due to ambient and temperature conditions, the adjusted limit temperature might not be the same as the temperature indicated by the reference thermometer.

To correct, proceed as follows:

1. Undo the screw labeled "Korrektur" on the back of the dial housing (14).
2. Turn the entire dial housing until the dial shows the same temperature as the reference thermometer.

Turn clockwise (↻) to increase the limit and counterclockwise (↺) to reduce it (viewed from the front with the dial housing on top).

A 360° turn corresponds to a limit change of approx. 1.5 K.

6.4 Fine adjustment of the limit temperature

In case you want to make fine adjustments to the safety temperature monitor or the limit value deviates, proceed as follows:

Fine adjustment using a heating bath

1. Remove the sensor from the pipeline (see Chapter 9.1).
2. Adjust the limit temperature of the safety temperature monitor to approx. 10 K below the required limit (see Chapter 6.1).
3. When a control thermostat is mounted on the safety temperature monitor, adjust the limit temperature to approx. 10 °C above the limit temperature.
4. Immerse the sensor of the safety temperature monitor completely into the heating bath with the correct temperature.
5. Check whether the safety temperature monitor has closed the valve (after approx. 5 min.). The travel indicator (8.3) must be at '0'.
6. **When the valve is still open:** slowly turn the key (10) at the safety temperature monitor clockwise (↻) to increase the limit until the valve closes.
When the valve is closed: turn the rotary knob clockwise (↻) three more times.
7. To calibrate the limit reading to the limit temperature, perform a correction (see Chapter 6.3).
8. When a control thermostat is mounted, readjust it to the required set point.
9. Reinstall the sensor into the pipeline (see Chapter 5.3).

Fine adjustment using a thermometer installed in the plant

1. Adjust the limit temperature of the safety temperature monitor to approx. 10 K below the required limit (see Chapter 6.1).
2. When a control thermostat is mounted on the safety temperature monitor, adjust the limit temperature to approx. 10 °C above the limit temperature.
3. Read the resulting temperature at the thermometer installed in the plant (after approx. 5 min.).
4. **When the limit temperature is still too low:**
slowly turn the key (10) at the safety temperature monitor clockwise (↻) to increase the limit until the temperature at the thermometer reaches and remains at the limit temperature.
After the temperature reaches the limit temperature:
turn the rotary knob clockwise (↻) three more times.
5. To calibrate the limit reading to the limit temperature, perform a correction (see Chapter 6.3).
6. When a control thermostat is mounted, readjust it to the required set point.

7 Servicing

The safety temperature monitor does not require any maintenance. Nevertheless, it is subject to natural wear, particularly at the soldered joints.

⚠ WARNING

Risk of personal injury due to residual process medium in the valve.

While exchanging the safety temperature monitor, residual process medium can escape and, depending on its properties, may lead to personal injury, e.g. (chemical) burns.

Wear protective clothing, safety gloves and eye protection.

⚠ WARNING

Risk of burn injuries due to hot or cold components and pipeline.

Valve components and the pipeline may become very hot or cold. Risk of burn injuries.

- *Allow components and pipelines to cool down or warm up to the ambient temperature.*

- *Wear protective clothing and safety gloves.*

NOTICE

Risk of damage to the valve or safety temperature monitor due to over- or under-tightening.

The connection between valve and safety temperature monitor must be tightened with a certain tightening torque. Excessive tightening torques lead to parts wearing out more quickly. Parts that are too loose may cause leakage.

Observe the specified tightening torques.

Note

The safety temperature monitor was checked by SAMSON before it left the factory.

- Certain test results certified by SAMSON lose their validity after the safety temperature monitor is opened.*
- The certification according to DIN EN 14597 loses its validity when the safety temperature monitor is opened.*

Tip

SAMSON's After-sales Service can support you in drawing up an inspection and test plan for your plant.

7.1 Preparation for return shipment

Defective devices can be returned to SAMSON for repair. Proceed as follows to return devices to SAMSON:

1. Put the device out of operation (see Chapter 9).
2. Decontaminate the valve. Remove any residual process medium.
3. Fill in the Declaration on Contamination. The declaration form can be downloaded from our website at www.samsongroup.com > Services > Check lists for after sales service > Declaration on Contamination.
4. Continue as described on our website at  www.samsongroup.com > Service > After-sales Service > Returning goods.

8 Malfunctions

The malfunctions listed in Table 5 are caused by mechanical faults and incorrect regulator sizing. In the simplest case, the functioning can be restored following the recommended action. Special tools may be required for repair work.

Exceptional operating and installation conditions may lead to changed situations that may affect the control response and lead to malfunctions. For troubleshooting, the conditions, such as installation, process medium, temperature and pressure conditions, must be taken into account.

SAMSON's After-sales Service can help during troubleshooting. Further information is available in Chapter 10.



Tip

SAMSON's After-sales Service can support you in drawing up an inspection and test plan for your plant.

i Note

Contact SAMSON's After-sales Service for malfunctions not listed in the table.

i Note

If the hydraulic system of the Type 2213 is defective (pressure loss), the STM cannot be unlocked as a result. It must be replaced with a new device.

9 Decommissioning and removal

⚠ DANGER

Risk of bursting in pressure equipment.

Valves and pipelines are pressure equipment. Improper opening can lead to bursting of the valve.

- Before starting any work on the valve, depressurize all plant sections affected as well as the valve.
 - Drain the process medium from the plant sections affected as well as from the valve.
 - Wear personal protective equipment.
-

⚠ DANGER

Risk of personal injury due to process medium escaping.

While removing the control thermostat/safety temperature monitor (STM)/safety temperature limiter (STL) from the valve, the sealed-off valve is opened. Residual process medium will escape and, depending on its properties, may lead to personal injury, e.g. (chemical) burns.

- Depressurize the plant.
 - Wear protective clothing, safety gloves and eye protection.
-

Table 5: Troubleshooting

| Malfunction | Possible reasons | Recommended action |
|--|--|---|
| Temperature exceeds the adjusted limit. | Temperature sensor installed in the wrong location. | → Install the temperature sensor into the pipeline in such a way that the heat flow is correctly measured. |
| | Foreign particles blocking the valve plug | → Remove foreign particles. → Replace damaged parts. |
| | Valve trim is worn out. | → Replace damaged parts. |
| The temperature adjusted at the control thermostat reaches the adjusted temperature limit. | Control thermostat defective | → Replace the control thermostat. |
| Temperature drops below the set point adjusted at the control thermostat. | Valve installed against the flow. | → Install the valve so that the direction of flow matches the direction indicated by the arrow on the body. |
| | Foreign particles blocking the valve plug | → Remove foreign particles. → Replace damaged parts. |
| | Temperature sensor installed in the wrong location. | → Install the temperature sensor into the pipeline in such a way that the heat flow is correctly measured. |
| | Valve or K_{VS}/C_V coefficient too small | → Check the sizing. → Change K_{VS}/C_V coefficient, if necessary or install a different sized regulator. |
| | Strainer blocked | → Clean the strainer. |
| | Safety temperature monitor has been triggered. | → Check temperature regulator to ensure it functions. → Check the set point of the control thermostat. → Replace the defective STM, if necessary. |
| Jerky control response. | Increased friction, e.g. due to foreign particles between seat and plug. | → Remove foreign particles. → Replace damaged parts. |
| Temperature fluctuates. | Valve too large | → Check the sizing. → Change K_{VS}/C_V coefficient, if necessary or install a different sized regulator. |
| | Temperature sensor installed in the wrong location. | → Install the temperature sensor into the pipeline in such a way that the heat flow is correctly measured (avoid dead times). |
| Leak at the joint between the valve and STM. | Seal is defective | → Replace damaged parts. → Contact SAMSON's After-sales Service. |

⚠ WARNING

Risk of personal injury due to residual process medium in the valve and safety temperature monitor.

While working on the valve/safety temperature monitor, residual medium can flow out of the valve and, depending on its properties, cause personal injury, e.g. (chemical) burns.

Wear protective clothing, safety gloves and eye protection.

⚠ WARNING

Risk of burn injuries due to hot or cold components and pipeline.

Valve components and the pipeline may become very hot or cold. Risk of burn injuries.

– Allow components and pipelines to cool down or warm up to the ambient temperature.

– Wear protective clothing and safety gloves.

9.1 Decommissioning

To decommission the safety temperature monitor before removing it, proceed as follows:

1. Close the shut-off valve on the upstream side of the valve.
2. Close the shut-off valve on the downstream side of the valve.
3. Completely drain the pipelines and valve.
4. Depressurize the plant. Shut off or disconnect the control line, if installed.
5. If necessary, allow the pipeline and device to cool down or warm up to the ambient temperature.
6. Remove the sensor from the pipeline and, if necessary, seal the opening.
7. Remove the safety temperature monitor from the valve.

9.2 Disposal



SAMSON is a producer registered at the following European institution
▶ <https://www.ewrn.org/national-registers/national-registers>.
WEEE reg. no.:
DE 62194439/FR 025665

- Observe local, national and international refuse regulations.
- Do not dispose of components, lubricants and hazardous substances together with your other household waste.

i Note

SAMSON can provide you with a recycling passport according to PAS 1049 on request. Simply e-mail us at aftersaleservice@samsongroup.com giving details of your company address.

Tip

On request, SAMSON can appoint a service provider to dismantle and recycle the product.

10 Appendix

10.1 After-sales service and spare parts

After-sales service

Contact SAMSON's After-sales Service for support concerning service or repair work or when malfunctions or defects arise.

E-mail address

You can reach our after-sales service at aftersaleservice@samsongroup.com.

Addresses of SAMSON AG and its subsidiaries

The addresses of SAMSON, its subsidiaries, representatives and service facilities worldwide can be found on our website (▶ www.samsongroup.com) or in all SAMSON product catalogs.

To assist diagnosis and in case of an unclear mounting situation, specify the following details (so far as possible). See Chapter 2:

- Device type and nominal size
- Model number or material number
- Upstream and downstream pressure
- Temperature and process medium
- Min. and max. flow rate
- Is a strainer installed?
- Installation drawing showing the exact location of the regulator and all the additionally installed components (shut-off valves, pressure gauge etc.)

Spare parts

There are no spare parts available for the safety temperature monitor.

11 Certificates

The EU and UKCA declarations of conformity are included on the next pages.

11.1 Information on the UK sales region

The following information corresponds to the Pressure Equipment (Safety) Regulations 2016, STATUTORY INSTRUMENTS, 2016 No. 1105 (UKCA marking). It does not apply to Northern Ireland.

Importer

SAMSON Controls Ltd
Perrywood Business Park
Honeycrook Lane
Redhill, Surrey RH1 5JQ
Phone: +44 1737 766391
E-mail: sales-uk@samsongroup.com
Website: uk.samsongroup.com

EU DECLARATION OF CONFORMITY
TRANSLATION



Module D, No. / N° CE-0062-PED-D-SAM 001-22-DEU

For the following products, SAMSON hereby declares under its sole responsibility:

Safety Temperature Monitor STM 2213

combined with valves

2111, 2114, 2118, 2119, 2421, 2422, 2423, 2423E, 2710 (2803, 2811, 2814, 2823)

the conformity with the following requirement.

Directive of the European Parliament and of the Council on the harmonization of the laws of the Member States relating to the making available on the market of pressure equipment. 2014/68/EU of 15 May 2014

EC Type Examination Certificate Module B Certificate no. 01 202 931-B-15-0032

Conformity assessment procedure applied Module D Certificate no. CE-0062-PED-D-SAM-001-22-DEU

The design is based on the procedures specified in the following standards:
DIN EN 12516-2, DIN EN 12516-3 or ASME B16.1, ASME B16.24, ASME B16.34, ASME B16.42

The manufacturer's quality management system is monitored by the following notified body:

Bureau Veritas Services SAS, 8 Cours du Triangle, 92800 PUTEAUX – LA DEFENSE, France
Manufacturer: SAMSON AG, Weismüllerstraße 3, 60314 Frankfurt am Main, Germany

Frankfurt am Main, 01. December 2022

A handwritten signature in black ink, appearing to read "ppc. A. Tollas".

Norbert Tollas
Senior Vice President
Global Operations

A handwritten signature in black ink, appearing to read "i. v. P. Scheermesser".

Peter Scheermesser
Director
Product Maintenance & Engineered Products

Revision 05



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

Sicherheitstemperaturwächter / Safety Temperatur Monitor / Contrôleur de température de sécurité Typ/Type/Type 2213

wird die Konformität mit den einschlägigen Harmonisierungsrechtsvorschriften der Union bestätigt/
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 |
| LVD 2014/35/EU | EN 60730-1:2016, EN 61010-1:2010 |
| RoHS 2011/65/EU | EN 50581:2012 |

Hersteller / Manufacturer / Fabricant:

SAMSON AKTIENGESELLSCHAFT
Weismüllerstraße 3
D-60314 Frankfurt am Main
Deutschland/Germany/Allemagne

Frankfurt / Francfort, 2017-07-29

Im Namen des Herstellers/ On behalf of the Manufacturer/ Au nom du fabricant.

Gert Nahler

Zentralabteilungsleiter/Head of Department/Chef de département
Entwicklung Automation und Integrationstechnologien/
Development Automation and Integration Technologies

Hanno Zager

Leiter Qualitätssicherung/Head of Quality Management/
Responsable de l'assurance de la qualité

es_2213_04_de_en_fr_0607.pdf

Zertifikat

Certificate

EG-Baumusterprüfung nach Richtlinie 97/23/EG

*EC-Type-Examination
in accordance with Directive 97/23/EC*

Zertifikat Nr.:

01 202 931-B-15-0032

Certificate no.:

Name und Anschrift des

Samson AG

Herstellers:

Weismüllerstraße 3

Name and address of manufacturer:

60314 Frankfurt a.M.

Hiermit wird bescheinigt, dass das unten genannte EG-Baumuster die Anforderungen der Richtlinie 97/23/EG erfüllt.

It is herewith certified that the EC-Type Example mentioned below meets the requirements of the Directive 97/23/EC.

Geprüft nach Richtlinie 97/23/EG:
Approved according to directive 97/23/EC

EG-Baumusterprüfung (Modul B)
EC Type examination (Module B)

EG-Baumuster-Prüfbericht Nr.:
EC type-approval report no.:

T 129 2015 B6 vom 03.12.2015

Typ:
Type:

Typ 2213 mit Stellgliedern / with valves 2111 (2811), 2111 (2710), 2114 (2814), 2118 (2713), 2119 (2803), 2422 (2814), 2423 (2823)

Beschreibung des Baumusters:
Description of the sample:

Stetig wirkender Sicherheitstemperaturwächter ohne Hilfsenergie
Temperature guard without auxiliary energy for continuous operation

Fertigungsstätte/Lieferer:
Manufacturing plant:

Samson AG
Weismüllerstraße 3
60314 Frankfurt a.M.

Gültig bis Ende:
Valid until end of:

12.2025

Das CE-Zeichen darf erst am Produkt angebracht und die Konformitätserklärung erst ausgestellt werden, wenn ein korrespondierendes Konformitätsbewertungsverfahren der Richtlinie 97/23/EG bezogen auf Produktion/Produkt vollständig erfüllt ist.

CE marking must not be affixed and the Declaration of Conformity not be issued prior to completion of the corresponding conformity assessment procedure according to Directive 97/23/EC.

Köln, 03.12.2015

Dipl.-Ing. Ruff

TUV Rheinland-Zertifizierungsstelle
für Druckgeräte der
TUV Rheinland Industrie Service GmbH
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 **TÜVRheinland®**
Precisely Right.



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