# MOUNTING AND OPERATING INSTRUCTIONS

**EB 5724 EN**

**Translation of original instructions**



**TROVIS 5724-3 (without fail-safe action)**
**TROVIS 5725-3 (with fail-safe action)**
**Electric Actuators with Process Controller**
for domestic hot water heating

Firmware version 2.22

Edition February 2026

### Note on these mounting and operating instructions

These mounting and operating instructions (EB) assist you in mounting and operating the device safely. The instructions are binding for handling SAMSON devices. The images shown in this document 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 additional questions not related to the contents of this document, 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:
▶ https://www.samsongroup.com/en/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 TROVIS 572x-3 Electric Actuator with Process Controller is an electric actuator with an integrated digital controller. It is designed for operating a mounted globe valve. In combination with the valve, the actuator is used to control the temperature of liquids or vapors in the pipeline. The electric actuator with process controller is suitable for throttling service in DHW applications.

The electric actuator with process controller is designed to operate under exactly defined conditions (e.g. thrust, travel). Therefore, operators must ensure that it is only used in operating conditions that meet the specifications used for sizing it at the ordering stage. In case operators intend to use the actuator 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 for limits and fields of application as well as possible uses (see Chapter 3).

### Reasonably foreseeable misuse

The actuator is not suitable for the following applications:

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

– Outdoor use

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 product (TROVIS 572x-3) must be mounted, started up, serviced and repaired by fully trained and qualified personnel only; the accepted industry codes and practices must be observed. According to the 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

No personal protective equipment is required for the direct handling of the product (TROVIS 572x-3). Work on the control valve on which the device is mounted or on the pipeline may be necessary when mounting or removing the device.

⇨ Observe the requirements for personal protective equipment specified in the valve documentation.

⇨ Check with the plant operator for details on further protective equipment.

### Revisions and other modifications

Revisions, conversions or other modifications of the product (TROVIS 572x-3) 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.

### Safety features

The actuator automatically switches off when one of the end positions is reached.

Upon supply voltage failure, a valve, which has an electric actuator with fail-safe action mounted on it, moves to a certain fail-safe position. The direction of the fail-safe action is specified on the nameplate of SAMSON actuators.

### Warning against residual hazards

The product (TROVIS 572x-3) has a direct influence on the control valve. To avoid personal injury or property damage, plant operators and operating personnel must prevent hazards that could be caused in the control valve by the process medium, the operating pressure, the signal 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.

### 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 to the operating personnel and to instruct them in proper operation. Furthermore, op-

erators must ensure that operating personnel or third parties 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, 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 product (TROVIS 572x-3) with a CE marking fulfills the requirements of the following Directives:

- RoHS Directive 2011/65/EU
- EMC Directive 2014/30/EU
- Low-voltage Directive 2014/35/EU

The declarations of conformity and certificates are included in Chapter 15.

The product (TROVIS 572x-3) with a CE marking is designed for use in low voltage installations.

⇨ For wiring, maintenance and repair, observe the relevant safety regulations.

**Referenced documents**

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

- Configuration Manual ▶ KH 5724 for TROVIS 5724-3 and 5725-3 Electric Actuators with Process Controller (detailed description of all functions and parameters)
- Mounting and operating instructions of the valve on which the electric actuator is mounted, e.g. for SAMSON valves:

▶ EB 3018 for Type 42-36 E Pressure-independent Control Valve (PICV)

▶ EB 5861 for Type 3260 Three-way Valve

▶ EB 5863 for Type 3226 Three-way Valve

▶ EB 5866 for Type 3222 Globe Valve

▶ EB 5867 for Type 3222 N Globe Valve

▶ EB 5868/5869 for Type 3213 and Type 3214 Globe Valves

▶ EB 8111/8112 for Type 3321 Globe Valve

▶ EB 8113/8114 for Type 3323 Three-way Valve

▶ EB 8131/8132 for Type 3531 Globe Valve for Heat Transfer Oil

▶ EB 8135/8136 for Type 3535 Three-way Valve for Heat Transfer Oil

## 1.1 Notes on possible severe personal injury

**⚠ DANGER**

**Risk of fatal injury due to electric shock.**

⇨ Before connecting the wiring, disconnect the supply voltage and protect it against unintentional reconnection.

⇨ Only use protective equipment that can be protected against unintentional reconnection of the power supply.

⇨ Do not open the back housing cover.

The electric actuator with process controller is protected against spray water (IP54).

⇨ Avoid jets of water.

The switching output L' may be live after the supply voltage has been connected.

⇨ Do not touch the switching output L'.

⇨ When the switching output is not used, deactivate it in function F16 ('Not active' setting ▶ KH 5724).

## 1.2 Notes on possible personal injury

**⚠ WARNING**

**Crush hazard arising from moving parts.**

The following applies to the form-fit version of the electric actuator:
The electric actuator contains moving parts (actuator and plug stems), which can injure hands or fingers if inserted into the actuator.

⇨ Do not insert hands or fingers into the yoke while the valve is in operation.

⇨ Before performing any work on the control valve or opening the electric device, disconnect the supply voltage and protect it against unintentional reconnection.

⇨ Do not impede the movement of the actuator or plug stem by inserting objects into their path.

**⚠ WARNING**

**Risk of personal injury due to incorrect operation, use or installation as a result of information on the actuator being illegible.**

Over time, markings, labels and nameplates on the actuator may become covered with dirt or become illegible in some other way. As a result, hazards may go unnoticed and the necessary instructions not followed. There is a risk of personal injury.

⇨ Keep all relevant markings and inscriptions on the device in a constantly legible state.

⇨ Immediately renew damaged, missing or incorrect nameplates or labels.

## 1.3 Notes on possible property damage

***NOTICE***

**Risk of actuator damage due to the supply voltage exceeding the permissible tolerances.**

The actuator is designed for use according to regulations for low-voltage installations.

⇨ Observe the permissible tolerances of the supply voltage.

***NOTICE***

**Risk of actuator damage due to incorrect wiring of the inputs.**

Incorrect wiring of the inputs may lead to excessively high voltages and damage the electric actuator with process controller.

⇨ Wire the inputs range according to the technical data.

***NOTICE***

**Risk of damage to the electric actuator with process controller due to over-torquing.**

Observe the specified torques when tightening the mounting parts of TROVIS 572x-3 Electric Actuators with Process Controller. Over-torquing leads to parts wearing out more quickly.

⇨ Observe the specified tightening torque.

***NOTICE***

**Risk of damage to the actuator by moving the actuator stem too far.**

The actuator stem of the electric actuators with process controller can be adjusted manually.

⇨ Move the actuator stem only as far as the bottom or top end position.

***NOTICE***

**Risk of damage to the electric actuator by moving the actuator stem incorrectly.**

⇨ Do not use a power tool to move the actuator stem.

***NOTICE***

**Malfunction due to a configuration that does not meet the requirements of the application.**

The electric actuator with process controller is configured for the specific application by setting configuration items and parameters.

⇨ Perform the configuration for the specific application during start-up and after a reset to default settings.

***NOTICE***

**Risk of damage to the screw heads on the front housing cover due to the use of the wrong tool.**

The front housing cover of the electric actuator is fastened using TORX PLUS® screws, size 10IP.

⇨ To screw or unscrew the screws, only use the following screwdrivers:

- TORX® T10
- TORX PLUS® 10IP
- Flat-blade screwdriver with 0.8 mm blade thickness and 4.0 mm blade width

***NOTICE***

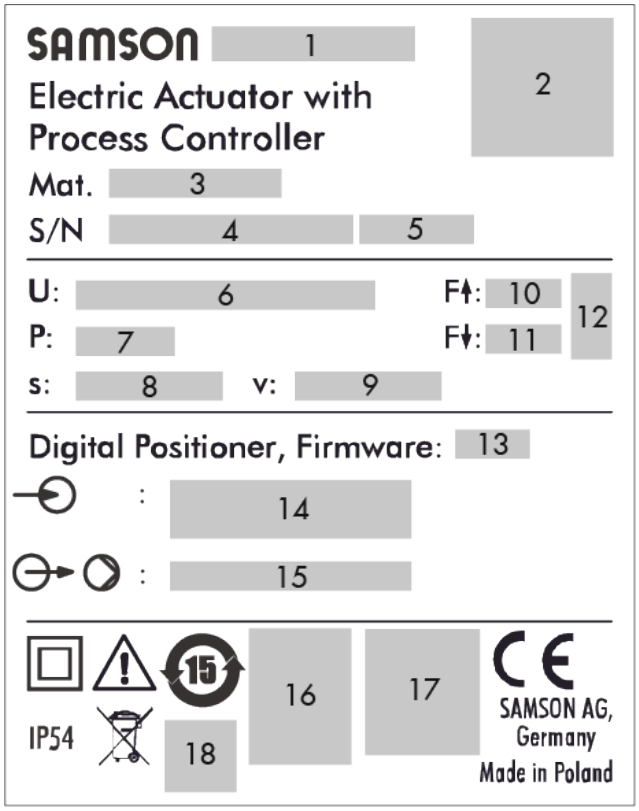
**Risk of damage to the electric actuator due to direct contact with steam.**

⇨ Make sure that a mounted actuator cannot come into contact with a jet of steam while the control valve is in operation.

# 2 Markings on the device

## 2.1 Nameplate

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.




1 Type designation
2 Identification code (scannable)
3 Material number
4 Serial number
5 Date of manufacture
6 Supply voltage; power line frequency
7 Power consumption
8 Rated travel
9 Stroking speed
10 Thrust (actuator stem retracts)
11 Thrust (actuator stem extends)
12 Fail-safe action
(TROVIS 5725-3 only)
13 Firmware version
14 Inputs
15 Outputs
16 DIN register number (TROVIS 5725-3 only)
17 Other mark of conformity
18 Other mark of conformity

## 2.2 Device code

| | | | | | | |
|---|---|---|---|---|---|---|
| **Electric Actuator with Process Controller** | **TROVIS 572** | **x** | **–** | **3** | **x** | **x** |
| | | I | | | I | I |
| **Fail-safe action** | | I | | | I | I |
| Without | | 4 | | | I | I |
| Actuator stem extends | | 5 | | | I | I |
| **Rated travel/adaptation** | | | | | I | I |
| 6 mm/force-locking | | | | | 1 | I |
| 12 mm/force-locking | | | | | 2 | I |
| 15 mm/form-fit | | | | | 3 | I |
| **Movement of the actuator stem** | | | | | | I |
| Standard | | | | | | 0 |
| Double speed | | | | | | 3 |

## 2.3 Firmware versions

| **Firmware revisions** | |
|---|---|
| **Old** | **New** |
| **2.11** | **2.13** |
| | Additional setting option 'Circulation pump (heating) reversed' in **Function of switching output (F16)** (see Chapter 16 and Configuration Manual ▶ KH 5724). |
| **2.13** | **2.20** |
| | New **pump protection function (F17)** (see Chapter 16 and Configuration Manual ▶ KH 5724). |
| **2.20** | **2.22** |
| | Internal revisions |

# 3 Design and principle of operation

The TROVIS 5724-3 or TROVIS 5725-3 Electric Actuator with Process Controller is an electric actuator with an integrated digital controller.

They are especially designed for DHW heating in instantaneous heating systems for small to medium-sized buildings and for fixed set point control circuits in mechanical engineering applications. They are particularly suitable for mounting to the following SAMSON valves:

- Type 3213
- Type 3214
- Type 3222
- Type 3226
- Type 3260

A special version of Type 3222 (DN 15) and Type 3222 N (DN 15) with a special plug design is available for small installations (apartment or house). As a result, even small tapping amounts can be controlled.

**Design**

⇨ See Fig. 1.

The electric actuator with process controller contains a reversible synchronous motor and a maintenance-free gear. The synchronous motor is switched off by torque switches when an end position is reached or in case the motor is overloaded. The output signal of the integrated digital controller acts over the positioner on the synchronous motor of the actuator. The force of the motor is transmitted to the actuator stem (3) via gearing and crank disk. When the actuator stem extends, it pushes against the valve's plug stem.

The force of the motor is transmitted to the actuator stem (3) via gearing and crank disk. When the actuator stem extends, the actuator piston (3) pushes against the valve's plug stem. When the actuator stem retracts (force-locking attachment), the plug stem follows the movement of the actuator stem as a result of the return spring in the valve.

When the actuator stem retracts (form-fit attachment), the plug stem is connected to the actuator stem and follows its movement.

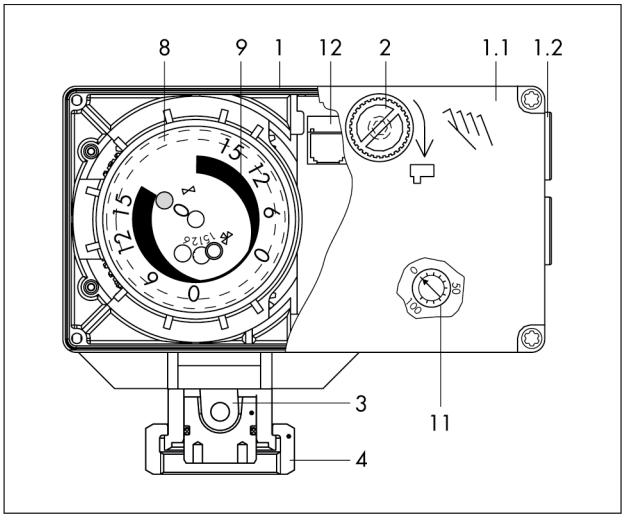



**Fig. 1:** *TROVIS 5724-3 Electric Actuator with Process Controller (force-locking attachment)*

1 Electric actuator with process controller
1.1 Front housing cover
1.2 Cable entry
2 Handwheel (TROVIS 5724-3 only)
3 Actuator stem
4 Coupling nut
8 Spring mechanism
9 Travel indication scale
11 Set point potentiometer
12 Serial interface (RJ12 port)

## 3.1 Manual override

⇨ See Chapter 8.4.1.

⇨ See Fig. 1.

The actuator version without fail-safe action has a handwheel (2) used to manually position the valve. Travel and direction of action can be read off the travel indication scale (9).

The actuator version with fail-safe action largely corresponds to the version without fail-safe action described above. However, the actuator contains a spring assembly (8) and an electromagnet, which move the connected valve to its fail-safe position when de-energized. It does not have a handwheel (2). After disconnecting the supply voltage and removing the front housing cover (1.1), manual operation is possible with a hex screwdriver. The actuator stem returns to its original position as soon as the hex screwdriver is released.

## 3.2 Sample application

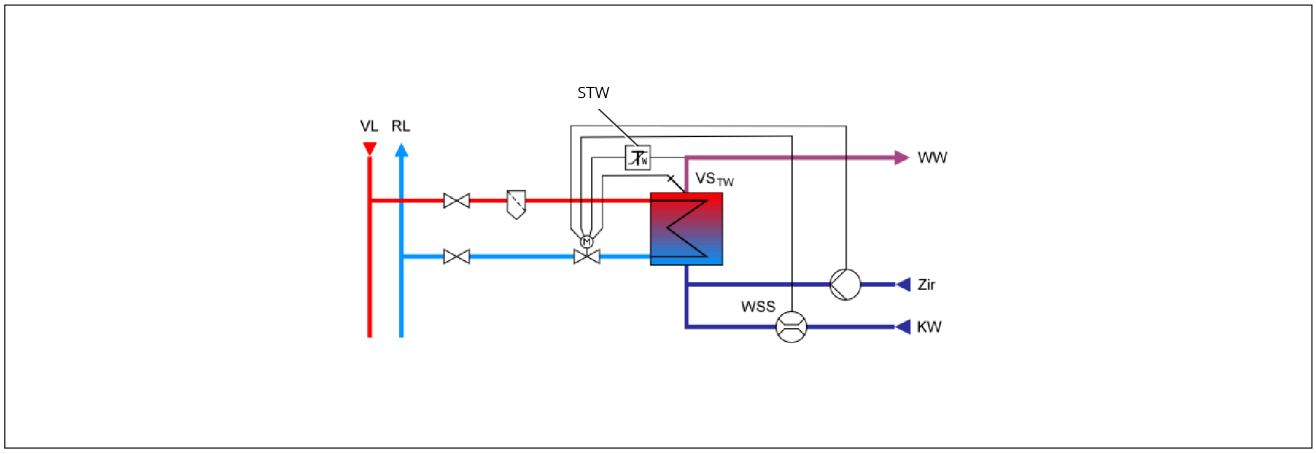



**Fig. 2:** *DHW heating in instantaneous heating system · Sample application*

VL Flow
RL Return
STW Safety temperature monitor
WW Hot water
$VS_{TW}$ Flow sensor
WSS Water flow sensor
Zir Circulation pipe
KW Cold water

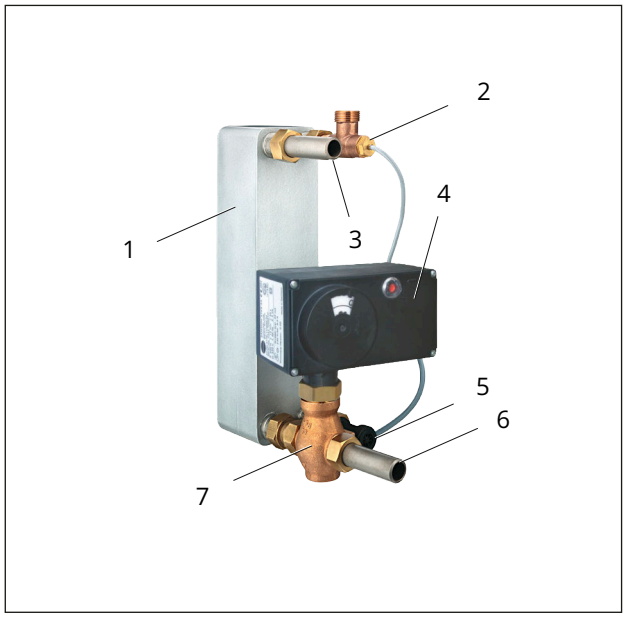



**Fig. 3:** *TROVIS 5725-3 Electric Actuator with Process Controller*

1 Heat exchanger
2 Temperature sensor including sensor pocket ($VS_{TW}$)
3 Supply from district heating network
4 TROVIS 5725-3 Electric Actuator with Process Controller
5 Water flow sensor with cable
6 Return to district heating network (RL)
7 Valve, e.g. Type 3222

## 3.3 Electrical equipment

### Inputs

The integrated digital controller has a temperature sensor on the input side. In addition to the temperature sensor input, the digital controller has a 0/4 to 20 mA current input. It can also be used either instead of the temperature sensor or to connect an external reference variable.

The actuator requires a Pt1000 temperature sensor (e.g. Type 5207-0060) to be connected for it to function. The fast-response Pt1000 sensor allows the temperature to be controlled to the corresponding set point almost immediately. The use of the Type 5207-0060 Pt1000 Sensor is recommended in conjunction with a sensor pocket to provide optimal positioning of the temperature sensor at the heat exchanger.

The 0/4 to 20 mA current input can be used in place of the Pt1000 sensor for control purposes or as the reference variable.

In addition, a water flow sensor or a flow switch can be connected to quickly recognize when hot water is being tapped or to improve the control accuracy even further.

Sample application (see Fig. 2)

### Output

A circulation pump (heating or DHW) can be control with the 230 V switching output (see Chapter 3.6).

Alternatively, the switching output can be used as fault alarm output or can be configured to register the tapping of hot water. The actuator is configured with the TROVIS-VIEW software.

### Settings

The set point of the digital controller is set to 60 °C and a second set point is set to 70 °C. They can be changed in TROVIS-VIEW by connecting the computer over a connecting cable to the RS-232 interface on the actuator or by using a memory pen.

The controlled variable, control behavior and the actuator's direction of action can also be changed in the same way.

The set point can also be adjusted at the set point potentiometer on the device. The controlled variable, control behavior and other parameters can be changed in the same way.

⇨ See Chapter 8.

## 3.4 Fail-safe action

The TROVIS 5725-3 Electric Actuator with Process Controller features fail-safe action. It is fitted with a spring mechanism and an electromagnet. The actuator is moved by the force of the spring to the lower end position when the electromagnet is de-energized.

The actuator stem of TROVIS 5724-3 remains in its last position in the event of supply voltage failure.

### Testing according to DIN EN 14597

TROVIS 5725-3 Electric Actuators with “actuator stem extends” fail-safe action, which have a test mark on their nameplate, are tested by the German technical surveillance association TÜV according to DIN EN 14597 in combination with different SAMSON valves (the register number is available on request).

**NOTICE**

***Increased wear and shortened service life of the actuator.***

⇨ *Do not use the fail-safe action to control the valve position.*

A handwheel is not fitted on the front housing cover of the TROVIS 5725-3 Electric Actuator. Manual override is possible, after removing the cover, using a 4 mm hex screwdriver. The actuator stem immediately returns to the lower end position as soon as the hex screwdriver is removed from the actuating shaft.

## 3.5 Communication

### Serial interface

The actuator is fitted with an RS-232 serial interface as standard. This allows communication with TROVIS-VIEW using SSP protocol.

**Note**

*The serial interface is exclusively intended for servicing purposes. It must only be used temporarily and not permanently.*

### Configuration

The actuator can be configured with the TROVIS-VIEW software. In this case, the serial interface on the actuator is used to connect the actuator to the computer. The TROVIS-VIEW software enables the user to easily configure the positioner as well as view process parameters online.

**Note**

*TROVIS-VIEW can be downloaded free of charge from the SAMSON website at ▶ www.samsongroup.com > DOWNLOADS > Software & Drivers > TROVIS-VIEW Further information on TROVIS-VIEW (e.g. system requirements) is available on our website and in the Data Sheet ▶ T 6661 as well as in the Operating Instructions ▶ EB 6661.*

## 3.6 Technical data

**Table 1:** *Technical data*

| TROVIS | | 5724 | | | | | | 5725 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | -310 | -313 | -320 | -323 | -330 | -333 | -310 | -313 | -320 | -323 | -330 | -333 |
| Fail-safe action | | Without | | | | | | Extends | | | | | |
| Rated travel in mm | | 6 | 6 | 12 | 12 | 15 | 15 | 6 | 6 | 12 | 12 | 15 | 15 |
| Transit time in s for rated travel | | 35 | 18 | 70 | 36 | 90 | 45 | 35 | 18 | 70 | 36 | 90 | 45 |
| Transit time in s in the event of fail-safe action | | – | | | | | | 4 | 4 | 6 | 6 | 7 | 7 |
| Thrust in N | | 700 | | | | | | 500 | | | | 280 | |
| Thrust in N in the event of fail-safe action | | – | | | | | | 500 | | | | 280 | |
| Attachment | Force-locking | ✓ | ✓ | ✓ | ✓ | – | – | ✓ | ✓ | ✓ | ✓ | – | – |
| | Form-fit | – | – | – | – | ✓ | ✓ | – | – | – | – | ✓ | ✓ |
| Manual override | | ✓ | | | | | | Possible [1] | | | | | |
| Supply voltage | | 230 V (±10 %) [2], 50 Hz | | | | | | | | | | | |
| Power consumption in VA | | 4 | 8 | 4 | 8 | 4 | 8 | 5.5 | 9.5 | 5.5 | 9.5 | 5.5 | 9.5 |
| **Permissible temperature ranges** [3] | | | | | | | | | | | | | |
| | Ambient | 0 to 50 °C | | | | | | | | | | | |
| | Storage | -20 to +70 °C | | | | | | | | | | | |
| **Safety** | | | | | | | | | | | | | |
| Degree of protection | | IP54 according to EN 60529[4] | | | | | | | | | | | |
| Class of protection | | II according to EN 61140 | | | | | | | | | | | |
| Device safety | | II according to EN 61010-1 | | | | | | | | | | | |
| Noise immunity | | According to EN 61000-6-2 and EN 61326-1 | | | | | | | | | | | |
| Noise emission | | According to EN 61000-6-3 and EN 61326-1 | | | | | | | | | | | |
| Vibration | | According to EN 61000-6-2 and EN 60068-2-27 | | | | | | | | | | | |
| Conformity | | CE | | | | | | | | | | | |
| **Inputs and outputs** | | | | | | | | | | | | | |
| Binary input BE1 [5] | | Floating contact for internal set point switchover or to deactivate the function to maintain the heat exchanger at a constant temperature | | | | | | | | | | | |
| Binary input BE2 [5] | | Floating contact to connect a flow switch | | | | | | | | | | | |
| Switching output | | 230 V, 50 Hz, max. 1 A | | | | | | | | | | | |
| **Material** | | | | | | | | | | | | | |
| | Housing, housing cover | Plastic (PPO with glass fiber reinforcement) | | | | | | | | | | | |
| | Coupling nut M32x1.5 | Brass | | | | | | | | | | | |
| Weight in kg | | 1.1 | | | | | | 1.3 | | | | | |
| **Accessories** | | | | | | | | | | | | | |
| Temperature sensor | | Pt1000, fast response | | | | | | | | | | | |

| TROVIS | 5724 | | | | | | 5725 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | -310 | -313 | -320 | -323 | -330 | -333 | -310 | -313 | -320 | -323 | -330 | -333 |
| Water flow sensor | 530 pulses/l, measuring range 1 to 30 l/min | | | | | | | | | | | |
| Flow switch[6] | Alternative to water flow sensor | | | | | | | | | | | |

1) Manual override using a 4 mm hex screwdriver (after removing the front housing cover); actuator always returns to fail-safe position after release

2) For actuators tested according to DIN EN 14597: -15/+10 %

3) The permissible medium temperature depends on the valve on which the electric actuator is mounted. The limits in the valve documentation apply.

4) Upright installation only up to device index .03. See last two figures of the configuration ID: Var.-ID:xxxxxxx.xx (see nameplate).

5) Recommendation: use devices with gold contacts when using relays.

6) The flow switch or water flow sensor is not required in DHW heating in instantaneous systems with a constant circulation.

## 3.7 Dimensions

### Electric actuators with process controller

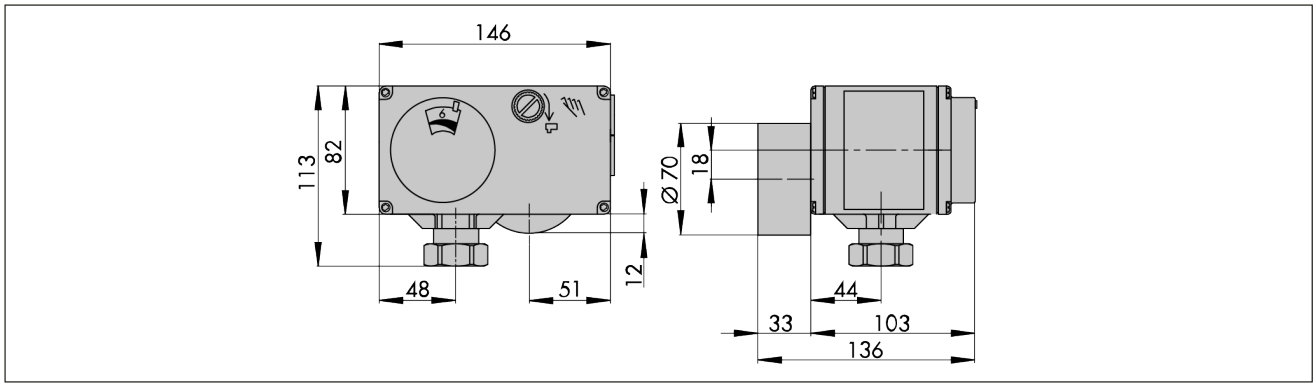



**Fig. 4:** *Dimensions in mm · TROVIS 5724-313/-323, TROVIS 5725-313/-323*

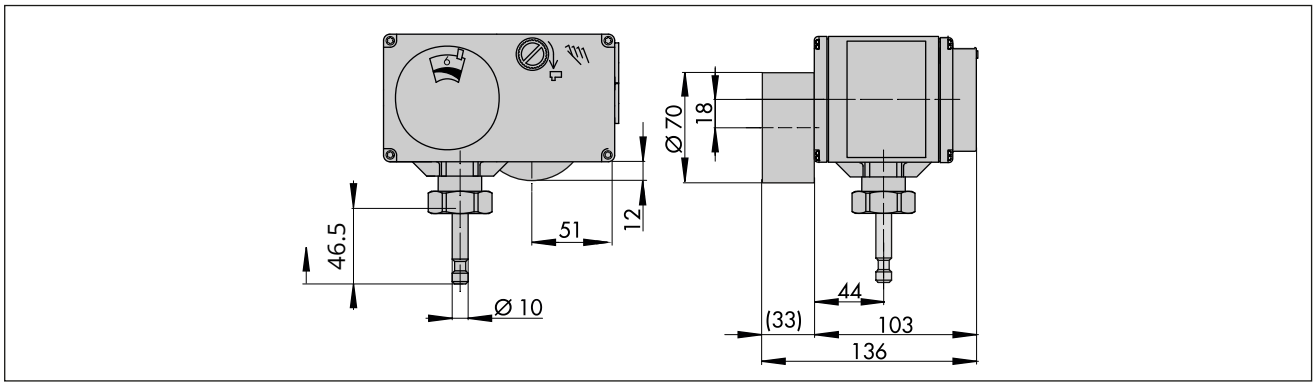



**Fig. 5:** *Dimensions in mm · TROVIS 5724-333, TROVIS 5725-333*

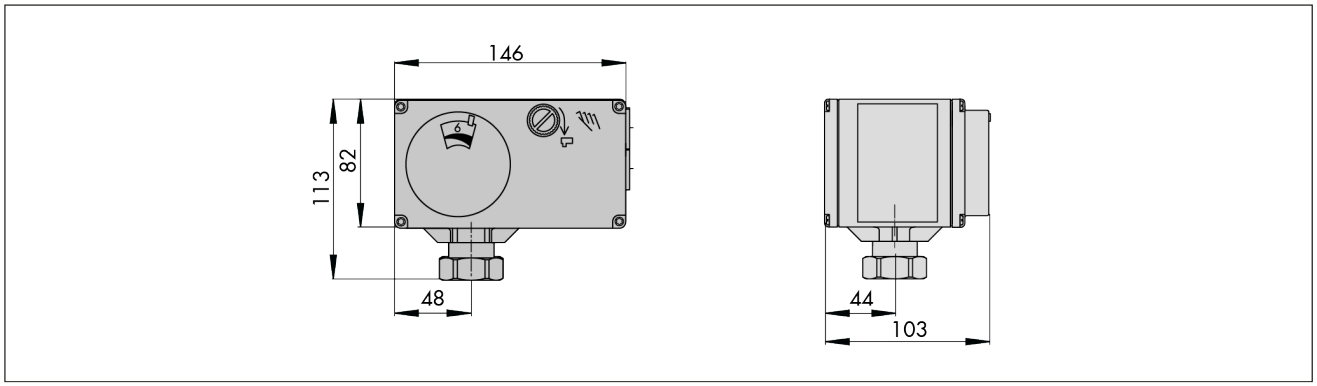



**Fig. 6:** *Dimensions in mm · TROVIS 5724-310/-320, TROVIS 5725-310/-320*

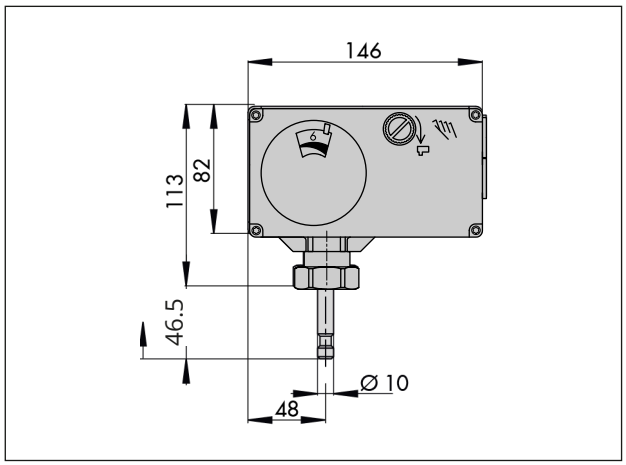



**Fig. 7:** *Dimensions in mm · TROVIS 5724-330, TROVIS 5725-330*

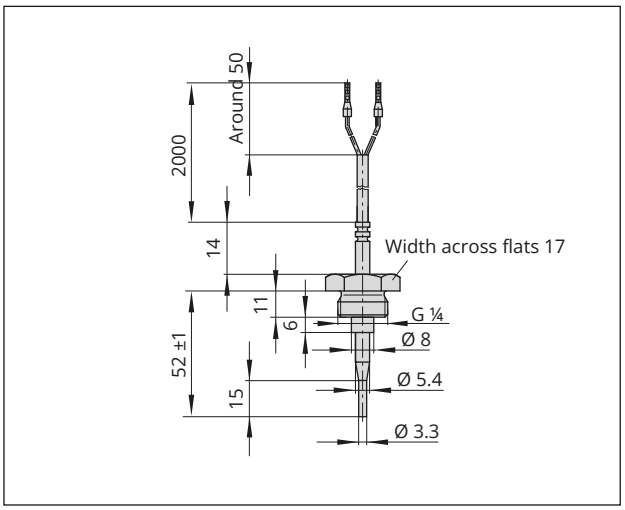



**Fig. 9:** *Type 5207-0060 Pt1000 Sensor*

Technical data (▶ T 5222)

## Accessories · Sensors

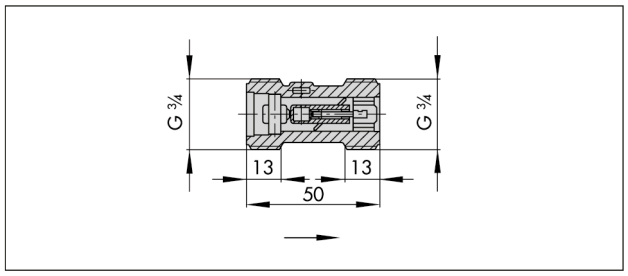



**Fig. 8:** *Water flow sensor*

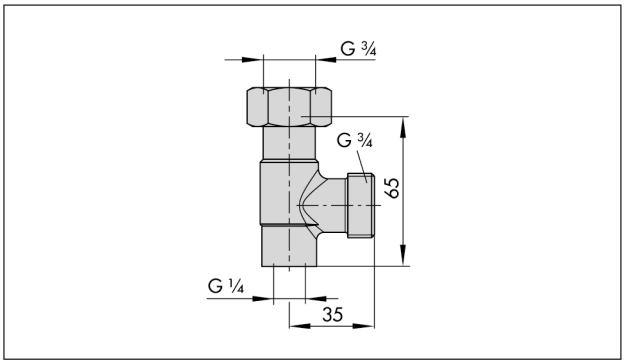



**Fig. 10:** *Sensor pocket (including gasket) for heat exchanger with G ¾*

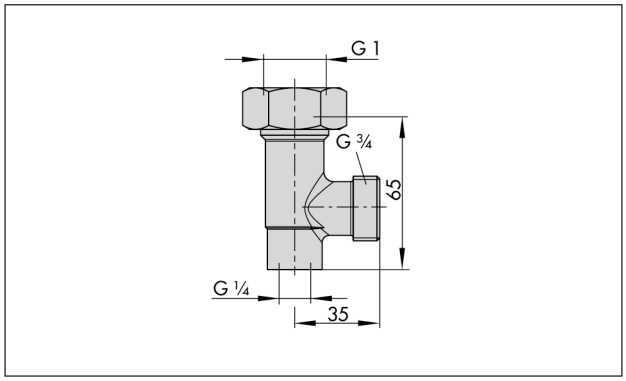



**Fig. 11:** *Sensor pocket (including gasket) for heat exchanger with G 1*

## Accessories · Connections

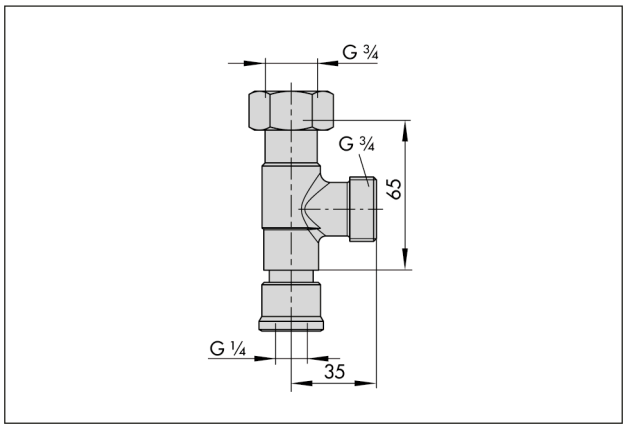



**Fig. 12:** *Circulation pipe connection (including gasket)*

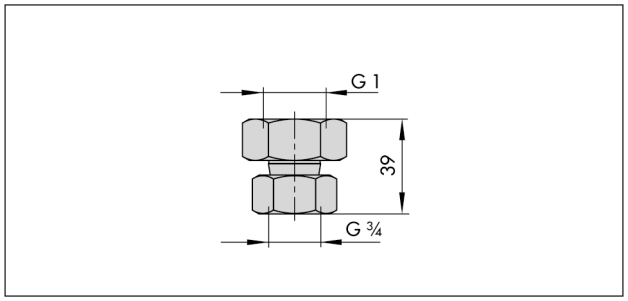



**Fig. 13:** *Connecting piece (including gasket) for valve G 1*

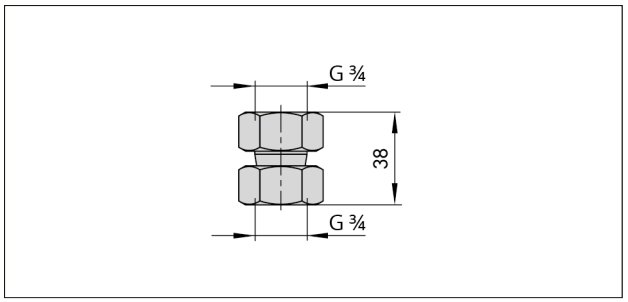



**Fig. 14:** *Connecting piece (including gasket) for G ¾ valve*

# 4 Shipment and on-site transport

The work described in this chapter is to be performed only by personnel appropriately qualified to carry out such tasks.

## 4.1 Accepting the delivered goods

After receiving the shipment, proceed as follows:

1. 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).

## 4.2 Removing the packaging from the electric actuator

**i Note**

*Do not remove the packaging until immediately before mounting and start-up.*

1. Removing the packaging from the electric actuator
2. Check scope of delivery.
3. Dispose of the packaging in accordance with the valid regulations.

**Scope of delivery**

| |
|---|
| 1x TROVIS 5724-3 or TROVIS 5725-3 Electric Actuator with Process Controller<br>1x IP 5724 EN document |

## 4.3 Transporting the electric actuator

– Protect the electric actuator against external influences (e.g. impact).

– Protect the electric actuator against moisture and dirt.

– Observe the permissible storage temperature from -20 to +70 °C.

## 4.4 Lifting the electric actuator

Due to the low service weight, lifting equipment is not required to lift the electric actuator.

## 4.5 Storing the electrical actuator

**! NOTICE**

***Risk of actuator damage due to improper storage.***

⇨ *Observe the storage instructions.*

⇨ *Avoid longer storage periods.*

⇨ *Contact SAMSON in case of different storage conditions or longer storage times.*

**i Note**

*SAMSON recommends to regularly check the electric actuator and the prevailing storage conditions during long storage periods.*

**Storage instructions**

– Protect the electric actuator against external influences (e.g. impact).

– Protect the electric actuator against moisture and dirt.

– Do not place any objects on the electric actuator.

– Observe the permissible storage temperature from -20 to +70 °C.

– Do not place any objects on the electric actuator.

– Do not place any objects on the electric actuator.

# 5 Installation

## 5.1 Installation conditions

**Work position**

If not described otherwise in the valve documentation, the work position for the control valve is the front view looking onto the operating controls.

**Point of installation**

The electric actuator must only be used indoors.

**NOTICE**

***Risk of actuator damage or malfunction due to adverse weather conditions.***

⇨ *Do not install the actuator outdoors.*

### 5.1.1 Mounting position

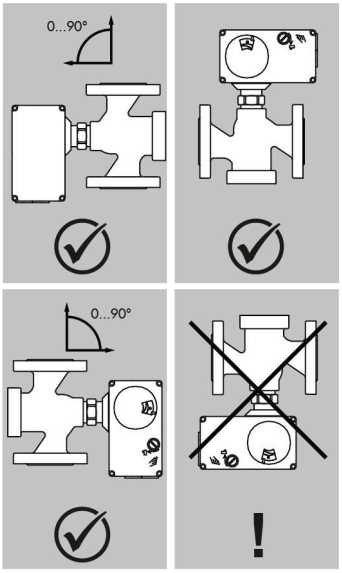



**Fig. 15:** *Mounting position*

The control valve can be installed in the pipeline in any desired position. However, a suspended mounting position of the actuator is not permissible.

The cable entry must not face upward after installation.

**Note**

*The degree of protection IP54 can only be achieved up to device index .03 when the actuator is installed in the upright position. The last two figures of the configuration ID represent the device index.*

⇨ *See Chapter 2.1.*

## 5.2 Preparation for installation

Before installation, make sure the following conditions are met:

– The actuator is not damaged.

Proceed as follows:

⇨ Lay out the necessary material and tools to have them ready during installation work.

**Cover screws**

The front housing cover of the electric actuator is fastened using TORX PLUS ®screws, size 10IP.

To screw or unscrew the screws, the following screwdrivers can be used:

– TORX® T10
– TORX PLUS®10IP
– Flat-blade screwdriver with 0.8 mm blade thickness and 4.0 mm blade width

## 5.3 Aligning the travel indication scale

The travel indication scale has two opposed scales. Which scale is to be used depends on the valve version. In the delivered state, the scale alignment applies to globe valves and three-way diverting valves.

⇨ Change the alignment when a three-way mixing valve is used.

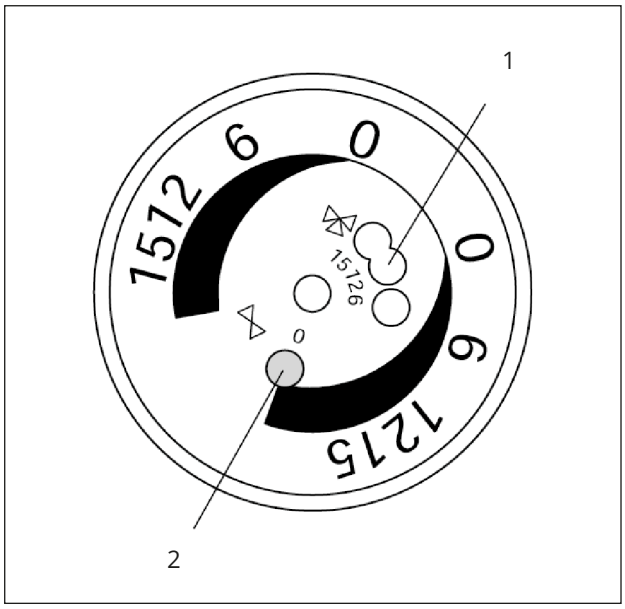



**Fig. 16:** *Travel indication scale*

1 Hole for driving pin with three-way mixing valve
2 Driving pin in position 0, location of scale with globe or three-way diverting valves (delivered state)

The driving pin is in position 0 (delivered state).

⇨ Carefully open the front housing cover.

⇨ Remove scale, turn it and replace it so that the pin is positioned over the appropriate hole (6, 12 or 15) corresponding to the rated travel (6, 12 or 15 mm travel).

**i *Note***

*SAMSON recommends screwing the bottom screws of the open front housing cover into the top holes of the housing.*

⇨ Replace the front housing cover. Insert and tighten screws.

## 5.4 Mounting the electric actuator

The electric actuator is mounted either directly onto the valve or using a yoke depending on the valve version used (see Fig. 17).

**! *NOTICE***

***Risk of damage to the electric actuator with process controller due to over-torquing.***

*Observe the specified torques when tightening the mounting parts of TROVIS 572x-3 Electric Actuators with Process Controller. Over-torquing leads to parts wearing out more quickly.*

⇨ *Observe the specified tightening torque.*

**! *NOTICE***

***Risk of damage to the actuator by moving the actuator stem too far.***

*The actuator stem of the electric actuators with process controller can be adjusted manually.*

⇨ *Move the actuator stem only as far as the bottom or top end position.*

**⚠ WARNING**

***Crush hazard arising from moving parts.***

*The form-fit version of the electric actuator contains moving parts (actuator and plug stems), which can injure hands or fingers if inserted into the actuator.*

⇨ *Do not insert hands or fingers into the yoke while the valve is in operation.*

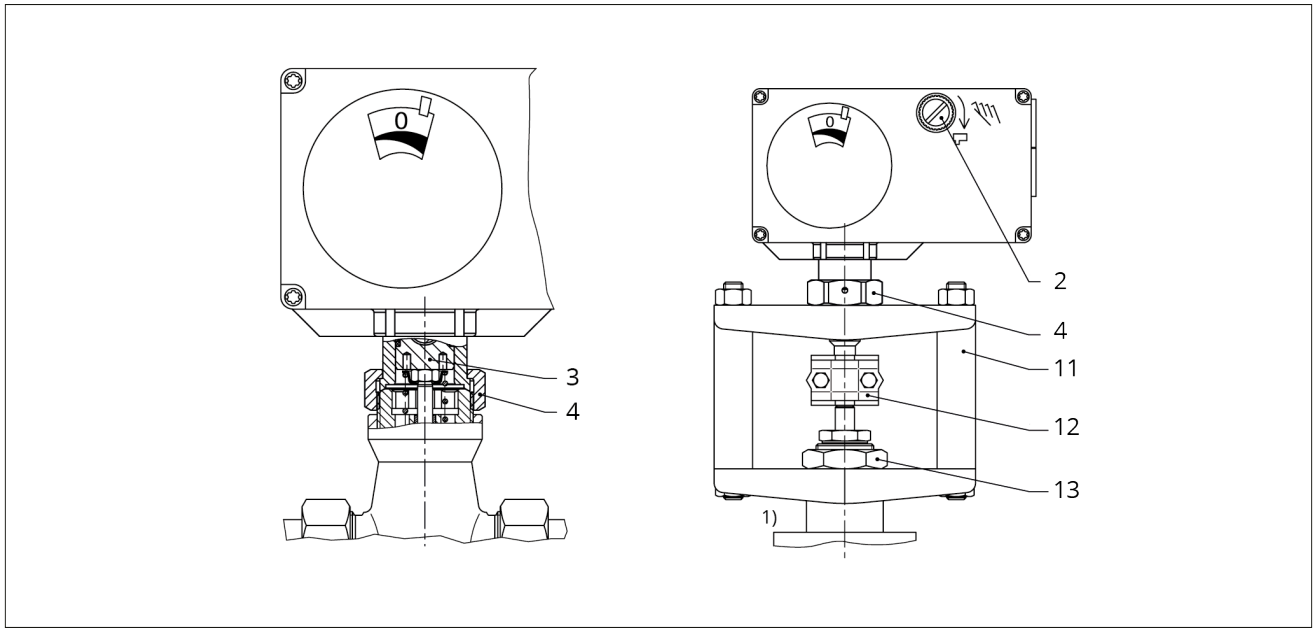



**Fig. 17:** *Attaching actuator and valve*

1) A spacer (accessories) is required here to mount a Type 3323 Three-way Valve.
2 Handwheel (TROVIS 5725-3 only)
3 Plug stem
4 Coupling nut
11 Rod-type yoke
12 Stem connector
13 Hex nut

## 5.4.1 Mounting · TROVIS 5724-3

⇨ See Fig. 17.

**Force-locking attachment**

1. Turn the handwheel (2) counterclockwise to retract the actuator stem.
2. Place the actuator on the valve connection. Thread on and tighten the coupling nut (4).

| | |
|---|---|
| Tightening torque | 20 Nm |

**Form-fit attachment**

1. Place the actuator on the yoke. Thread on and tighten the coupling nut (4).

| | |
|---|---|
| Tightening torque | 20 Nm |

2. Place actuator with yoke (11) on the valve. Thread on and tighten the nut (13).

| | |
|---|---|
| Tightening torque | 150 Nm |

**i *Note***

*A spacer (see Chapter 16) is required to mount a Type 3323 Three-way Valve.*

3. Pull plug stem until it reaches the actuator stem or extend actuator stem using the handwheel (2).
4. Position the clamps of the stem connector (12) included in the accessories on the ends of the actuator stem and plug stem. Fasten tight with screws.

## 5.4.2 Mounting · TROVIS 5725-3

⇨ See Fig. 17.

**Force-locking attachment**

The actuator stem must be retracted before the actuator can be mounted onto the valve. The stem can be retracted either mechanically or electrically. Both methods are described below.

**Retracting the actuator stem mechanically**

1. Remove the front housing cover and place a 4 mm hex screwdriver on the red actuating shaft.
2. Retract the actuator stem: Turn hex screwdriver counterclockwise and only as far as the top end position which is at the point where the torque switch is activated (see Chapter 6).
3. Hold the hex screwdriver in place. Thread on and tighten the coupling nut.

| | |
|---|---|
| Tightening torque | 20 Nm |

**Retracting the actuator stem electrically**

1. Remove the front housing cover.
2. Connect the wiring as shown in Chapter "Electrical connection".
3. Connect the supply voltage to the electric actuator. Connect the computer to the actuator at the RJ12 port.
4. Retract the actuator stem in the manual level in TROVIS-VIEW. Fasten valve and actuator together using the coupling nut.

| | |
|---|---|
| Tightening torque | 20 Nm |

**Form-fit attachment**

⇨ Mount the electric actuator as described in Chapter 5.4.1.

## 5.5 Installing the control valve into the pipeline

**NOTICE**

***Risk of actuator damage or malfunction due to adverse weather conditions.***

⇨ *Do not install the actuator outdoors.*

**NOTICE**

***Degree of protection not achieved due to incorrect mounting position.***

⇨ *Do not install the valve with the actuator suspended downwards (see Chapter 5.1).*

**NOTICE**

***Risk of actuator damage due to direct contact with steam.***

⇨ *Make sure that a mounted actuator cannot come into contact with a jet of steam while the control valve is in operation.*

⇨ Install the valve into the pipeline according the specifications in the mounting and operating instructions of the valve.

## 5.6 Installing the accessories

**DHW tapping recognition**

⇨ Install the water flow sensor or flow switch into the pipeline (see associated documentation).

**Temperature sensor**

⇨ Install the sensor pocket into the pipeline (see associated documentation).

**Tip**

*SAMSON recommends mounting the sensor directly on the heat exchanger.*

## 5.7 Electrical connection

**DANGER**

***Risk of fatal injury due to electric shock.***

⇨ *Upon installation of the electric cables, you are required to observe the regulations concerning low-voltage installations according to DIN VDE 0100 as well as the technical connection requirements of your local energy supplier.*

⇨ *Use a suitable voltage supply which does not allow any dangerous voltage to reach the device in normal operation or in the event of a malfunction in the system or any other system parts.*

⇨ *Only perform the electrical connection after disconnecting the supply voltage. Make sure the supply voltage cannot be reconnected unintentionally.*

⇨ *Use approved cable glands with cable grip at the cable entry.*

⇨ *Do not touch the live switching output L'.*

**NOTICE**

***Risk of actuator damage due to incorrect wiring of the inputs.***

⇨ *Wire the inputs according to the technical data (see Chapter 3.6).*

**NOTICE**

***Risk of damage to the screw heads on the front housing cover due to the use of the wrong tool.***

⇨ *To screw or unscrew the screws, only use TORX® T10, TORX PLUS® 10IP or a flat-blade screwdriver with 0.8 mm blade thickness and 4.0 mm blade width.*

⇨ Open the front housing cover.

⇨ Insert the connecting cables through the cable gland.

⇨ Perform the electrical connection depending on the application.

**DANGER**

***Risk of fatal injury from live terminal L'.***

⇨ *Do not touch terminal L'.*

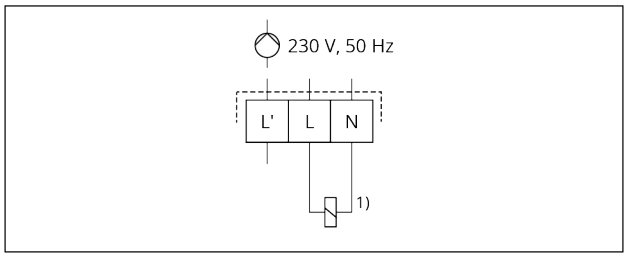



**Fig. 18:** *Electrical connection · Supply voltage and switching output*

1) Version with fail-safe action only

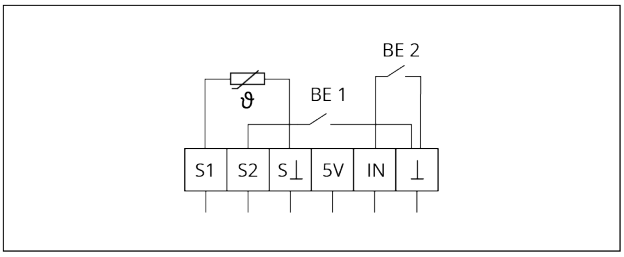



**Fig. 19:** *Electrical connection · Temperature sensor and binary inputs*

BE1 Binary input for set point switchover

BE2 Binary input for flow switch

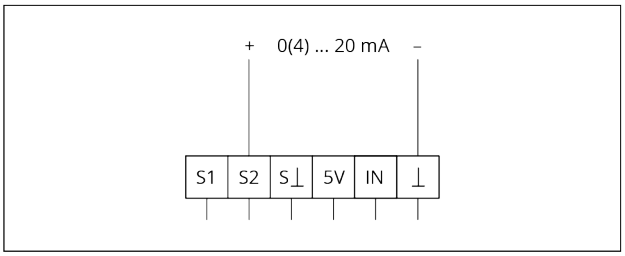



**Fig. 20:** *Electrical connection · Current input for set point or measured value*

## Water flow sensor

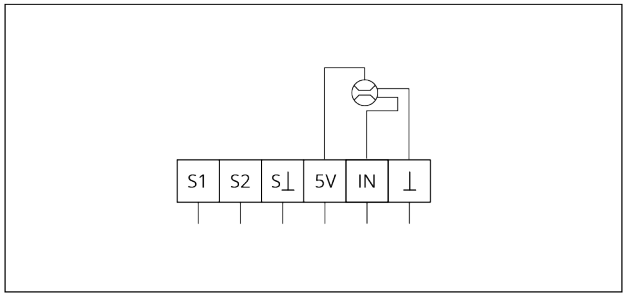
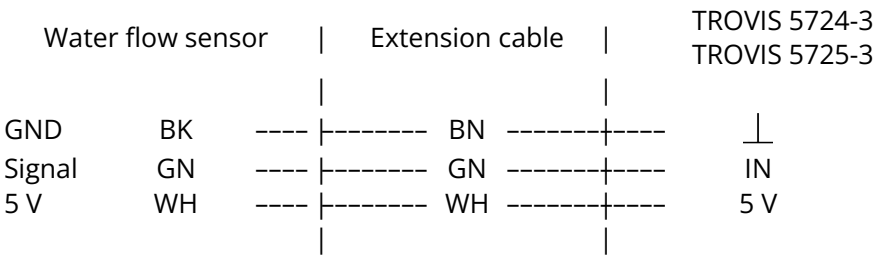



**Fig. 21:** *Electrical connection · Water flow sensor (WSS)*



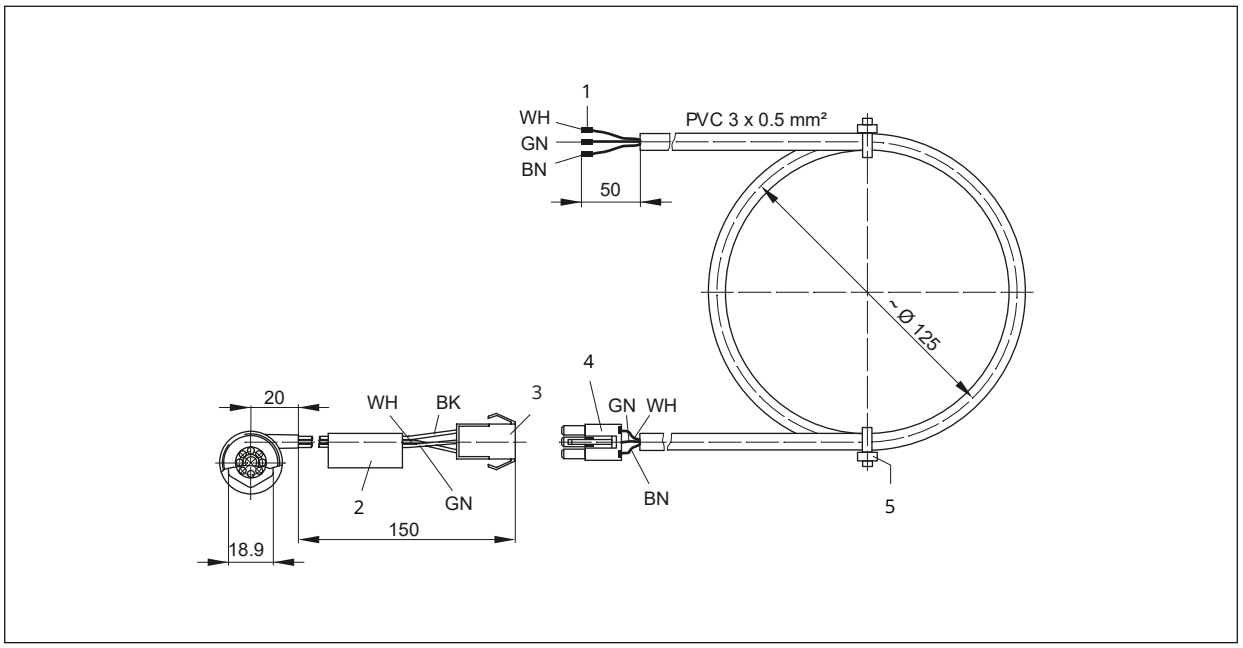




**Fig. 22:** *Extension cable for water flow sensor*

WH White
GN Green
BN Brown
BK Black
1 Wire end ferrule
2 Nameplate
3 Bushing
4 Connector
5 Cable tie

### 5.7.1 Serial interface

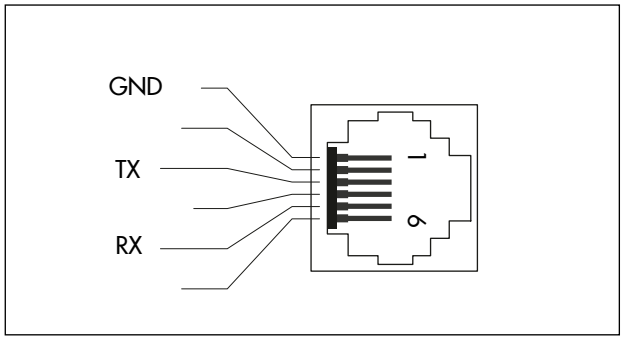



**Fig. 23:** *Assignment of the RJ12 port*

# 6 Setup

## 6.1 Device overview and operating controls

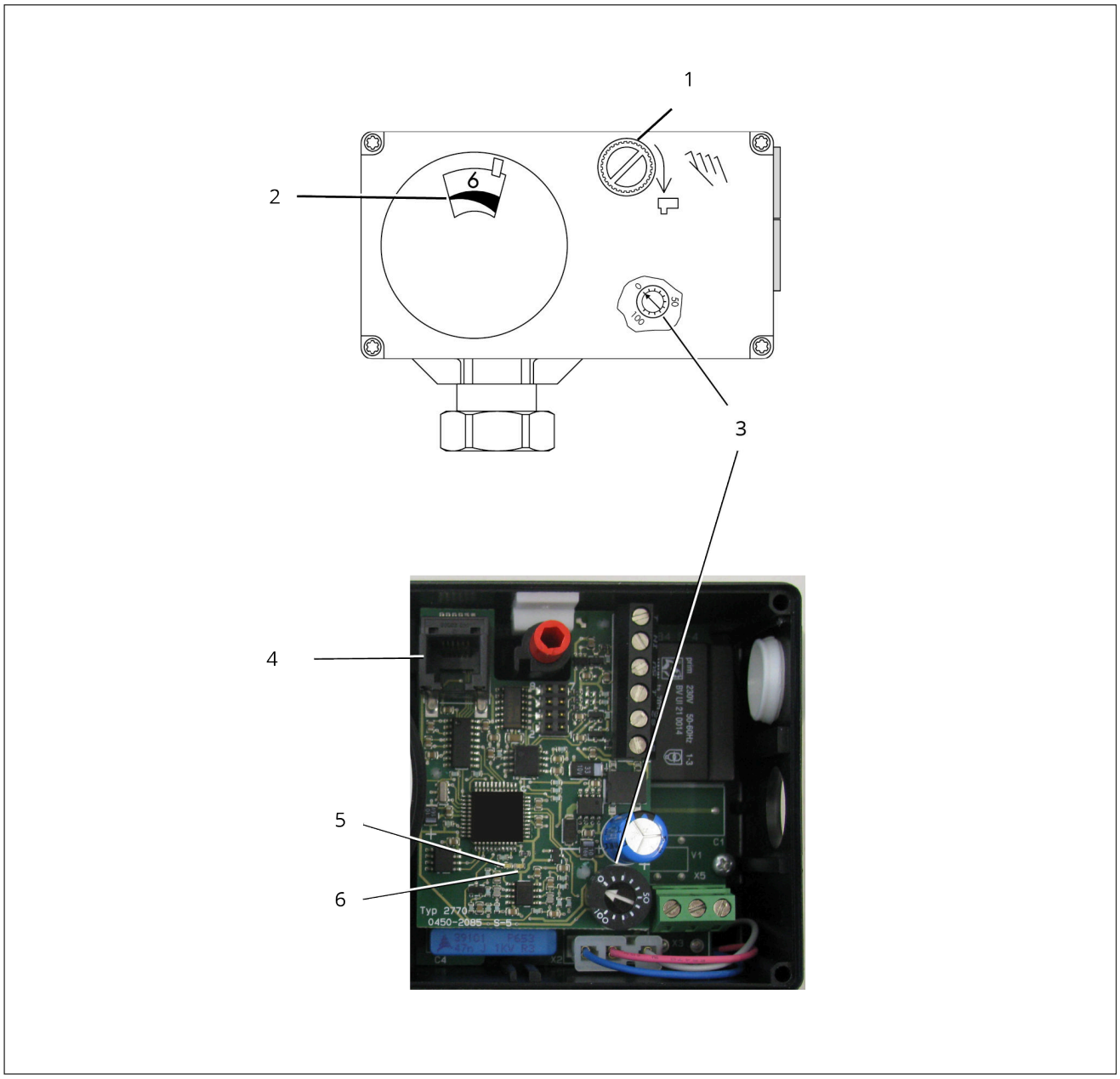



**Fig. 24:** *Location of operating elements*

1 Handwheel
2 Travel indicator
3 Set point potentiometer (underneath front housing cover)
4 Serial interface
5 Red LED
6 Yellow LED

**⚠ DANGER**

***Risk of fatal injury due to electric shock from exposed live parts.***

⇨ *Do not touch live parts.*

## 6.2 Indication by LEDs

The electric actuator has a red and a yellow LED, which indicate the operating state of the actuator.

⇨ Blinking pattern (see Chapter 8 and Chapter 9)

The LEDs are located on the printed circuit board underneath the front housing cover (see Fig. 24).

## 6.3 Automatic set point potentiometer

To manually adjust the set point, a set point potentiometer is located on the printed circuit board of the actuator (see Fig. 24).

⇨ Remove the front housing cover to adjust the potentiometer.

## 6.4 Serial interface

The serial interface (RJ12 port) is used for communication with the actuator. It is located underneath the front housing cover (see Fig. 24).

⇨ Remove the front housing cover to use the serial interface.

# 7 Start-up and configuration

## 7.1 Initializing the electric actuator

**⚠ WARNING**

***Risk of injury due to the actuator stem extending or retracting (with form-fit attachment).***

*Directly after connecting the supply voltage, the actuator stem can start to move.*

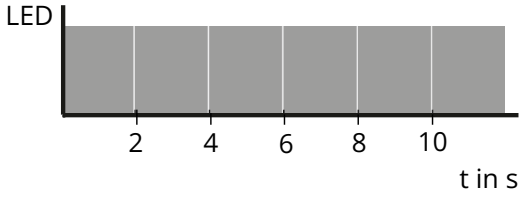
⇨ *Do not touch or block the actuator stem.*

The actuator automatically performs a zero calibration as soon as the supply voltage is applied. When the direction of action increasing/increasing has been set, the actuator stem moves to the lower end position. The red and yellow LEDs are illuminated as it moves (see Chapter 6).

As soon as the actuator stem has reached the lower end position, the red LED is turned off. The yellow LED remains illuminated and indicates that the electric actuator is ready for use.

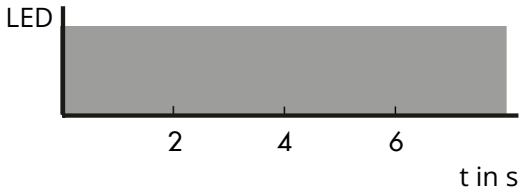
**Blinking pattern of the red LED**

Zero calibration in progress




**Blinking pattern of the yellow LED**

Device ON




## 7.2 Configuring the actuator

The electric actuator with process controller is configured with the TROVIS-VIEW software (see Chapter 16). In this case, the serial interface on the actuator is used to connect the actuator to the computer (see Chapter 3).

**⚠ DANGER**

***Risk of fatal injury due to electric shock from exposed live parts.***

⇨ *Do not touch live parts.*

⇨ More details on settings and operation with TROVIS-VIEW can be found in ▶ EB 6661.

**i Note**

*The Configuration Manual ▶ KH 5724 can be found in the Help menu of the TROVIS-VIEW software. This document contains a detailed description of each function and parameter.*

1. Create application-specific configuration in the TROVIS-VIEW software (▶ EB 6661).
2. Transfer the configuration to the electric actuator using the connecting cable or memory pen.

**Tip**

*SAMSON recommends writing down the configuration made in the Appendix.*

**i Note**

*All the functions and parameters are listed in the Appendix (see Chapter 16.3).*

## 7.3 Quick check

To test the electric actuator's ability to function, the following quick checks can be performed:

⇨ Apply the maximum and minimum control signals (e.g. in the manual level of the TROVIS-VIEW software).

⇨ Check the end positions of the valve.

⇨ Check the travel indicator.

**TROVIS 5725-3:**

⇨ Disconnect the supply voltage and check whether the valve moves to the fail-safe position.

# 8 Operation

The valve with electric actuator is ready for use when mounting and start-up have been completed.

**NOTICE**

***The process is disturbed by the movement of the actuator stem.***

⇨ *Do not perform zero calibration or initialization while the process is running. First isolate the plant by closing the shut-off valves.*

## 8.1 Closed-loop control

The electric actuator normally operates in closed-loop operation. In this case, the control behavior and movement of the actuator stem depend on the parameter settings.

⇨ ▶ KH 5724

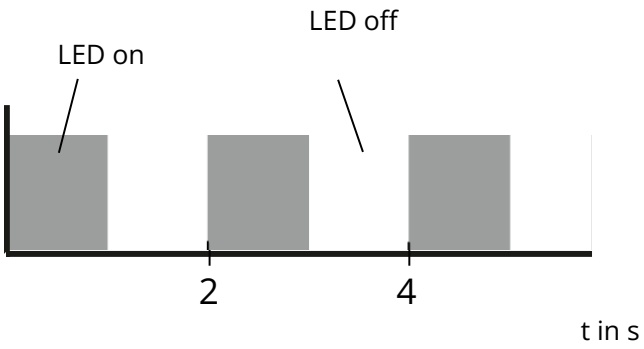
**End connections**

- Pt1000 sensors
- Pt1000 sensor with binary contact BE1 to switch between set points
- Pt1000 sensor with flow switch (BE2)
- Pt1000 sensor with water flow sensor (WSS)
- Pt1000 sensor with set point guided by current input
- Current signal (actual value)
- Pump control using switching output

## 8.2 LED blinking pattern

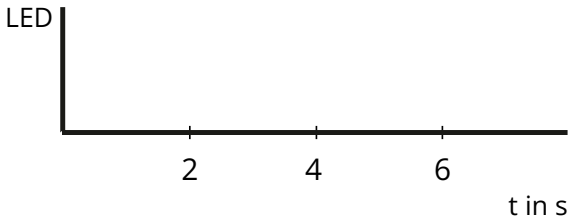
**Explanations to the blinking pattern of the LEDs**

The on/off state of the corresponding LED is shown over time.

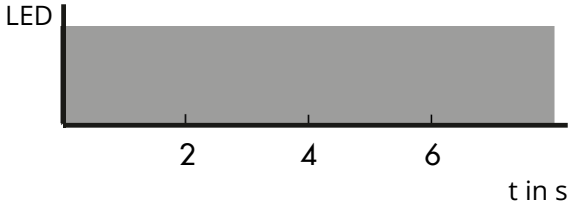


**Blinking pattern of the yellow LED**

Device OFF

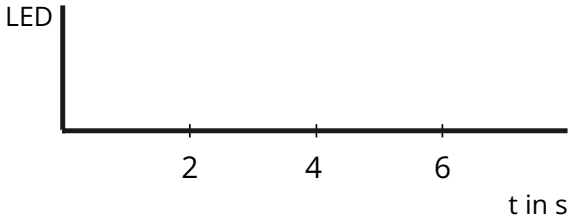



Device ON

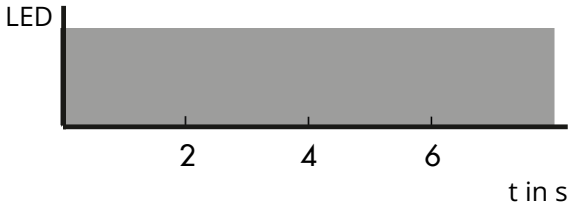



**Blinking pattern of the red LED**

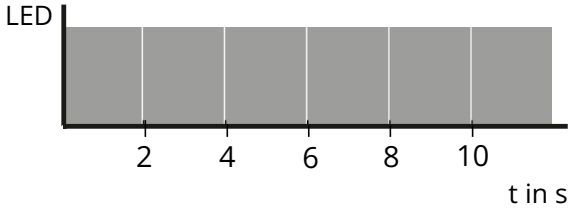
Device OFF or in normal operation



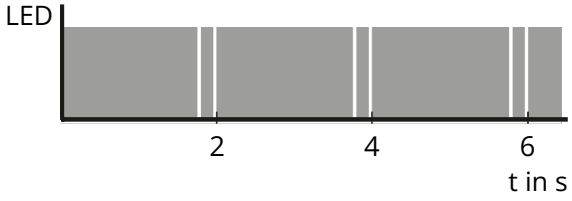

Device starting up




Zero calibration in progress




Transit time measurement in progress




**i *Note***

*The LED blinking patterns apply when the memory pen is inserted into the actuator (see Chapter 8.5).*

## 8.3 Changing the set point at the device

The set point can be adjusted manually at the set point potentiometer. The adjustment range is between 10 and 100 % of the measuring range set in TROVIS-VIEW.

**⚠ DANGER**

***Risk of fatal injury due to electric shock from exposed live parts.***

⇨ *Do not touch live parts.*

**Default setting**

Lower measuring range value $X_{min}$ = 0 °C

Upper measuring range value $X_{max}$ = 100 °C

In the delivered state, the set point potentiometer is set to 0 %, i.e. it does not have any effect on the selected W1 and W2 set points.

The manually adjusted value at the set point potentiometer for W1 is only used for control if function block F12 in the TROVIS-VIEW software is set to '1' (Automatic set point potentiometer: manual setting effective above 10 %). The required setting F12 - 1 is the default setting.

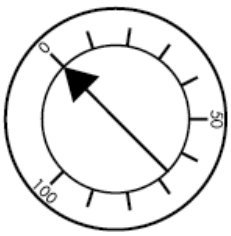
1. Open the front housing cover.

**❗ NOTICE**

***Risk of damage to the screw heads on the front housing cover due to the use of the wrong tool.***

⇨ *To screw or unscrew the screws, only use TORX® T10, TORX PLUS® 10IP or a flat-blade screwdriver with 0.8 mm blade thickness and 4.0 mm blade width.*

2. Set the set point as required at the set point potentiometer.




Setting range: 0 to 100 % of the measuring range (default setting 0 to 100 °C)

⇨ Do not forget to check the automatic set point potentiometer function (see Chapter 3).

**i Note**

*Any setting below 10 % at the set point potentiometer is ignored by the controller. The controller uses the set point selected from the parameter list (TROVIS-VIEW software) for control.*
*Any setting above 10 % at the set point potentiometer is used by the controller for control. The set points entered into the parameter list are ignored.*

3. Replace the front housing cover. Insert and tighten screws.

## 8.4 Manual mode

The actuator stem can be moved mechanically or electrically in the manual level of the TROVIS-VIEW software (▶ EB 6111). The stem position is changed at the handwheel.

### 8.4.1 Mechanical override

**i Note**

*Manually changing the stem position only makes sense when the power supply is switched off as the stem position is determined by the integrated process controller in closed-loop operation, meaning any manual change would be automatically corrected.*

**❗ NOTICE**

***Risk of damage to the actuator by moving the actuator stem too far.***

⇨ *Move the actuator stem only as far as the bottom or top end position.*

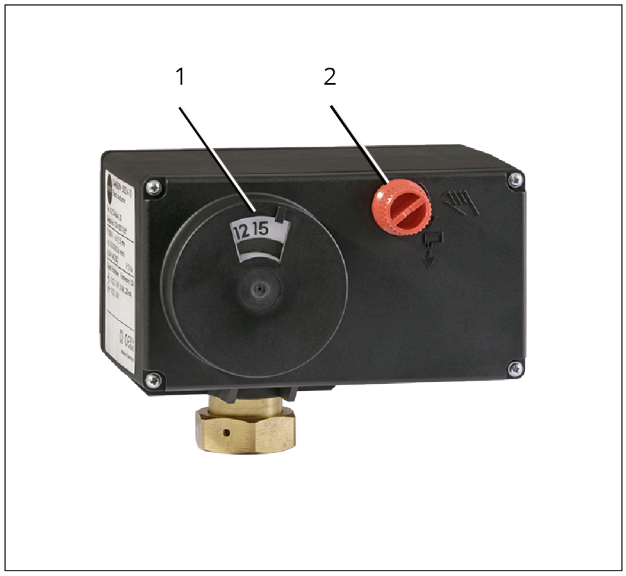



**Fig. 25:** *Operating controls · TROVIS 5724*

1 Travel indicator
2 Handwheel

### Turning direction

– Turn clockwise: The actuator stem extends.
– Turn counterclockwise: The actuator stem retracts.

| Turning direction | Direction the actuator stem movement |
|---|---|
| ↻ | Extends |
| ↺ | Retracts |

### TROVIS 5724-3

To move the actuator stem manually one millimeter, the handwheel must be turned approx. four turns.

⇨ Before manually adjusting the actuator stem position, disconnect the supply voltage.

When the supply voltage is connected, the integrated digital controller moves the stem position according to the set point.

### TROVIS 5725-3

For actuators with fail-safe action, move the actuator stem one millimeter manually by turning the actuating shaft approx. four turns using a 4 mm hex screwdriver. The front housing cover must be opened first (see Chapter 5).

**⚠ DANGER**

***Risk of fatal injury due to electric shock.***

⇨ *Before opening the housing cover, disconnect the supply voltage and protect it against unintentional reconnection.*

⇨ *Disconnect the signal line.*

1. Remove the front housing cover and place a 4 mm hex screwdriver on the red actuating shaft.
2. Turn the actuating shaft counterclockwise using a hex screwdriver. Only turn it as far as the final travel value, which is at the point where the torque switch is activated.

   Once the magnet has been released, the spring mechanism pushes the actuator stem back to the fail-safe position.
3. Remove the hex screwdriver and replace the front housing cover. Insert and tighten screws.




**Fig. 26:** *Operating controls · TROVIS 5725*

1 Travel indicator
2 Actuating shaft to manually move the actuator stem (underneath the housing cover)

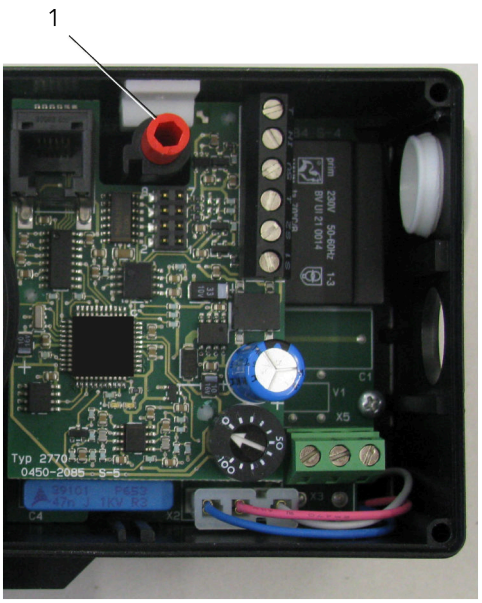



**Fig. 27:** *TROVIS 5725-3 with open housing cover*

1 Actuating shaft

## 8.5 Operation using memory pen

**NOTICE**

***Specified degree of protection does not apply when the housing cover is open.***

⇨ *Ensure that no moisture or foreign particles can get into the actuator.*

⇨ ▶ EB 6661

The memory pen can be loaded with data configured in TROVIS-VIEW and the configuration data transferred to one or several devices of the same type and version. Additionally, the data from the device can be written to the memory pen. This allows the configuration data to be simply copied from one device and loaded onto other devices of the same type and version. The data logging function also allows operating data to be recorded.

The memory pen can be configured in TROVIS-VIEW. The following functions for the actuator can be selected:

- Read data from the memory pen
- Write data to the memory pen
- Time-controlled data logging
- Event-triggered data logging
- Command mode

Refer to the operating instructions for TROVIS-VIEW ▶ EB 6661 for details on how to configure the memory pen.



**Fig. 28:** *Memory pen-64*

**Note**

*On inserting a memory pen that is empty or contains data from another type of device or another version of the same device into the serial interface port of the device, the data from the device are uploaded onto the memory pen regardless of the status of the memory pen.*

### Data transmission between the actuator and memory pen

The memory pen is connected to the actuator as shown in Fig. 29. The TROVIS-VIEW Operating Instructions ▶ EB 6661 describe how to transfer data.

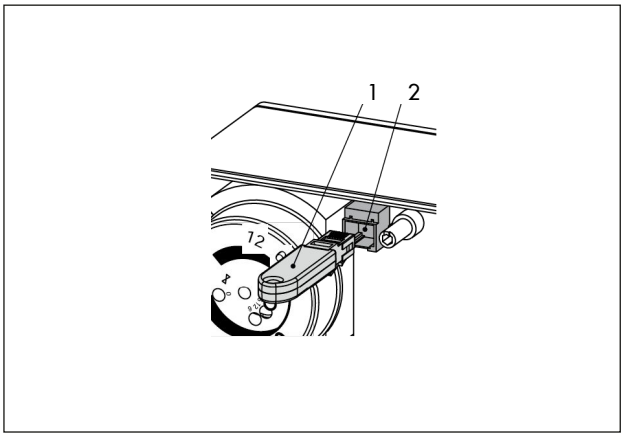



**Fig. 29:** *Connecting actuator and memory pen*

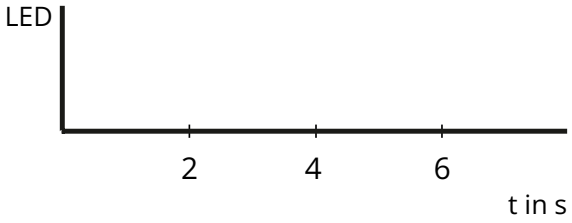
1 Memory pen
2 Serial interface (RJ12 port)

The yellow LED on the actuator indicates that the data transfer from the device is being prepared. Da-

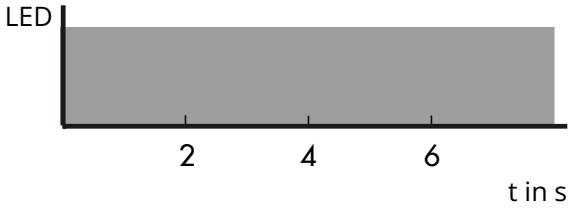
ta transmission is completed as soon as the yellow LED is illuminated continuously (see Chapter 6).

### LED (yellow) blinking pattern for the memory pen

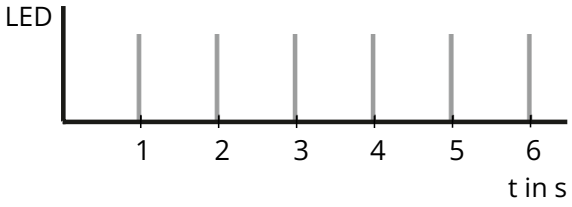
Command mode



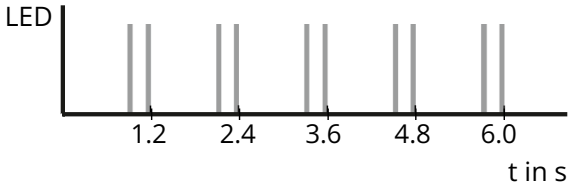

Memory pen action completed



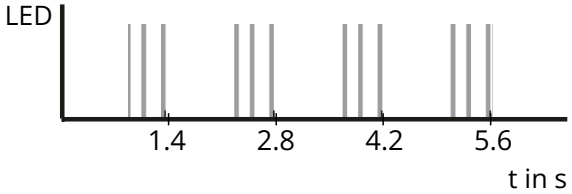

Preparing to read data from memory pen



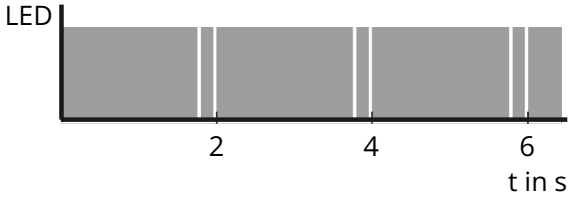

Preparing to write data to memory pen




Preparing data logging

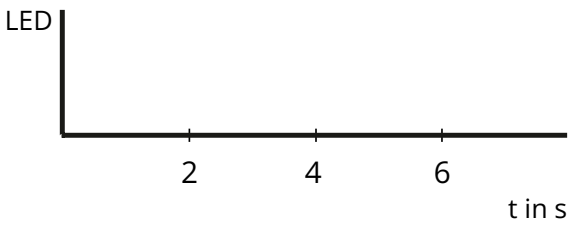



Data logging in progress




### LED (red) blinking pattern for the memory pen

Memory pen inserted



### 8.5.1 Copying function

The data can be transferred to another actuator of the same type after the data from the actuator are written to the memory pen.

**Note**

*'Automatically write to memory pen' is automatically reset to the read status after data are transferred from the actuator for the first time.*

### 8.5.2 Command mode

In closed-loop operation, the actuator stem can be moved to the top or bottom end position using the command pen regardless of the input signal. Data are written to the command pen using TROVIS-VIEW.

Possible settings:

- Retract actuator stem
- Extend actuator stem
- No movement of the actuator stem

These commands turn a memory pen into a command pen. After inserting the command pen into the actuator's interface, all functions running are ended and the command is executed. A command pen has priority over all functions.

**Note**

*The fail-safe action always has priority in actuators with fail-safe action. In this case, the command function has a lower priority.*

**Note**

- *A command pen remains active as long as it is inserted into the actuator's interface (even after a reset).*
- *Only one command at a time can be written to the memory pen and executed.*

### 8.5.3 Data logging

The memory pen-64 allows the various data to be saved (▶ KH 5724).

**Data logging**

1. Plug the memory pen into the serial interface of the actuator. The yellow LED on the actuator indicates that the data logging is being prepared (see Chapter 8.2). A change in the blinking pattern of the yellow LED indicates that data are being saved to the memory pen.
2. Data logging is completed by removing the memory pen from the serial interface of the actuator.

**Note**

*You can load a data logging file into the Trend-Viewer by selecting the 'Load diagram ...' command in TROVIS-VIEW.*

**Transfer data**

1. Insert the memory pen together with modular adapter into the serial interface (COM port) of the computer (see Chapter 16).
2. Select 'Read logged Data...' from the 'Memory pen' menu.
3. Select the desired target directory. If the target directory is not changed, data will be saved in the SAMSON folder > Type 572x-3.
4. Enter the file name.
5. Click 'Save' button to start data transmission.

## 8.6 Readings in TROVIS-VIEW

### 8.6.1 Operating values

**i** ***Note***

*The values in the 'Operating values' folder cannot be changed.*

In online mode, the current operating values are listed in the 'Operating values' folder. Based on the setting, a graph plotting these values is also shown under the 'Operating values' window.

| | |
|---|---|
| **Measured values** | Input 1 in °C<br>Manual set point in °C<br>Flow rate in l/min<br>Input 2 |
| | |
| **Output** | Source for set point<br>Calculated actuator travel in %<br>Operating state |
| | |
| **Limit contact** | Actuator stem retracted<br>Actuator stem extended |
| | |
| **Switching output** | Status |
| | |
| **Control** | Control (various control parameters) |

### 8.6.2 Operating states

Error messages can be read in the 'Service' folder (> 'Operating states').

**i** ***Note***

*Operating states and errors are also indicated by the LEDs (see Chapter 8.2).*

| | |
|---|---|
| **Operating states** | Operating states<br>Functions |

### 8.6.3 Functions

In the 'Service' folder ('Functions'), the following functions are shown:

| | |
|---|---|
| **Manual level** | ⇨ Manual level |
| | |
| **Functions** | ⇨ Perform reset<br>⇨ Load default settings in actuator<br>⇨ Start zero calibration<br>⇨ Start transit time measurement |

The functions can be executed when communication between the actuator and computer is established.

### 8.6.4 Status messages

In the 'Service' folder (> 'Status messages'), the following parameters are shown:

| | |
|---|---|
| **Actuator** | Firmware version<br>Serial number<br>Device information<br>Manufacturing parameters |
| | |
| **Operation** | Operating hours in h<br>Operating hours at excess temperature in h<br>Temperature inside device in °C<br>Highest temperature inside device in °C<br>Lowest temperature inside device in °C |
| | |
| **Actuator strokes** | Motor running time in h<br>Starts<br>Changes in direction |
| | |
| **Valve strokes** | Full travel cycles |
| | |
| **LEDs** | Yellow<br>Red |

### 8.6.5 Statistics

In the 'Service' folder (> 'Statistics), the following parameters are shown:

| | |
|---|---|
| **Device failures counters** | Power supply activated<br>Program interruptions<br>Limit contact error<br>EEPROM error |
| | |
| **Alarms counters** | Signal failure at the temperature input<br>Signal failure at the current input<br>Flow rate exceeds measuring range<br>Upper limit GWH exceeded |
| | |
| **Binary signals counters** | Binary input activated<br>Switching output activated<br>Manual set point activated<br>Tapping |
| | |
| **Memory pen counters** | Command: retract actuator stem<br>Command: extend actuator stem<br>Data read<br>Data written<br>Data logged |
| | |
| **Functions counter** | Configuration changed<br>Manual level activated<br>Zero calibration started<br>Reset triggered<br>Default settings loaded<br>Transit time measurement started |

# 9 Malfunctions

## 9.1 Troubleshooting

⇨ See Table 2.

**Note**

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

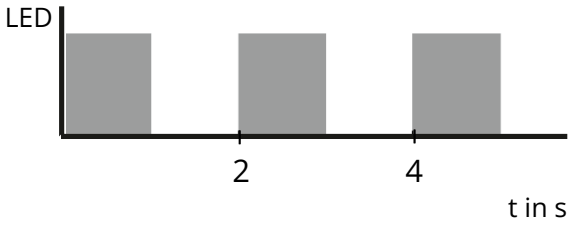
**Table 2:** *Troubleshooting*

| Malfunction | Possible reasons | Recommended action |
|---|---|---|
| Actuator stem does not move. | Actuator is blocked. | ⇨ Check attachment.<br>⇨ Remove the blockage. |
| | No or incorrect supply voltage connected. | ⇨ Check the supply voltage and connections. |
| Actuator stem does not move through its full range. | No or incorrect supply voltage connected. | ⇨ Check the supply voltage and connections. |
| The electric actuator with process controller does not perform the functions as required. | The configuration of the electric actuator does not meet the application requirements. | ⇨ Check configuration.<br>⇨ If necessary, refer to the Configuration Manual ▶ KH 5724. |
| | The electric actuator was reset to its default settings without adapting the configuration to the application afterwards. | |

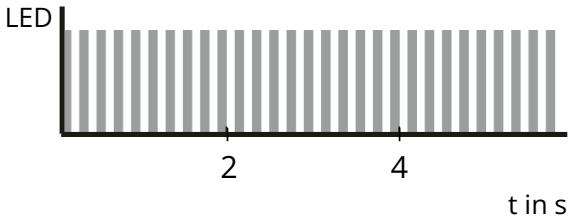
## 9.2 Error indication by LEDs

**Blinking pattern of the yellow LED**

Plausibility error in memory pen

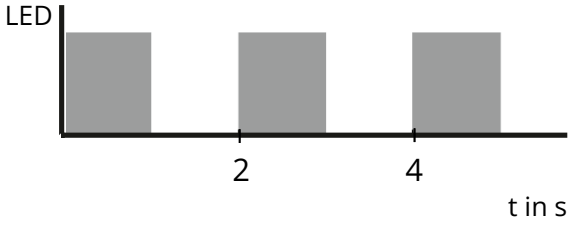



EEPROM error in memory pen

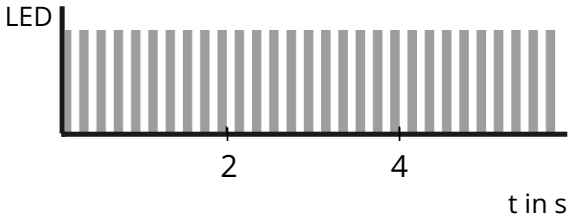



**Blinking pattern of the red LED**

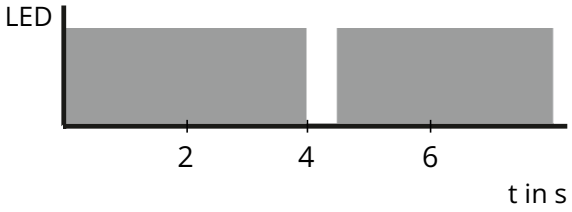
Temperature too high (upper limit (GWH) exceeded)



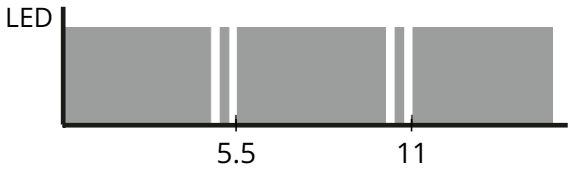

EEPROM error



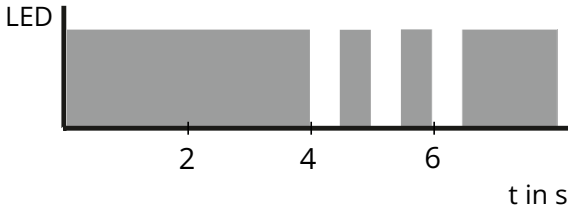

Wire breakage at temperature input



Wire breakage at current input




Flow rate at water flow sensor exceeds measuring range




## 9.3 Emergency action

Plant operators are responsible for emergency action to be taken in the plant.

**Tip**

*Emergency action in the event of valve failure is described in the associated valve documentation.*

# 10 Servicing

The work described in this chapter is to be performed only by personnel appropriately qualified to carry out such tasks.

**i *Note***

*The electric actuator was checked by SAMSON before it left the factory.*

– *The product warranty becomes void if service or repair work not described in these instructions is performed without prior agreement by SAMSON's After-sales Service.*

The electric actuator requires no maintenance.

SAMSON recommends inspection and testing according to the following table:

**Table 3:** *Recommended inspection and testing*

| Inspection and testing | Action to be taken in the event of a negative result |
|---|---|
| Check the markings, labels and nameplates on the device for their readability and completeness. | ⇨ Immediately renew damaged, missing or incorrect nameplates or labels.<br>⇨ Clean any inscriptions that are covered with dirt and are illegible. |
| Check the electric wiring. | ⇨ Tighten any loose terminal screws (see Chapter 5.7).<br>⇨ Renew damaged wires. |

# 11 Decommissioning

The work described in this chapter is to be performed only by personnel appropriately qualified to carry out such tasks.

**⚠ DANGER**

***Risk of fatal injury due to electric shock.***

⇨ *Before disconnecting live wires at the device, disconnect the supply voltage and protect it against unintentional reconnection.*

**⚠ WARNING**

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

*While working on the valve, 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 if touched.*

⇨ *Allow components and pipeline to cool down or warm up to ambient temperature.*

⇨ *Wear protective clothing and gloves.*

To put the electric actuator out of operation for repair work or disassembly, proceed as follows:

⇨ Put the control valve out of operation (see associated valve documentation).

⇨ Disconnect the supply voltage and protect it against unintentional reconnection.

**i *Note***

*Electric actuators with fail-safe action move to the lower end position after the supply voltage is disconnected.*

# 12 Removal

The work described in this chapter is to be performed only by personnel appropriately qualified to carry out such tasks.

**⚠ DANGER**

***Risk of fatal injury due to electric shock.***

⇨ *Before disconnecting live wires at the device, disconnect the supply voltage and protect it against unintentional reconnection.*

**⚠ WARNING**

***Risk of personal injury due to hot components.***

⇨ *If necessary, allow the pipeline and valve components to cool down.*

**⚠ WARNING**

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

*While working on the valve, 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.*

## 12.1 Force-locking attachment

⇨ See Fig. 30.

**Version without fail-safe action**

1. Retract the actuator stem using the handwheel (see Chapter 8).
2. Open the front housing cover.
3. Disconnect the conductors from the terminals and remove the connecting cable.
4. Undo the coupling nut (4) and remove the actuator from the valve connection.

**Version with fail-safe action**

1. Open the front housing cover.
2. Disconnect the conductors from the terminals and remove the connecting cable.
3. Retract the actuator stem with a 4 mm hex screwdriver (see Chapter 8).

   Hold the actuating shaft in place after retracting the actuator stem to prevent it from extending again.
4. Undo the coupling nut (4) and remove the actuator from the valve connection.

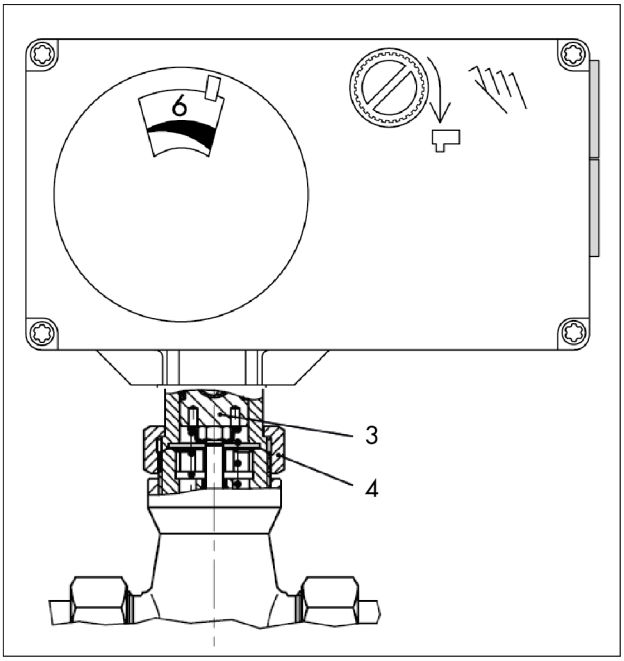



**Fig. 30:** *Force-locking connection of the actuator and valve*

3 Actuator stem
4 Coupling nut

## 12.2 Form-fit attachment

⇨ See Fig. 31.

**Version without fail-safe action**

1. Retract the actuator stem using the handwheel (see Chapter 8).
2. Open the front housing cover.
3. Disconnect the conductors from the terminals and remove the connecting cable.
4. Unfasten the stem connector clamps (12) between the actuator stem and the plug stem.
5. Undo the nut (13) and remove the rod-type yoke (11) together with the actuator from the valve.
6. Undo the coupling nut (4) and remove the actuator from the rod-type yoke (11).

**Version with fail-safe action**

1. Open the front housing cover.
2. Disconnect the conductors from the terminals and remove the connecting cable.

3. Unfasten the stem connector clamps (12) between the actuator stem and the plug stem.
4. Retract the actuator stem with a 4 mm hex screwdriver (see Chapter 8).

   Hold the actuating shaft in place after retracting the actuator stem to prevent it from extending again.
5. Undo the nut (13) and remove the rod-type yoke (11) together with the actuator from the valve.
6. Undo the coupling nut (4) and remove the actuator from the rod-type yoke (11).

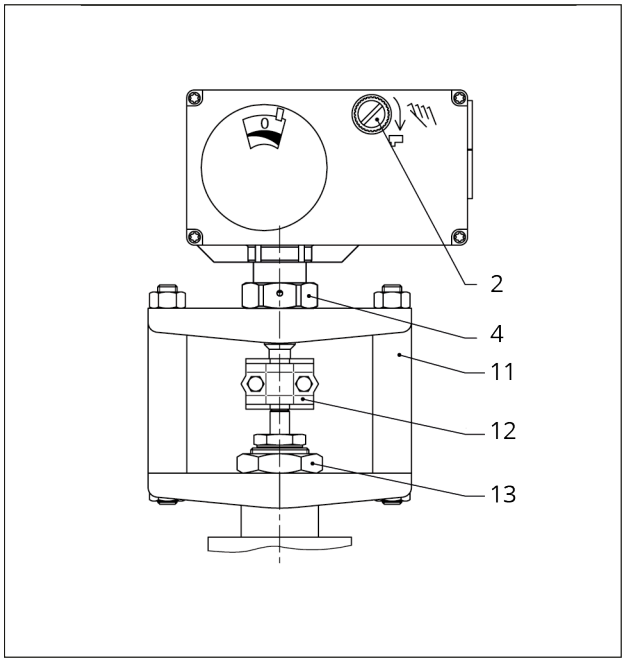



**Fig. 31:** *Form-fit connection of the actuator and valve*

2 Handwheel (TROVIS 5724-3 only)
4 Coupling nut
11 Rod-type yoke
12 Stem connector
13 Hex nut

# 13 Repair

If the electric actuator does not function properly according to how it was originally configured or does not function at all, it is defective and must be exchanged.

**NOTICE**

***Risk of actuator damage due to incorrect service or repair work.***

⇨ *Do not perform any repair work on your own.*

⇨ *Contact SAMSON's After-sales Service for service and repair work.*

## 13.1 Returning the electric actuator to SAMSON

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

1. Remove the electric actuator from the valve (see Chapter 12).
2. Proceed as described on our website at ▶ www.samsongroup.com > SERVICE > After-sales Service > Returning goods.

# 14 Disposal



SAMSON is a producer registered in Europe, agency in charge
▶ www.samsongroup.com > About SAMSON > Environment, Social & Governance > Material Compliance > Waste electrical and electronic equipment (WEEE)
WEEE reg. no.: DE 62194439

Information on substances listed as substances of very high concern (SVHC) on the candidate list of the REACH regulation can be found in the document “Additional Information on Your Inquiry/Order”, which is added to the order documents, if applicable. This document includes the SCIP number assigned to the devices concerned. This number can be entered into the database on the European Chemicals Agency (ECHA) website (▶ https://www.echa.europa.eu/scip-database) to find out more information on the SVHC contained in the device.

**Note**

*SAMSON can provide you with a recycling passport on request. Simply e-mail us at aftersalesservice@samsongroup.com giving details of your company address.*

**Tip**

*On request, SAMSON can appoint a service provider to dismantle and recycle the product as part of a distributor take-back scheme.*

⇨ Observe local, national and international refuse regulations.

⇨ Do not dispose of components, lubricants and hazardous substances together with your other household waste.

# 15 Certificates

The following certificates are included on the next pages:

– EU declarations of conformity

– Declaration of incorporation

The certificates shown were up to date at the time of publishing. The latest certificates can be found on our website:

▶ www.samsongroup.com > Products > Actuators > 5724-3

▶ www.samsongroup.com > Products > Actuators > 5725-3

SMART IN FLOW CONTROL.

SAMSON

# 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

**Kombinierter Regler mit Hubantrieb / Controller with Electric Actuator / Régulateur avec servomoteur électrique**
**Typ / Type / Type 5724**

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 61000-6-3:2010 +A1:2011 |
| 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.

i.V. Gert Nahler

Gert Nahler
Zentralabteilungsleiter/Head of Department/Chef du département
Entwicklung Automation und Integrationstechnologien/
Development Automation and Integration Technologies

i v. H. Zager

Hanno Zager
Leiter Qualitätssicherung/Head of Quality Managment/
Responsable de l'assurance de la qualité

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SMART IN FLOW CONTROL.

SAMSON

# 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

**Kombinierter Regler mit Hubantrieb / Controller with Electric Actuator / Régulateur avec servomoteur électrique**
**Typ / Type / Type 5725**

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 61000-6-3:2010 +A1:2011 |
| LVD 2014/35/EU | EN 60730-1:2016, EN 61010-1:2010 |
| RoHS 2011/65/EU | EN 50581:2012 |

Hersteller / Manufacturer / Fabricant:

SAMSON AKTIENGESELLSCHAFT
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Entwicklung Automation und Integrationstechnologien/
Development Automation and Integration Technologies

i v. H. Zager

Hanno Zager
Leiter Qualitätssicherung/Head of Quality Managment/
Responsable de l'assurance de la qualité

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# EU DECLARATION OF CONFORMITY
TRANSLATION

## Declaration of Conformity of Final Machinery

in accordance with Annex II, section 1.A. of the Directive 2006/42/EC

For the following product:

**Type 3222/XXXX-X Electric Control Valve consisting of Type 3222 Valve and 5857, 5824, 5825, 5827, TROVIS 5757-X, TROVIS 5724-X or TROVIS 5725-X Actuator**

We hereby declare that the machinery mentioned above complies with all applicable requirements stipulated in Machinery Directive 2006/42/EC.

For product descriptions refer to:

- Electric and Pneumatic Control Valves Type 3222/…:
  Mounting and Operating Instructions EB 5866

Referenced technical standards and/or specifications:

- VCI, VDMA, VGB: "Leitfaden Maschinenrichtlinie (2006/42/EG) – Bedeutung für Armaturen, Mai 2018" [German only]
- VCI, VDMA, VGB: "Zusatzdokument zum Leitfaden Maschinenrichtlinie (2006/42/EG) – Bedeutung für Armaturen vom Mai 2018" [German only], based on DIN EN ISO 12100:2011-03

Comment:
Information on residual risks of the machinery can be found in the mounting and operating instructions of the valve and actuator as well as in the referenced documents listed in the mounting and operating instructions.

Persons authorized to compile the technical file:
SAMSON AG, Weismüllerstraße 3, 60314 Frankfurt am Main, Germany
Frankfurt am Main, 22 September 2023

ppa.

Norbert Tollas
Senior Vice President
Global Operations

i. V. P.

Peter Scheermesser
Director
Product Maintenance and Engineered Products

Revision no. 00

# DECLARATION OF INCORPORATION
TRANSLATION

**Declaration of Incorporation in Compliance with Machinery Directive 2006/42/EC**

for the following products:
**TROVIS 5724-3 / 5725-3 Electric Actuators with Process Controller**

We certify that the TROVIS 5724-3 / 5725-3 Electric Actuators with Process Controller are partly completed machinery as defined in the Machinery Directive 2006/42/EC and that the safety requirements stipulated in Annex I, 1.1.2, 1.1.3, 1.1.5, 1.2.1, 1.2.2, 1.2.3, 1.2.5, 1.2.6, 1.3.1, 1.3.2, 1.3.3, 1.3.4, 1.3.7, 1.3.8.2, 1.3.9, 1.4.1, 1.5.1, 1.5.3, 1.5.4 and 1.5.8 are observed. The relevant technical documentation described in Annex VII, part B has been compiled.

Products we supply must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of the Machinery Directive 2006/42/EC.

Operators are obliged to install the products observing the accepted industry codes and practices (good engineering practice) as well as the mounting and operating instructions. Operators must take appropriate precautions to prevent hazards that could be caused by the process medium and operating pressure in the valve as well as by the signal pressure and moving parts.

The permissible limits of application and mounting instructions for the products are specified in the associated mounting and operating instructions; the documents are available in electronic form on the Internet at www.samsongroup.com.

For product descriptions refer to:
- TROVIS 5724-3 / 5725-3 Electric Actuators with Process Controller: Mounting and Operating Instructions EB 5724

Referenced technical standards and/or specifications:
- VCI, VDMA, VGB: "Leitfaden Maschinenrichtlinie (2006/42/EG) – Bedeutung für Armaturen, Mai 2018" [German only]
- VCI, VDMA, VGB: "Zusatzdokument zum Leitfaden Maschinenrichtlinie (2006/42/EG) – Bedeutung für Armaturen vom Mai 2018" [German only], based on DIN EN ISO 12100:2011-03

Comments:
- See mounting and operating instructions for residual hazards.
- Also observe the referenced documents listed in the mounting and operating instructions.

Persons authorized to compile the technical file:
SAMSON AG, Weismüllerstraße 3, 60314 Frankfurt am Main, Germany

Frankfurt am Main, 13 September 2023

i.V.

Stephan Giesen
Director Product Management

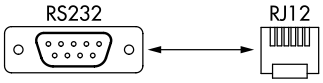
i.V.

Sebastian Krause
Vice President Product Development

Revision no. 02

# 16 Appendix

## 16.1 Accessories

| **Accessories** | |
|---|---|
| Pt1000 temperature sensor, fast response | Type 5207-0060 |
| Sensor pocket G ¾ | Order no. 1400-9249 |
| Sensor pocket G 1 | Order no. 1400-9252 |
| Connecting piece G ¾ | Order no. 1400-9236 |
| Connecting piece G 1 | Order no. 1400-9237 |
| Circulation pipe connection | Order no. 1400-9232 |
| Water flow sensor with extension cable | Order no. 1400-9246 |
| Hardware package consisting of:<br>– Memory pen-64<br>– Connecting cable RJ-12/D-sub, 9 pin<br>– Modular adapter | Order no. 1400-9998 |
| Connecting cable RJ-12/D-sub, 9 pin | Order no. 1400-7699<br> |
| Memory pen-64 | Order no. 1400-9753<br> |
| Modular adapter | Order no. 1400-7698<br> |
| USB to RS-232 adapter | Order no. 8812-2001<br> |
| **Software** | |
| TROVIS-VIEW (free of charge) | ▶ www.samsongroup.com > DOWNLOADS > Software & Drivers > TROVIS-VIEW |
| **For mounting on form-fit valves without return spring** | |
| Yoke for Series V2001 Valves | Order no. 1400-7414 |
| Spacer to mount the actuator on Type 3323 Valve | Order no. 0340-3031 |

## 16.2 After-sales service

Contact our after-sales service for support concerning service or repair work or when malfunctions or defects arise.

You can reach our after-sales service at the following e-mail address:

▶ aftersalesservice@samsongroup.com

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

Please submit the following details:

- Type designation
- Material number
- Serial number
- Firmware version

## 16.3 Configuration list and parameter list

### Function block list

The meaning of the function blocks is described below.

F: Function block

| F | Function | Default | Meaning |
|---|---|---|---|
| 01 | DHW tapping recognition | 1 | 0 - Continuous control<br>1 - Flow rate sensor active |
| 02 | Flow rate sensor | 1 | 0 - Flow switch<br>1 - Water flow sensor |
| 03 | Adaptation | 1 | 0 - Not active<br>1 - Active (with water flow sensor) |
| 04 | Direction of action | 0 | 0 - >> (increasing/increasing)<br>1 - <> (increasing/decreasing) |
| 05 | Current input | 0 | 0 - Not active (binary input)<br>1 - Active |
| 06 | Function of current input | 0 | 0 - Actual value<br>1 - Set point |
| 07 | Measuring range of current input | 0 | 0 - 0 to 20 mA<br>1 - 4 to 20 mA |
| 08 | Function of binary input | 0 | 0 - Termination of maintaining heat exchanger at constant temperature<br>1 - Switchover between internal set points |
| 09 | Maintain heat exchanger at constant temperature | 0 | 0 - Time adjustable<br>1 - Continuous |
| 10 | Upper limit (GWH) | 0 | 0 - No limitation<br>1 - Exceeding GWH causes switch-off |
| 11 | Lower limit (GWL) | 0 | 0 - No frost protection<br>1 - Violation of GWL causes frost protection to start |
| 12 | Manual set point | 1 | 0 - No manual adjustment<br>1 - Manual adjustment effective above 10 % |
| 16 | Function of switching output | 3 | 1 - Not active<br>2 - Fault alarm<br>3 - Circulation pump (DHW)<br>4 - Circulation pump (heating)<br>5 - Tapping<br>6 - Circulation pump (heating) reversed |
| 17 | Pump protection | 1 | 0 - No<br>1 - Yes |

## Parameter list

The parameters have the setting ranges as listed below.

P: Parameter

| P | Parameters | Default | Adjustment range |
|---|---|---|---|
| 01 | Set point W1 | 60 °C | 0 to 100 °C |
| 02 | Set point W2 | 70 °C | 0 to 100 °C |
| 03 | Lower measuring range value $X_{min}$ | 0 °C | -50 to +90 °C |
| 04 | Upper measuring range value $X_{max}$ | 100 °C | 10 to 150 °C |
| 05 | Upper limit (GWH) | 95 °C | 0 to 100 °C |
| 06 | Lower limit (GWL) | 5 °C | 0 to 20 °C |
| 07 | Proportional-action coefficient $K_P$ | 0.6 | 0.1 to 50 |
| 08 | Reset time $T_n$ | 25 s | 0 to 999 s |
| 09 | Derivative-action time $T_V$ | 0 s | 0 to 999 s |
| 10 | Actuator transit time $T_Y$ | 35 s | 0 to 240 s |
| 11 | Set-back difference | 8 K | 0 to 30 K |
| 12 | Heating period to maintain heat exchanger at constant temperature | 24 h | 0.0 to 25.5 h |

## 16.4 Customer-specific data

| | |
|---|---|
| **Station** | |
| **Operator** | |
| **Contact at SAMSON** | |

| Function blocks | | |
|---|---|---|
| **F** | **Default** | **Setting** |
| 01 | 1 | |
| 02 | 1 | |
| 03 | 1 | |
| 04 | 0 | |
| 05 | 0 | |
| 06 | 0 | |
| 07 | 0 | |
| 08 | 0 | |
| 09 | 0 | |
| 10 | 0 | |
| 11 | 0 | |
| 12 | 1 | |
| 16 | 3 | |
| 17 | 1 | |

| Parameters | | | |
|---|---|---|---|
| **P** | **Default** | **Setting** | **Adjustment range** |
| 01 | 60 °C | | 0 to 100 °C |
| 02 | 70 °C | | 0 to 100 °C |
| 03 | 0 °C | | -50 to +90 °C |
| 04 | 100 °C | | 10 to 150 °C |
| 05 | 95 °C | | 0 to 100 °C |
| 06 | 5 °C | | 0 to 20 °C |
| 07 | 0.6 | | 0.1 to 50 |
| 08 | 25 s | | 0 to 999 s |
| 09 | 0 s | | 0 to 999 s |
| 10 | 35 s | | 0 to 240 s |
| 11 | 8 K | | 0 to 30 K |
| 12 | 24 h | | 0.0 to 25.5 h |

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