MOUNTING AND OPERATING INSTRUCTIONS

EB 5857 EN

Translation of original instructions

Type 5857 Electric actuator

Version with three-step signal · Version with digital positioner

Firmware version 1.04

Edition July 2025

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 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:
▶ 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

1 Safety instructions and measures

Intended use

The Type 5857 Electric Actuator is designed to operate a mounted globe valve used in industrial applications as well as in heating, ventilation and air-conditioning systems.
The version with digital positioner ensures a predetermined assignment of the valve position to the input signal. The actuator is designed to operate under exactly defined conditions (e.g. thrust, travel). Therefore, operators must ensure that the actuator is only used in operating conditions that meet the specifications used for sizing the actuator 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 (Type 5857) 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 (Type 5857). 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 (Type 5857) are not authorized by SAMSON. They are performed at the user's own risk and may lead to safety hazards, for example. Furthermore, the product may no longer meet the requirements for its intended use. Use of the device is no longer permitted in this case.

Safety features

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

Warning against residual hazards

The product (Type 5857) 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, operators 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 (Type 5857) with a CE marking fulfills the requirements of the following Directives:

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

The product (Type 5857) 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:

Mounting and operating instructions of the valve on which the electric actuator is mounted, e.g. for SAMSON valves:

- 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 3135-1 for Type 2488 Pressure-independent Control Valve (PICV)
- EB 3136 for Type 2488 N Pressure-independent Control Valve (PICV)

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 actuator housing.

The electric actuator is protected against dripping water falling at an angle (IP42).

⇨ Avoid sprays and jets of water.

1.2 Notes on possible personal injury

No personal injury can be caused by moving parts.

⚠ 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.

⚠ WARNING

Risk of injury through a power surge.

The serial interface of the electric actuator with positioner is not fitted with a surge protector.

⇨ Ensure that surge protection is provided upon connecting cables.

1.3 Notes on possible property damage

NOTICE

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

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

⇨ Observe the permissible tolerances of the supply voltage.

NOTICE

Risk of damage to the electric actuator due to over-torquing.

Observe the specified torques when tightening the mounting parts of Type 5857 Electric Actuators. 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.

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

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.

NOTICE

Risk of damage to the electric actuator due to incorrect connection of the voltage.

The electric actuator has terminals to retract the stem (eL terminal) and to extend the stem (aL terminal).

⇨ Do not apply a voltage to eL and aL terminals at the same time.

⇨ Make sure that single wires of multi-core or fine-stranded conductors do not touch neighboring terminals.

(version with three-step signal only)

NOTICE

Risk of actuator damage due to overvoltage.

The serial interface of the electric actuator is not fitted with a surge protector.

⇨ Ensure that surge protection is provided upon connecting cables.

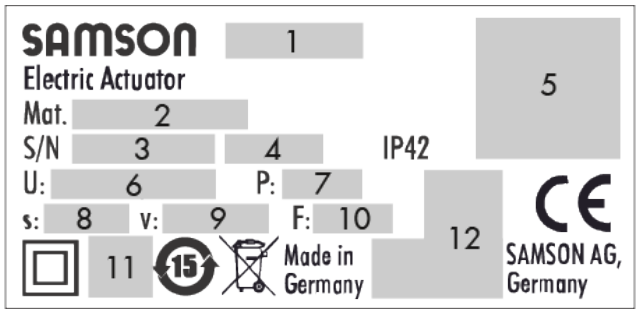
(version with positioner only)

2 Markings on the device

2.1 Nameplate

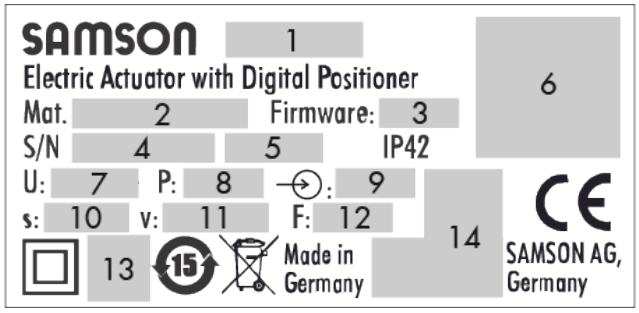
The nameplates shown were up to date at the time of publication of this document. The nameplate on the device may differ from the one shown.

Version with three-step signal



1 Type designation
2 Material number
3 Serial number
4 Date of manufacture
5 Identification code (scannable)
6 Supply voltage
7 Power consumption
8 Rated travel
9 Stroking speed
10 Thrust
11 Other mark of conformity
12 Other mark of conformity

Version with positioner



1 Type designation
2 Material number
3 Firmware version
4 Serial number
5 Date of manufacture
6 Identification code (scannable)
7 Supply voltage
8 Power consumption
9 Input signal
10 Rated travel
11 Stroking speed
12 Thrust
13 Other mark of conformity
14 Other mark of conformity

2.2 Firmware versions

(version with positioner only)

Firmware revisions	
Old	**New**
1.00	**Up to 1.04**
	Internal revisions

3 Design and principle of operation

⇨ See Fig. 1.

The Type 5857 Electric Actuator is linear actuator, which is used in combination with SAMSON valves in industrial plants as well as in heating, ventilation and air-conditioning systems.

The Type 5857 Electric Actuator is preferably combined with SAMSON Types 3222, 3222 N, 2488 and 2488 N Valves as well as special versions of Type 3260 and Type 3226 Valves.

The electric actuator is connected to the valve by a coupling nut (4), which provides a force-locking connection between the actuator stem and the plug stem of the valve. The control signal from the input is transferred over the motor and the connected gear and is applied as the positioning force to move the actuator stem. When the actuator stem (3) extends, the valve is closed, opposing the force of the valve spring (7). When the actuator stem retracts, the valve is opened as the plug stem (6) follows the motion of the return spring. The motor is switched off by torque switches when an end position is reached or in case the motor is overloaded. Travel and direction of action can be read off the travel indicator (5) on the side of the actuator housing.

The actuator has a handwheel that is used to manually position the valve when the actuator is de-energized.

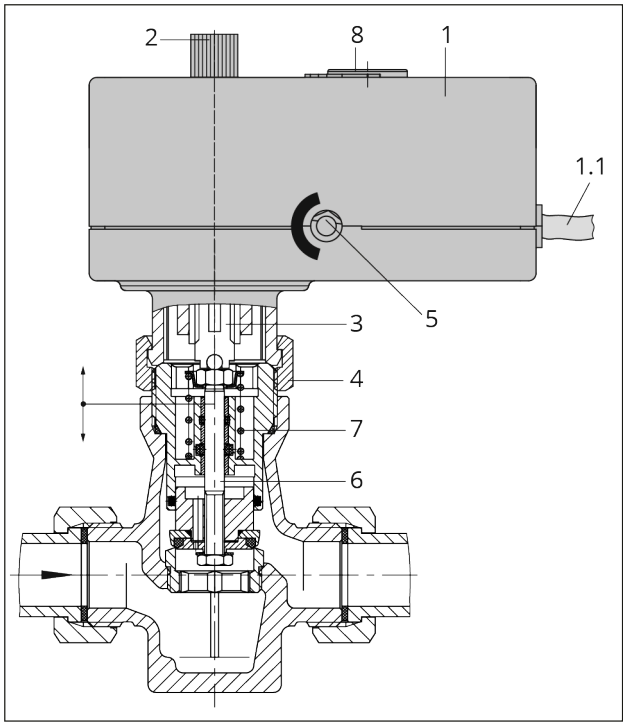


Fig. 1: *Valve with actuator*

1 Actuator
1.1 Connecting cable
2 Handwheel
3 Actuator stem
4 Coupling nut
5 Travel indicator
6 Plug stem
7 Valve spring
8 Cover (serial interface, direction of action switch, initialization key and LEDs)

3.1 Version with three-step signal

The electric actuator with a three-step signal consists of a reversible synchronous motor and a maintenance-free gear. The output signal of the controller is connected to the eL and aL terminals of the actuator. Voltage applied to eL causes the actuator motor to retract the actuator stem. Voltage applied to aL causes the actuator motor to extend the actuator stem.

3.2 Version with positioner

The version with digital positioner has a stepper motor, which can be supplied by frequency-independent voltages. The positioner ensures a predetermined assignment of the valve position to the input signal. For position feedback, a 0 to 10 V signal can be picked off at the output (see Chapter 5.5). The characteristic as well as the input and output signal settings can be changed using the

TROVIS-VIEW software (▶ EB 6661). The characteristic can be reversed. The electric actuator can be used for split-range operation.

3.3 Communication

Serial interface

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

⇨ See Fig. 2.

⚠ WARNING

Risk of injury through a power surge.

The serial interface of the electric actuator is not fitted with a surge protector.

⇨ *Ensure that surge protection is provided upon connecting cables.*

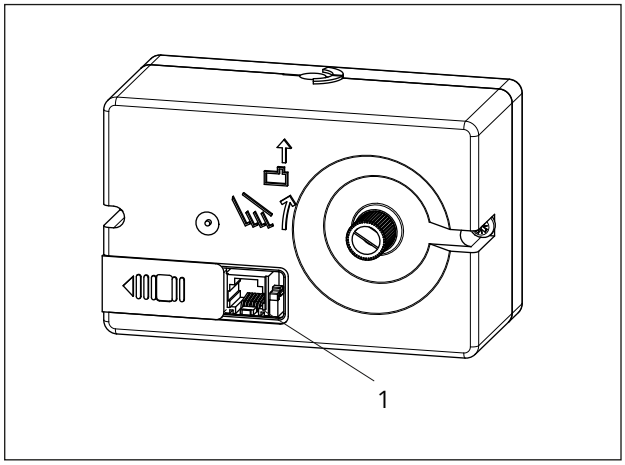


Fig. 2: *Serial interface*

1 RJ-12 port

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.

⇨ See Chapter 7.

i *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.

3.4 Technical data

Table 1: *Technical data · Type 5857*

Type 5857	Version with three-step signal	Version with positioner
Thrust	300 N	
Connection to valve	Force-locking	
Rated travel	6 mm	
Stroking speed	0.3 mm/s	0.2/**0.3** [2]/0.55 mm/s
Transit time for rated travel	20 s	30/**20** [2]/10 s
Supply voltage	230 V (±10 %), 50 Hz 24 V (±10 %), 50 Hz	24 V (±10 %), 50 Hz, 60 Hz and DC [3]
Power consumption	Approx. 3 VA	5 VA
Manual override	✓	
Permissible temperature ranges		
Ambient	0 to 50 °C	
Storage	-20 to +70 °C	
Process medium [1]	0 to 120 °C	
Degree of protection	IP42 according to EN 60529	
Class of protection	II according to EN 61140	
Device safety	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	
Conformity	CE	
Weight	Approx. 0.7 kg	
Digital positioner		
Input signal	–	0 to 10 V [2], R_i = 20 kΩ
Position feedback (output signal)	–	0 to 10 V [2], R_B = 1 kΩ
Characteristic	–	**Linear** [2], equal percentage, reverse equal percentage, user-defined

[1] The permissible medium temperature depends on the valve on which the electric actuator is mounted. The limits in the valve documentation apply.

[2] Default setting

[3] For 'Transit time for rated travel' setting = 10 s, the following applies: 24 V DC (0 %, +10 %).

3.5 Dimensions

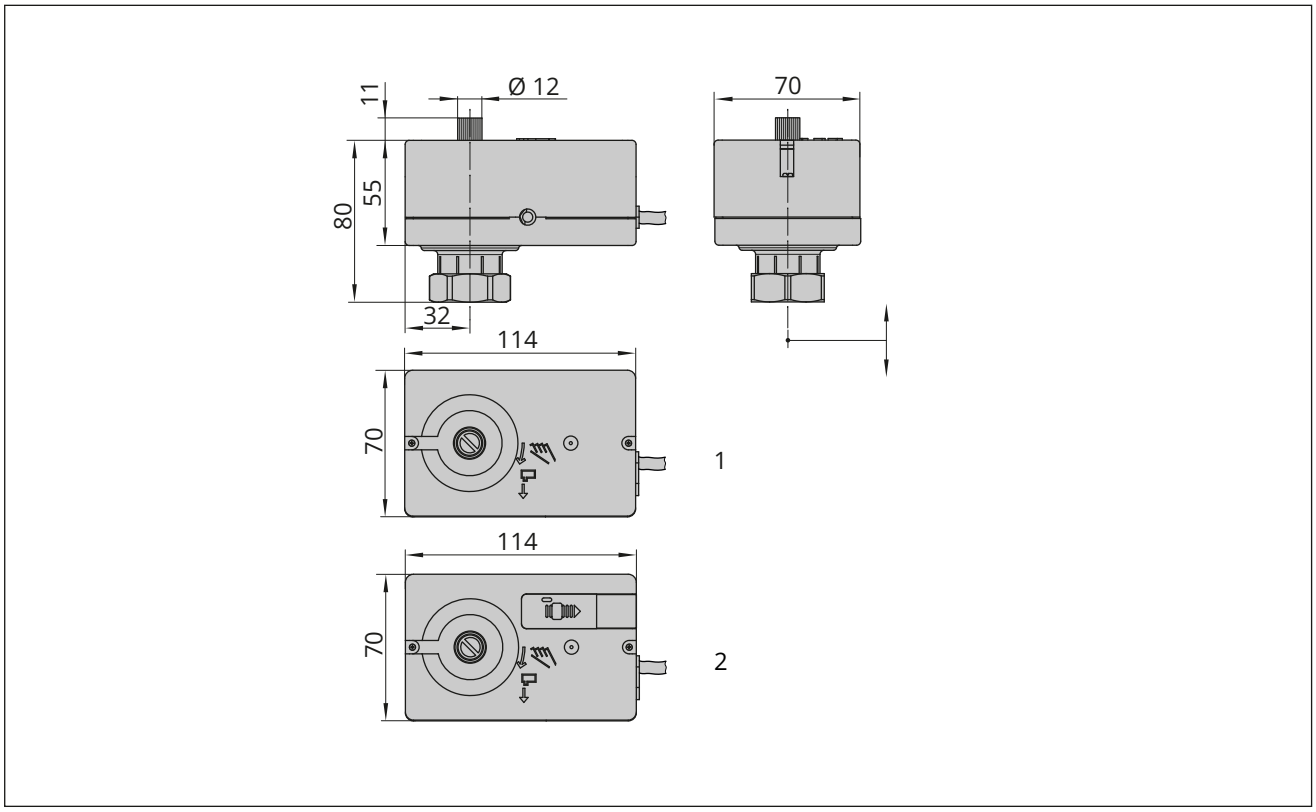


Fig. 3: *Dimensions in mm*

1 Version with three-step signal
2 Version with positioner

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 actuator

Note

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

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

Table 2: *Scope of delivery*

1x Type 5857 Electric Actuator
1x Document IP 5857 EN (Important Product Information)

4.3 Transporting the actuator

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

– Protect the actuator against moisture and dirt.

– Observe the permissible transportation temperature range of -20 to +70 °C.

4.4 Lifting the actuator

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

4.5 Storing the actuator

NOTICE

Risk of electric 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.*

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.

– Make sure that the ambient air is free of acids or other corrosive media.

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

– 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.

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.*

Mounting position

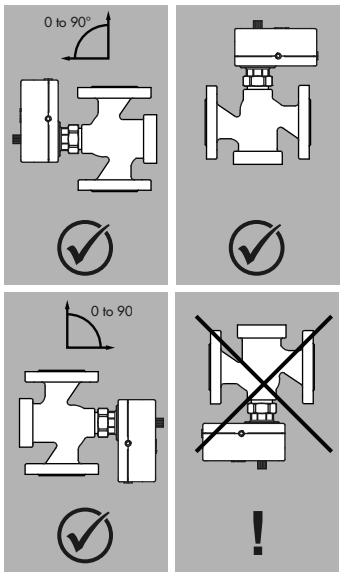


Fig. 4: *Mounting position*

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.

NOTICE

The actuator will be destroyed if the actuator housing is opened.

⇨ *Do not open the actuator housing.*

⇨ *Do not remove the dots of varnish on the screws.*

5.3 Mounting the actuator

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.*

The electric actuator is connected to the valve with a coupling nut in the de-energized state (see Fig. 5).

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

Tightening torque	20 Nm

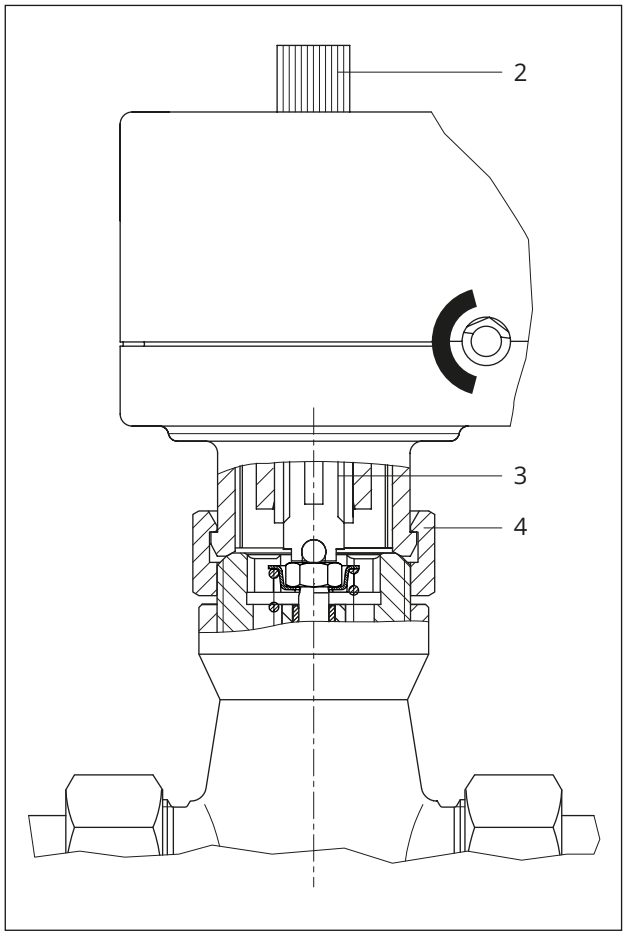


Fig. 5: *Valve with actuator*

2 Handwheel
3 Actuator stem
4 Coupling nut

5.4 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.

5.5 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.*

The ends of the connecting cable are fitted with wire-end ferrules.

5.5.1 Version with three-step signal

NOTICE

Risk of malfunction due to the use of the wrong interference suppressors.

The rating of the interference suppression capacitors in the output circuit of the connected controller must not exceed a value of 2.5 nF to ensure the proper functioning of the actuator.

⇨ *Do not use controllers that have interference suppression capacitor with a higher rating.*

NOTICE

Risk of damage to the electric actuator due to incorrect connection of the voltage.

The electric actuator has terminals to retract the stem (eL terminal) and to extend the stem (aL terminal).

⇨ *Do not apply a voltage to eL and aL terminals at the same time.*

⇨ *Make sure that single wires of multi-core or fine-stranded conductors do not touch neighboring terminals.*

(version with three-step signal only)

Wiring

⇨ Connect the wires of the three-wire connecting cable as shown in Fig. 6.

⇨ Connect actuators operated in parallel over separate contacts to prevent the actuators hunting in the end positions due to a shared OPEN and CLOSED contact.

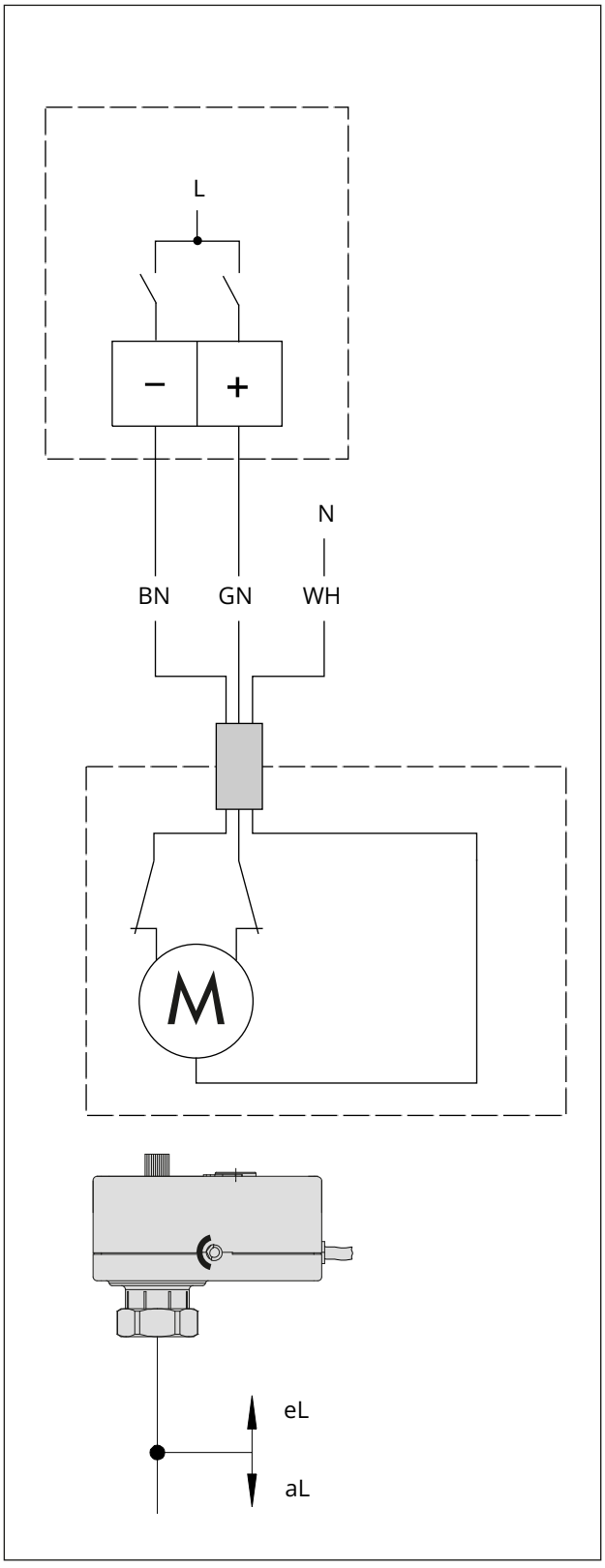


Fig. 6: *Electrical connection · Three-step control*

BN Brown
GN Green
WH White
\+ "Stem retracts" controller signal
– "Stem extends" controller signal
N Neutral

5.5.2 Version with positioner

⇨ Connect the wires of the six-wire connecting cable as shown in Fig. 7.

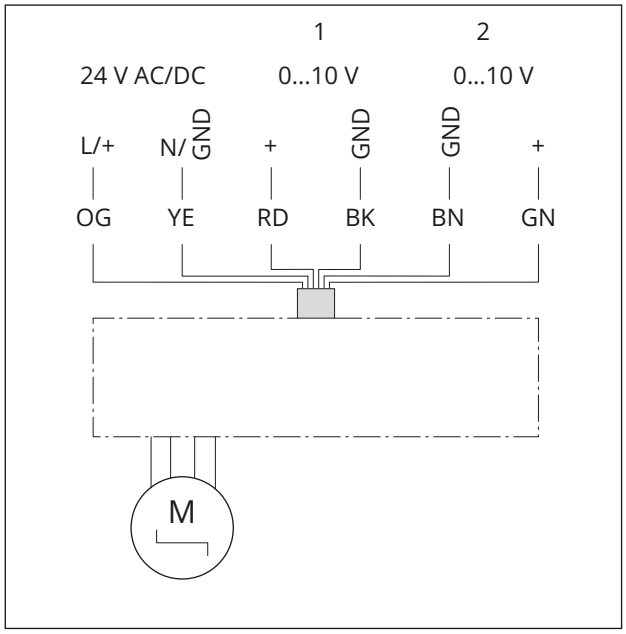


Fig. 7: *Electrical connection · Positioner*

1 Input
2 Output (position feedback)
OG Orange
YE Yellow
RD Red
BK Black
BN Brown
GN Green

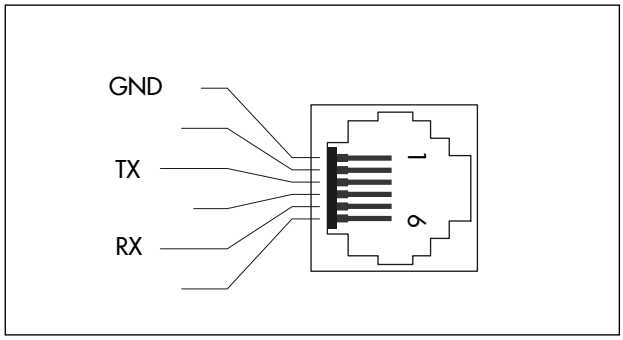


Fig. 8: *Assignment of the RJ-12 jack*

6 Operation

6.1 Device overview and operating controls

6.1.1 Version with three-step signal

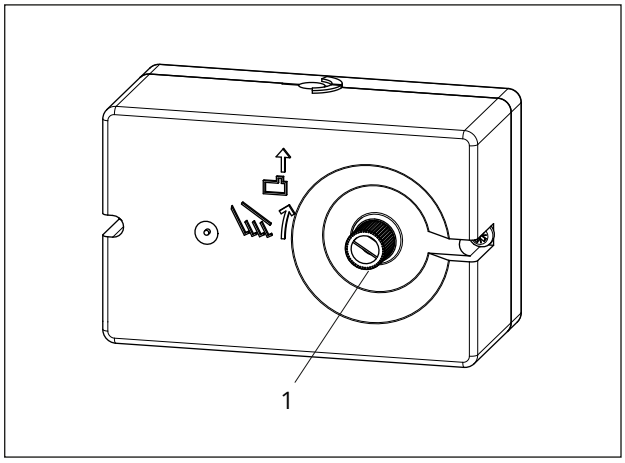


Fig. 9: *Operating controls*

1 Handwheel

6.1.2 Version with positioner

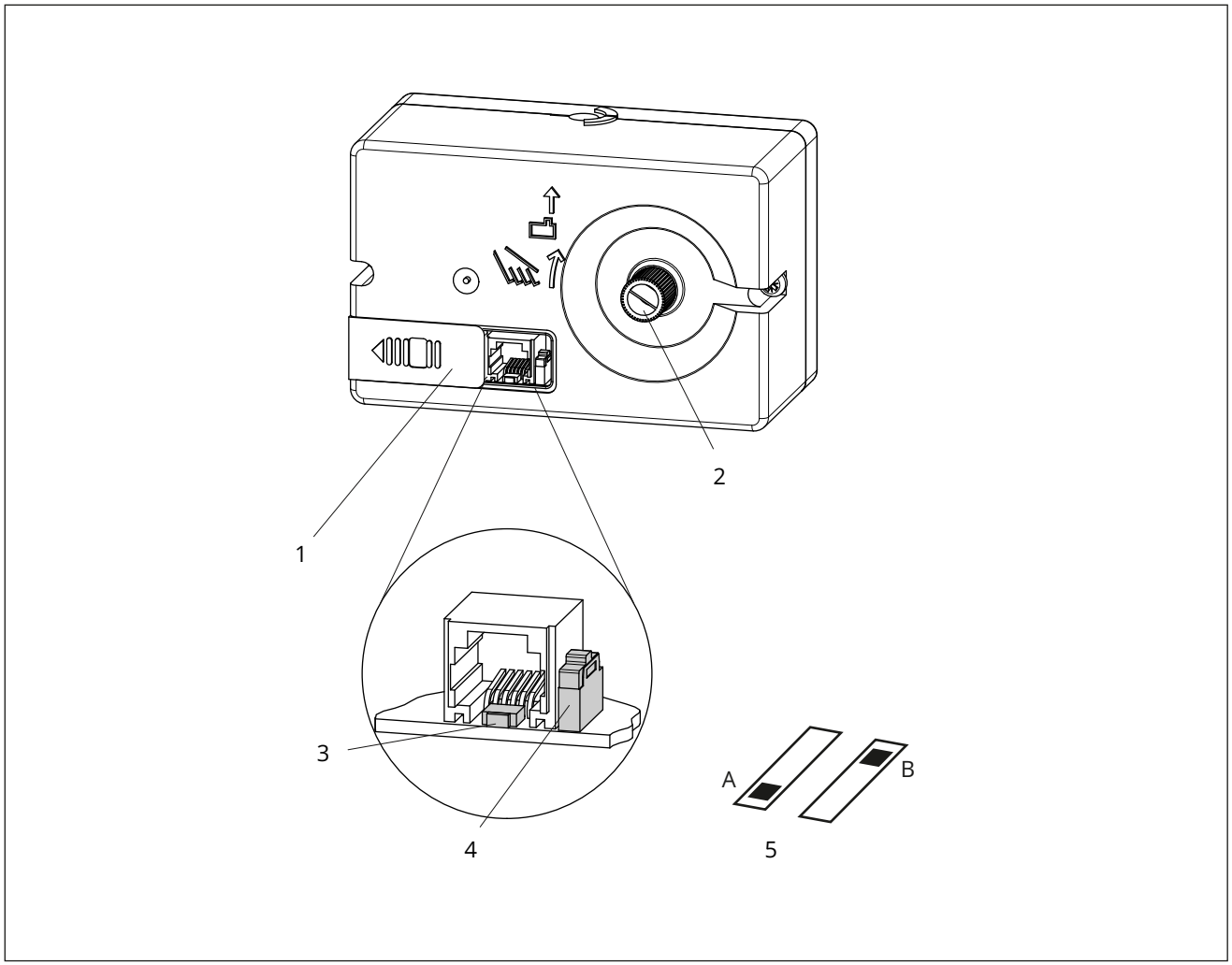


Fig. 10: *Operating controls · Version with positioner*

1 Red and yellow LEDs
2 Handwheel
3 Initialization key
4 Direction of action switch
5 Switch positions
A: direction of action increasing/decreasing (>>)
B: direction of action increasing/decreasing (<>)

6.1.2.1 LED indication

The electric actuator with positioner has a red and a yellow LED, which indicate the operating state of the actuator through a blinking pattern (see Chapter 8.2.1). The LEDs are located underneath the cover on top of the actuator (see Fig. 10).

6.1.2.2 Direction of action switch

The position of the direction of action switch determines the actuator's direction of action.

⇨ See Fig. 10.

Switch position A

Direction of action increasing/increasing (>>): The actuator stem retracts as the input signal increases.

Switch position B

Direction of action increasing/decreasing (<>): The actuator stem extends as the input signal increases.

6.1.2.3 Initialization key

To achieve correct position feedback, the actuator must be initialized. This is also necessary after changing any settings at the actuator. Initialization is started manually by pressing the initialization key (see Fig. 10 and Chapter 7).

7 Start-up and configuration

7.1 Putting the actuator with three-step signal into operation

Once the actuator has been mounted correctly and the wiring has been performed as described in Chapter 5, the electric actuator is ready for use and can be controlled by a three-step signal (see Chapter 3.4).

7.2 Putting the actuator with positioner into operation

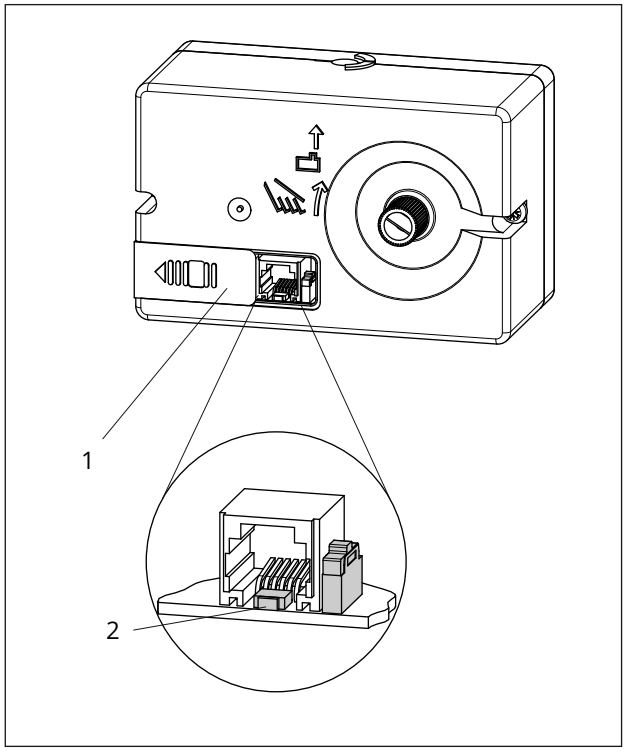


Fig. 11: *Location of the initialization key and LEDs*

1 Red and yellow LEDs
2 Initialization key

7.2.1 Initializing the actuator

NOTICE

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

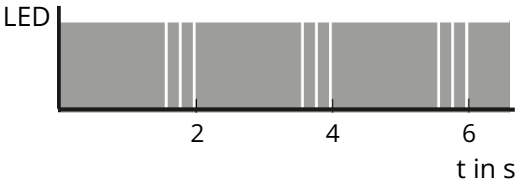
⇨ *Do not perform zero calibration or initialization while the process is running. First isolate the plant by closing the shut-off valves.*

To achieve correct position feedback, the actuator must be initialized. This is also necessary after changing the configuration at the actuator. The actuator can be initialized at the actuator itself or using the TROVIS-VIEW software.

Start initialization

1. Press the initialization key for about one second until the red LED is illuminated.
2. Release initialization key. Initialization starts.

The red LED indicates that initialization is in progress.



NOTICE

Risk of malfunction due to incomplete or incorrect start-up.

⇨ *Start initialization.*

⇨ *Initialization has been completed when the red LED turns off.*

The actuator is not ready to use until initialization is completed.

Note

The actuator automatically performs a zero calibration as soon as the supply voltage is applied to the L and N terminals. This is indicated by the red LED blinking (see Chapter 8). This function does not replace the initialization procedure.

7.2.2 Configuring the actuator with positioner

The actuator 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).

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

8 Setup

After connecting the supply voltage, the actuator is ready for use.

8.1 Version with three-step signal

The actuator stem follows the signal applied to the input terminals. The stem moves in the direction depending on which terminal the signal is applied to.

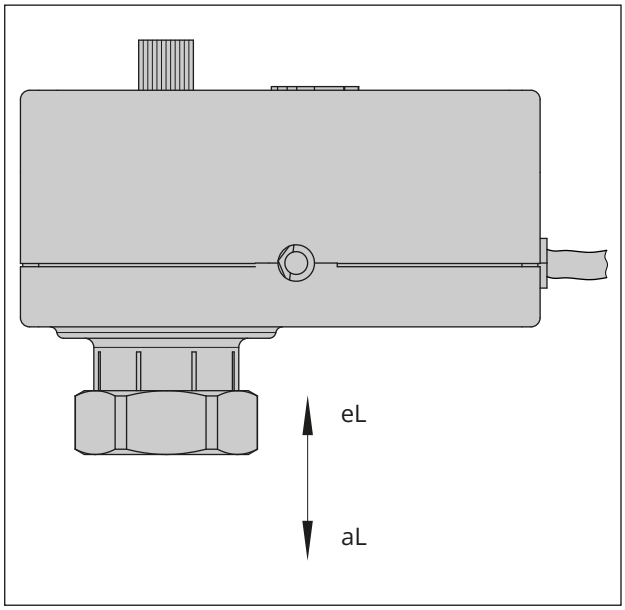


Fig. 12: *Actuator stem's direction of action*

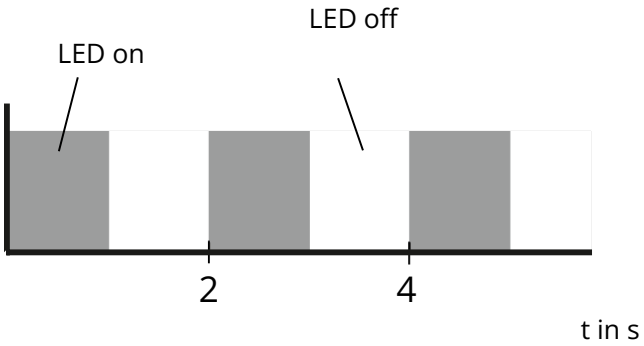
8.2 Positioner

The actuator stem's position directly follows the input signal.

8.2.1 LED blinking pattern

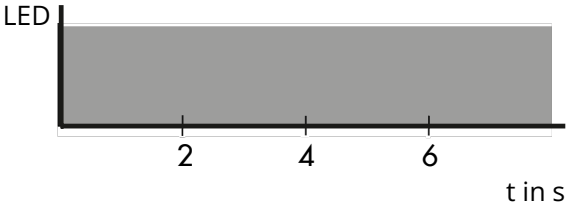
Explanations to the blinking pattern of the LEDs

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

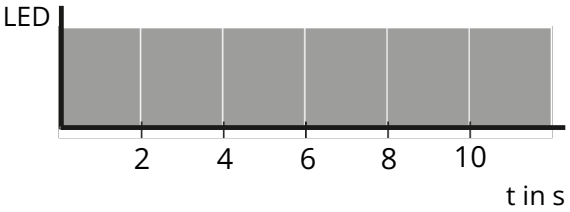


Blinking pattern of the yellow LED

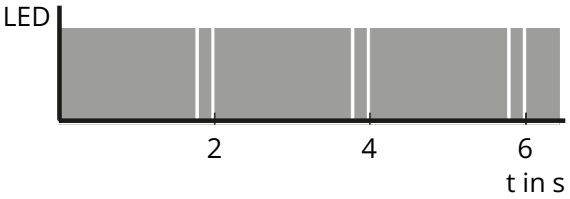
Device ON or communication in progress



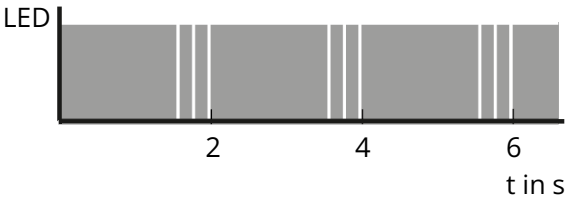
Stem position relative



Blocking protection in progress

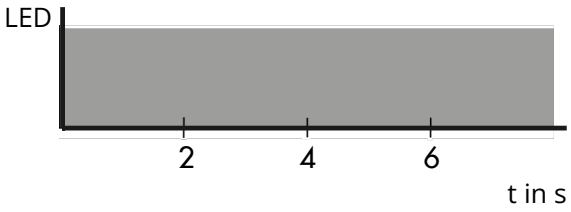


Blockage removal in progress

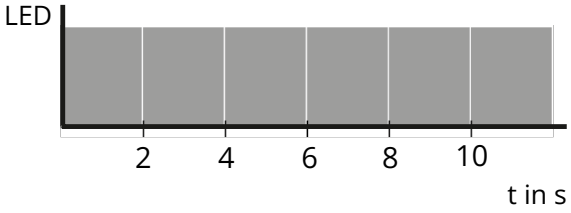


Blinking pattern of the red LED

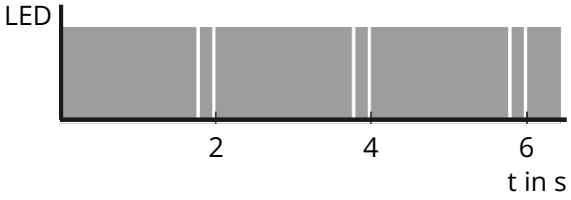
Restarting device after reset or key pressed



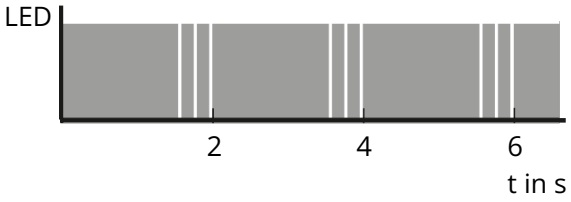
Zero calibration in progress



Transit time measurement in progress



Initialization in progress



Note

The LED blinking patterns apply when the memory pen is inserted into the actuator (see Chapter 8.4).

8.3 Manual mode

The actuator stem can be moved mechanically or alternatively electrically (version with positioner) in TROVIS-VIEW (▶ EB 6661).

Direction of action and travel can be read off the travel indicator.

8.3.1 Mechanical override

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.*

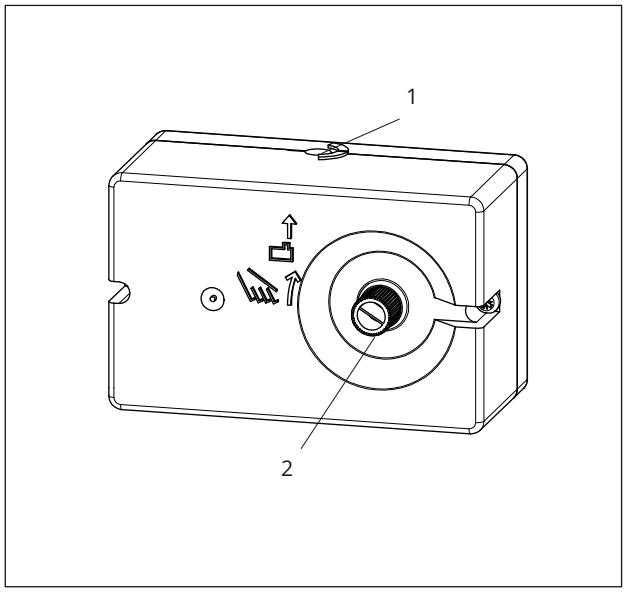


Fig. 13: *Mechanical override*

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

Version with positioner:

Note

The positioning of the valve is affected when the handwheel is operated while the process is running. As a result, zero point and the position feedback do not match the calibrated values. Zero calibration, initialization or a transit time measurement must be performed again.

8.4 Operation using memory pen

⇨ See ▶ 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.

NOTICE

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

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

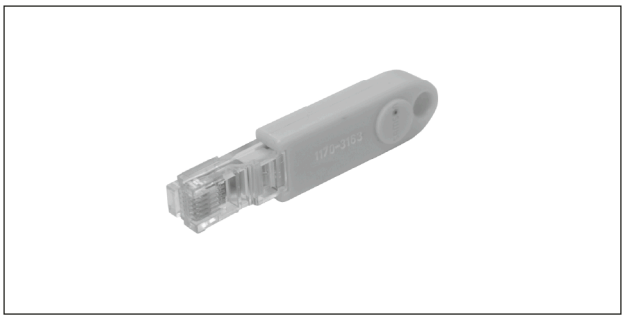


Fig. 14: *Memory pen-64*

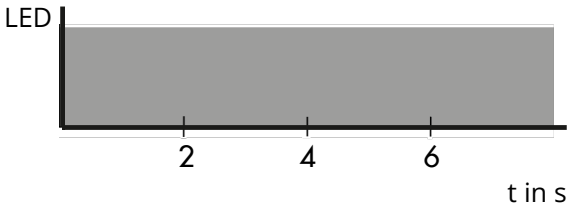
Note

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.

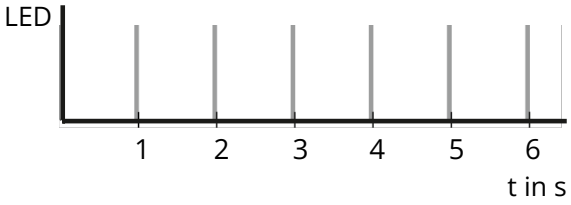
Memory pen actions and errors are indicated at the **yellow LED** on the actuator.

LED blinking pattern for the memory pen

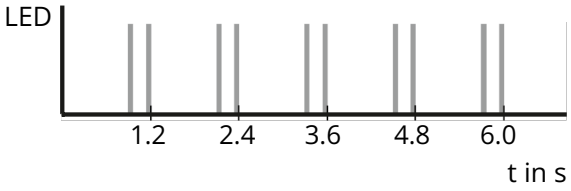
Memory pen action completed



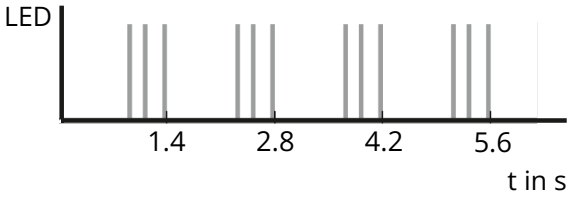
Preparing to read data from memory pen



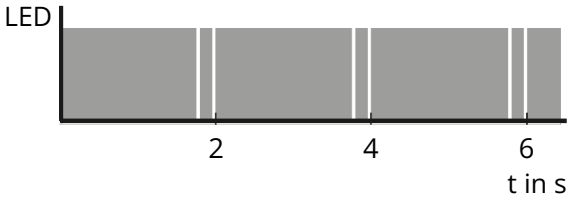
Preparing to write data to memory pen



Preparing data logging



Data logging in progress



Data transmission between the actuator and memory pen

The memory pen is connected to the actuator as shown in Fig. 15. The TROVIS-VIEW Operating Instructions ▶ EB 6661 describe how to transfer data.

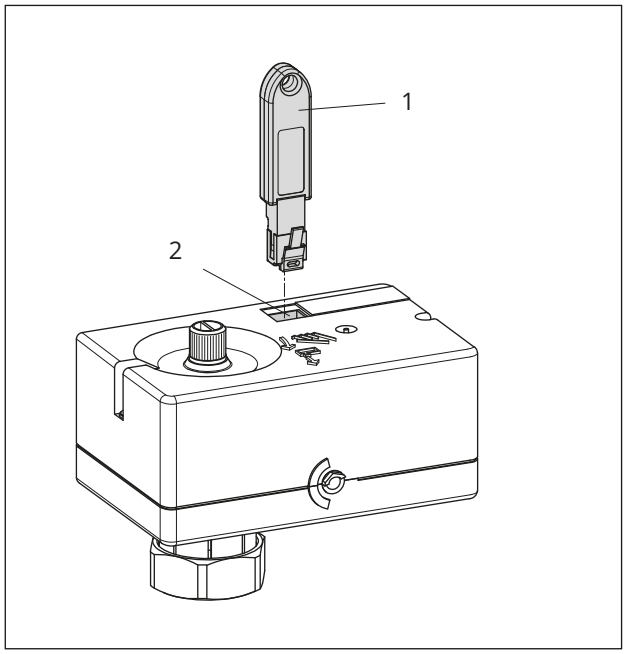


Fig. 15: *Connecting actuator and memory pen*

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

8.4.1 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.

i *Note*

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

8.4.2 Data logging

The memory pen-64 allows the following data to be saved:

- Input in %
- Actuator travel in %
- Position feedback in %
- Temperature inside device in °C
- Torque switch: Actuator stem retracted
- Torque switch: Actuator stem extended
- Position feedback is relative
- Malfunctions
- Input signal failure
- Position of the direction of action switch

The data are logged until the memory capacity of the memory pen is full.

Data in the memory pen can be saved to a data logging file using the TROVIS-VIEW software.

Data logging

1. Plug the memory pen into the serial interface of the actuator (Fig. 15). The yellow LED on the actuator indicates that the data logging is being prepared (see Chapter 8.4). 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.

i *Note*

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

Transferring data onto a computer

1. Insert the memory pen together with modular adapter into the serial interface (COM port) of the computer (see Chapter 17).
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 5857.
4. Enter the file name.
5. Click 'Save' button to start data transmission.

8.4.3 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

- *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 Readings in TROVIS-VIEW

8.5.1 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	Positioning value in % Input signal in V
Outputs	Calculated actuator travel in % Calculated actuator travel in mm Position feedback in % Position feedback in V Set point deviation in %
Limit contact	Actuator stem retracted Actuator stem extended
Switch	Operating direction switch Initialization key

8.5.2 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 8.2.1).

Operating states	Operating states Functions

8.5.3 Functions

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

Manual level	⇨ Manual level
Functions	⇨ Perform reset ⇨ Load default settings in actuator ⇨ Start zero calibration ⇨ Start transit time measurement Measured transit time in s Measured travel in mm Speed during measurement
Basic settings	Rated actuator travel in mm Select new rated travel in mm ⇨ Transmit new basic settings

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

8.5.4 Status messages

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

Device	Firmware version Serial number Device information Manufacturing parameters
Operation	Operating hours in h Operating hours at excess temperature in h Temperature inside device in °C Highest temperature inside device in °C Lowest temperature inside device in °C
Actuator strokes	Motor running time in h Starts Changes in direction
Valve strokes	Full travel cycles
LEDs	Yellow (operation) Red (error)

8.5.5 Statistics

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

Device failures counters	Power supply activated Program interruptions Limit contact error EEPROM error
Alarms counters	Input signal failures Valve blockages
Counter: switch	Operating direction switch Initialization key
Counter: manual overrides	Manual overrides
Memory pen counters	Command: retract actuator stem Command: extend actuator stem Data read Data written Data logged
Functions counter	Basic settings changed Configuration changed Manual level activated Zero calibration started Initialization started Reset triggered Default settings loaded Transit time measurement started

9 Malfunctions

9.1 Troubleshooting

⇨ See Table 3.

i Note

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

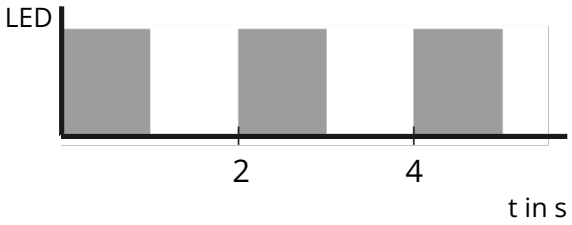
Table 3: *Troubleshooting*

Malfunction	Possible reasons	Recommended action
Actuator stem does not move.	Actuator is blocked.	⇨ Check attachment. ⇨ 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 actuator does not control the valve position.	The actuator was not initialized or not correctly initialized during start-up. The mounting position has been changed.	⇨ Check the switch position of the direction of action switch (see Chapter 6.1.2.2) ⇨ Initialize the actuator.

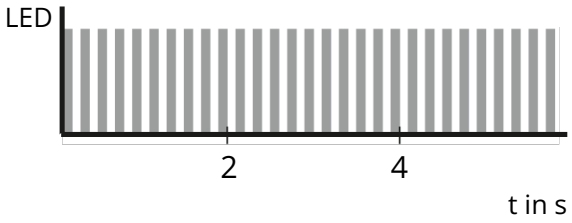
9.2 Error indication by LEDs

Blinking pattern of the yellow LED

Plausibility error in memory pen

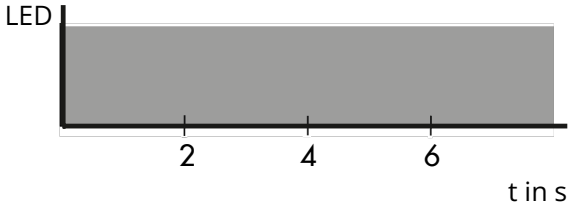


EEPROM error in memory pen

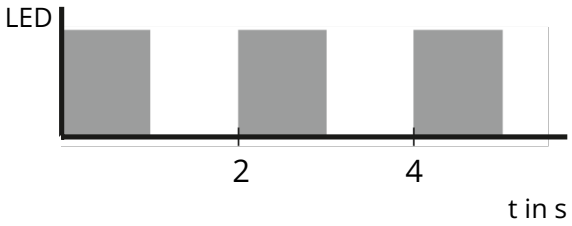


Blinking pattern of the red LED

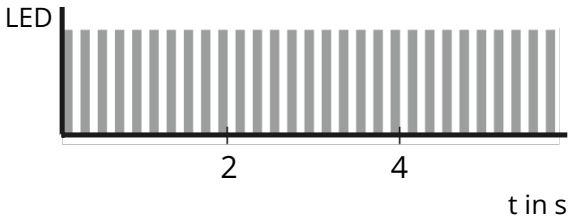
Limit contact error



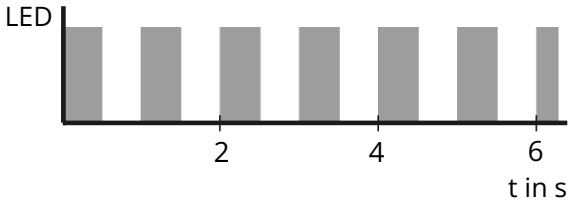
Input signal failure detected



EEPROM error



Blockage



9.3 Emergency action

The valve, on which the electric actuator with fail-safe action is mounted, is moved to its fail-safe position upon supply voltage failure (see Chapter 3).

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 actuator requires no maintenance.

SAMSON recommends inspection and testing according to the following table:

Table 4: *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. ⇨ Clean any inscriptions that are covered with dirt and are illegible.
Check the electric wiring.	⇨ Tighten any loose terminal screws (see Chapter 5.5). ⇨ Replace the actuator.

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.

⇨ Make sure that a signal from the controller cannot act upon the actuator.

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.*

1. Check that the actuator is de-energized.
2. Disconnect the conductors of the connecting cables.
3. Retract the actuator stem using the handwheel (see Chapter 8).
4. Undo the coupling nut and remove the actuator from the valve connection.

13 Repair

If the actuator does not function properly according to how it was originally sized or does not function at all, it is defective and must be repaired or 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 actuator to SAMSON

Defective actuators can be returned to SAMSON for repair. 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 assigned SCIP number, which can be entered into the database on the European Chemicals Agency (ECHA) website to find out more information on the SVHC ▶ https://www.echa.europa.eu/scip-database.

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 > 5857

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

Elektrischer Stellantrieb / Electric Actuator / Servomoteur électrique
Typ / Type / Type 5857

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 60335-1:2012
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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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

ppc.

Norbert Tollas
Senior Vice President
Global Operations

i. V. P.

Peter Scheermesser
Director
Product Maintenance and Engineered Products

Revision no. 00

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:

Electric Control Valve Type 3222 N/XXXX-X consisting of Type 3222 N Valve and Actuator Type 5857, TROVIS 5757-3 or TROVIS 5757-7

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 Control Valves Type 3222 N/5857, Type 3222 N/5757-3 and Type 3222 N/5757-7: Mounting and Operating Instructions EB 5867

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:
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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
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DECLARATION OF INCORPORATION
TRANSLATION

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

For the following product:
Type 5857 Electric Actuator

We certify that the Type 5857 Electric Actuator is 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, 1.3.9, 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:
- Type 5857 Electric Actuator: Mounting and Operating Instructions EB 5857

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:

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Frankfurt am Main, 18 September 2023

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16 Appendix A

(version with positioner only)

i ***Note***

The actuator is configured with the TROVIS-VIEW software (▶ EB 6661).

16.1 Input signal

The input signal determines the actuator stem position. A voltage or current signal can be used as the input signal. The default lower and upper range values of the input signal are 0 to 10 V.

i ***Note***

At least 2.5 V must separate the upper and lower range values.

⇨ Select 'Settings' folder (> 'Inputs and outputs'). The settings for the input and output signal are shown.

Settings > Inputs and outputs > Input signal

Input signal	Default	Adjustment range
Lower range value	0.0 V	0.0 to 7.5 V
Upper range value	10.0 V	2.5 to 10.0 V

16.1.1 Split-range operation

The input signal range can be adapted, e.g. to achieve a plant operation characteristic by connecting two or more actuators in parallel (split-range operation).

Example:

Two valves regulate the process medium in one common pipeline to achieve a large rangeability. One valve opens with a 0 to 5 V input signal, while the second valve also opens when the input signal increases further (5 to 10 V) and the first valve remains open. The two valves close in the reverse order.

16.2 Position feedback signal

The position feedback indicates the position of the actuator stem. The span of the position feedback signal is adjusted over the lower and upper range value parameters.

Settings > Inputs and outputs > Position feedback signal

Position feedback signal	Default	Adjustment range
Lower range value	0.0 V	0.0 to 10.0 V
Upper range value	10.0 V	0.0 to 10.0 V
Indicate error at relative stem position	Yes	Yes/No

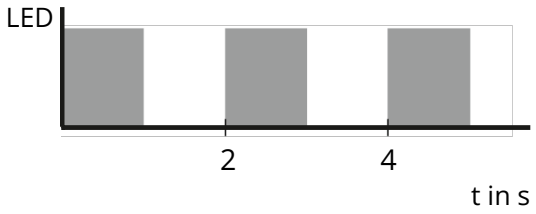
16.3 Functions

16.3.1 Detect input signal failure

The positioner detects a failure of the input signal as soon as the value falls below the lower range value by 0.3 V or 0.6 mA. An input signal failure is indicated in the 'Service' folder (> 'Operating states') as well as by the red LED.

The red LED blinks.

Input signal failure detected



i ***Note***

The 0 to 10 V setting for the input signal is not possible in combination with this function. The lower value must be at least 0.5 V to ensure a signal failure can be detected.

If the **Detect input signal failure** function is active, the reaction of the actuator upon failure of the input signal is determined by the 'Positioning value upon input signal failure' parameter.

– 'Positioning value upon input signal failure' = **Internal positioning value**
  The actuator stem moves to the position specified in the 'Internal positioning value' parameter upon failure of the input signal.

– 'Positioning value upon input signal failure' = **Last travel value**
  The actuator stem remains in the last position that the valve moved to before failure of the input signal.

The error message is reset and the actuator returns to closed-loop operation if the input signal moves within 0.2 V of the lower range value.

Settings > Actuator > Functions

Function	Default	Adjustment range
Detect input signal failure	No	Yes/No
Positioning value upon input signal failure	Internal positioning value	Internal positioning value/Last travel value
Internal positioning value	0.0 %	0.0 to 100 %

16.3.2 End position guiding

The actuator stem moves to the end position earlier if the end position guiding function is active.

– 'Value below limit (end position guiding)'
  The actuator stem moves to the 0 % position when the input signal reaches the entered value.

– 'Value above limit (end position guiding)'
  The actuator stem moves to the 100 % position when the input signal reaches the entered value.

Settings > Actuator > Functions

Function	Default	Adjustment range
Value below limit (end position guiding)	1.0 %	0.0 to 49.9 %
Value above limit (end position guiding)	97.0 %	50.0 to 100.0 %

Note

When 'Value below limit (end position guiding)' = 0 % and 'Value above limit (end position guiding)' = 100 %, the end position guiding function is deactivated.

16.4 Blockage

16.4.1 Blockage detection

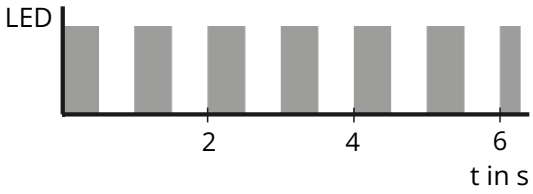
i ***Note***

The positioner can only detect a valve blockage after either an initialization (see Chapter 7) or a transit time measurement (see Service folder in Start-up or Functions in TROVIS-VIEW) has been performed after the actuator is started up for the first time.

The positioner detects a valve blockage when the actuator stem extends and when 'Travel adjustment' is set to **Absolute** by comparing the travel after the limit switch has been triggered with the travel measured on initialization. If the comparison shows that the limit switch was triggered too early, this indicates that there is a valve blockage.

The red LED blinks.

Blockage



Blockage

Settings > Actuator > Blockage

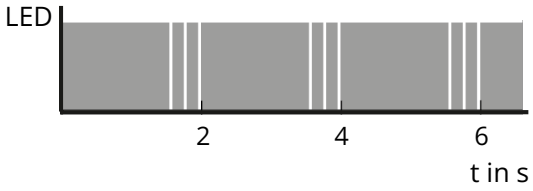
Function	Default	Adjustment range
Blockage detection	No	Yes/No

16.4.2 Blockage removal

When the **Blockage removal** function is active, the actuator stem extends and retracts 1 mm at the adjusted stroking speed three times in sequence. The action is indicated by the yellow LED when **Blockage removal** is active.

The yellow LED blinks.

Blockage removal in progress



Settings > Actuator > Blockage

Function	Default	Adjustment range
Blockage removal	No	Yes/No

16.4.3 Indicate blockage

The positioner indicates a blockage when the **Indicate blockage** function is active (only when **Blockage detection** is activated).

– 12 V is issued at the output as the position feedback signal.

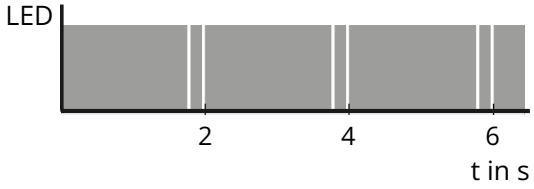
Settings > Actuator > Blockage

Function	Default	Adjustment range
Indicate blockage	No	Yes/No

16.4.4 Blocking protection

The blocking protection prevents the valve from seizing up. If the actuator stem is in the 0 % position, it is extended slightly and then retracted 24 hours after it last moved. Movement of the actuator stem caused by the activated blocking protection is indicated by the yellow LED.

Blocking protection in progress



Blocking protection in progress

Settings > Actuator > Blockage

Function	Default	Adjustment range
Blocking protection	No	Yes/No

16.5 Travel

16.5.1 Limited travel range

The **Limited travel range** parameter determines in % how far the actuator stem can move at the maximum. The travel determined during initialization acts as the reference.

Settings > Actuator > Travel

Function	Default	Adjustment range
Limited travel range	100 %	30.0 to 130.0 %

16.5.2 Travel adjustment

Travel adjustment can be made to be absolute or relative. The way the travel adjustment is made affects the control behavior.

Absolute travel adjustment

– The absolute travel adjustment causes the actuator stem to move to the travel position determined by the input signal. To achieve this, an automatic zero calibration is performed after every start-up to obtain a reference value for the zero point. The position feedback indicates the position of the actuator stem.

Relative travel adjustment

– The relative travel adjustment causes the change in input signal to be reproduced by the position of the actuator stem. The actuator stem extends or retracts from the current actuator stem position corresponding to the change in signal. After starting up the actuator, a zero calibration is not performed. The stem position is unknown on reconnection after power failure. The input signal is assigned as the start value. 12 V is issued as the position feedback signal. The stem position is recognized again when the actuator stem reaches the end position 'Actuator stem extended' and, at the same time, the input signal is 0 %.

Settings > Actuator > Travel

Function	Default	Adjustment range
Travel adjustment	Absolute	Absolute/Relative

Tip

In closed-loop operation, the positioner must be operated with absolute travel adjustment (default setting).

16.5.3 Idle time during end position guiding

The idle time for **Relative travel adjustment** paces the gradual movement of the actuator stem towards the end position. With the relative stem position, the input signal can preset a value of 0 % or 100 %. However, the actuator stem can only be moved to its upper range value. The input signal cannot move the actuator stem beyond this position. The actuator stem is moved towards the end position in steps with the hysteresis. The idle time defines the time between the steps. The paced stem movement is deactivated when the value is set to 0.

Settings > Actuator > Functions

Function	Default	Adjustment range
Idle time during end position guiding	0 s	0 to 99 s

i Note

The further description refers to the operation with absolute travel adjustment, unless specified otherwise.

16.5.4 Speed

The actuator stem moves to the position determined by the input signal at the selected stroking speed. There are three speed levels.

- Slow = 0.2 mm/s
- Normal = 0.3 mm/s
- Fast = 0.55 mm/s

Settings > Actuator > Travel

Function	Default	Adjustment range
Speed	Normal	Slow/Normal/Fast

i Note

The transit time is calculated from the travel and the stroking speed. The transit time is the time that the actuator stem needs to move through the adjusted travel.

The following applies:

$$\text{Transit time in s} = \frac{\text{Travel in mm}}{\text{Stroking speed in mm/s}}$$

16.5.5 Dead band (switching range)

Dead band (switching range)

The dead band suppresses slight movements of the stem. The dead band represents the sum of the positive and negative hysteresis. After the actuator has been stationary, the input signal must change by at least half of the dead band to cause the actuator stem to move again.

Settings > Actuator > Travel

Function	Default	Adjustment range
Dead band (switching range)	2.0 %	0.5 to 5.0 %

16.5.6 Characteristic

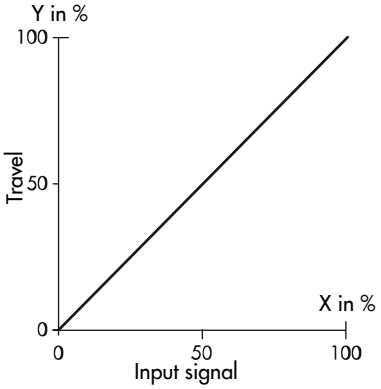
The characteristic expresses the relation between the input signal and the actuator stem position (direction of action increasing/increasing >>).

Perform the characteristic settings in the 'Settings' folder (> Actuator > Characteristic).

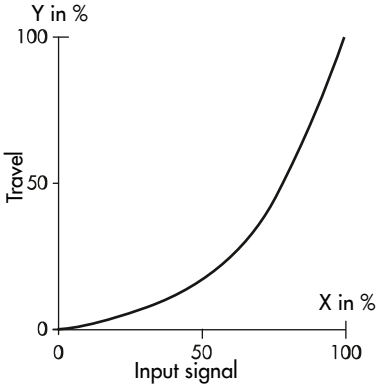
Settings > Actuator > Characteristic

Function	Default	Adjustment range
Characteristic type	Linear	Linear Equal percentage Reverse equal percentage User-defined

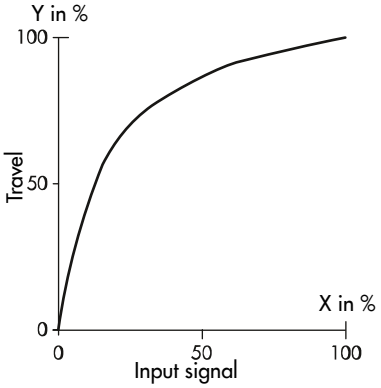
– **Linear:**
The travel is proportional to the input signal.



– **Equal percentage:**
The travel is exponential to the input signal.



– **Reverse equal percentage:**
The travel is reverse exponential to the input signal.



– **User-defined:**
A new characteristic based on the last characteristic used can be defined over eleven points.

16.5.7 Start-up

Initialization can be started in the 'Service' folder (> 'Start-up').

16.5.8 Functions ('Service')

The functions described below can be performed in the 'Service' folder (> 'Functions').

16.5.8.1 Manual level

The actuator can be switched to the manual mode if the manual level is enabled in online mode in TROVIS-VIEW. The actuator leaves the manual mode as soon as you exit the manual level or online mode in TROVIS-VIEW. The following actions can be activated in the manual level:

- Retract actuator stem
- Extend actuator stem
- Move actuator stem to standardized value

⇨ First enter the required positioning value in relation to the input signal range (standardized positioning value).

- Issue standardized position feedback

⇨ First enter the required position feedback in relation to the span of the position feedback signal (standardized position feedback).

- Issue error message
- Activate the yellow LED
- Activate the red LED

16.5.8.2 Functions

Perform reset

The actuator is restarted.

Load default settings in actuator

The configuration is reset to the default setting.

Start zero calibration

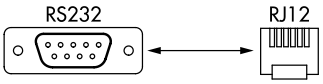
The actuator moves to the lower end position (stem extended). After the zero calibration is completed, the transit time is adopted and the actuator is ready for operation. The actuator stem is moved to the position determined by the input signal.

Start transit time measurement

Measures the time required to move from one end position to the other.

17 Appendix B

17.1 Accessories

Accessories	Order no.
For version with positioner	
Hardware package consisting of: – Memory pen-64 – Connecting cable RJ-12/D-sub, 9 pin – Modular adapter	1400-9998
Connecting cable RJ-12/D-sub, 9 pin	1400-7699 
Memory pen-64	1400-9753 
Modular adapter	1400-7698 
USB to RS-232 adapter	8812-2001 
Software	
TROVIS-VIEW (free of charge)	▶ www.samsongroup.com > DOWNLOADS > Software & Drivers > TROVIS-VIEW

17.2 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

(Firmware version only for version with positioner)

17.3 Configuration list and customer-specific data

Configuration	Default setting	Adjustment range	Setting
Input signal			
Lower range value	0.0 V	0.0 to 7.5 V	
Upper range value	10.0 V	2.5 to 10.0 V	
Position feedback signal			
Lower range value	0.0 V	0.0 to 10.0 V	
Upper range value	10.0 V	0.0 to 10.0 V	
Functions			
Detect input signal failure	No	Yes/No	
Positioning value upon input signal failure	Internal positioning value	Internal positioning value/Last travel value	
Internal positioning value	0.0 %	0.0 to 100 %	
Value below limit (end position guiding)	1.0 %	0.0 to 49.9 %	
Value above limit (end position guiding)	97.0 %	50.0 to 100.0 %	
Blockage			
Blockage detection	No	Yes/No	
Blockage removal	No	Yes/No	
Indicate blockage	No	Yes/No	
Blocking protection	No	Yes/No	
Travel			
Limited travel range	100.0 %	30.0 to 130 %	
Travel adjustment	Absolute	Absolute/Relative	
Speed	Normal	Slow/Normal/Fast	
Dead band (switching range)	2.0 %	0.5 to 5.0 %	
Characteristic type	Linear	Linear/Equal percentage/Reverse equal percentage/User-defined	

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