MOUNTING AND OPERATING INSTRUCTIONS

EB 5824-2 EN

Translation of original instructions

Electric Actuators

Type 5824 without fail-safe action
Type 5825 with fail-safe action

Version with positioner

Firmware version 1.11

Edition January 2023

Note on these mounting and operating instructions

These mounting and operating instructions assist you in mounting and operating the device safely. The instructions are binding for handling SAMSON devices. The images shown in these instructions are for illustration purposes only. The actual product may vary.

➔ For the safe and proper use of these instructions, read them carefully and keep them for later reference.

➔ If you have any questions about these instructions, contact SAMSON's After-sales Service (aftersalesservice@samsongroup.com).

Documents relating to the device, such as the mounting and operating instructions, are available on our website at ***www.samsongroup.com > Service & Support > Downloads > Documentation***.

Definition of signal words

⚠ DANGER

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

⚠ WARNING

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

NOTICE

Property damage message or malfunction

Note

Additional information

Tip

Recommended action

1 Safety instructions and measures

Intended use

The Type 5824 and Type 5825 Electric Actuators are designed to operate a mounted globe valve used in heating, ventilation and air-conditioning systems as well as in process engineering and industrial energy transfer systems. The digital positioner ensures a predetermined assignment of the valve position to the input signal.

The actuators are designed to operate under exactly defined conditions (e.g. thrust, travel). Therefore, operators must ensure that the actuators are only used in operating conditions that meet the specifications used for sizing the actuators at the ordering stage. In case operators intend to use the actuators 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 the 'Design and principle of operation' section.

Reasonably foreseeable misuse

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

Personal protective equipment

No personal protective equipment is required for the direct handling of electric actuators. Work on the control valve 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 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 limit switches switch off the motor in the end positions. Upon supply voltage failure, the **Type 5825** Electric Actuator causes the valve to move 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

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, warning 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, warning 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 Type 5824 and Type 5825 Electric Actuators with a CE marking comply with the requirements of the Directives 2014/30/EU and 2014/35/EU.

The Type 5824 and Type 5825 Electric Actuators with an EAC marking comply with the requirements of the Regulations TR CU 004/2011 and TR CU 020/2011.

The Type 5824 and Type 5825 Electric Actuators are designed for use in low voltage installations.

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

Referenced documentation

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 5868 for Type 3213 and Type 3214 Globe Valves
  - EB 8111 for Type 3321 Globe Valve
  - EB 8113 for Type 3323 Three-way Valve
  - EB 8131 for Type 3531 Globe Valve for Heat Transfer Oil
  - EB 8135 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 wiring, performing any work on the device or opening the device, disconnect the supply voltage and protect it against unintentional reconnection.
- ➔ Only use power interruption devices that can be protected against unintentional reconnection of the power supply.
- ➔ Do not remove any covers to perform adjustment work on live parts.
- ➔ Do not open the back housing cover.

The electric actuator is protected against spray water (IP 54).

- ➔ Avoid jets of water.

Risk of bursting in pressure equipment.

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

- ➔ Before starting any work on the control valve, depressurize all plant sections affected as well as the valve.
- ➔ Drain the process medium from all the plant sections affected and from the valve.
- ➔ Wear recommended personal protective equipment. See associated valve documentation.

1.2 Notes on possible personal injury

⚠ 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 finger into the yoke while the valve is in operation.

➔ Disconnect the supply voltage and protect it against unintentional reconnection before performing any work on the control valve.

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

⚠ WARNING

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

The Types 5824 and 5825 Electric Actuators are designed for use according to regulations for low-voltage installations.

➔ Observe the permissible tolerances of the supply voltage.

Risk of actuator damage due to excessively high tightening torques.

Observe the specified torques when tightening the Types 5824 and 5825 Electric Actuators. Excessive tightening torques lead to parts wearing out more quickly.

➔ Observe the specified tightening torques.

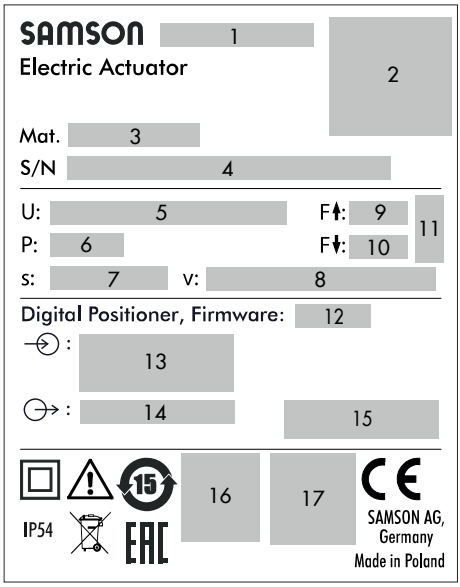
Risk of damage to the electric actuator by turning it too far.

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

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

2 Markings on the device

2.1 Nameplate



1 Type designation
2 Data Matrix code
3 Material no.
4 Serial number
5 Supply voltage; power line frequency
6 Power consumption
7 Rated travel
8 Stroking speed
9 Thrust (actuator stem retracts)
10 Thrust (actuator stem extends)
11 Fail-safe action

 Extends  Retracts

12 Firmware version
13 Input signal
14 Output signal
15

 Limit contact

16 DIN test with register number (only Type 5825 in version with "actuator stem extends" fail-safe action)
17 Other mark of conformity

2.2 Firmware versions

Firmware revisions	
Old	**New**
1.03	**1.04**
	Changed default setting of *Value below limit (end position guiding)* parameter (new: 97.0 %, old: 99.0 %)
	Changed default setting of *Dead band* parameter (new: 2.0 %, old: 1.0 %)
1.04	**1.10**
	Internal revisions
1.10	**1.11**
	Internal revisions

3 Design and principle of operation

A stepper motor allows for supply by frequency-independent voltages. The force of the motor is transmitted to the actuator stem (3) via gear 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.

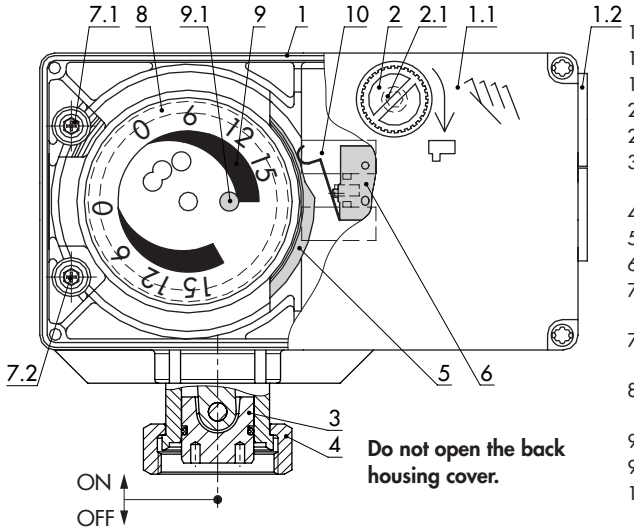
When the actuator stem retracts (form-fit attachment), the plug stem is connected to the actuator stem and follows its movement.

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 terminals 32 and 33.

The characteristic and the input and output signal settings can be changed using the TROVIS-VIEW software (▶ EB 6661).

Type 5824 without fail-safe action

The actuator 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).



1 Housing
1.1 Front cover
1.2 Cable entry
2 Handwheel (Type 5824 only)
2.1 Actuating shaft
3 Actuator stem with actuator piston
4 Coupling nut
5 Cam disk
6 Limit contact
7.1 Adjuster for limit contact (bottom contact cam)
7.2 Adjuster for limit contact (top contact cam)
8 Spring assembly (Type 5825 only)
9 Travel indication scale
9.1 Follower pin
10 Torque switch

Fig. 3-1: *Type 5824/5825 Actuator (front cover open), with force-locking attachment to the valve*

3.1 Fail-safe action

Type 5825 with fail-safe action

The actuators with fail-safe action largely corresponds to the Type 5824 described above. However, they also include a spring mechanism (8) and an electromagnet.

The actuator moves to the fail-safe position when the electromagnet is de-energized. This causes the actuator stem to be completely retracted or extended by the spring mechanism.

The Type 5825 Actuator is available in the following versions:

– "Actuator stem extends" fail-safe action (upon supply voltage failure, the actuator stem extends)
– "Actuator stem retracts" fail-safe action (upon supply voltage failure, the actuator stem retracts)

i ***Note***

The actuator stem of Type 5824 Actuator remains in its last position in the event of supply voltage failure.

! ***NOTICE***

Increased wear and shortened service life of the actuator.

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

The Type 5825 Actuator does not have a handwheel (2) on the housing cover. Manual override is possible, after removing the front cover, using a 4 mm Allen key. The actuator returns to its original position as soon as the Allen key is released.

Testing according to DIN EN 14597

The Types 5825 Electric Actuator with fail-safe action "actuator stem extends" is tested by the German technical surveillance association (TÜV) according to DIN EN 14597 in combination with various SAMSON valves. Tested versions are indicated on the nameplate. Refer to Technical data.
The registration number is available on request.

3.2 Communication

Serial interface

The actuator is fitted with an RS-232 serial interface. This allows communication with TROVIS-VIEW using SSP protocol (see Fig. 3-2).

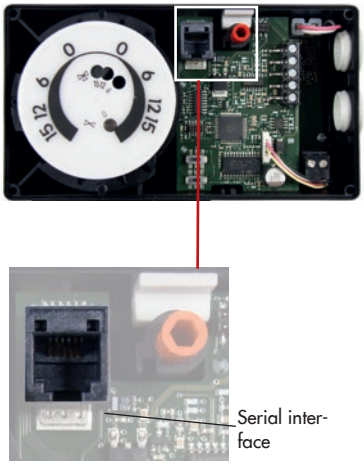


Fig. 3-2: *Serial interface*

Configuration

The actuator is 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 our website at ▶ www.samsongroup.com > SERVICE & SUPPORT > Downloads > 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 the Operating Instructions ▶ EB 6661.

➔ See the 'Start-up and configuration' section.

3.3 Additional equipment

Limit contacts

Devices in 24 V version can be fitted with limit contacts. The limit contacts consist of two changeover switches. Their switching positions are changed independently from one another by continuously adjustable cam disks. The floating contacts can be used as either make or break contacts to influence the tasks of control equipment.

The adjustment of the limit contacts is described in the 'Installation' section.

It is not possible to retrofit limit contacts.

3.4 Technical data

Table 3-1: *Technical data · Type 5824*

			Type	5824		
				-10	-20	-30
Fail-safe action				Without		
Rated travel			mm	6 [1]	12	15
Stroking speed [2], [3]		Slow	mm/s	0.13	0.13	0.13
		Standard	mm/s	**0.2**	**0.2**	**0.2**
		Fast	mm/s	0.36	0.36	0.36
Transit time for rated travel (depending on the stroking speed)		Slow	s	45	89	111
		Standard	s	**31**	**61**	**76**
		Fast	s	17	33	41
Thrust	Extends		N	700	700	700
	Retracts		N	–	–	700
Attachment	Force-locking			•	•	–
	Form-fit			–	–	•
Manual override				Yes		
Supply voltage						
24 V DC (–10 %, + 20 %), 24 V, 50 and 60 Hz				•	•	•
85 to 264 V, 50 and 60 Hz				•	•	•
Input signal				0 to 10 V, R_i = 20 kΩ · 0 to 20 mA, R_i = 50 Ω		
Output signal				0 to 10 V, R_B = 1 kΩ		
Power consumption [6]						
24 V DC (–10 %, 20 %)			W	5		
24 V, 50 and 60 Hz			VA	5		
85 to 264 V, 50 and 60 Hz [4]			VA	8		
Permissible temperature ranges [7]						
Ambient				0 to 50 °C		
Storage				–20 to +70 °C		

Type	5824		
	-10	-20	-30
Safety			
Degree of protection	IP 54 according to EN 60529 [5]		
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		
Vibration	According to EN 60068-2-6 and EN 60068-2-27		
Conformity	CE · UKCA · EAC		
Additional electrical equipment (not suitable for retrofitting)			
Two limit contacts [4], max. 230 V, 1 A	•		
Materials			
Housing, housing cover	Plastic (PPO with glass fiber reinforcement)		
Coupling nut, M32x1.5	Brass		
Weight kg (approx.)	**0.75**		

1) Actuators with 6 mm travel can also be used for valves with 7.5 mm travel.
2) Adjustable (default settings in bold print)
3) When a fast stroking speed and 24 V DC supply voltage are used, make sure the voltage does not fall below the specified value.
4) Actuators for 85 to 264 V supply voltage cannot be fitted with limit contacts.
5) The degree of protection IP 54 can only be achieved up to device index **.03** when the actuator is installed in the upright position. See last two figures of the configuration ID written on the nameplate, e.g. Var.-ID xxxxxxx**.xx**, for the device index.
6) With standard speed level
7) The permissible medium temperature depends on the valve on which the electric actuator is mounted. The limits in the valve documentation apply.

Table 3-2: *Technical data · Type 5825*

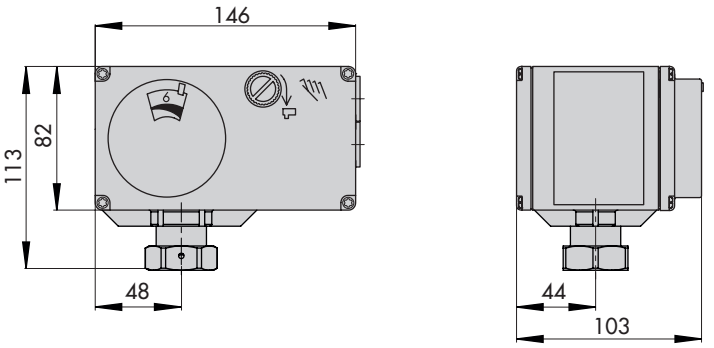
			Type	5825					
				-10	-20	-30	-15	-25	-35
Fail-safe action				Extends			Retracts		
Rated travel			mm	6 [1]	12	15	6 [1]	12	15
Stroking speed [2, 3]		Slow	mm/s	0.13	0.13	0.13	0.13	0.13	0.13
		Standard	mm/s	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**
		Fast	mm/s	0.36	0.36	0.36	0.36	0.36	0.36
Transit time for rated travel (depending on the stroking speed)		Slow	s	45	89	111	45	89	111
		Standard	s	**31**	**61**	**76**	**31**	**61**	**76**
		Fast	s	17	33	41	17	33	41
Transit time for fail-safe action			s	4	6	7	4	6	7
Thrust	Extends		N	500	500	280	500	500	280
	Retracts		N	–	–	280	–	–	280
Nominal thrust of safety spring			N	500	500	280	– [4]	– [4]	280
Attachment	Force-locking			•	•	–	•	•	–
	Form-fit			–	–	•	–	–	•
Manual adjuster				Possible [5]					
Supply voltage									
24 V DC (–10 %, + 20 %), 24 V, 50 and 60 Hz				•	•	•	•	•	•
85 to 264 V, 50 and 60 Hz				•	•	•	•	•	•
Input signal				0 to 10 V, R_i = 20 kΩ · 0 to 20 mA, R_i = 50 Ω					
Output signal				0 to 10 V, R_B = 1 kΩ					
Power consumption [8]									
24 V DC (–10 %, 20 %)			W	8					
24 V, 50 and 60 Hz			VA	8					
85 to 264 V, 50 and 60 Hz [6]			VA	10					
Permissible temperature ranges [9]									
Ambient				0 to 50 °C					
Storage				–20 to +70 °C					

		Type	5825					
			-10	-20	-30	-15	-25	-35
Safety								
Degree of protection			IP 54 according to EN 60529 [7]					
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					
Vibration			According to EN 60068-2-6 and EN 60068-2-27					
Conformity			CE · UKCA · EAC					
Testing according to DIN EN 14597			DIN Geprüft		–	–	–	–
Additional electrical equipment (not suitable for retrofitting)								
Two limit contacts [6], max. 230 V, 1 A			•					
Materials								
Housing, housing cover			Plastic (PPO with glass fiber reinforcement)					
Coupling nut, M32x1.5			Brass					
Weight	kg (approx.)		**1.00**					

1) Actuators with 6 mm travel can also be used for valves with 7.5 mm travel.
2) Adjustable (default settings in bold print)
3) When a fast stroking speed and 24 V DC supply voltage are used, make sure the voltage does not fall below the specified value.
4) Safety spring pulls actuator stem to retracted end position; valve operated by valve spring.
5) Manual override using 4 mm Allen key (after removing the cover); actuator always returns to fail-safe position after release.
6) Actuators for 85 to 264 V supply voltage cannot be fitted with limit contacts.
7) The degree of protection IP 54 can only be achieved up to device index **.03** when the actuator is installed in the upright position. See last two figures of the configuration ID written on the nameplate, e.g. Var.-ID xxxxxxx**.xx**, for the device index.
8) With standard speed level
9) The permissible medium temperature depends on the valve on which the electric actuator is mounted. The limits in the valve documentation apply.

3.5 Dimensions in mm

Types 5824-10/-20 and Types 5825-10/-20/-15/-25



Type 5824-30 and Types 5825-30/-35

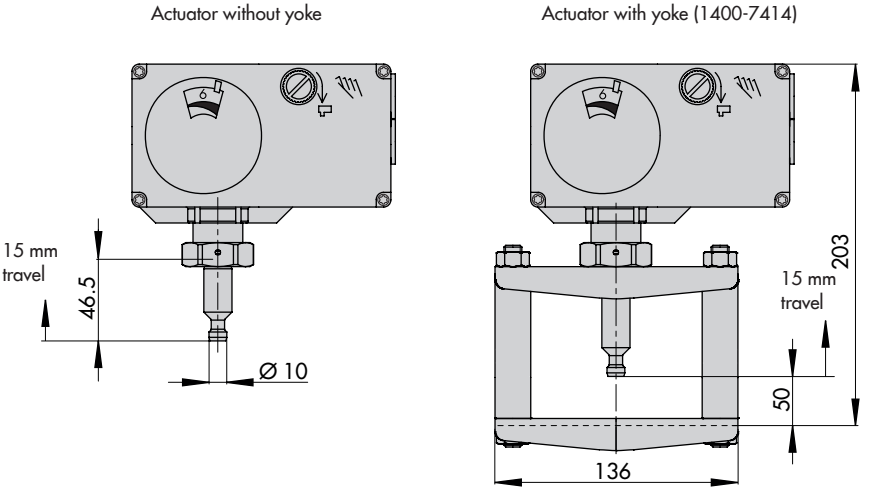


Fig. 3-3: *Dimensions in mm*

4 Shipment and on-site transport

The work described in this section is only to be performed 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

i ***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 (see Fig. 4-1).
3. Dispose of the packaging in accordance with the valid regulations.

1x	Type 5824 or Type 5825 Electric Actuator
1x	Document IP 5824-2 (Important Product Information)

Fig. 4-1: *Scope of delivery*

4.3 Transporting the actuator

– Protect the electric actuator against external influences (e.g. impact).
– Protect the electric actuator against moisture and dirt.
– Observe the permissible transportation temperature 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 long storage times.*
➔ *Contact SAMSON in case of different storage conditions or longer storage times.*

i ***Note***

We recommend regularly checking 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.

Mounting orientation

The control valve can be installed in the pipeline in any desired position. However, a suspended mounting position of the actuator is not permissible (see Fig. 5-1).

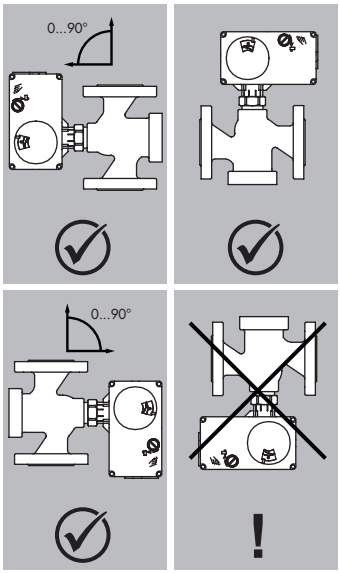


Fig. 5-1: *Mounting position*

i ***Note***

The degree of protection IP 54 can only be achieved up to device index .03 when the actuator is installed in the upright position. See the last two figures of the configuration ID written on the nameplate for the device index.

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 actuator housing cover is fastened using TORX PLUS® screws, size 10IP.

➔ To loosen and tighten 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. The align-

ment needs to be changed when a three-way mixing valve is used.

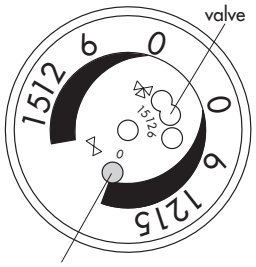


Fig. 5-2: *Travel indication scale*

Globe and three-way diverting valves:
the driving pin is in position 0 (delivered state).

Three-way mixing valve:
change the alignment of the scale.
➔ Carefully open the front cover.

Tip

We recommend screwing the bottom screws of the open housing front cover into the top holes of the housing.

➔ 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, 1 or 15 mm travel).

➔ Close front cover.

5.4 Mounting the actuator

The actuator is mounted either directly onto the valve or using a yoke depending on the valve version used (see Fig. 5-3).

5.4.1 Type 5824: force-locking attachment

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

NOTICE

Risk of actuator damage due to unauthorized opening of the back housing cover.
➔ *Do not open the back housing cover.*

5.4.2 Type 5824: form-fit attachment

1. Place the actuator on the yoke and fasten with the coupling nut (4).

Tightening torque	20 Nm

Place actuator with yoke (15) on the valve and fasten with the nut (17).

Tightening torque	150 Nm

Note

A spacer (see Fig. 5-3) is required to mount a Type 3323 Three-way Valve (DN 65 to 80).

2. Pull plug stem until it reaches the actuator stem or extend actuator stem using the handwheel (2).
3. Position the clamps of the stem connector (16) included in the accessories on the ends of the actuator stem and plug stem and screw tight.

5.4.3 Type 5825: force-locking attachment

Fail-safe action "actuator stem extends"

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. Unscrew front cover and place a 4 mm Allen key on the red actuating shaft.
2. Retract the actuator stem: turn Allen key **counterclockwise** and **only as far as** the top end position which is at the point where the torque-dependent limit switch is activated (see Fig. 5-4).

NOTICE

Risk of damage to the actuator by turning it too far.

➔ *Move the actuator stem only as far as the top end position.*

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3. Hold Allen key in place and fasten valve and actuator together using the coupling nut.

Tightening torque	20 Nm

Remove Allen key and carefully refasten the front cover.

Retracting the actuator stem electrically

1. Unscrew front cover.
2. Perform electrical wiring according to section 5.6 and carefully refasten the front cover.
3. Retract actuator stem:

– Switch on the supply voltage and retract the actuator stem electrically until it reaches the end position by applying a signal to the input (see the 'Operation' section).

4. Fasten valve and actuator together using the coupling nut.

Tightening torque	20 Nm

Fail-safe action "actuator stem retracts"

➔ Place the actuator on the valve connection and fasten with the coupling nut.

Tightening torque	20 Nm

5.4.4 Type 5825: form-fit attachment

➔ For fail-safe action “actuator stem retracts” and “actuator stem extends”, mount actuator as described in section 5.4.2.

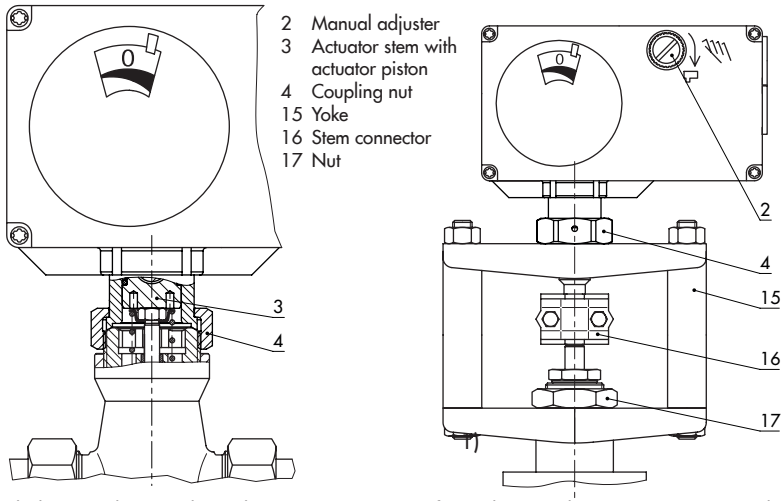
5.5 Installing the control valve into the pipeline

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

NOTICE

Risk of actuator damage due to direct contact with steam.

➔ *During mounting, make sure that the actuator cannot come into contact with any steam.*



Force-locking attachment with coupling nut, e.g. to Type 3222 Valve

Form-fit attachment with stem connector, e.g. with yoke on Series V2001 Valve

[1] A spacer (see Annex B) is required here to mount a Type 3323 Three-way Valve (DN 65 to 80).

Fig. 5-3: *Attaching actuator and valve*

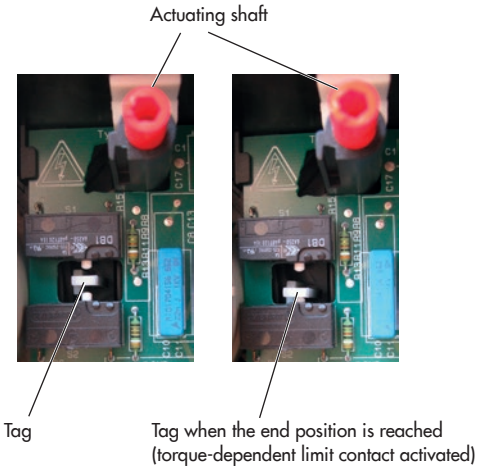


Fig. 5-4: *Tag*

5.6 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 regulations of your local power supplier.*

➔ *Use a suitable voltage supply which guarantees that no dangerous voltages reach the device in normal operation or in the event of a fault in the system or any other system parts.*

➔ *Only perform the electrical connection after switching off the supply voltage. Make sure the supply voltage cannot be switched on again unintentionally.*

! NOTICE

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

➔ *Wire the inputs range according to the technical data (see the 'Design and principle of operation' section).*

Wiring

➔ Connect the wiring as shown in Fig. 5-5.

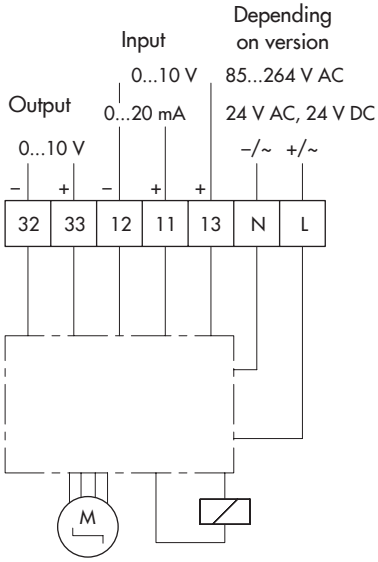
! NOTICE

Risk of actuator damage due to a short circuit.

The supply voltage as well as the input and output signals are not galvanically isolated from one another.

➔ *Do not apply any external voltage.*

➔ *Do not connect terminals with each other.*



Limit contacts as additional function (in 24 V version only)

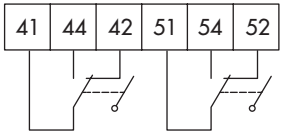


Fig. 5-5: *Electrical connection*

Note

The 24 V version can be used either with a supply voltage of 24 V AC or 24 V DC.

6 Operation

6.1 Device overview and operating controls

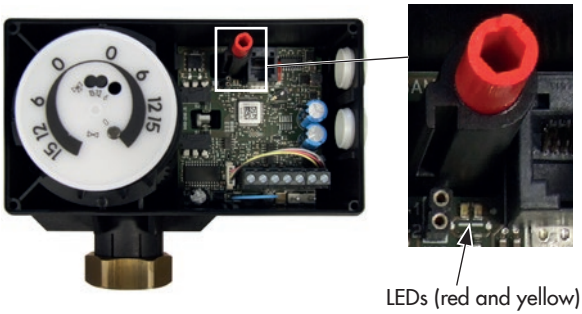
1 Travel indication scale
2 Handwheel (Type 5824 only)

Fig. 6-1: *Location of external operating elements*

6.1.1 Indication with LEDs

The actuator has a red and a yellow LED which indicate the operating state of the actuator through a blinking pattern. The LEDs are located underneath the cover on top of the actuator.

LEDs under the front cover (24 V version)



LEDs under the front cover (85 to 264 V version)

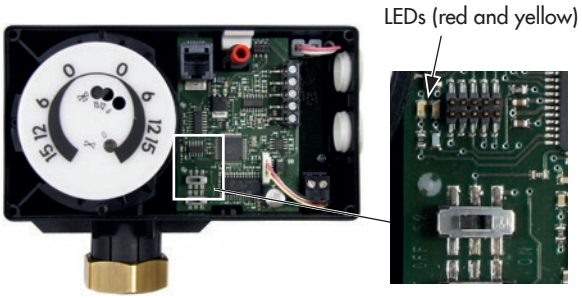


Fig. 6-2: *Location of LEDs*

6.1.2 Direction of action switch

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

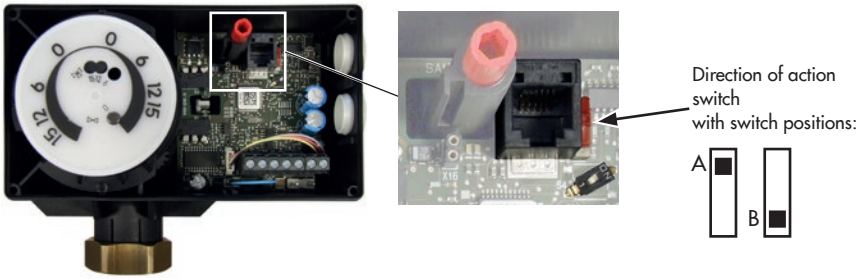
– **Switch position A (default):** direction of action increasing/increasing (>>)

➔ 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.

Direction of action switch in Type 5824 (24 V version)



Direction of action switch in Type 5824 (85 to 264 V version)

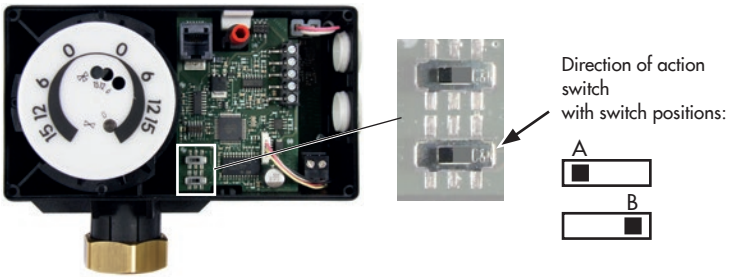


Fig. 6-3: *Direction of action switch*

Actuator stem extended

– For globe valves: Valve closed
– For three-way mixing valves: Port A → AB open, B → AB closed
– For three-way diverting valves: Port AB → A closed, AB → B open

Actuator stem retracted

– For globe valves: Valve open
– For three-way mixing valves: Port A → AB closed, B → AB open
– For three-way diverting valves: Port AB → A open, AB → B closed

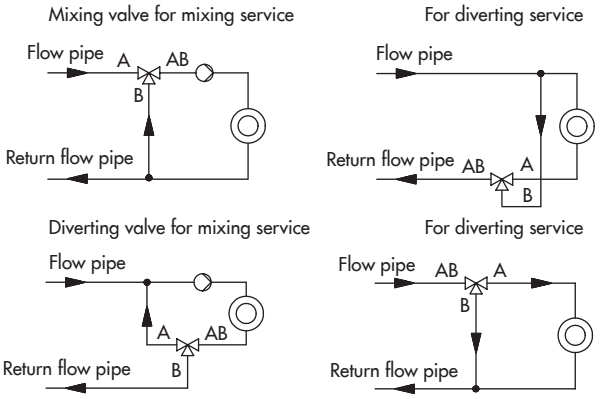


Fig. 6-4: *Operating principle of three-way mixing and diverting valves*

6.1.3 Function switch

The function switch has the following functions:

1. Determining the input signal range
2. Starting initialization (see the 'Start-up and configuration' section).

– **Switch position A (default):**

➔ Input signal 0 to 10 V or 0 to 20 mA

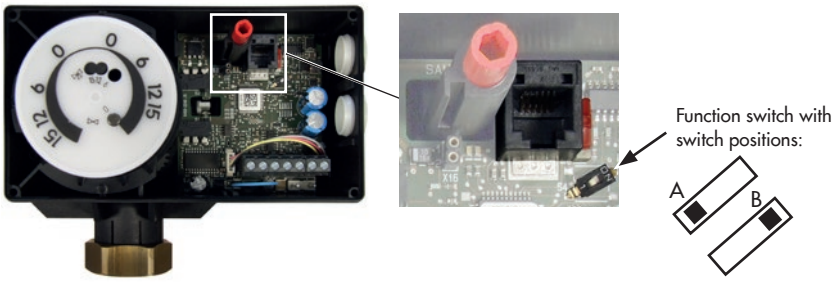
➔ Input signal settings in TROVIS-VIEW **are taken into account**.

– **Switch position B:**

➔ Input signal 2 to 10 V or 4 to 20 mA

➔ Input signal settings in TROVIS-VIEW **are ignored.**

Function switch in Type 5824 (24 V version)



Function switch in Type 5824 (85 to 264 V version)

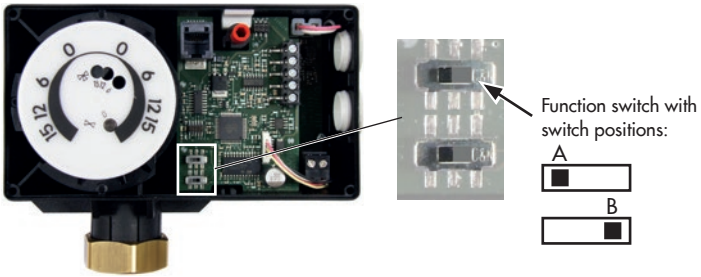


Fig. 6-5: *Function switch*

7 Start-up and configuration

7.1 Initializing the actuator

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 over the TROVIS-VIEW software.

⚠ 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.*

! NOTICE

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

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

Start initialization

1. Place the function switch into the required position.
2. Switch the function switch briefly from its position to the other position and back again (see Fig. 7-1).

The **red LED** indicates that initialization is in progress.

i 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 the 'Operation' section). This function does not replace the initialization procedure.

! NOTICE

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

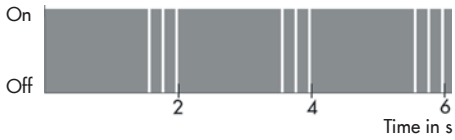
➔ *Start initialization*

➔ *Complete the entire initialization procedure until the red LED is no longer illuminated.*

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

Blinking pattern of the red LED

– Initialization



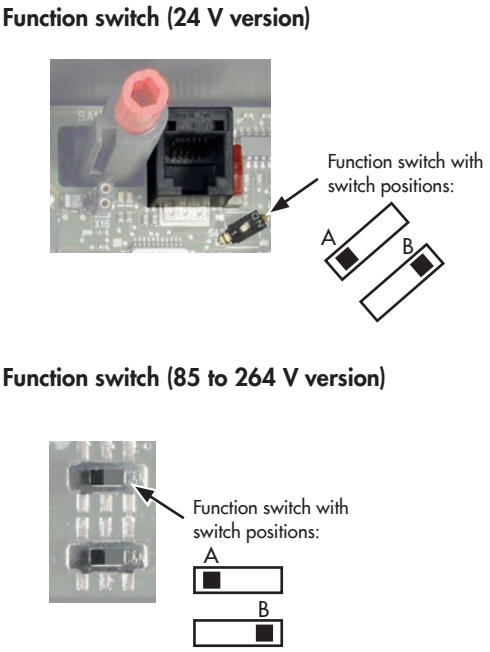


Fig. 7-1: *Function switch*

7.2 Configuring the actuator

The actuator is configured with the TROVIS-VIEW software (see Annex A). In this case, the serial interface on the actuator is used to connect the actuator to the computer (see the 'Design and principle of operation' section).

➔ Refer to ▶ EB 6661 for more details on configuration and operation using TROVIS-VIEW.

7.3 Adjusting the limit contacts

⚠ DANGER

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

➔ *Do not touch live parts on adjusting the limit contacts.*

The limit contacts (see the 'Design and principle of operation' section) can optionally be used as make or break contacts.

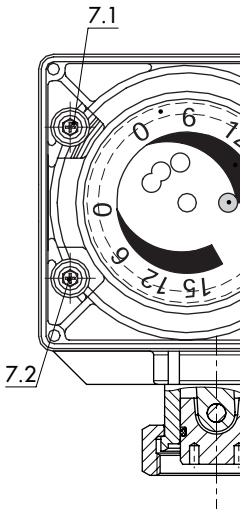
Terminal assignment (see the 'Installation' section):

– Terminals 41, 44, 42:
  → Bottom cam disk, adjuster 7.1
– Terminals 51, 54, 52:
  → Top cam disk, adjuster 7.2

1. Unscrew front cover.
2. Move the actuator stem to the position at which switching point is to be activated.
3. Use a 4 mm Allen key to turn the adjusters (see the 'Design and principle of operation' section) up to the point where the contact is triggered.

Tip

The angle of rotation of the cam disks is limited. Therefore, use preferably the adjuster (7.1) for the lower travel range and the adjuster (7.2) for the upper travel range (see Fig. 7-2).



7.1 Adjuster for limit contact (bottom contact cam)
7.2 Adjuster for limit contact (top contact cam)

Fig. 7-2: *Adjusters for limit contacts*

8 Operation

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

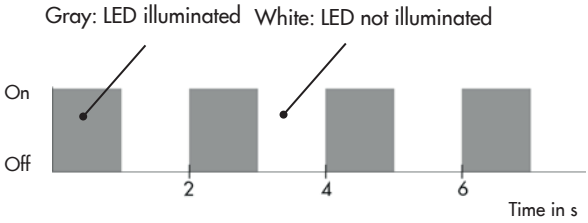
8.1 Positioner

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

8.2 LED blinking pattern

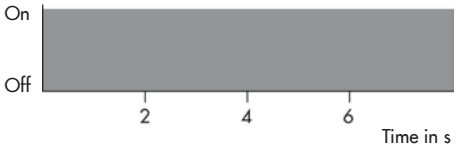
Explanations to the blinking pattern of the LEDs

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

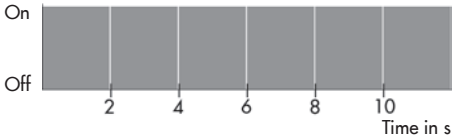


Blinking pattern of the yellow LED

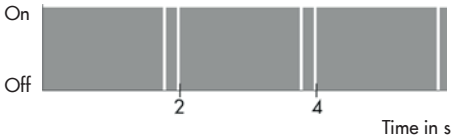
– Device ON or communication in progress



– Stem position is relative

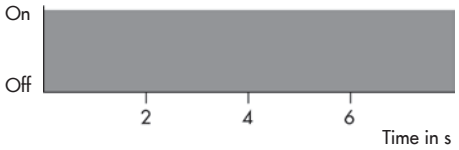


– Protecting against blockage

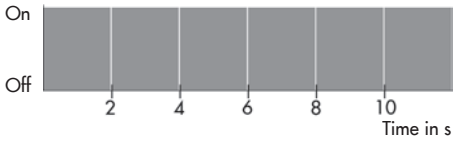


Blinking pattern of the red LED

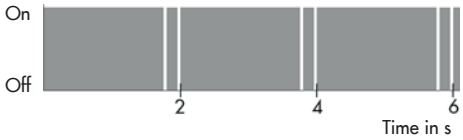
– Device restarts after reset



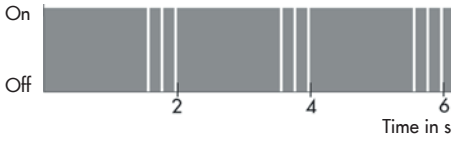
– Zero calibration in progress



– Transit time measurement in progress



– Initialization in progress



i ***Note***

The LED blinking patterns apply when the memory pen is inserted into the actuator (see section 8.4).
The LED blinking patterns for error indication are shown in the 'Malfunctions' section.

8.3 Manual mode

The actuator stem can be moved mechanically or alternatively electrically in the manual level in TROVIS-VIEW (▶ EB 6661).

Travel and direction of action can be read off the scale of the travel indicator.

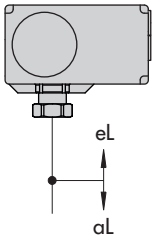
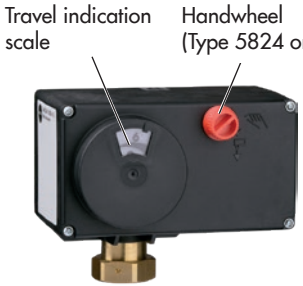


Fig. 8-1: *Moving the actuator stem*

8.3.1 Mechanical override



Direction	Actuator stem
↻	Extends
↺	Retracts

Fig. 8-2: *Handwheel and travel indicator*

Direction of rotation

– Turn clockwise: the actuator stem extends (see Fig. 8-2).
– Turn counterclockwise: the actuator stem retracts (see Fig. 8-2).

Type 5824 Actuator

To manually move the actuator stem one millimeter, the handwheel must be turned approx. 4 turns (see Fig. 8-2):

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.

Type 5825 Actuator

The front cover must be opened before manually adjusting the actuator stem. The stem can be moved manually one millimeter by turning the actuating shaft approx. 4 turns using an Allen key.

DANGER

Risk of electric shock from exposed live parts.

➔ *Do not touch live parts on operating the manual override.*

1. Unscrew front cover and place a 4 mm Allen key on the red actuating shaft.

NOTICE

Risk of damage to the actuator by turning it too far.

➔ *Only extend or retract the actuator stem as far as the final travel value.*

2. Use the Allen key to turn the actuating shaft:

➔ Turn it counterclockwise only for a version with fail-safe action "actuator stem extends".

➔ Turn it clockwise only for a version with fail-safe action "actuator stem retracts".

3. Turn the Allen key only as far as the final travel value, which is at the point where the torque-dependent limit switch is activated.

➔ Once the magnet has been released, the spring mechanism pushes the actuator stem back to the fail-safe position.

4. Remove Allen key and carefully refasten the front cover.

Fig. 8-3: *Type 5825 Electric Actuator*

8.4 Operation using memory pen

▶ 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.

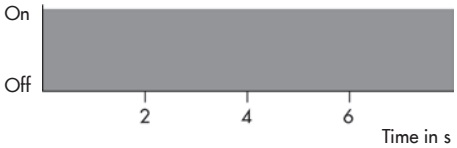
i ***Note***

On inserting a memory pen that is empty or that contains data from another type of device or another version of the same device into the serial interface port of the actuator, the data from the actuator are uploaded to the memory pen regardless of the status of the memory pen and any other data on the memory pen will be overwritten.

LED blinking pattern for the memory pen

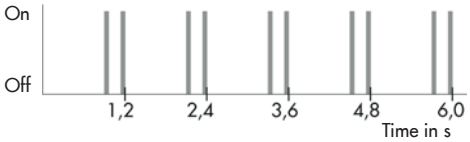
Memory pen actions and errors are indicated at the **yellow LED** on the actuator.

– Memory pen action completed

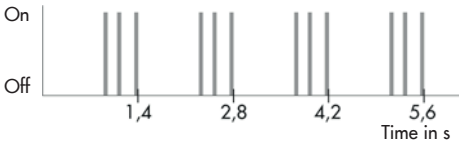


– Preparing to read data from memory pen

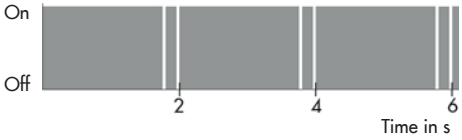
– Preparing to write data to memory pen



– 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. 8-4. Refer to the TROVIS-VIEW Operating Instructions ▶ EB 6661 on how to transfer data.

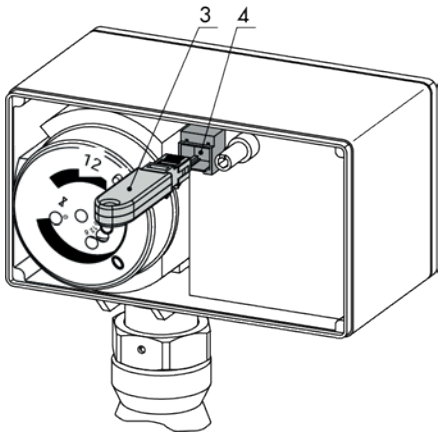


Fig. 8-4: *Connecting actuator and memory pen*

The **yellow LED** on the actuator indicates that the data logging is being prepared. Data transmission is completed when the **yellow LED** is illuminated continuously (see the 'Operation' section).

8.4.1 Copying function

The memory pen can be used to copy setting data to other Types 5824 and 5825 Actuators after the data from the actuator have been transferred 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
- Direction of action switch
- Function switch initialization

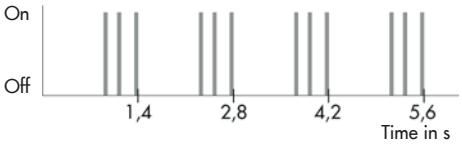
The data are logged until the memory capacity of the memory pen is full.

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. 8-4).
   The **yellow LED** on the actuator indicates that the data logging is being prepared.

– Preparing data logging



A change in the blinking pattern of the **yellow LED** indicates that data are being saved to the memory pen.

– Data logging in progress

2. Data logging is completed when you remove 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 Load diagram ... from the context-sensitive menu.

Transferring data onto a computer

1. Insert the memory pen together with modular adapter into the serial interface (COM port) of the computer (see Annex for accessories).
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 5824.
4. Enter the file name.
5. Click 'Save' 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.

Possible settings:

– No command
– Retract actuator stem
– Extend the actuator stem

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. Depending on the basic setting, a graph is shown under the 'Operating values' window.

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 section 8.2).

8.5.3 Status messages

In the 'Service' folder ('Status messages'), device and operation 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
	Attempts	
	Changes in direction	
Valve strokes	Travel cycles	
LEDs	Yellow	
	Red	

8.5.4 Statistics

In the 'Service folder' ('Statistics'), various readings of counters are shown:

Device failures counters	Supply voltage activated
	Program interruptions
	Limit contact error
	EPROM error
Alarms counters	Input signal failures
Counter: switch	Direction of action switch
	Function switch
	Initialization
Counter: manual overrides	Manual overrides
Memory pen counters	Command retract stem
	Command extend stem
	Data read
	Data written
	Data logged
Functions counter	Basic settings changed
	Settings changed
	Manual level activated
	Zero calibration started
	Initialization started
	Reset triggered
	Default settings loaded
	Transit time measurement started

9 Malfunctions

➔ Troubleshooting (see Table 9-1).

i ***Note***

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

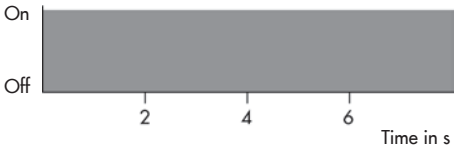
Table 9-1: *Troubleshooting*

Error	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 the whole 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 during start-up.	➔ Check the switch position of the function and direction of action switches. ➔ Initializing the actuator
	The mounting has been changed.	

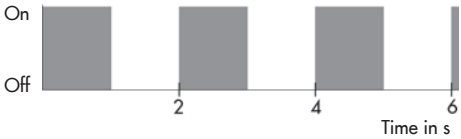
9.1 Error indication by LEDs

Blinking pattern of the red LED

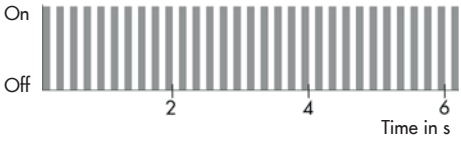
– Limit contact error



– Input signal failure detected

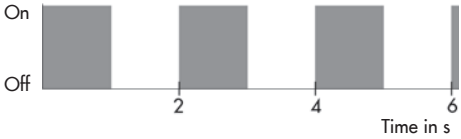


– EEPROM error

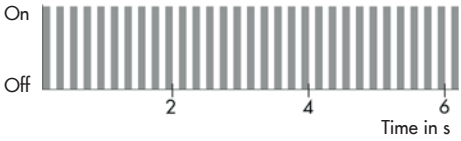


Blinking pattern of the yellow LED

– Plausibility error in memory pen



– EEPROM error in memory pen



9.2 Emergency action

The valve, on which the actuator with fail-safe action is mounted, is moved to its fail-safe position upon failure of the supply voltage (see the 'Design and principle of operation' section).

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 section is only to be performed 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.

Table 10-1: *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 electric actuator 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 the 'Installation' section).
	➔ Renew damaged wires.

11 Decommissioning

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

⚠ DANGER

Risk of fatal injury due to electric shock.

➔ *Before disconnecting live wires, switch off the supply voltage at the actuator 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.

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

➔ *Wear protective clothing and safety gloves.*

To decommission the electric actuator for maintenance 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 section is only to be performed by personnel appropriately qualified to carry out such tasks.

⚠ DANGER

Risk of fatal injury due to electric shock.

➔ *Before disconnecting live wires, switch off the supply voltage at the actuator and protect it against unintentional reconnection.*

⚠ DANGER

Risk of bursting in control valve components due to incorrect opening.

➔ *Before starting any work on the control valve, depressurize all plant sections affected as well as the valve.*

➔ *Drain the process medium from all the plant sections affected.*

➔ *Wear recommended personal protective equipment (see associated valve documentation).*

12.1 Force-locking attachment

1. Open front cover.
2. Disconnect and remove the wires of the connection cables from the terminals.
3. Retract the actuator stem using the handwheel (see the 'Operation' section).

i *Note*

Hold the actuating shaft of actuators with fail-safe action in place after retracting the actuator stem to prevent it from extending again.

4. Unscrew the coupling nut (4 in Fig. 12-1) and remove the actuator from the valve connection.

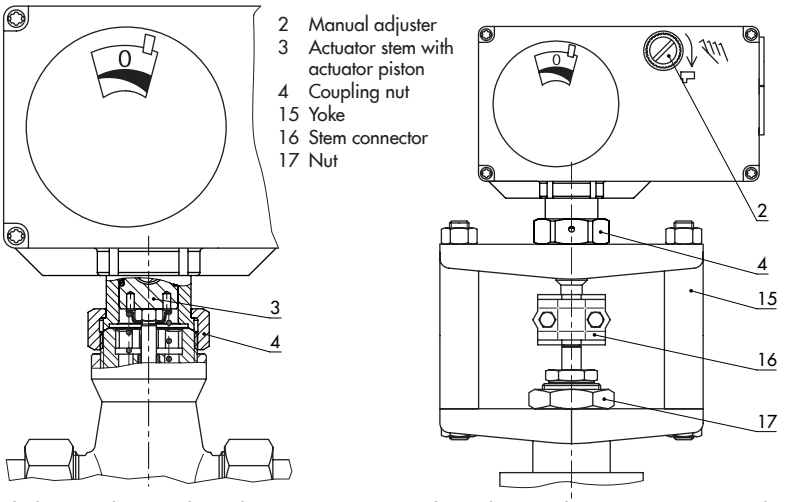
12.2 Form-fit attachment

1. Open front cover.
2. Disconnect and remove the wires of the connection cables from the terminals.
3. Unfasten the stem connector clamps (16 in Fig. 12-1) between the actuator stem and the plug stem.
4. Retract the actuator stem using the handwheel (see the 'Operation' section).

i *Note*

Hold the actuating shaft of actuators with fail-safe action in place after retracting the actuator stem to prevent it from extending again.

5. Undo the nut (17 in Fig. 12-1) and remove the rod-type yoke (15 in Fig. 12-1) together with the actuator from the valve.
6. Undo the coupling nut (4 in Fig. 12-1) and remove the actuator from the rod-type yoke (15 in Fig. 12-1).



Force-locking attachment with coupling nut, e.g. to Type 3222 Valve

Form-fit attachment with stem connector, e.g. with yoke on Series V2001 Valve

Fig. 12-1: *Attaching actuator and valve*

13 Repairs

If the 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.*

13.1 Returning the 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 the 'Removal' section).
2. Continue as described on our website at ▶ www.samsongroup.com > Service & Support > After-sales Service > Returning goods.

14 Disposal

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

➔ Observe local, national and international refuse regulations.

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

Note

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

Tip

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

15 Certificates

The following certificates are included on the next pages:

– EU declarations of conformity
– UKCA declarations of conformity
– TR CU certificate
– Declaration of incorporation

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

▶ www.samsongroup.com > Products & Applications > Product selector > Actuators > 5824
▶ www.samsongroup.com > Products & Applications > Product selector > Actuators > 5825

15.1 Information on the UK sales region

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

Importer

SAMSON Controls Ltd
Perrywood Business Park
Honeycrock Lane
Redhill, Surrey RH1 5JQ
Tel.: +44 1737 766391

E-mail: ▶ sales-uk@samsongroup.com

Website: ▶ uk.samsongroup.com

EU declaration of conformity for Type 5824

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 5824

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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SAMSON AKTIENGESELLSCHAFT
Weismüllerstraße 3 60314 Frankfurt am Main

Telefon: 069 4009-0 · Telefax: 069 4009-1507
E-Mail: samson@samson.de

Revison 07

EU declaration of conformity for Type 5825

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 5825/ 2770

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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SAMSON AKTIENGESELLSCHAFT
Weismüllerstraße 3 60314 Frankfurt am Main
Telefon: 069 4009-0 · Telefax: 069 4009-1507
E-Mail: samson@samson.de
Revison 07

UKCA declaration of conformity for Type 5824

UK CA UK DECLARATION OF CONFORMITY
ORIGINAL

This declaration of conformity is issued under the sole responsibility of the manufacturer.

For the following product:

Electric Actuator Type 5824

the conformity with the following relevant UK regulatory requirements is declared with:

UK Regulation / Statutory Instrument	Designated Standard
SI 2016 No. 1091 The Electromagnetic Compatibility Regulations 2016	EN 61000-6-2:2005 EN 61000-6-3:2007+A1:2011
SI 2016 No. 1101 The Electrical Equipment (Safety) Regulations 2016	EN 60730-1:2011 EN 61010-1:2010/A1:2019
SI 2012 No. 3032 The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012	EN IEC 63000:2018

Manufacturer:

SAMSON AKTIENGESELLSCHAFT
Weismuellerstrasse 3
60314 Frankfurt am Main
Germany

Frankfurt am Main, 2022-12-14

Signed for and behalf of the manufacturer:

ppa.
Fabio Roma
Vice President Smart Products & Components

i.V.
Sebastian Krause
Director Development Valves & Actuators

Revision 00

UKCA declaration of conformity for Type 5825

UK CA UK DECLARATION OF CONFORMITY
ORIGINAL

This declaration of conformity is issued under the sole responsibility of the manufacturer.

For the following product:

Electric Actuator Type 5825 / 2770

the conformity with the following relevant UK regulatory requirements is declared with:

UK Regulation / Statutory Instrument	Designated Standard
SI 2016 No. 1091 The Electromagnetic Compatibility Regulations 2016	EN 61000-6-2:2005 EN 61000-6-3:2007+A1:2011
SI 2016 No. 1101 The Electrical Equipment (Safety) Regulations 2016	EN 60730-1:2011 EN 61010-1:2010/A1:2019
SI 2012 No. 3032 The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012	EN IEC 63000:2018

Manufacturer:

SAMSON AKTIENGESELLSCHAFT
Weismuellerstrasse 3
60314 Frankfurt am Main
Germany

Frankfurt am Main, 2022-12-14

Signed for and behalf of the manufacturer:

ppa.
Fabio Roma
Vice President Smart Products & Components

i.V.
Sebastian Krause
Director Development Valves & Actuators

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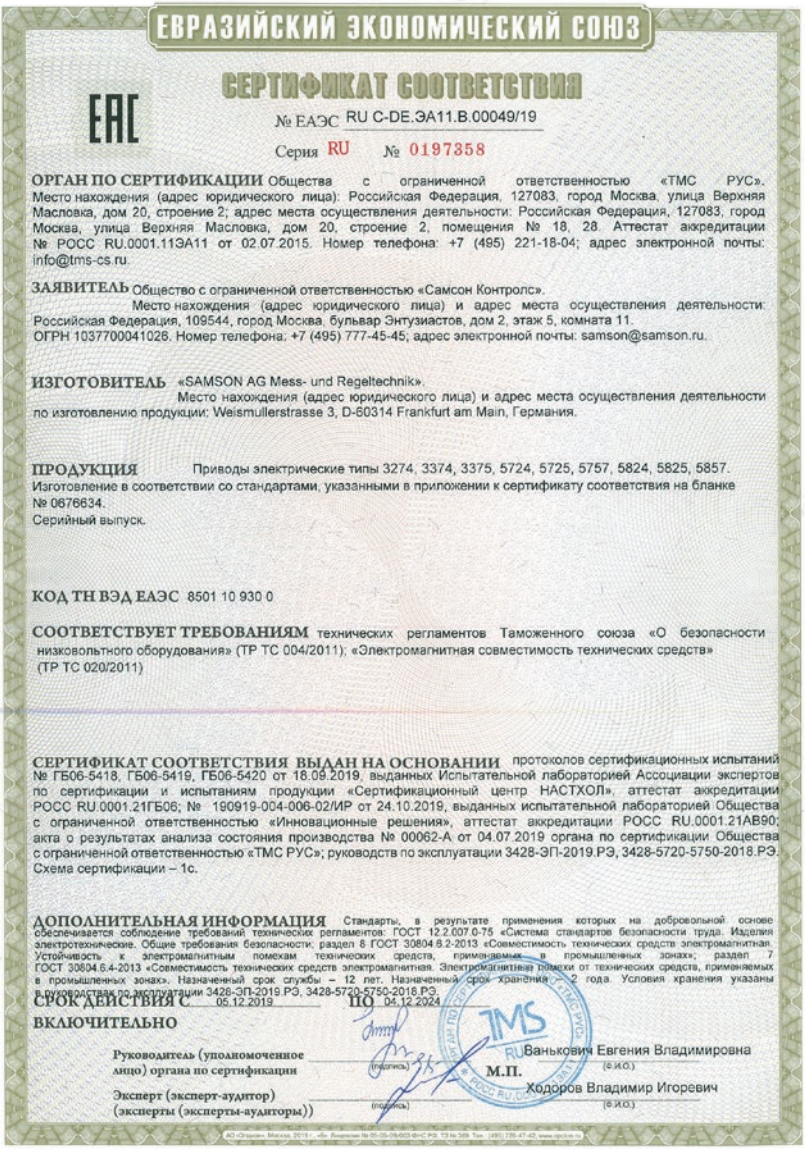
TR CU certificate



ЕВРАЗИЙСКИЙ ЭКОНОМИЧЕСКИЙ СОЮЗ

СЕРТИФИКАТ СООТВЕТСТВИЯ

№ ЕАЭС RU C-DE.ЭА11.В.00049/19

Серия RU № 0197358

ОРГАН ПО СЕРТИФИКАЦИИ Общества с ограниченной ответственностью «ТМС РУС». Место нахождения (адрес юридического лица): Российская Федерация, 127083, город Москва, улица Верхняя Масловка, дом 20, строение 2; адрес места осуществления деятельности: Российская Федерация, 127083, город Москва, улица Верхняя Масловка, дом 20, строение 2, помещения № 18, 28. Аттестат аккредитации № РОСС RU.0001.11ЭА11 от 02.07.2015. Номер телефона: +7 (495) 221-18-04; адрес электронной почты: info@tms-cs.ru.

ЗАЯВИТЕЛЬ Общество с ограниченной ответственностью «Самсон Контролс».
Место нахождения (адрес юридического лица) и адрес места осуществления деятельности: Российская Федерация, 109544, город Москва, бульвар Энтузиастов, дом 2, этаж 5, комната 11.
ОГРН 1037700041026. Номер телефона: +7 (495) 777-45-45; адрес электронной почты: samson@samson.ru.

ИЗГОТОВИТЕЛЬ «SAMSON AG Mess- und Regeltechnik».
Место нахождения (адрес юридического лица) и адрес места осуществления деятельности по изготовлению продукции: Weismullerstrasse 3, D-60314 Frankfurt am Main, Германия.

ПРОДУКЦИЯ Приводы электрические типы 3274, 3374, 3375, 5724, 5725, 5757, 5824, 5825, 5857.
Изготовление в соответствии со стандартами, указанными в приложении к сертификату соответствия на бланке № 0676634.
Серийный выпуск.

КОД ТН ВЭД ЕАЭС 8501 10 930 0

СООТВЕТСТВУЕТ ТРЕБОВАНИЯМ технических регламентов Таможенного союза «О безопасности низковольтного оборудования» (ТР ТС 004/2011); «Электромагнитная совместимость технических средств» (ТР ТС 020/2011)

СЕРТИФИКАТ СООТВЕТСТВИЯ ВЫДАН НА ОСНОВАНИИ протоколов сертификационных испытаний № ГБ06-5418, ГБ06-5419, ГБ06-5420 от 18.09.2019, выданных Испытательной лабораторией Ассоциации экспертов по сертификации и испытаниям продукции «Сертификационный центр НАСТХОЛ», аттестат аккредитации РОСС RU.0001.21ГБ06; № 190919-004-006-02/МР от 24.10.2019, выданных испытательной лабораторией Общества с ограниченной ответственностью «Инновационные решения», аттестат аккредитации РОСС RU.0001.21АВ90; акта о результатах анализа состояния производства № 00062-А от 04.07.2019 органа по сертификации Общества с ограниченной ответственностью «ТМС РУС»; руководств по эксплуатации 3428-ЭП-2019.РЭ, 3428-5720-5750-2018.РЭ. Схема сертификации – 1с.

ДОПОЛНИТЕЛЬНАЯ ИНФОРМАЦИЯ Стандарты, в результате применения которых на добровольной основе обеспечивается соблюдение требований технических регламентов: ГОСТ 12.2.007.0-75 «Система стандартов безопасности труда. Изделия электротехнические. Общие требования безопасности, раздел 8 ГОСТ 30804.6.2-2013 «Совместимость технических средств электромагнитная. Устойчивость к электромагнитным помехам технических средств, применяемых в промышленных зонах»; раздел 7 ГОСТ 30804.6.4-2013 «Совместимость технических средств электромагнитная. Электромагнитные помехи от технических средств, применяемых в промышленных зонах». Назначенный срок службы – 12 лет. Назначенный срок хранения – 2 года. Условия хранения указаны в руководствах по эксплуатации 3428-ЭП-2019.РЭ, 3428-5720-5750-2018.РЭ.

СРОК ДЕЙСТВИЯ С 05.12.2019 **ПО** 04.12.2024
ВКЛЮЧИТЕЛЬНО

Руководитель (уполномоченное лицо) органа по сертификации (подпись) Ванькович Евгения Владимировна (Ф.И.О.)
М.П.

Эксперт (эксперт-аудитор) (эксперты (эксперты-аудиторы)) (подпись) Ходоров Владимир Игоревич (Ф.И.О.)

ЕВРАЗИЙСКИЙ ЭКОНОМИЧЕСКИЙ СОЮЗ

ПРИЛОЖЕНИЕ

К СЕРТИФИКАТУ СООТВЕТСТВИЯ № ЕАЭС RU C-DE.ЭА11.В.00049/19

Серия RU № 0676634 Лист 1 из 1

Стандарты, в соответствии с которыми изготавливается продукция

Обозначение стандарта	Наименование стандарта
IEC 60730-1:2013 / Cor. 1:2014	Automatic electrical controls for household and similar use. Part 1. General requirements. Corrigendum 1
EN 61000-6-1:2007	Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments
IEC 61000-6-2:2016	Electromagnetic compatibility (EMC). Part 6-2. Generic standards. Immunity for industrial environments
EN 61000-6-3:2007 + A1:2011	Electromagnetic compatibility (EMC). Part 6-3: Generic standards. Emission standard for residential, commercial and light-industrial environments
IEC 61010-1:2010	Safety requirements for electrical equipment for measurement, control, and laboratory use. Part 1: General requirements
EN 61326-1:2013	Electrical equipment for measurement, control and laboratory use. EMC requirements. Part 1: General requirements

Руководитель (уполномоченное лицо) органа по сертификации (подпись) Ванькович Евгения Владимировна (Ф.И.О.)

М.П.

Эксперт (эксперт-аудитор) (эксперты (эксперты-аудиторы)) (подпись) Ходоров Владимир Игоревич (Ф.И.О.)

Declaration of incorporation

EINBAUERKLÄRUNG
ORIGINAL

Einbauerklärung nach Maschinenrichtlinie 2006/42/EG

Für folgendes Produkt:
Stellantrieb Typ 5824 / 5825

Wir, die SAMSON AG, erklären, dass der elektrische Stellantrieb Typ 5824 / 5825 eine unvollständige Maschine im Sinne der Maschinenrichtlinie 2006/42/EG ist und die sicherheitstechnischen Anforderungen nach Anhang I Artikel 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, 1.5.3, 1.5.4 und 1.5.8 der Richtlinie eingehalten werden. Die speziellen Unterlagen nach Anhang VII Teil B wurden erstellt.

Die Inbetriebnahme der von uns gelieferten Erzeugnisse darf nur erfolgen, wenn vorher festgestellt wurde, dass die Maschinen oder Anlagen, in die die Produkte eingebaut werden sollen, den Bestimmungen der EG-Maschinenrichtlinie 2006/42/EG entsprechen.

Der Anwender ist verpflichtet, das Erzeugnis den anerkannten Regeln der Technik und der Einbau- und Bedienungsanleitung entsprechend einzubauen und Gefährdungen, die am Stellventil vom Durchflussmedium und Betriebsdruck sowie vom Stelldruck und von beweglichen Teilen ausgehen können, durch geeignete Maßnahmen zu verhindern.

Die zulässigen Einsatzgrenzen und Montagehinweise der Geräte ergeben sich aus der entsprechenden Einbau- und Bedienungsanleitung und stehen im Internet unter www.samsongroup.com in elektronischer Form zur Verfügung.

Produktbeschreibung siehe:
- Elektrischer Antrieb Typ 5824: Einbau- und Bedienungsanleitung EB 5824-1 / EB 5824-2
- Elektrischer Antrieb Typ 5825: Einbau- und Bedienungsanleitung EB 5824-1 / EB 5824-2

Folgende technischen Normen und/oder Spezifikationen wurden angewandt:
- VCI/VDMA/VGB – Leitfaden Maschinenrichtlinie (2006/42/EG) – Bedeutung für Armaturen, Mai 2018
- VCI/VDMA/VGB – Zusatzdokument zum „Leitfaden Maschinenrichtlinie (2006/42/EG) – Bedeutung für Armaturen vom Mai 2018", Stand Mai 2018 in Anlehnung an DIN EN ISO 12100:2011-03

Bemerkungen:
- Restgefahren siehe Angaben in der Einbau- und Bedienungsanleitung
- Weiterhin sind die in den Einbau- und Bedienungsanleitungen aufgeführten mitgeltenden Dokumente zu beachten.

Für die Zusammenstellung der technischen Unterlagen ist bevollmächtigt:

SAMSON AG, Weismüllerstraße 3, 60314 Frankfurt am Main, Germany
Frankfurt am Main, 11. August 2021

i.V.

i.V. Stephan Giesen
Zentralabteilungsleiter
Produktmanagement

i.V.

i.V. Sebastian Krause
Zentralabteilungsleiter
Strategische Entwicklung Ventile und Antriebe

Revision 00

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16 Annex A (configuration instructions)

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 or 0 to 20 mA.

i Note

At least 2.5 V or 5 mA (depending on the input signal used) must separate the upper and lower range values.

➔ Click 'Settings' folder ('Inputs and outputs').
The settings for the input and output signal are shown:

Settings\Inputs and outputs\Input signal

Input signal	WE	Adjustment range
Lower range value	0.0 V or 0.0 mA	0.0 to 7.5 V or 0.0 to 15.0 mA
Upper range value	10.0 V or 20.0 mA	2.5 to 10.0 V or 5.0 to 20.0 mA

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

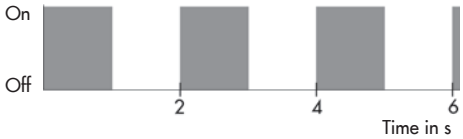
Position feedback signal	WE	Adjustment range
Lower range value	0.0 V	0.0 V to 10.0 V
Upper range value	10.0 V	0.0 V to 10.0 V

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 ('Errors') as well as by the **red LED**:

– Input signal failure detected



i ***Note***

The input signal failure can only be detected when at least 0.5 V or 1 mA is set as the lower range value.

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**
  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 position**
  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 or 0.4 mA of the lower range value.

Settings\Actuator\Functions

Functions	WE	Adjustment range
Detect input signal failure	No	Yes/No
Positioning value upon input signal failure	Internal	Internal, last position
Internal positioning value	0.0 %	0.0 to 100.0 %

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

i ***Note***

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

Settings\Actuator\Functions

Functions	WE	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 %

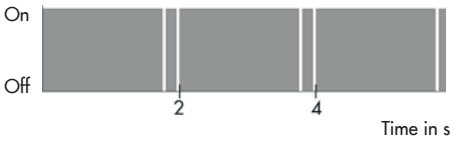
16.4 Blockage

16.4.1 Blocking protection

The blocking protection prevents the valve from seizing up. If the actuator stem is in the lower end position (0 %), it is extended slightly and then moved back to the closed position 24 hours after it last moved.

Movement of the actuator stem caused by the activated blocking protection is indicated by the **yellow LED**:

– Protecting against blockage



Settings\Actuator\Blockage

Function	WE	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	WE	Adjustment range
Limited travel range	100.0 %	30.0 to 100.0 %

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 actuator stem 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 when starting operation. The input signal is assigned in this case as the start value. The position feedback indicates the actuator stem position in relation to the start value.

Settings\Actuator\Travel

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

Note

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

16.5.4 Velocity

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

– Slow = 0.135 mm/s
– Standard = 0.197 mm/s
– Fast = 0.365 mm/s

Settings\Actuator\Travel

Function	WE	Adjustment range
Velocity	Standard	Slow, Standard, Fast

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)

The dead band determines how sensitive the actuator reacts. A change in the input signal by the hysteresis first causes a minimally small change in the valve position.

Settings\Actuator\Travel

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

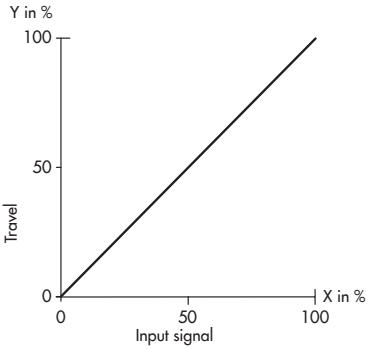
16.5.6 Characteristic

The characteristic expresses the relation between the input signal and the actuator stem position.

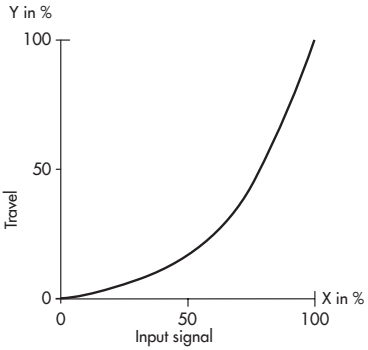
Perform the characteristic settings in the Settings folder (Actuator\Characteristic):

Characteristic types

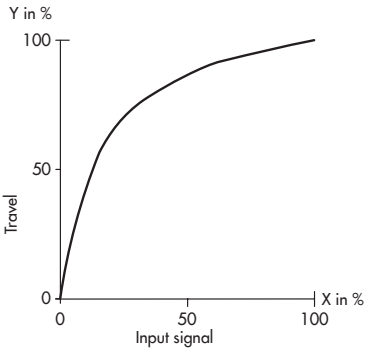
– **Linear**
The travel is proportional to the input signal.



– **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 characteristic set 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' folder)

The following functions can be performed in the 'Service' folder ('Functions'):

16.5.8.1 Manual level

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

The following actions can be activated in the manual level:

– Retract actuator stem

– Extend actuator stem

– Move 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

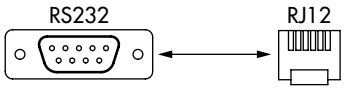
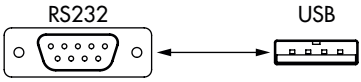
The actuator moves to the lower end position (stem extended). After the zero calibration is completed, the transit time is adopted and the actuator is ready for operation. The actuator stem is moved to the position determined by the input signal.

Start transit time measurement

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

17 Annex B

17.1 Accessories

Accessories	
Hardware package consisting of: – Memory pen-64 – Connecting cable – Modular adapter	Order no. 1400-9998
Memory pen-64	Order no. 1400-9753 
Connecting cable	Order no. 1400-7699 
Modular adapter	Order no. 1400-7698 
USB to RS232 adapter	Order no. 8812-2001 
Software	
TROVIS-VIEW (free of charge)	▶ www.samsongroup.com > Service & Support > Downloads > TROVIS-VIEW
For mounting on form-fit valves	
Rod-type yoke	Order no. 1400-7414
Spacer to mount the actuator on Type 3323 Valve (DN 65 to 80)	Order no. 0340-3031

17.2 After-sales service

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

E-mail contact

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

Addresses of SAMSON AG and its subsidiaries

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

Required specifications

Please submit the following details:

- Type designation
- Configuration ID/material number
- Serial number
- Firmware version

17.3 Configuration list and customer-specific data

Configuration	Default setting	Adjustment range	Setting
Input signal			
Lower range value	0.0 V 0.0 mA	0.0 to 7.5 V 0.0 to 15.0 mA	
Upper range value	10.0 V 20.0 mA	2.5 to 10.0 V 5.0 to 20.0 mA	
Unit	V	V/mA	
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	Internal/last position	
Internal positioning value	0.0 %	0.0 to 100.0 %	
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 %	
Blocking protection	No	Yes/No	
Limited travel range	100.0 %	30.0 to 130.0 %	
Travel adjustment	Absolute	Absolute/Relative	
Speed	Standard	Slow/Standard/Fast	
Dead band (switching range)	2.0 %	0.5 to 5.0 %	
Characteristic type	Linear	Linear Equal percentage Reverse equal percentage User-defined	

EB 5824-2 EN

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