MOUNTING AND OPERATING INSTRUCTIONS

EB 8332-1 EN

Translation of original instructions

Type 3375 Electric Actuator

Three-step version

Edition August 2016

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).

The mounting and operating instructions for the devices are included in the scope of delivery. The latest documentation is available on our website at ***www.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 3375 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 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 other applications or conditions than specified, contact SAMSON.

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

➔ Refer to the technical data for limits and fields of application as well as possible uses. See the 'Design and principle of operation' section.

Reasonably foreseeable misuse

The actuator is not suitable for the following applications:

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

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

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

Qualifications of operating personnel

The actuator 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 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 the electric actuator. 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

Upon supply voltage failure, the Type 3375 Electric Actuator [1] causes the valve to move to a certain fail-safe position. The fail-safe action of SAMSON actuators is specified on the actuator nameplate.

[1] Types 3375-20/-21/-22/-30/-31

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, the 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 3375 Electric Actuator fulfills the requirements of the Directives 2014/30/EU and 2014/35/EU. The declaration of conformity includes information about the applied conformity assessment procedure. This declaration of conformity is included in the annex of these instructions.

The Type 3375 Electric Actuator is 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 5868-1 for Type 3214 Globe Valve balanced by a diaphragm
  - EB 8012 for Type 3241 Globe Valve, ANSI and JIS version
  - EB 8015 for Type 3241 Globe Valve, DIN version
  - EB 8026 for Type 3244 Three-way Valve
  - EB 8051 for Type 3251 Globe Valve, DIN version
  - EB 8052 for Type 3251 Globe Valve, ANSI version

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.

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 Type 3375 Electric Actuator is 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 mounting parts of Type 3375 Electric Actuators. Excessive tightening torques lead to parts wearing out more quickly.

➔ Observe the specified tightening torques.

Risk of damage to the electric actuator due to incorrect operation of the manual override.

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

➔ Do not operate the manual override while the actuator is in operation. Only operate the manual override of actuators without fail-safe action in the de-energized state.

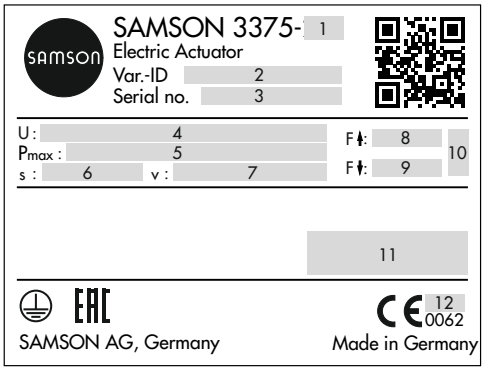
Risk of damage to the electric actuator due to incorrect connection of the voltage.

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 at the same time.

2 Markings on the device

2.1 Nameplate



1 Type
2 Configuration ID
3 Serial number
4 Supply voltage; power line frequency
5 Power consumption
6 Rated travel
7 Stroking speed
8 Thrust (actuator stem retracts)
9 Thrust (stem extends)
10 Fail-safe action


Extends


Retracts

11 Additional electrical equipment


Mechanical limit contacts


Resistance transmitters

12 Year

3 Design and principle of operation

The Type 3375 Electric Actuator is used in industrial plants as well as in heating, ventilation and air-conditioning systems.

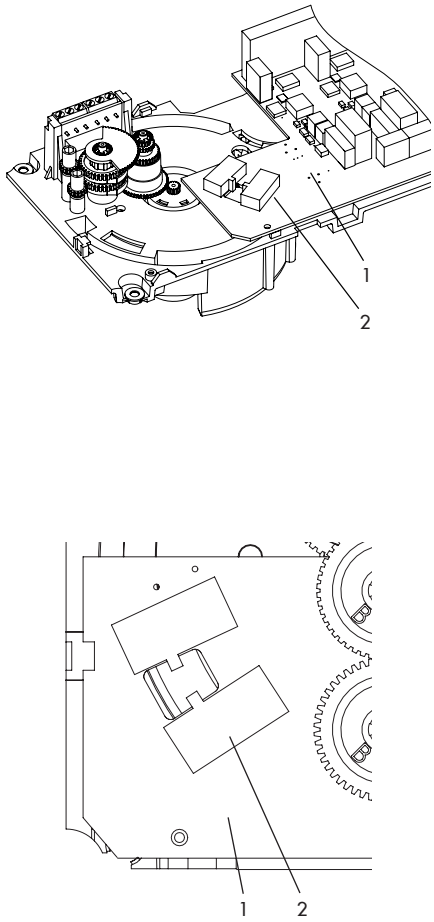
The actuator is a linear actuator which is controlled by a three-step signal. Depending on the version with or without fail-safe action, it is particularly suitable for mounting on SAMSON Series 240 and 250 Valves as well as to Type 3214 Valve (DN 300 and 400).

Principle of operation

The electric actuator consists of a reversible asynchronous motor and a maintenance-free planetary gear with ball screw drive. The actuator is switched off by torque switches (2). Additionally, the asynchronous motor is protected by a thermal fuse.

3.1 Fail-safe action

The actuator versions with fail-safe action contain a spring mechanism and an electromagnet. The actuator is moved by the force of the spring to the fail-safe position when the electromagnet (terminals L and N) is de-energized. The direction of action depends on the actuator version and cannot be reversed.



1 Actuator board
2 Limit contact

Fig. 3-1: *Limit contact*

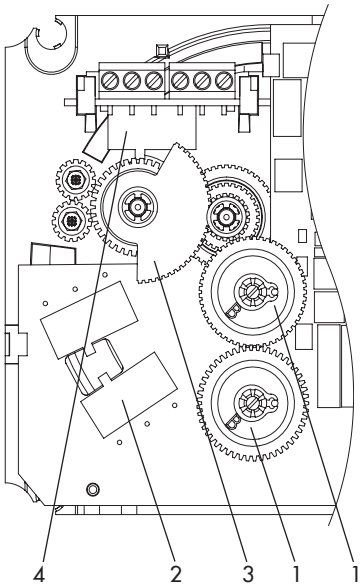
3.2 Additional equipment

Mechanical limit contacts

Optionally, the actuator can be equipped with **two limit contacts**. They consist of two changeover switches. Their switching positions are changed independently from one another by continuously adjustable cam disks.
The limit contacts (4) are suitable for retrofitting. The installation and adjustment of the mechanical limit contacts is described in the 'Installation' section.

Resistance transmitter

Optionally, the actuator can be equipped with **resistance transmitters**. They are linked to the gear and produce a resistance signal between approx. 0 and 1000 Ω (usable range 0 to 900 Ω) proportional to the valve travel. It can be used to assess the process of the actuator stem.
The resistance transmitters (1) are suitable for retrofitting. The installation and adjustment of the mechanical limit contacts is described in the 'Installation' section.



1 Actuator gear for resistance transmitter
2 Limit contact
3 Contact cam for limit contacts
4 Limit contacts

Fig. 3-2: *Inside view · Actuator board*

3.3 Technical data

Table 3-1: *Technical data Type 3375*

Type 3375		-10	-11	-20	-21	-22	-30	-31
Fail-safe action		Without		Actuator stem extends			Actuator stem retracts	
Connection (form-fit)		M30x1.5	M60x1.5	M30x1.5	M60x1.5	M30x1.5	M30x1.5	M60x1.5
Rated travel	mm	30	60	30	60	30	30	60
Stroking speed in mm/s	At 50 Hz	0.6	0.6	0.6	0.6	0.6	0.6	0.6
	At 60 Hz	0.7	0.7	0.7	0.7	0.7	0.7	0.7
	In the event of fail-safe action	–	–	0.85	0.75	0.75	0.75	0.67
Transit time in s for rated travel	At 50 Hz	50	100	50	100	50	50	100
	At 60 Hz	42	84	42	84	42	42	84
	In the event of fail-safe action	–	–	35	80	40	40	90
Thrust (actuator stem extends)	kN	12.5	12.5	7.5	5	4	4	4
Thrust (actuator stem retracts)	kN	12.5	12.5	1	1	4	4	2.5
Supply voltage		230 V, 50 to 60 Hz						
Duty type		S3 - 50 % ED (1200 c/h) according to IEC 60034-1						
Power consumption	VA	180	180	185	185	185	185	185
Handwheel		Handwheel [1]						
Permissible temperature range [2]	Ambient	5 to 60 °C						
	Storage	–20 to +70 °C						
Degree of protection		IP 54 according to EN 60529 · IP 65 with cable gland · Suspended mounting not permitted [3]						
Class of protection		I 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						

1) Manual override is not possible in actuators with fail-safe action upon fail-safe action.
2) The permissible medium temperature depends on the valve on which the electric actuator is mounted. The limits in the valve documentation apply.
3) Cable glands M20x1.5 with metal nut (SW 23/24)

Type 3375		-10	-11	-20	-21	-22	-30	-31
Conformity		CE · EAC						
Materials								
Housing	Bottom section	Spheroidal graphite iron						
	Middle section	Cast aluminum alloy						
	Motor housing	Cast aluminum alloy						
	Fan guard	Plastic						
Cover		Glass-fiber-reinforced plastic						
Actuator stem		Stainless steel						
Weight								
	kg (approx.)	11.7	14.5	19.5	22.5	18	18	21
Additional equipment								
Limit contacts		Two adjustable limit contacts with changeover switches; 230 V/1 A · Without contact protection						
Resistance transmitters		Two resistance transmitters; 0 to 1000 Ω ± 15 %, max. 200 mW usable range approx. 0 to 900 Ω						

3.4 Dimensions

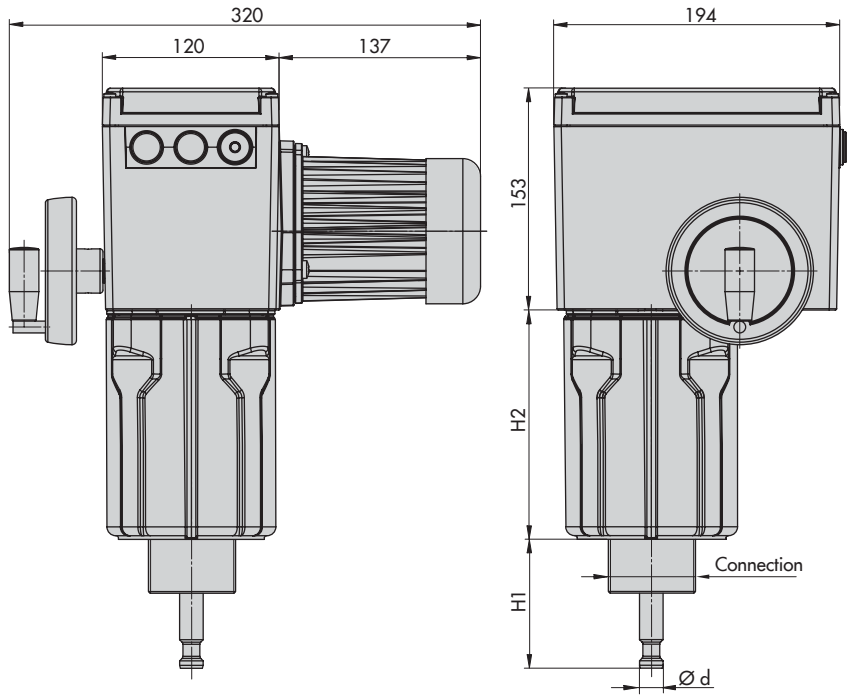


Fig. 3-3: *Dimensions for Type 3375*

Table 3-2: *Dimensions*

Type 3375		**-10**	**-11**	**-20**	**-21**	**-22**	**-30**	**-31**
Connection		M30x1.5	M60x1.5	M30x1.5	M60x1.5	M30x1.5	M30x1.5	M60x1.5
Rated travel	(mm)	30	60	30	60	30	30	60
Actuator stem	Ø d in mm	16	22	16	22	16	16	22
H1 stem retracted	(mm)	60	105	60	105	60	60	105
H1 stem extended	(mm)	90	165	90	165	90	90	165
H2	(mm)	124	174	229	279	229	229	279

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 3375-xx Electric Actuator
1x Document IP 8332-1
(Important Product Information)

for Types 3375-10, -20, -22, -30:

1x Accessory 0900-2679, consisting of
- 2x Stem connector for Ø 16 mm stem
- 2x M6 screw
- 1x M30x1.5 ring nut

for Types 3375-11, -21, -31:

1x Accessory 1400-9565, consisting of
- 2x Stem connector for Ø 22 mm stem
- 2x M12 screw
- 1x M60x1.5 ring nut

Fig. 4-1: *Scope of delivery*

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 of –20 to +70 °C.

4.4 Lifting the actuator

– Use suitable equipment to lift the 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.*

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).

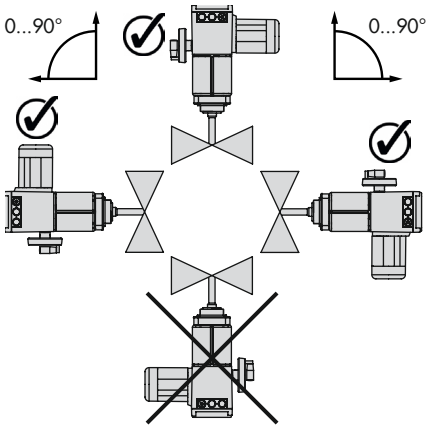


Fig. 5-1: *Mounting position*

5.2 Preparation for installation

Before mounting, 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

Phillips screws are used to fasten the actuator housing cover. Use a POZIDRIV® PZ2 screwdriver to undo and tighten the screws.

5.3 Mounting the actuator

NOTICE

Risk of malfunction due to incorrect mounting.

➔ *Only mount the actuator following the described sequence.*

1. Push the plug stem down to close the valve.
2. Turn the stem connector nut (7) until the dimension **x** from the top of the yoke to the middle of the stem connector nut (7) is achieved:
   With M30: x = 90 mm
   With M60: x = 165 mm
   Lock this position with the lock nut (8).
3. Retract actuator stem to the top end position using the manual override (see the 'Operation' section).

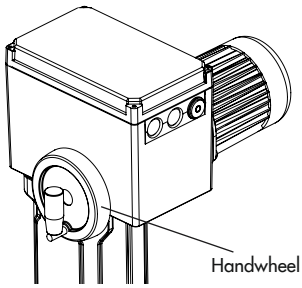


Fig. 5-2: *Manual override*

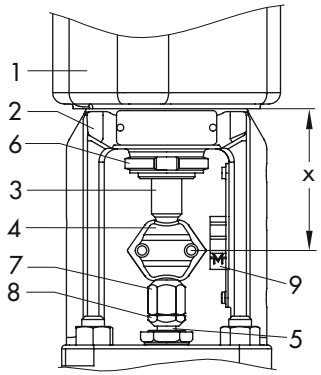
Note

For actuators with "actuator stem extends" fail-safe action (see nameplate), the supply voltage must be applied to allow the actuator stem be retracted. To apply the supply voltage, proceed as described in section 5.6.

4. Place actuator onto the valve bonnet (2) and secure using the ring nut (6).

Tightening torque (M30)	150 Nm
Tightening torque (M60)	250 Nm

5. Move the actuator stem (3) using the manual override or motor until the stem contacts the stem connector nut (7). Tighten the stem connector clamps (4).
6. Move the actuator stem (3) to the lower end position (globe valve closed) electrically or using the manual override.
7. Align travel indicator scale (9) with the middle of the stem connector (4) and screw tight.



1 Actuator
2 Valve bonnet
3 Actuator stem
4 Stem connector
5 Plug stem
6 Ring nut
7 Stem connector nut
8 Lock nut
9 Travel indicator scale

Fig. 5-3: *Attachment*

5.4 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.

➔ Use lifting equipment.

5.5 Installing additional equipment

⚠ DANGER

Risk of fatal injury due to electric shock.

➔ *Before installing electrical accessories, switch off the supply voltage and disconnect the signal line.*

5.5.1 Retrofitting limit contacts

To install the limit contacts, the following retrofit kits are required:

– Basic unit, order no. **1400-8829** (see Fig. 5-5)

– Retrofit kit, order no. **1402-0898** (see Fig. 5-4)

i *Note*

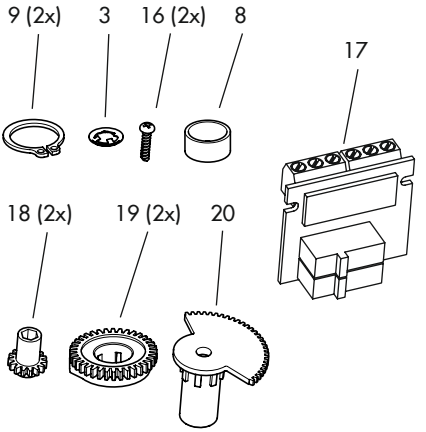
The retrofitting of the limit contacts varies depending on whether the actuator is fitted with resistance transmitters or not.

– Actuators without resistance transmitters: see page 5-5

– Actuators with resistance transmitters: see page 5-8

Tip

We recommend applying a small amount of lubricant (e.g. Vaseline) to the spindles on the gear faces and to the sides of the cogs.



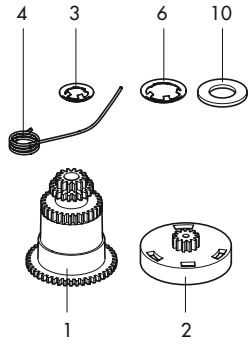
3 Serrated ring
8 Spacer [1]
9 Snap ring
16 Screw for adjustment gear
17 Terminal board
18 Adjustment gear
19 Contact cam
20 Cam holder

[1] Not required for Type 3375

Fig. 5-4: *Mechanical limit contacts*

i ***Note***

The contact cams (19) are ready-mounted to the cam holder (20) and the retaining rings (9) to form the contact cam unit (21, see Fig. 5-6 on page 5-7).



1 Intermediate gear
2 Spindle gear
3 Serrated ring 1
4 Tension spring [1)]
6 Serrated ring 2 [1)]
10 Shim [1)]

[2)] Not required for Type 3375

Fig. 5-5: *Basic unit*

i ***Note***

– The listed retrofit kits also contain parts needed to retrofit other SAMSON actuators. Not all the parts in the kits are required for the Type 3375 Actuator.
– To undo the screws on the housing cover, use a POZIDRIV® PZ2 screwdriver to get enough hold on the screw heads.

i ***Note***

To undo the screws on the housing cover, use a POZIDRIV® PZ2 screwdriver to get enough hold on the screw heads.

i ***Note***

The contact cams (19) are ready-mounted to the cam holder (20) and the retaining rings (9) to form the contact cam unit (21, see Fig. 5-4).

Actuators without resistance transmitters

i ***Note***

Parts from the basic unit and the retrofit kit (see Fig. 5-4 and Fig. 5-5) are required.

1. Unscrew screws on housing cover and take the cover off the actuator.
2. Move the actuator stem to the end position "actuator stem extended" or "actuator stem retracted" (see the 'Operation' section).
3. Unscrew fastening screws. Slide the actuator board (12) from its guiding to the right. Slightly lift the board and continue pushing it further towards the cable entry.
4. Clip the spindle gear (2) onto the sleeve (13). Make sure the side latch is properly engaged in the groove of the sleeve.
5. Slide the intermediate gear (1) onto the spindle 1 (11.1), mount the serrated ring (3) and push it down as far as it will go.
6. Slide adjustment gears (18) onto their spindles and fasten with one screw each. Check whether the adjustment gears can be turned easily. If not, slightly loosen its screw again.
7. Align the contact cam unit (21): To do this, turn both contact cams (19) on the cam holder (20) as illustrated in Fig. 5-7 corresponding with the position of the actuator stem.
8. Slide the contact cam unit (21) onto the spindle corresponding with the position of the actuator stem as illustrated in Fig. 5-8. Make sure that the outermost cog of the contact cam unit engages in the gearwheel of the intermediate gear (1). In addition, the adjustment gears (18) must engage properly in the corresponding gears of the contact cam unit (21).
9. Secure the contact cam unit (21) and intermediate gear (1) with the serrated ring (3); push down the serrated ring as far as it will go.
10. Position the terminal board (17) at the base of the support at a 45° angle (approx.) with the switches pointing towards the gears. Swivel the upper end of the terminal board towards the gears until the board is in a vertical position and properly engaged in the support.
11. Slide the actuator board (12) back into its guiding. Make sure that **all** the gears are properly engaged. Fasten the board using screws.
12. Adjust limit contacts as described in the 'Start-up' section.
13. Replace cover. Briefly turn the fastening screws counterclockwise with a screwdriver to center them. Then fasten down the cover by tightening the screws.

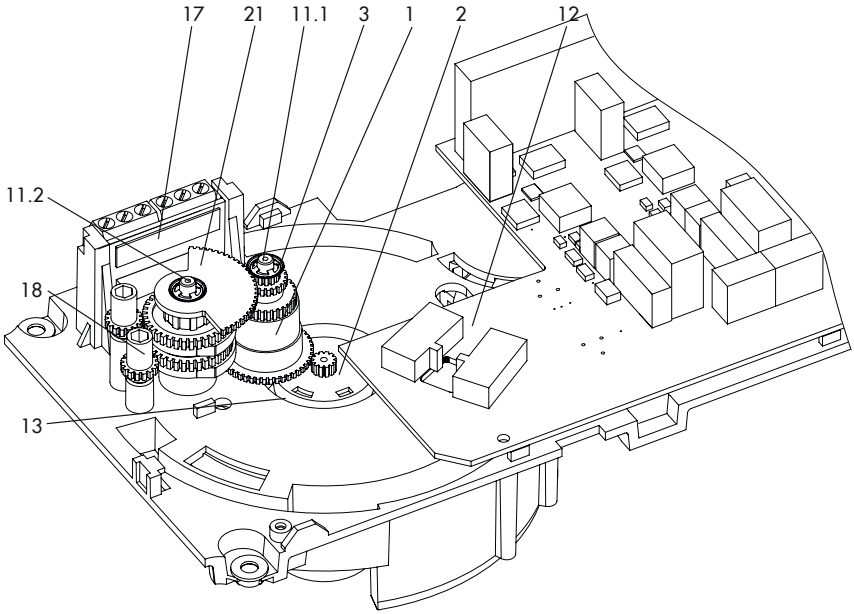


Fig. 5-6: *Inside view · Actuator without resistance transmitters*

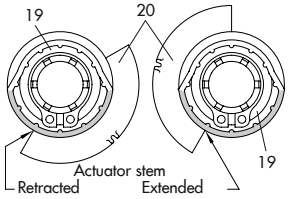


Fig. 5-7: *Contact cams and cam holder*

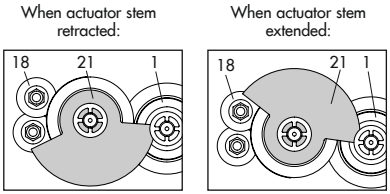


Fig. 5-8: *Contact cam unit*

1	Intermediate gear	13	Bearing sleeve
2	Spindle gear	17	Terminal board
3	Serrated ring	18	Adjustment gear
11.1	Spindle 1	19	Contact cam
11.2	Spindle 2	20	Cam holder
12	Actuator board	21	Contact cam unit

Actuators with resistance transmitters

i Note

Parts from the retrofit kit (see Fig. 5-5 on page 5-5) are required. Intermediate gear (1), spindle gear (2) and serrated ring (3) from the basic unit (see Fig. 5-5 on page 5-5) are already installed.

1. Unscrew screws on housing cover and take the cover off the actuator.
2. Move the actuator stem to the end position "actuator stem extended" or "actuator stem retracted" (see the 'Operation' section).
3. **Continue as described in item 6 on page** 5-6**.**

i Note

The basic unit is not required for the version with resistance transmitter.

5.5.2 Installing the resistance transmitters

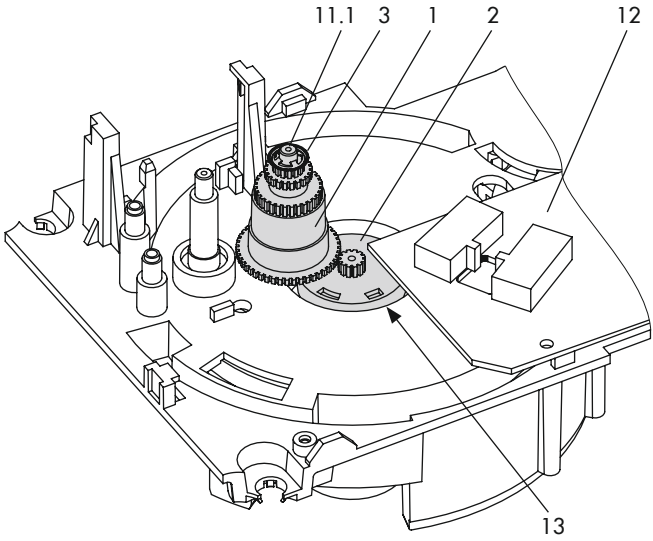
An actuator board (available on request) with the corresponding resistance transmitters and gear wheels is required for a resistance transmitter retrofit.

i Note

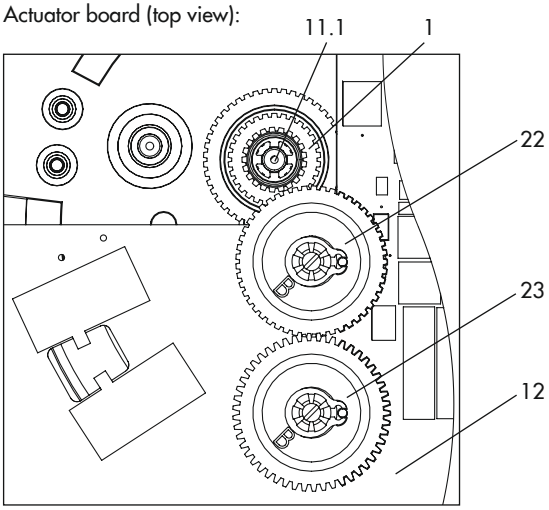
If the actuator does not have limit contacts, parts from the retrofit kit (see Fig. 5-5 on page 5-5) are required.

Actuators without limit contacts

1. Unscrew fastening screws. Slide the actuator board (12) from its guiding. Slightly lift the board and continue pushing it further towards the cable entry.
2. Clip the spindle gear (2) onto the sleeve (13). Make sure the latch is properly engaged in the groove of the sleeve. Slide the intermediate gear (1) onto the spindle 1 (11.1), mount the serrated ring (3) and push it down as far as it will go.
3. The resistance transmitter gears (22 and 23) fitted with serrated rings must be put onto their shafts to correspond with the rated travel of the valve. The rated travel inscription 'A' for 60 mm rated travel or 'B' for 30 mm rated travel must be legible from above (see Fig. 5-9).
4. Slide the actuator board (12) back into its guiding. Make sure that **all** the gears are properly engaged. Fasten the board using screws.



Actuator board (top view):



1 Intermediate gear
2 Spindle gear
3 Serrated ring
11.1 Spindle 1
12 Actuator board
13 Bearing sleeve
22 Gear for potentiometer 1
23 Gear for potentiometer 2

Fig. 5-9: *Inside view · Actuator without limit contacts*

Actuators with limit contacts

1. Unscrew screws on housing cover and take the cover off the actuator.
2. Move the actuator stem to the end position depending on the fail-safe action "actuator stem extends" or "actuator stem retracts" (see the 'Operation' section).
3. Unscrew fastening screws. Slide the actuator board (12) from its guiding. Slightly lift the board and continue pushing it further towards the cable entry.
4. Slide new actuator board into its guiding. Make sure that **all** the gears are properly engaged. Fasten the board using screws.

i ***Note***

The basic unit is not required for the version with limit contacts.

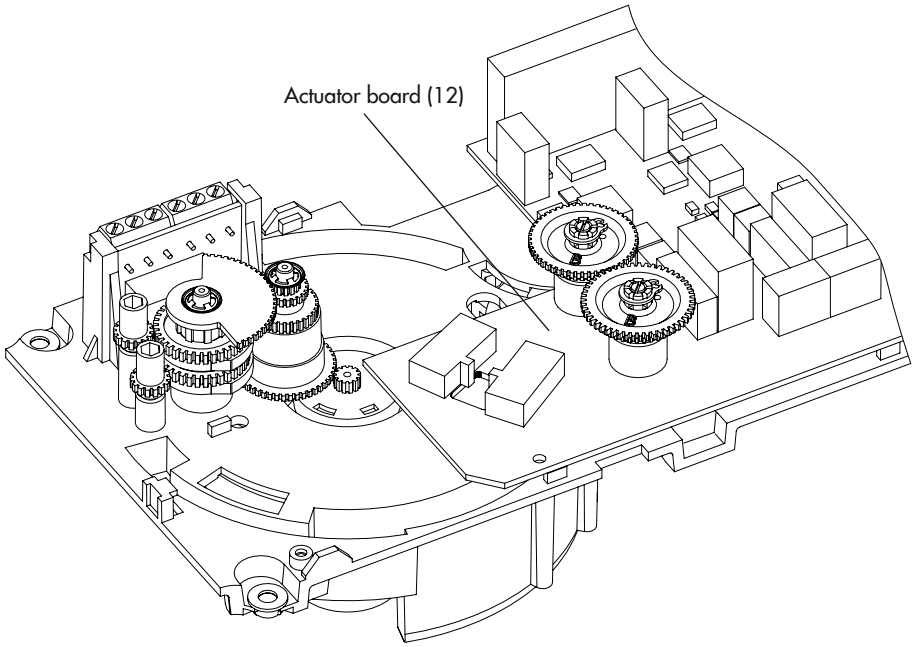


Fig. 5-10: *Inside view · Actuator with limit contacts*

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.*

A maximum of three cable glands can be attached to the housing for cable entry.

Connecting the supply voltage

➔ Connect the wiring as shown in Fig. 5-11.

➔ Guide the cables to the spring-cage terminals from the top.

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

i *Note*

A maximum of three cable glands can be mounted to the housing for cable entry.

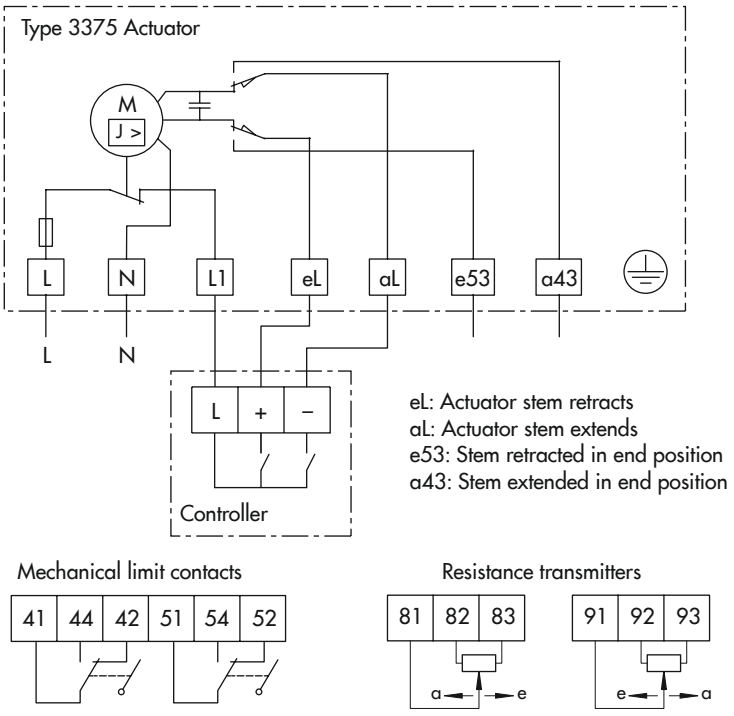


Fig. 5-11: *Electrical connection*

Table 5-1: *Cables and stranded wires that can be used*

Cable	Cross section
Single-wire H05(07) V-U [1)]	0.2 to 1.5 mm²
Fine-wire H05(07) V-K [1)]	0.2 to 1.5 mm²
With wire ferrule acc. to DIN 46228-1	0.25 to 1.5 mm²
With wire ferrule and sleeve acc. to DIN 46228-4	0.25 to 0.75 mm²

1) Length of insulation to be stripped off wire ends: 8 mm

6 Start-up

Once the actuator has been mounted correctly and the wiring has been performed as described in the 'Installation' section, the electric actuator is ready for use and can be controlled by a three-step signal (see the 'Design and principle of operation' section).

6.1 Adjusting the limit contacts

1. Unscrew screws on housing cover and take the cover off the actuator.
2. Connect supply voltage.
3. Use the motor or manual override to move the actuator stem to the point at which the contact should react.
4. Use a hex screwdriver to turn the spindle of the adjustment gears (18) for the upper limit contact or for the lower limit contact until the associated contact cam (19) of the contact cam unit (21) triggers the switch contact of the upper or lower microswitch on the terminal board (17).
5. Replace cover. Briefly turn the fastening screws counterclockwise with a screwdriver to center them. Then fasten down the cover by tightening the screws.

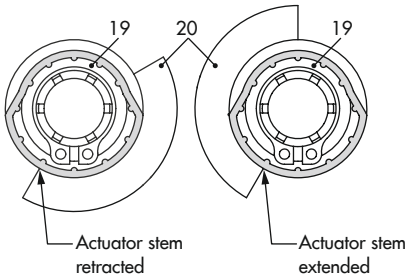


Fig. 6-1: *Contact cams and cam holder*

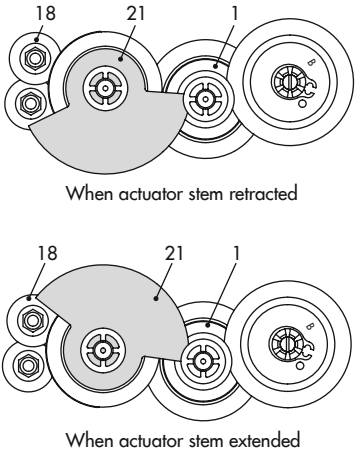


Fig. 6-2: *Contact cam unit*

1	Intermediate gear
18	Adjustment gear
19	Contact cam
20	Cam holder
21	Contact cam

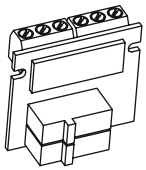


Fig. 6-3: *Terminal board · Limit contact (17)*

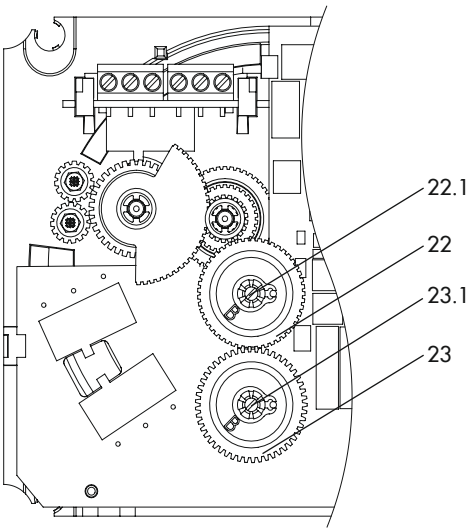
6.2 Adjusting the resistance transmitter

The gears of the resistance transmitters (22) and (23) must be put onto their shafts to correspond with the rated travel of the valve. The rated travel inscription 'A' 60 mm for rated travel or 'B' for 30 mm rated travel must be legible.

If this is not the case, pull both potentiometer gears off their shafts and put them back on again with the reverse side of the wheel facing upwards, ensuring they are aligned fairly flush with the potentiometer shaft.

Zero adjustment

1. Use the motor or manual override to move the actuator stem to the desired end position.
2. Use a screwdriver to adjust the potentiometer shafts (22.1) and (23.1).
3. Calibrate resistance transmitters with a suitable instrument.
   Actuator stem extended:
   Terminals 81/82 = 0 Ω;
   Terminals 91/93 = 0 Ω
   Actuator stem retracted:
   Terminals 81/83 = 0 Ω;
   Terminals 91/92 = 0 Ω



22 Gear for potentiometer 1
22.1 Shaft of potentiometer 1
23 Gear for potentiometer 2
23.1 Shaft of potentiometer 1

Fig. 6-4: *Zero adjustment*

7 Operation

7.1 Three-step mode

In three-step mode, the actuator stem is moved in the corresponding direction by applying a signal to the terminal eL or aL (see Fig. 7-1).

A constant supply voltage must also be applied to the actuator to allow it to operate (see the 'Installation' section).

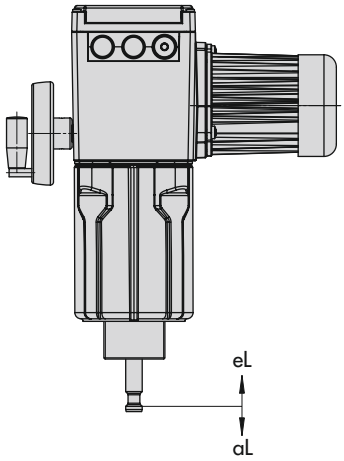


Fig. 7-1: *Three-step control*

7.2 Manual override

The handwheel (1 in Fig. 7-2) is used for manual override. Turn the handwheel clockwise to move the actuator in 'aL' direction and counterclockwise to move it in the 'eL' direction (see Fig. 7-1).

➔ Unfold and lock the fold-away handle (2) in place.

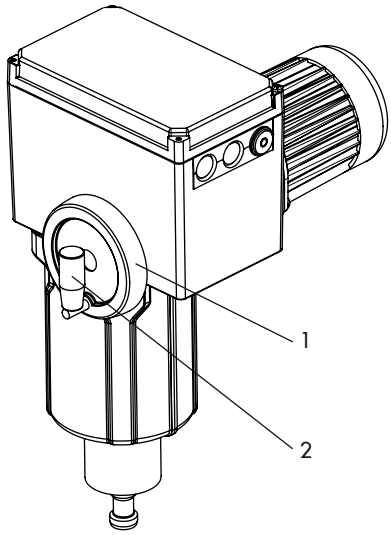


Fig. 7-2: *Handwheel for manual override*

i ***Note***

Manual override is only possible in actuators with fail-safe action when the supply voltage (terminals L and N) is connected.

8 Malfunctions

➔ Troubleshooting (see Table 8-1)

i ***Note***

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

Table 8-1: *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.

8.1 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.

9 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.*
- *Only use original spare parts by SAMSON, which comply with the original specifications.*

The actuator requires no maintenance.

Table 9-2: *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 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.	➔ If any wires are loose, tighten the terminal screws (see the 'Installation' section).
	➔ Renew damaged wires.

10 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 if touched.

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

➔ *Wear protective clothing and gloves.*

Decommissioning

To decommission the electric actuator for repair work or disassembly, proceed as follows:

➔ Put the control valve out of operation. See associated valve documentation.

11 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.*

Actuator without fail-safe action

1. Disconnect the supply voltage and protect it against unintentional reconnection.
2. Make sure that a signal from the controller cannot act upon the actuator. If necessary, disconnect the wires connecting the controller.
3. Disconnect the wires of the connecting lines at the actuator.
4. Remove the connecting lines.
5. Retract actuator stem as described in the 'Operation' section.
6. Undo the stem connector parts between the plug and actuator stems.
7. Unscrew the ring nut on the valve bonnet.
8. Lift the actuator off the valve.

➔ Use suitable lifting equipment.

Actuator with "stem extends" fail-safe action

1. Make sure that a signal from the controller cannot act upon the actuator. If necessary, disconnect the wires connecting the controller.
2. Retract actuator stem as described in the 'Operation' section.
3. Undo the stem connector parts between the plug and actuator stems.
4. Unscrew the ring nut on the valve bonnet.
5. Disconnect the supply voltage and protect it against unintentional reconnection.

➔ The actuator stem moves to the fail-safe position.

6. Lift the actuator off the valve.

➔ Use suitable lifting equipment.

7. Disconnect the wires of the connecting lines.
8. Remove the connecting lines.

Actuator with "stem retracts" fail-safe action

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

➔ The actuator stem moves to the fail-safe position.

2. Make sure that a signal from the controller cannot act upon the actuator. If necessary, disconnect the wires connecting the controller.
3. Disconnect the wires of the connecting lines.
4. Remove the connecting lines.
5. Undo the stem connector parts between the plug and actuator stems.

6. Unscrew the ring nut on the valve bonnet.
7. Lift the actuator off the valve.

➔ Use suitable lifting equipment.

12 Repairs

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 repair work.*

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

Note

Further information on returned devices and how they are handled can be found at ▶ www.samsongroup.com > Service & Support > After-sales Service.

13 Disposal

We are registered with the German national register for waste electric equipment (stiftung ear) as a producer of electrical and electronic equipment, WEEE reg. no.: DE 62194439

➔ 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.

14 Certificates

The following certificates are included on the next pages:

– EU declaration 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 our website:

▶ www.samsongroup.com > Products & Applications > Product selector > Actuators > 3375

EU declaration of conformity

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 3375

wird die Konformität mit den einschlägigen Harmonisierungsrechtsvorschriften der Union bestätigt /
the conformity with the relevant Union harmonisation legislation is declared with/
est conforme à la législation d'harmonisation de l'Union applicable selon les normes:

EMC 2014/30/EU	EN 61000-6-2:2005, EN 61000-6-3:2007 +A1:2011, EN 61326-1:2013
LVD 2014/35/EU	EN 60730-1:2016, EN 61010-1:2010
RoHS 2011/65/EU	EN 50581:2012

Hersteller / Manufacturer / Fabricant:

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

Frankfurt / Francfort, 2017-07-29
Im Namen des Herstellers/ On behalf of the Manufacturer/ Au nom du fabricant.

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

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/ИР 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) RU Ванькович Евгения Владимировна (Ф.И.О.)

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АО «Опцион», Москва, 2019 г., «Б». Лицензия № 05-05-09/003 ФНС РФ. ТЗ № 369. Тел.: (495) 726-47-42, www.opcion.ru

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

DECLARATION OF INCORPORATION
TRANSLATION

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

For the following product:
Type 3375 Actuator

We certify that the Type 3375 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, 1.3.8.2, 1.3.9, 1.4.1, 1.5.1, 1.5.3, 1.5.4 and 1.5.8 are observed. The relevant technical documentation described in Annex VII, part B has been compiled.

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

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

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

For product descriptions refer to:
- Type 3375 Electric Actuator: Mounting and Operating Instructions EB 8332-1/EB 8332-2

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

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

Persons authorized to compile the technical file:

SAMSON AG, Weismüllerstraße 3, 60314 Frankfurt am Main, Germany
Frankfurt am Main, 10 February 2022

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Revision no. 01

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15 Annex

15.1 Parts for retrofitting and accessories

Parts for retrofitting	
Basic unit for limit contacts and/or resistance transmitters	Order no. 1400-8829
Mechanical limit contacts	Order no. 1402-0898
Resistance transmitter	On request
Gear wheel for resistance transmitter PCB	Order no. 1992-5885
Accessories	
Set with three cable glands M20x1.5 with metal nut (SW 23/24)	Order no. 1400-8828

15.2 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
- Configuration ID
- Serial number

EB 8332-1 EN

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