

MOUNTING AND OPERATING INSTRUCTIONS



EB 8340 EN

Translation of original instructions



Type 3274 Electrohydraulic Actuator

Edition March 2020



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 Department (aftersaleservice@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

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1 General safety instructions

For your own safety, follow these instructions concerning the mounting, start-up and operation of the device:

- The device is to be mounted, started up or operated only by trained and experienced personnel familiar with the product. 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 dangers due to their specialized training, their knowledge and experience as well as their knowledge of the applicable standards.
- Any hazards that could be caused in the valve by the process medium and the operating pressure or by moving parts are to be prevented by taking appropriate precautions.
- The device is designed for use in low voltage installations. For wiring and maintenance, you are required to observe the relevant safety regulations. Only use protective equipment that can be protected against unintentional reconnection of the power supply.
- Before wiring the actuator, disconnect it from the supply voltage.

To avoid damage to any equipment, the following also applies:

- Proper shipping and storage are assumed.

i Note

Devices with a CE marking fulfill the requirements of the Directive 2014/35/EU and the Directive 2014/30/EU. The EU declaration of conformity is included at the end of these instructions.

2 Technical data

Actuator	Type 3274	-11 ¹⁾	-12 ¹⁾	-13	-14	-15 ¹⁾	-16 ¹⁾	-17	-18	-21	-22	-23
Manual override		Electric				Mechanical				Electric		
Fail-safe action		Without				Without				With		
Direction of action: stem retracts		-				-					•	
Direction of action: stem extends		-				-				•		•
Rated travel		15 or 30 mm										
Transit time for rated travel		60 s with 15 mm travel · 120 s with 30 mm travel Faster motor ¹⁾ : 30 s with 15 mm travel · 60 s with 30 mm travel										
Stroking speed in mm/s		0.25; faster motor ²⁾ : 0.5										
Stroking speed for fail-safe action in mm/s												
	Standard									1	1	1.3
	Optional	-				-				3.3	3.3	5
Weight		12 kg				15 kg				12 kg		
Supply voltage		230 V, 110 V and 24 V, 50 or 60 Hz (±10 %)										
Power consumption with supply voltage		24 V, 110 V ¹⁾ , 230 V/50 Hz: 90 VA 24 V, 110 V ¹⁾ , 230 V/60 Hz: 110 VA 110 V ¹⁾ , 230 V/50 Hz with faster motor: 150 VA 110 V ¹⁾ , 230 V/60 Hz with faster motor: 185 VA Positioner: 3 VA										
Perm. ambient temperature		-10 to +60 °C										
Perm. storage temperature		-25 to +70 °C										
Degree of protection		IP 65 according to EN 60529										
Electromagnetic compatibility		According to EN 61326-1, EN 61000-6-2, EN 61000-6-3										
Compliance		CE · EAC										
Thrust in N												
Travel: 15 mm	Retracts	2100	500	4300	500	2100	500	4300	500	2100	1800	500
	Extends	2000	3400	4300	7700	2000	3400	4300	7700	2000	2300	3400
Travel: 30 mm	Retracts	2100	500	4300	500	2100	500	4300	500	2100	1800	500
	Extends	1800	3000	4300	7300	1800	3000	4300	7300	1800	2100	3000

¹⁾ No longer available since the beginning of 2020

²⁾ Not for actuators with 24 V supply voltage

Technical data

Accessories	
Positioner	Same supply voltage as actuator
Input signal	0/4 to 20 mA, ($R_i = 50 \Omega$) · 0/2 to 10 V DC ($R_i = 10 \Omega$)
Zero shift	0 to 100 %
Change of range	30 to 100 %
Position feedback	0/4 to 20 mA, $R_b \leq 200 \Omega$ · 0/2 to 10 V DC, $R_b \leq 2 \text{ k}\Omega$
Hysteresis	Approx. 3 %
Resistance transmitter	0 to 1000 Ω , 0 to 200 Ω , 0 to 100 Ω , 0 to 275 Ω , 0 to 138 Ω ; (useable range approx. 80 % of nominal value) perm. load 0.5 W
Mechanical limit contacts	Maximum three separately adjustable changeover switches, max. 250 V AC, 5 A
Inductive limit contacts	SJ2-N proximity switch (NC contact only)
Control circuit	Values corresponding to isolating switch amplifier used
Materials	
Housing and cover	Die-cast aluminum
Cylinder	Hydraulic cylinder tube
Piston	Steel/NBR combination
Piston stem	C45, hard chrome-plated
Actuator stem	1.4104
Hydraulic oil	Special HLP, silicone-free

Fine-wire fuses (see page 14)

→ Contact SAMSON's after-sales service (aftersaleservice@samson.de) if you require them.

Actuators with 120 s transit time at 30 mm travel	
Supply voltage	Type of fine-wire fuse
230 V, 50/60 Hz	T1L (1 A slow-acting),
Actuators with 60 s transit time at 30 mm travel (with faster motor)	
Supply voltage	Type of fine-wire fuse
230 V, 50/60 Hz	T1.25 (1.25 A slow-acting)
110 V, 50/60 Hz	T1.25 (1.25 A slow-acting)
24 V, 50/60 Hz	T6.3 (6.3 A slow-acting)

3 Design and principle of operation

The electrohydraulic actuator is used to position Series 240, 250 and 280 Control Valves.

The actuator is fastened to the valve bonnet with a ring nut. The actuator and plug stems are fastened together by a stem connector. The actuator mainly consists of the actuator housing, motor with oil pump and cylinder housing with piston.

Pilot valves regulate the flow of oil to and from the piston. The actuator is equipped with compression springs which determine the positioning forces. Actuator versions with spring mechanism also serve to move valve to the fail-safe position "actuator stem retracts" or "actuator stem extends" in the event of a supply voltage failure.

3.1 Versions

The following versions (see technical data on page 5 for details) are available:

With electric override:

Manual override with two pushbuttons

- Type 3274-11
- Type 3274-12
- Type 3274-13
- Type 3274-14

With mechanical override:

Mechanical override implemented using an Allen key (width across flats 24 mm) at the additional gear housing

- Type 3274-15
- Type 3274-16
- Type 3274-17
- Type 3274-18

Versions with fail-safe action and with electric override:

- Type 3274-21
- Type 3274-22
- Type 3274-23



Testing according to DIN EN 14597

The Type 3274-21 and Type 3274-23 Actuators are tested by the German technical surveillance association (TÜV) according to DIN EN 14597 in combination with various SAMSON valves (registration number on request).

i Note

The Types 3274-11, 3274-12, 3274-15 and 3274-16 described in this document as well as the version with 110 V supply are no longer available since the beginning of 2020. The description only applies to existing actuators already installed.

3.2 Principle of operation

→ Refer to Fig. 1

The pressure-tight actuator housing (1), which also serves as the oil reservoir, contains the cylinder housing (2), cylinder (5.1) and piston (5.2), motor (6.1), pump (6.2) and solenoid pilot valves (6.4).

The oil pump (6.2) driven by the motor (6.1) feeds compressed oil to the corresponding cylinder chamber over the check valve (6.3) and pilot valve (6.4). The solenoid valves are closed in the de-energized state and open when a controller output signal is applied. When an end position is reached or when the thrust is too high due to external forces, the motor is switched off.

Depending on the version, the actuators have no compression springs or are equipped with one or two compression springs (5.7, 5.8). The motor in Types 3274-11, -12, -15, -16 as well as -21 to -23 can only move the stem in one direction. The stem is moved by spring force in the other direction.

Actuators with electric override have two pushbuttons to extend or retract the actuator stem.

The actuators with mechanical override have an additional gear housing. An Allen key must be inserted to activate the override function. In combination with a release button on the top of the actuator housing, the actuator stem can be extended or retracted.

Versions with fail-safe action have a spring-return mechanism and an additional safety solenoid valve which opens when the

power supply is interrupted, reducing the pressure on the cylinder chamber. The spring assembly moves the valve plug to the fail-safe position. The direction of action (actuator stem extends or retracts) depends on how the springs are arranged in the actuator.

NOTICE

Risk of actuator damage through opening the device. Do not remove the housing cover.

3.3 Accessories

The actuator can be fitted with a various combination of accessories.

Table 1: *Combination of accessories*

Accessories										
Positioner	•	•								
Position transmitter			•	•						
Resistance transmitter 1 ¹⁾	•	•	•	•	•	•	•	•		
Resistance transmitter 2	•	•	•	•	•	•				
Mechanical limit contact 1									•	•
Mechanical limit contact 2	•	•	•	•	•	•				
Mechanical limit contact 3	•	•	•	•	•	•				
Inductive limit contact 1		•	•	•	•	•	•	•		
Inductive limit contact 2		•	•	•	•	•	•	•		

All accessories are housed in the terminal box (3). To control switching and indicating components, the travel of the actuator stem, which is picked up at the shaft, is converted into a rotary motion by a rack-and-pinion gear. Accessories can be retrofitted. Table 1 on page 22 shows the maximum amount of accessories that can be fitted.

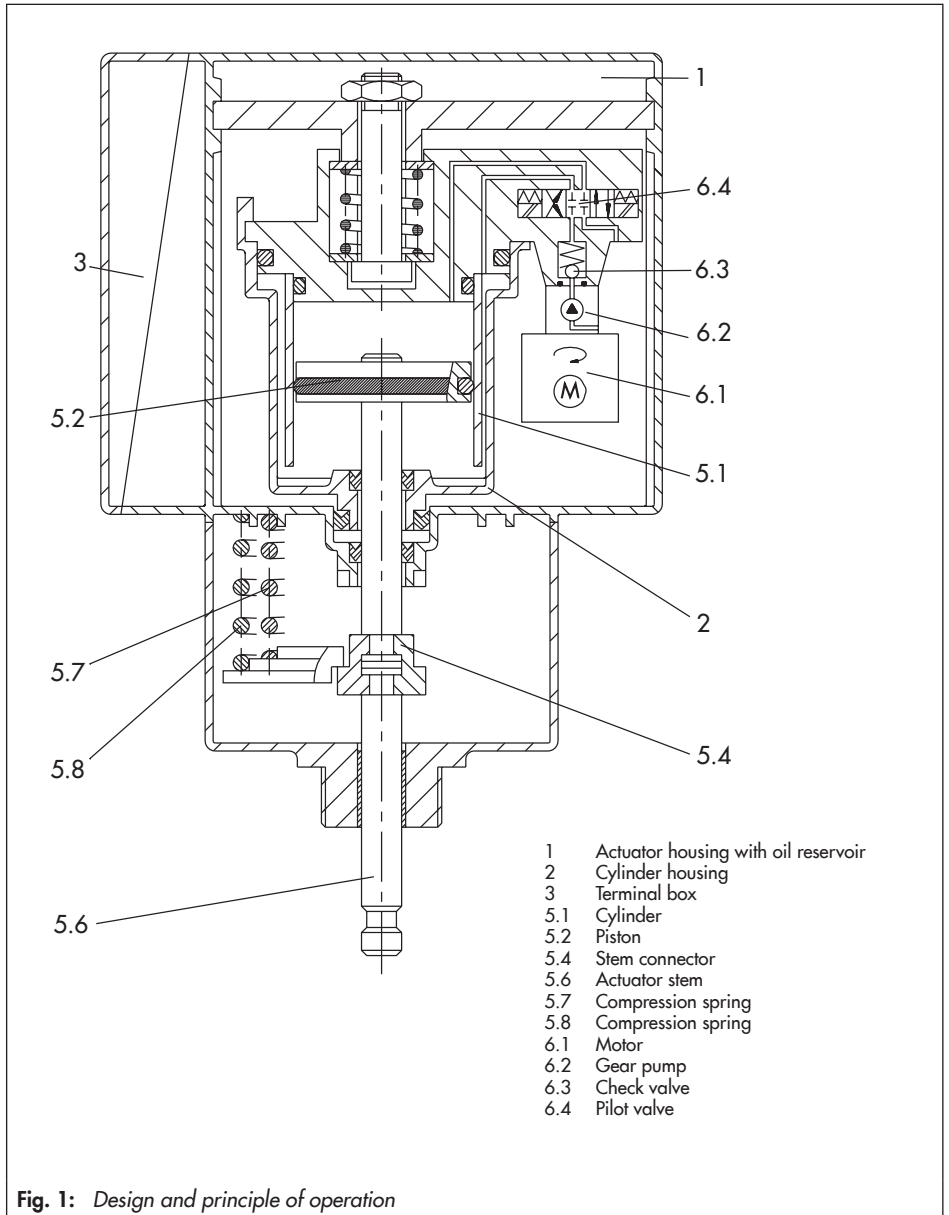


Fig. 1: Design and principle of operation

3.3.1 Positioner

The positioner compares the 0/4 to 20 mA or 0/2 to 10 V control signal issued by the controller with the position of a potentiometer which is proportional to the travel. This results in an output signal of 0/4 to 20 mA or 0/2 to 10 V.

3.3.2 Position transmitter

In the version with three-step control, a potentiometer (0 to 1000 Ω) is used to issue a 0/4 to 20 mA or 0/2 to 10 V output signal, which is proportional to the travel.

3.3.3 Resistance transmitters

An actuator can be equipped with two resistance transmitters. A segment gear is driven by a shaft. An easily adjustable transmission mechanism including a twin pinion ensures that the angle of rotation remains the same for rated travels of 15 and 30 mm.

3.3.4 Mechanical limit contacts

The actuators can be fitted with a maximum of three mechanical changeover switches, which are actuated by continuously adjustable cam disks. The motor is switched off by force-dependent fixed switches in the actuator housing (1).

Actuators with fail-safe action only have one force-dependent switch since these actuators are only moved in the other direction by the force of the springs (5.7 and 5.8).

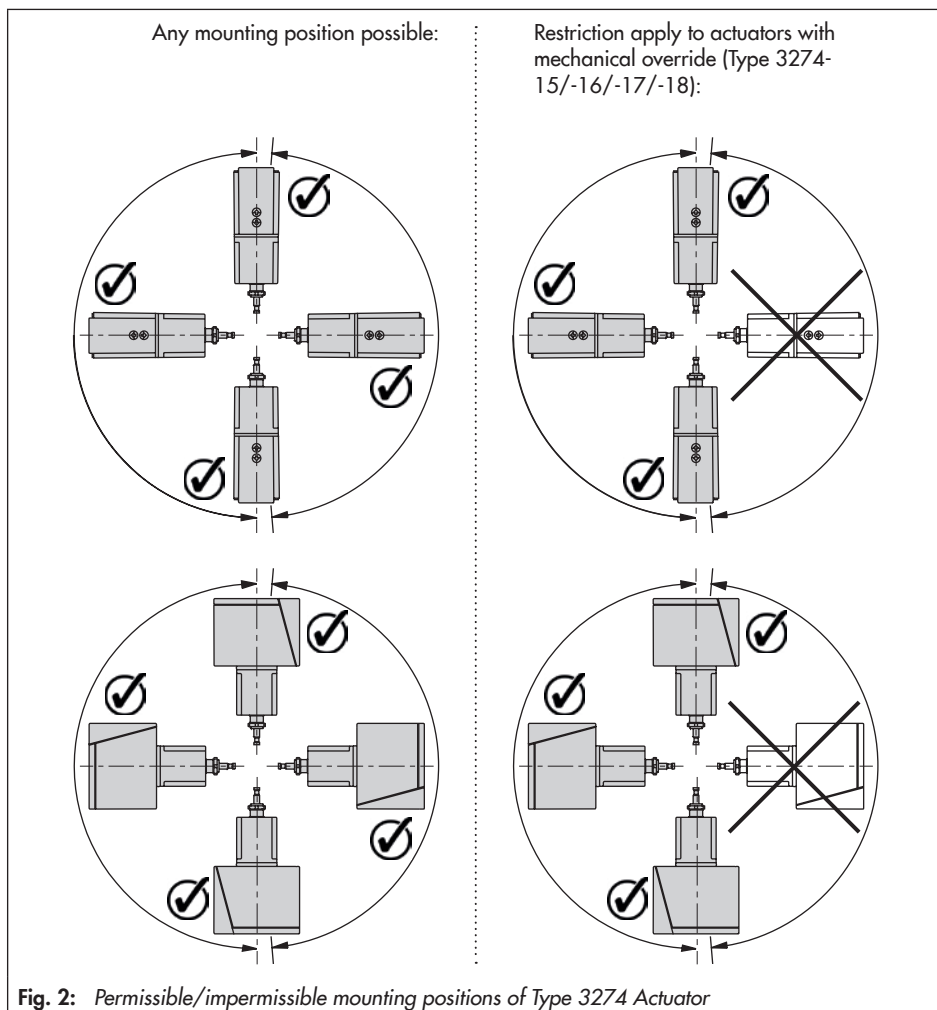
3.3.5 Priority circuit

The version with positioner is fitted with a priority circuit which is activated at terminals 82 and 83. (see section 7.1.1).

4 Installation

4.1 Mounting position

The actuator can be installed in any position. Restriction apply to actuators with mechanical override: see Fig. 2.



Note

The mounting position of the valve determines how the actuator is mounted (see associated control valve documentation).

Tip

We recommend installing valves in sizes larger than DN 100 upright with the actuator pointing up to facilitate valve maintenance.

→ Observe the clearance required to remove the cover or entire actuator (see dimensional drawings in section 8).

4.2 Assembling valve and actuator

Proceed as follows if the valve and actuator have not been assembled by SAMSON, proceed as follows (Fig. 3):

- Check whether the actuator stem is retracted.
- Perform electrical connections of actuator with electric override (section 5). Disconnect isolating terminal 81 and retract the actuator stem electrically (section 6.1).
- For versions with mechanical override, press the button on the top of the housing. Use an Allen key to operate the rack-and-pinion gear to retract the actuator stem.
- For versions with "actuator stem extends" fail-safe action, the supply voltage must remain connected to L and N while

mounting the actuator to keep the actuator stem in the top end position.

DN 15 to 80 (Series 240)

1. Replace the stem connector nut (9.3) on the valve plug stem (9.5) with an external $\varnothing 10$ mm with a $\varnothing 16$ mm nut (order no. 0250-0674).
2. Turn the stem connector nut (9.3) and adjust the dimension x to 75 mm with a closed valve and tighten lock nut (9.4).
3. Place the actuator onto the valve bonnet and secure using the ring nut (8.1).
4. Push the plug stem (9.5) upward. Connect the stem connector nut (9.3) and actuator stem (5.6) using the stem connector clamps (8.2) and fasten together using the screws.
5. Move the valve to the end position and align the travel indicator scale (9.2) with the tip of the stem connector.

DN 100 to 150 (Series 240, 250 and 280, K_{vs} 40 to 160)

1. Check dimension x = 90 mm. If necessary, readjust by turning the stem connector nut (9.3).
2. Place actuator onto the valve bonnet and secure using the ring nut (8.1).
3. Fasten the stem connector nut (9.3) and actuator stem (5.6) to the stem connector clamps (8.2).
4. Move the actuator stem to the lower end position. Align the travel indicator scale (9.2) with the middle of the stem connector (8.2) and screw tight.

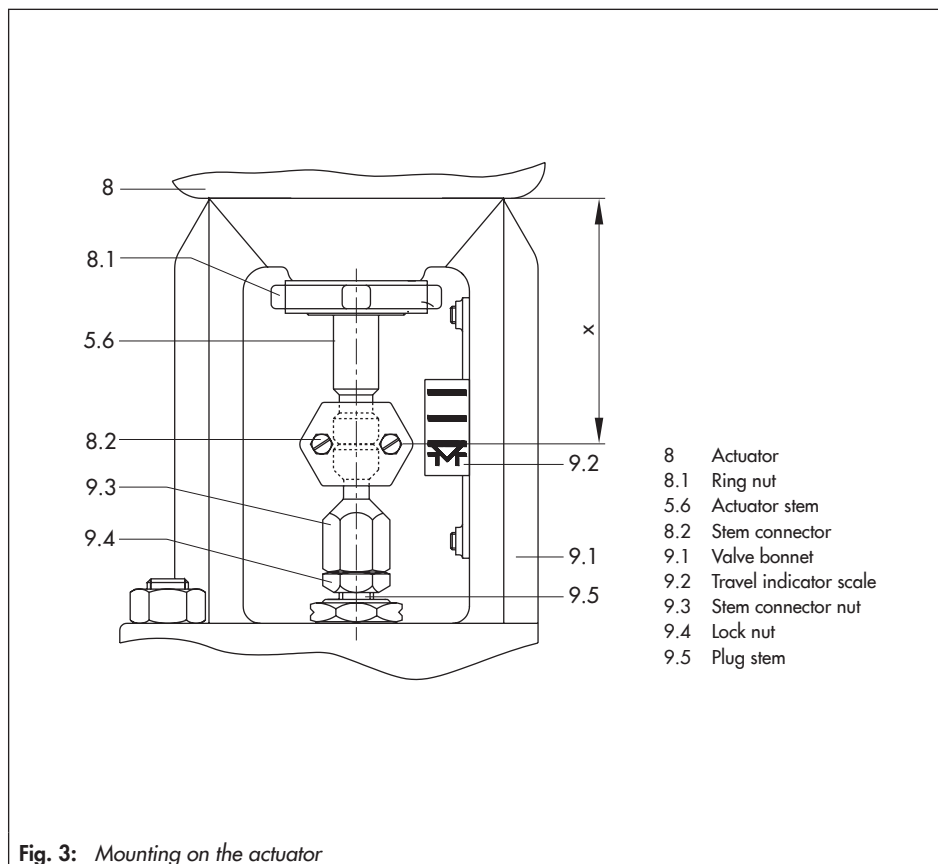


Fig. 3: *Mounting on the actuator*

5 Electrical connections

⚠ DANGER

Risk of 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.
 - Only use a suitable supply voltage which guarantees that no dangerous voltages reach the device in normal operation and in the event of a fault in the system or any other system parts.
 - Connect the actuator to the electrical network only after the supply voltage is first switched off. Make sure the power cannot be switched on unintentionally.
-

i Note

Special motor electronics ensures that the contacts of the controller's output relay (e.g. for three-step control) are protected and only loaded with relatively low control capacities when the actuator is wired according to the circuit diagrams.

The power switching is performed by a TRIAC and a relay in the motor electronics.

How to proceed:

- Unscrew the side housing cover. Guide the cables through the cable glands on the housing to the terminals and connect them (see Fig. 4 to Fig. 6 or circuit diagram stuck inside the housing cover).

If required, two additional cable glands can be mounted after carefully knocking out the blanking plugs.

- Connect the grounding conductor to the separate PE terminal on the inside housing wall.

Accessories

The wiring diagrams (Fig. 4 to Fig. 6) apply to the accessories as well.

- Do not connect the limit contacts to the terminal block, but to a separate screw terminal.

For the version with positioner (Fig. 5) and position transmitter (Fig. 6), output signals, which are proportional to the valve travel, can be provided at the terminals 31, 32, 33 to be used for position feedback (signal increases as the actuator stem retracts).

- Jumper the terminals 31 and 32 when the voltage output is used for position feedback.

Fuse protection

A holder with a fine-wire fuse (see page 19, Fig. 7, item 1) on the motor electronics board protects the actuator and contacts of the external controller.

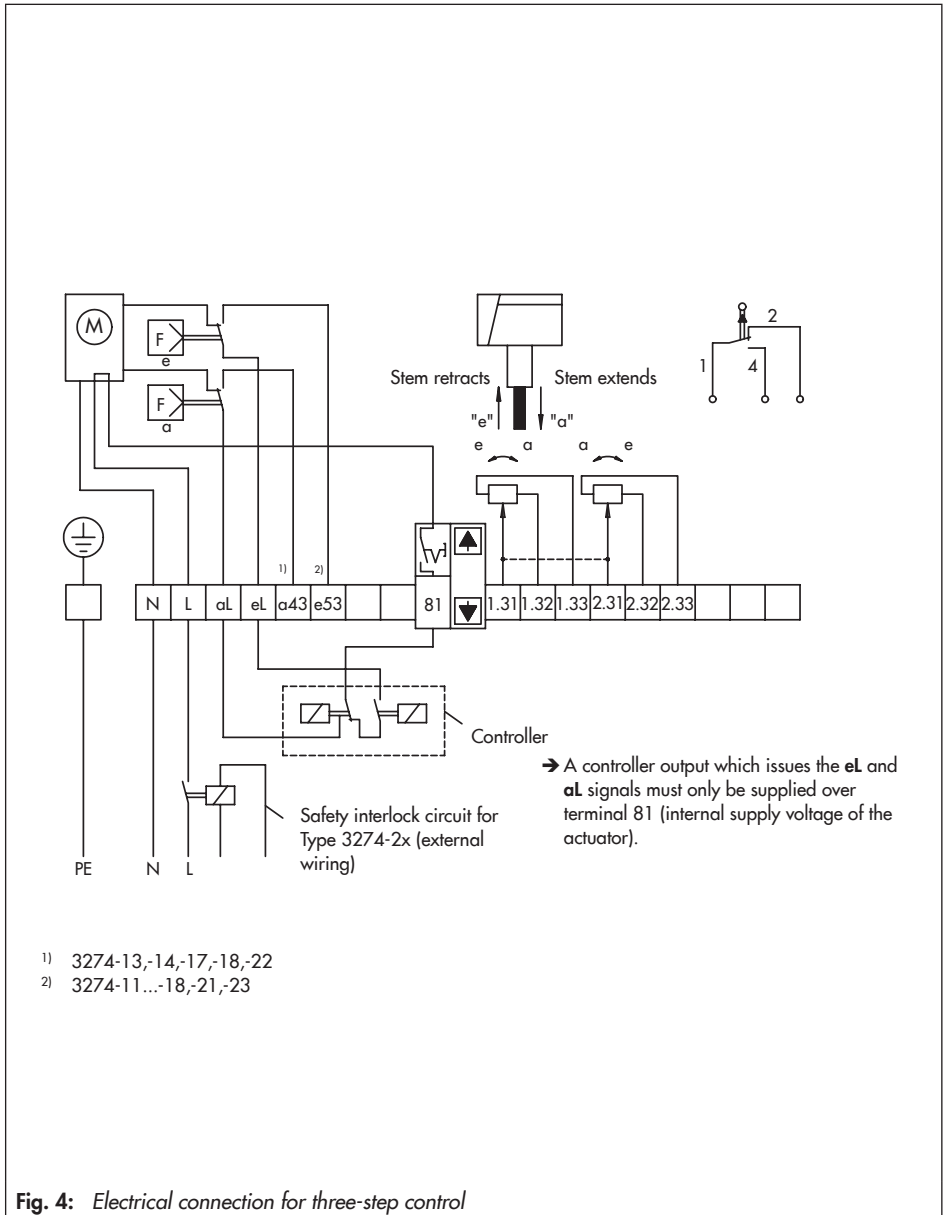


Fig. 4: Electrical connection for three-step control

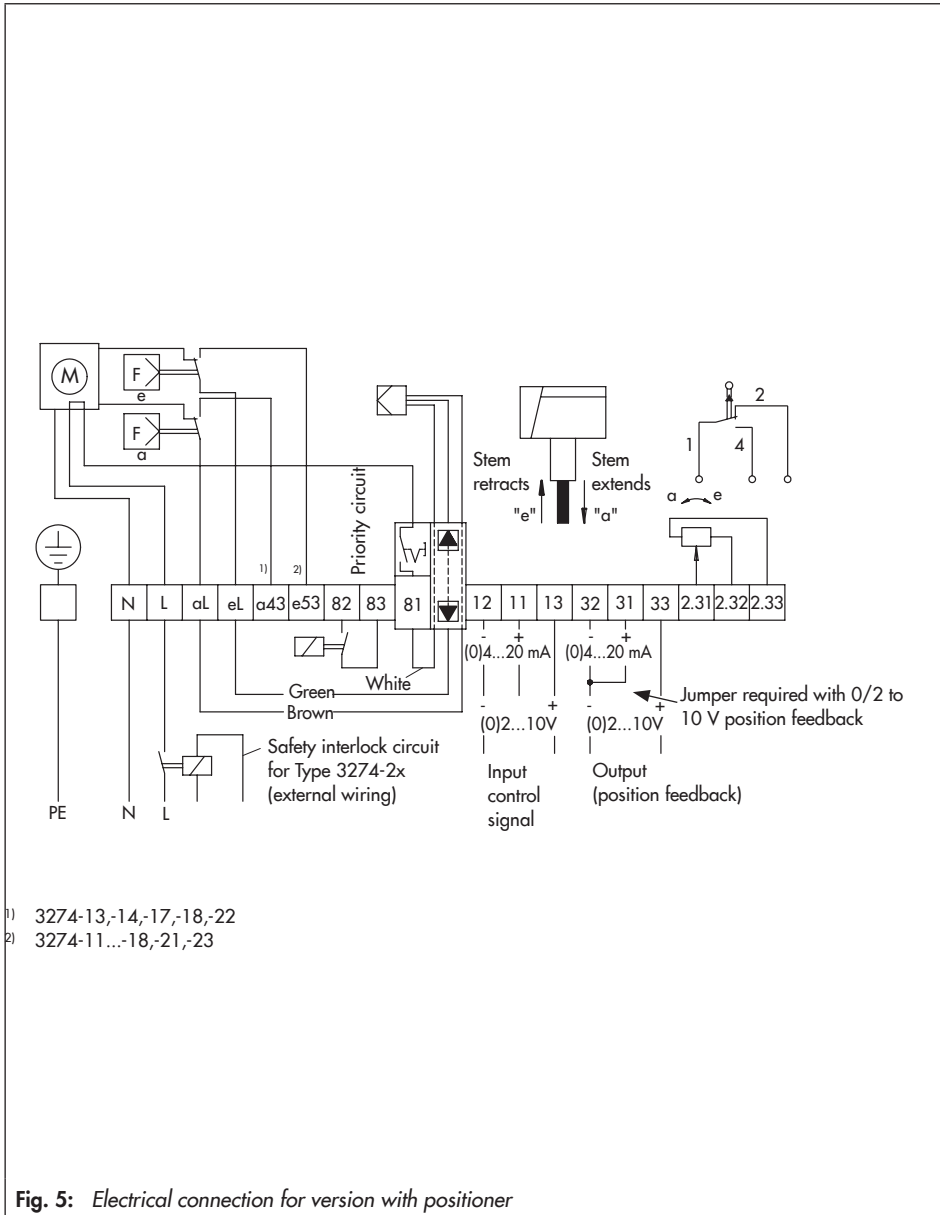


Fig. 5: Electrical connection for version with positioner

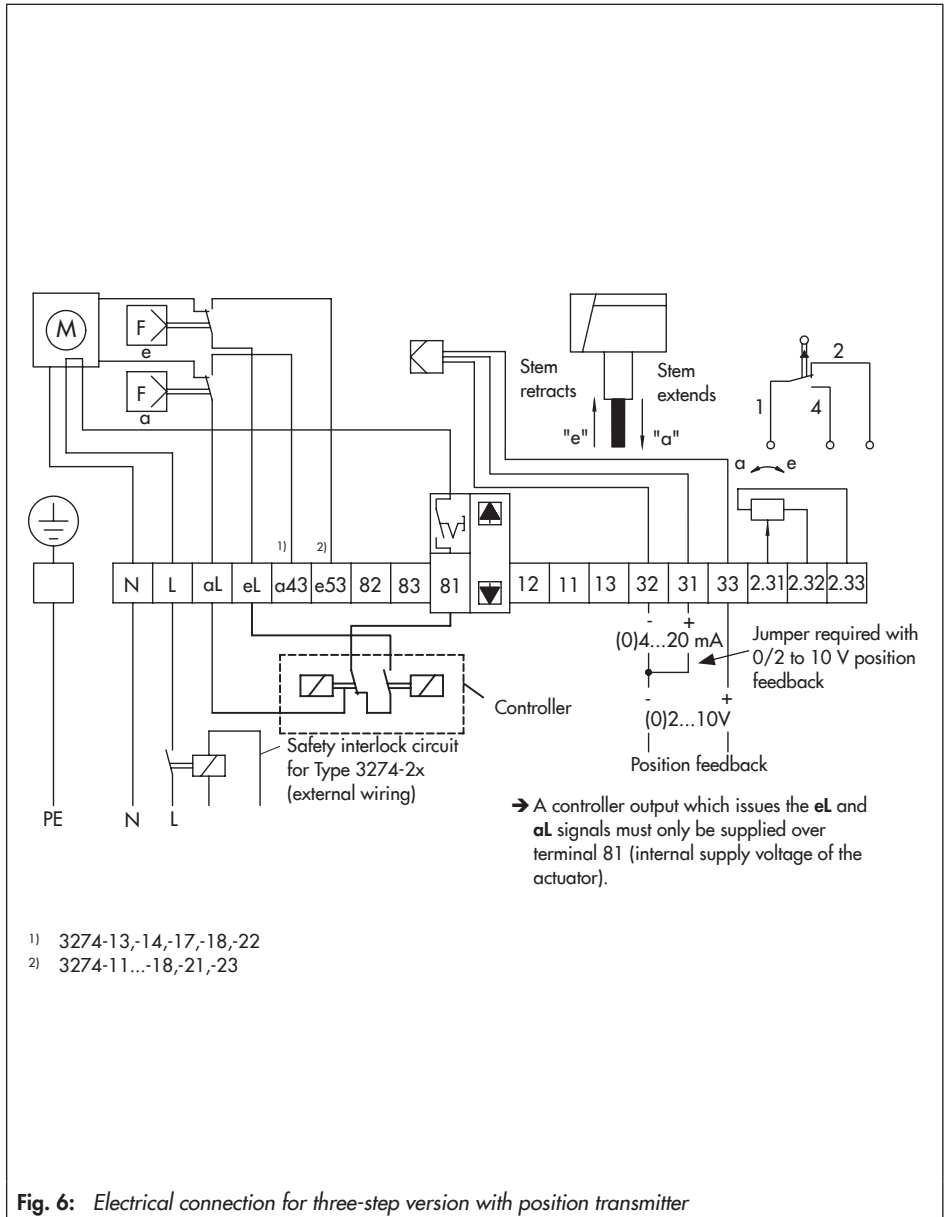


Fig. 6: Electrical connection for three-step version with position transmitter

6 Manual operation of actuator

6.1 Version with electric override

Types 3274-11 to -14 and -22, -23

The actuator stem can be retracted or extended by pressing one of the two pushbuttons located on the side housing cover. In this way, the attached valve can be brought into the required position.

After releasing the button, the actuator follows the control signal of the controller again.

→ If the priority of the control signal (e.g. upon start-up of the plant) is to be interrupted and the control valve is to remain in a certain position, disconnect the isolating terminal 81 (Fig. 7).

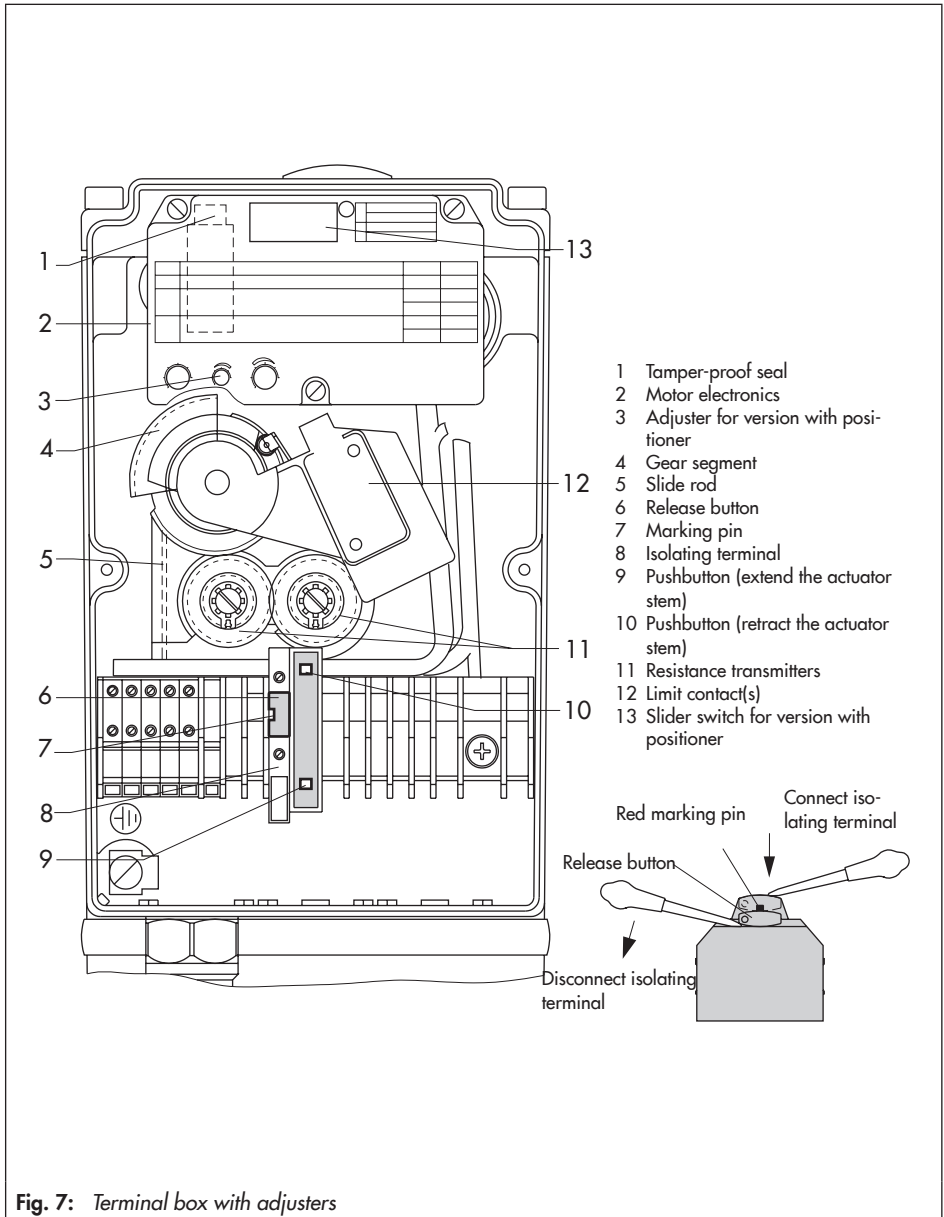
To do this, proceed as follows:

1. Switch off the supply voltage.
2. Unscrew the two fastening screws and remove the side housing cover.
3. Position a screwdriver at the isolating terminal 81 underneath the release button and lever up the button until it engages (the red marking pin is hidden).
4. Mount cover again.
5. Reconnect the supply voltage.

The control signal is now interrupted and the valve can be moved to the desired position by using the two IN and OUT pushbuttons. The valve will remain in the position the valve is moved to.

If the controller signal is to have priority again, proceed as follows:

1. Switch off the supply voltage and remove the cover.
2. Firmly press down the release button until it engages (the red marking pin reappears).
3. Mount cover again and reconnect the supply voltage.



6.2 Version with mechanical override

1. Press the black release button at the front of the housing.
2. Insert a hex wrench (width across flats 24) into the shaft end protruding from the housing to move the rack-and-pinion gear until the require actuator stem position has been reached.

As soon as the button is released, the actuator reacts again according to the controller signal.

If the valve is to remain in the manually defined position, disconnect the isolating terminal 81 as described in section 6.1.

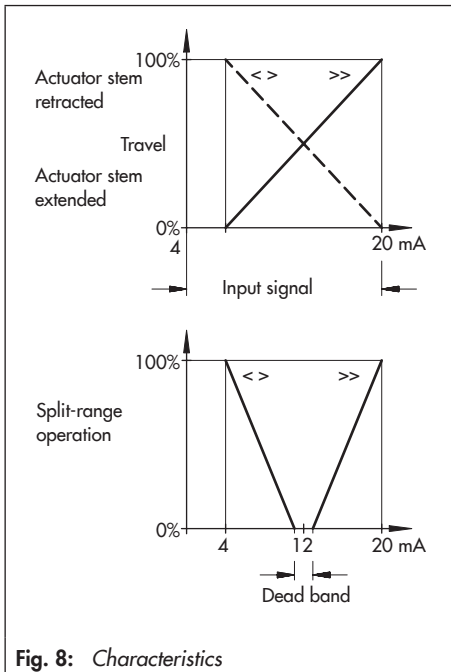


Fig. 8: Characteristics

7 Operation

7.1 Positioner

The positioner ensures a predetermined assignment of the valve position to the input signal. The position feedback is provided as a current signal at terminals 31 and 32 and as a voltage signal at terminals 32 and 33.

→ Jumper terminals 31 and 32 when the voltage signal is used.

i Note

The following applies to split-range operation: to prevent that the valves overlap, a dead band of e.g. ± 0.5 mA must be added (according to Fig. 8). In this case, valve 1 must be adjusted from 11.5 to 4 mA and valve 2 from 12.5 to 20 mA (corresponding values apply to voltage input signals).

Adjusters and slider switches

The adjusters are located in the terminal space of the actuator.

→ Open the side housing cover to access them.

! DANGER

Risk of electric shock from exposed live parts.

Do not touch live parts on operating the adjusters and slider switches.

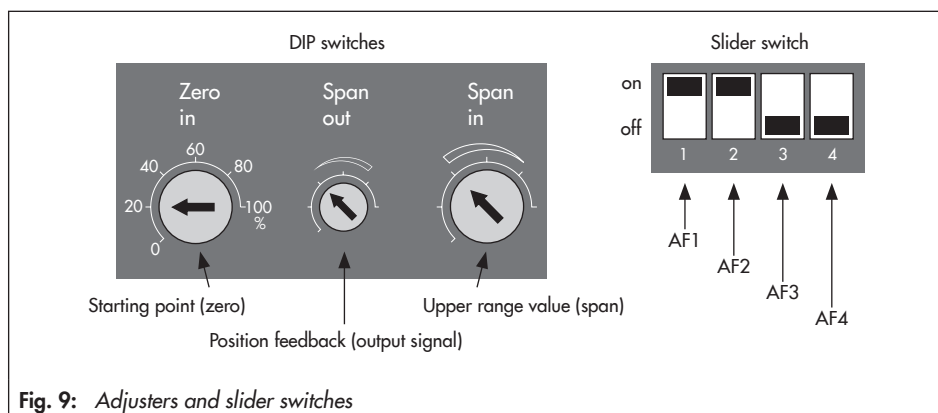


Fig. 9: Adjusters and slider switches

Operation

The following functions can be adjusted with the slider switches SW1 to SW4: (see Table 2 for overview)

Table 2: Meanings of the switch positions

	AF1	AF2	AF3	AF4
Priority operation for actuator stem retracts	ON			
Priority operation for actuator stem extends	OFF			
Direction of action increasing/decreasing (<->)		ON		
Direction of action increasing/increasing (>>)		OFF		
Position feedback signal 4 to 20 mA/2 to 10 V			ON	ON
Position feedback signal 0 to 20 mA/0 to 10 V			OFF	OFF

7.1.1 SW1: Priority circuit

If the two terminals 82 and 83 are connected, the priority operation is activated and the actuator stem moves to the defined end position. After the connection is interrupted, the actuator stem follows the control signal. The fail-safe action has priority (in actuators with fail-safe action).

7.1.2 SW2: Direction of action

Direction of action: increasing/increasing (>>)

The actuator stem moves towards the top end position (stem retracts) as the input signal increases.

Direction of action: increasing/decreasing (<->)

The actuator stem moves towards the lower end position (stem extends) as the input signal increases.

7.1.3 SW3/SW4: Position feedback signal

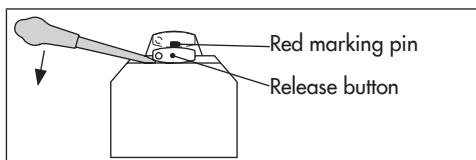
The position feedback signal can be used for the following ranges:

- 4 to 20 mA or 2 to 10 V
- 0 to 20 mA or 0 to 10 V

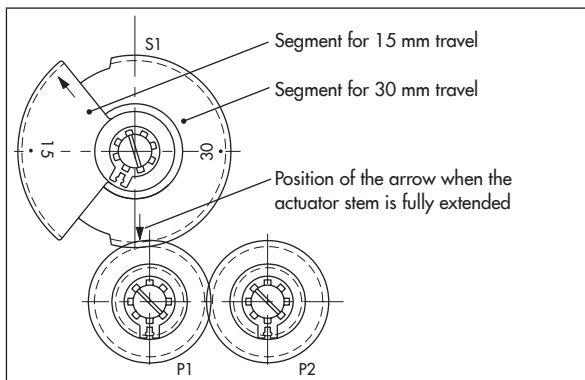
7.1.4 Calibrating the positioner for direction of action increasing/ increasing (>>) or increasing/decreasing (<>)

Default settings for both directions of action:

1. Disconnect isolating terminal 81:



2. Move the actuator stem to the lower end position.
Actuators with electric override: press button (arrow symbol).
Actuators with mechanical override: use a wrench.
3. Position the segment gear S1 with the corresponding arrow tip depending on the valve rated travel (15 or 30 mm) pointing towards the axis of the potentiometer P1:

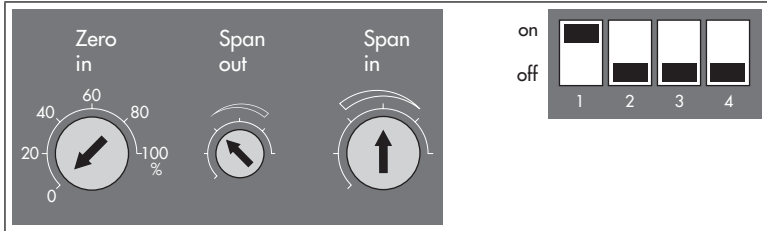


4. Hold the segment gear S1 and turn the axis of potentiometer P1 clockwise using a suitable screwdriver as far as it will go.
5. Connect a suitable current or voltage source to the input signal terminals (11 to 13) according to the wiring diagram. Connect an ammeter to terminals 31 (+) and 32 (-).

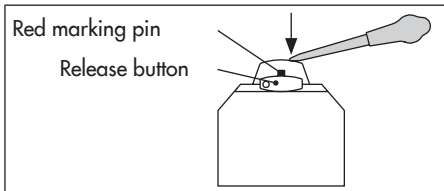
Operation

Calibration for direction of action increasing/increasing (>>):

1. Set slider switch SW2 to OFF.
2. Turn 'Zero in' adjuster counterclockwise as far as it will go. Turn the 'Span in' adjuster to the middle marking:

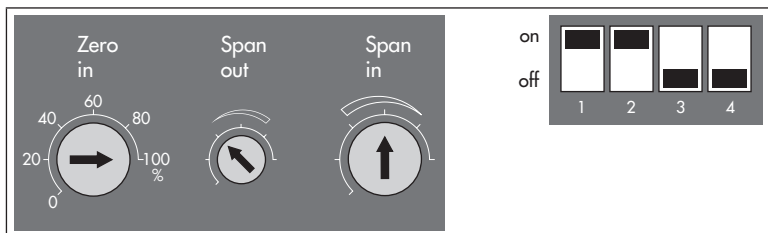


3. Slowly turn the 'Zero in' adjuster clockwise until the LED turns off. Turn it slightly further until the LED lights up again.
4. Use the override to move the valve to the top end position (retract the actuator stem).
5. Set the voltage or current source to 10 V or 20 mA.
6. Turn the 'Span out' adjuster until the output signal is 20 mA.
7. Turn the 'Span in' adjuster counterclockwise until it will go no further, slowly turn it clockwise until the LED blanks out and turn it minimally further until the LED just flashes again.
8. Connect isolating terminal 81 or perform further settings for direction of action increasing/decreasing:

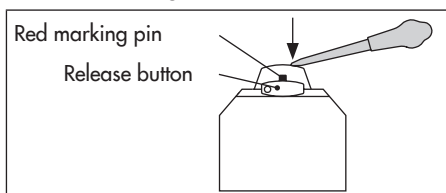


Calibration for direction of action increasing/decreasing (<->):

1. Set slider switch SW2 to ON.
2. Turn 'Zero in' adjuster clockwise as far as it will go:



3. Set the input signal to 0 V or 0 mA.
4. Slowly turn the 'Zero in' adjuster clockwise until the LED turns off. Turn it slightly further until the LED lights up again.
5. Connect isolating terminal 81:



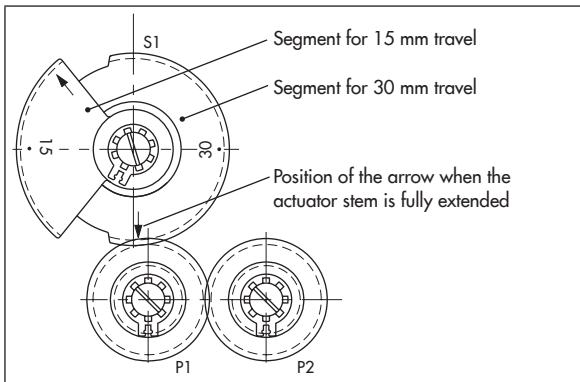
7.1.5 Using the positioner as a position transmitter

The positioner can be used as a position transmitter with three-step control.

1. Disconnect the wires leading to the terminals aL and eL.
 - ➔ Make sure that the disconnected wires are properly insulated (e.g. by using installation clamps).
2. Wire the conductors of the external three-step control signal (controller) to the terminals aL, eL and 81 (the terminals 11, 12 and 13 as well as the priority circuit at terminals 82 and 83 do not function as a result).

7.2 Calibrating the position transmitter

1. Mount the actuator onto the valve according to the mounting instructions.
2. Set the slider switches SW3 and SW4 depending on the required position feedback signal:
SW3 and SW4 to ON: 4 to 20 mA/2 to 10 V
SW3 and SW4 to OFF: 0 to 20 mA/0 to 10 V
3. Connect an ammeter to terminals 31 (+) and 32 (-) or a voltmeter to terminals 32 (-) and 33 (+) (in this case, after jumpering the terminals 31 and 32).
4. Move the actuator stem to the lower end position (manually or by entering an input signal).
5. Position the segment gear S1 with the corresponding arrow tip depending on the valve rated travel (15 or 30 mm) pointing towards the axis of the potentiometer P1.



6. Hold the segment gear S1 and turn the axis of potentiometer P1 clockwise using a suitable screwdriver as far as it will go.
7. Turn axis of potentiometer P1 counterclockwise until the required value for the lower end position is measured.
8. Move the actuator stem to the top end position (manually or by entering an input signal).
9. The value for the top end position should be indicated on the measuring instrument. It can be adjusted with the 'Span out' adjuster.

i Note

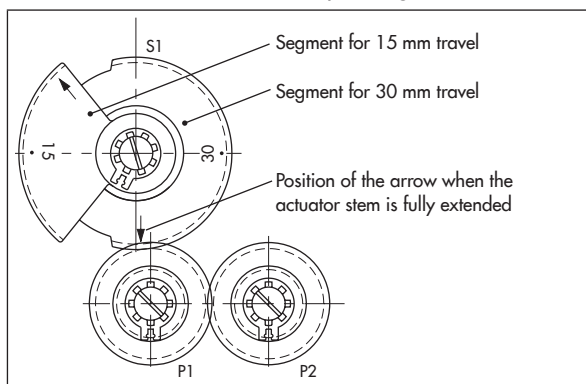
To reverse the characteristic, swap over the connecting wires (green and white) at the terminals eL and aL.

7.3 Adjusting the resistance transmitters

The actuator can be equipped with two resistance transmitters at the maximum. Potentiometer P1 is required for internal position feedback in actuators with positioner or position transmitter. Therefore, external position feedback cannot be used in this case.

Potentiometer P1:

1. Move the actuator stem to the lower end position.
2. Position the segment gear S1 with the corresponding arrow tip depending on the valve rated travel (15 mm or 30 mm) pointing towards the axis of the potentiometer P1.



3. Hold the segment gear S1 and turn the axis of potentiometer P1 clockwise using a suitable screwdriver as far as it will go.

Potentiometer P2:

Potentiometer P2 is driven by the pinion of potentiometer P1. Opposed resistance values arise as a result.

- Set as described for P1.
- Turn potentiometer P2 counterclockwise as far as it will go.

7.4 Adjusting the limit contacts

A limit contact consists of a changeover switch, which changes its switching position when a contact cam presses the switch downward. Turning the contact cam to continuously adjust the switching range over the travel range as required.

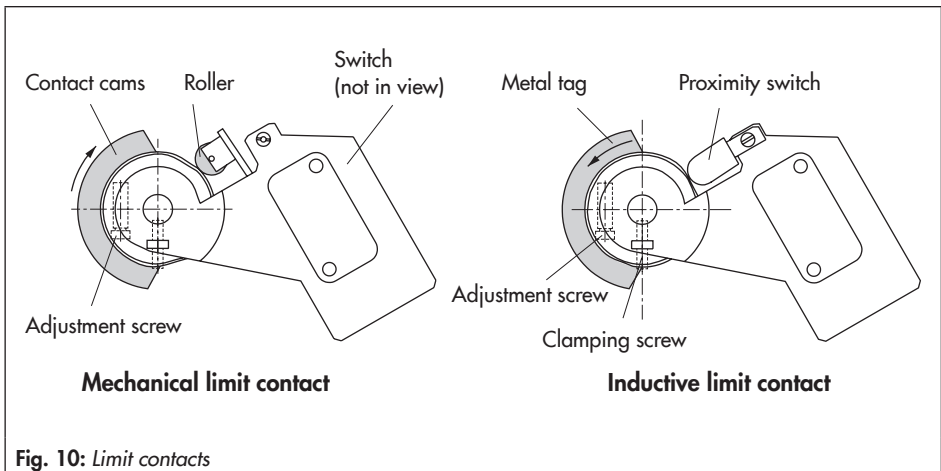
Mechanical limit contact:

1. Move the actuator stem to the position at which the limit contact is to switch.
2. Make fine adjustment by turning the adjustment screw at the contact cam.
3. Check the switching point by stroking the actuator.

Inductive limit contact:

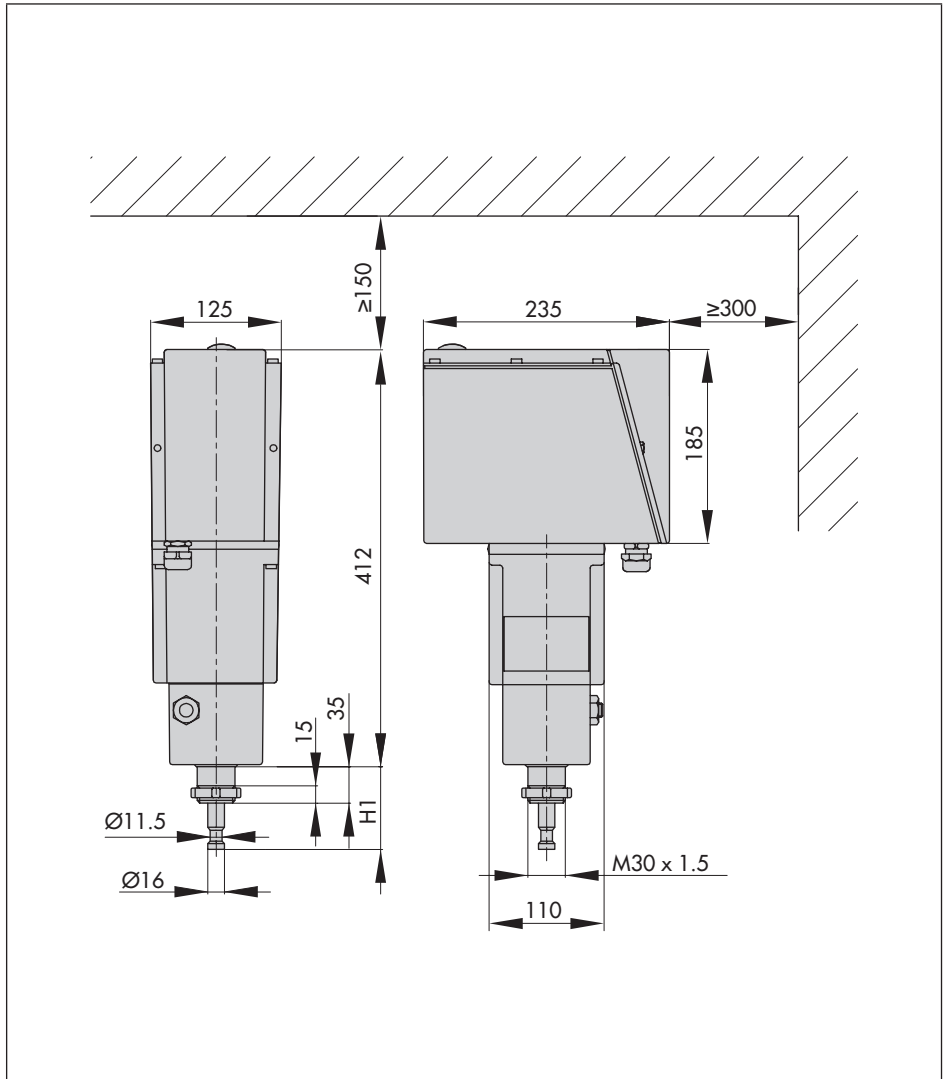
For the operation of inductive contacts, isolating switch amplifiers according to EN 50227 must be installed in the output circuit.

1. Move the valve to the position at which the switching point is to be activated.
2. Turn the adjustment screw until the tag triggers the contact.
3. Check the switching point by stroking the actuator.

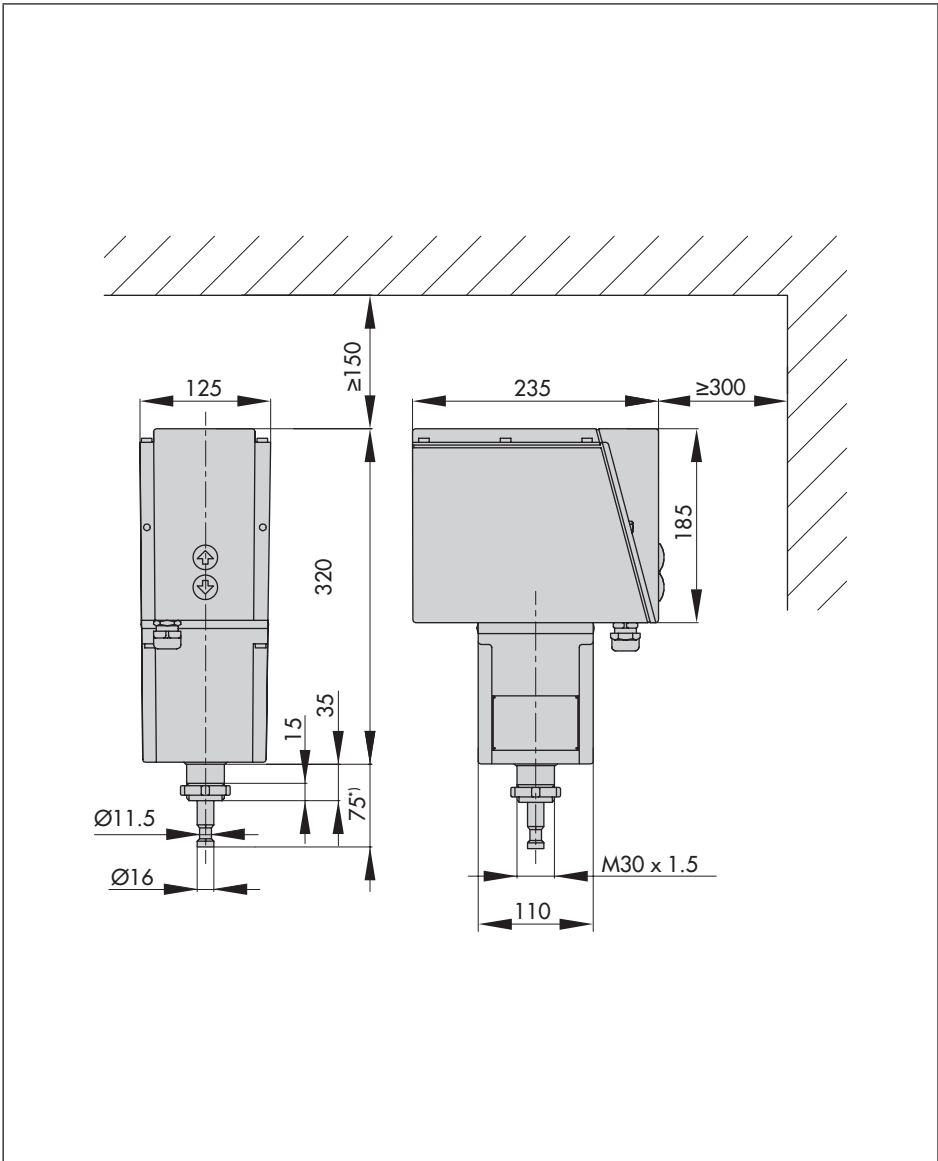


8 Dimensions in mm

8.1 Actuator with mechanical override



8.2 Actuator with electric override





EU Konformitätserklärung / EU Declaration of Conformity

Für das folgende Produkt / For the following product

Elektrohydraulischer Stellantrieb / Electrohydraulic Actuator

Typ / Type 3274

- wird die Konformität mit den nachfolgenden EU-Richtlinien bestätigt / signifies compliance with the following EU Directives:

EMC 2004/108/EC (bis/to 2016-04-19)
EMC 2014/30/EU (ab/from 2016-04-20)

EN 61000-6-2:2005, EN 61000-6-3:2010,
EN 61326-1:2006

LVD 2006/95/EC (bis/to 2016-04-19)
LVD 2014/35/EU (ab/from 2016-04-20)

EN 60730-1:2011, EN 61010-1:2010

Hersteller / Manufacturer:

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Frankfurt, 2016-04-06

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