

MOUNTING AND OPERATING INSTRUCTIONS



EB 8359-1 EN

Translation of original instructions



Type 4765 Pneumatic Positioner

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.

- 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 (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

1	Safety instructions and measures	5
1.1	Notes on possible property damage	7
2	Markings on the device	7
2.1	Article code	7
3	Design and principle of operation	8
3.1	Accessories, mounting parts and conversion kits	10
3.2	Technical data	11
3.3	Dimensions in mm	12
4	Measures for preparation	13
4.1	Unpacking	13
4.2	Transporting	13
4.3	Storage	13
5	Mounting and start-up	14
5.1	Attachment to valve with cast yoke	14
5.2	Attachment to valve with rod-type yoke	14
5.3	Housing cover	14
5.4	Pneumatic connections	16
5.4.1	Pressure gauges	16
5.4.2	Supply pressure	16
6	Operating the positioner	17
6.1	Assignment of the positioner and actuator	17
6.1.1	Determining and changing the operating direction	18
6.2	Starting point and reference variable	20
6.3	Adjustment after mounting the positioner on the valve	20
6.3.1	Setting the air delivery (volume restriction Q) and proportional band Xp	20
6.3.2	Setting for actuator with fail-safe action "stem extends"	22
6.3.3	Setting for actuator version "stem retracts"	22
6.4	Exchanging the range spring	23
7	Upgrading the pneumatic positioner	24
8	Servicing	26
8.1	Preparation for return shipment	26

Contents

9	Decommissioning and removal	27
9.1	Decommissioning.....	27
9.2	Removing the positioner	27
9.3	Disposal.....	27
10	Annex.....	28
10.1	After-sales service.....	28

1 Safety instructions and measures

Intended use

The SAMSON Type 4765 Positioner is mounted on pneumatic control valves and used to assign the valve position to the control signal. The device is designed to operate under exactly defined conditions (e.g. operating pressure, temperature). Therefore, operators must ensure that the positioner is only used in applications where the operating conditions correspond to the technical data. In case operators intend to use the positioner 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.

Reasonably foreseeable misuse

The Type 4765 Positioner 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 maintenance activities not specified by SAMSON

Qualifications of operating personnel

The positioner must be mounted, started up and serviced 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 positioner. 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.

Safety instructions and measures

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 failure of the air supply, the positioner vents the actuator, causing the valve to move to the fail-safe position determined by the actuator.

Warning against residual hazards

The positioner has direct influence on the control valve. To avoid personal injury or property damage, plant operators and operating personnel must prevent hazards that could be caused in the control valve by the process medium, the operating pressure, the signal pressure or by moving parts by taking appropriate precautions. Plant operators and operating personnel must observe all hazard statements, warning and caution notes in these mounting and operating instructions, especially for installation, start-up and service work. If inadmissible motions or forces are produced in the pneumatic actuator as a result of the supply pressure, it must be restricted using a suitable supply pressure reducing station.

Responsibilities of the operator

The operator is responsible for proper operation 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, the operator must ensure that operating personnel or third persons 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 documentation

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

- The mounting and operating instructions of the components on which the positioner is mounted (valve, actuator, valve accessories etc.).

1.1 Notes on possible property damage

! NOTICE

Risk of malfunction due to failure to comply with air quality requirements.

- Only use supply air that is dry and free of oil and dust.
- Read the maintenance instructions for upstream pressure reducing stations.
- Blow through all air pipes and hoses thoroughly before connecting them.

2 Markings on the device

2.1 Article code

Pneumatic positioner	Type 4765-	0	1	x	0	0	x	1	x	0	0	0	0
Spring													
Spring 1, travel = 15 mm				1									
Spring 2, travel = 30 mm, split range 15 mm				2									
Spring 3, travel = 60 mm, split range 30 mm				3									
Pneumatic connections													
ISO 228/1 G ¼							1						
¼-18 NPT							3						
Temperature range													
Standard									0				
Low temperature down to -50 °C									1				

3 Design and principle of operation

The pneumatic positioner is used to assign the valve position (controlled variable) to the input signal (reference variable). The positioners compare the control signal of a control system to the travel of the control valve and issues a signal pressure (output variable) for the pneumatic actuator.

The positioner consists of the lever with shaft and range spring, the measuring diaphragm and the pneumatic control system with nozzle, flapper plate and booster. In addition, a pressure gauge can optionally be attached for the control signal (input) and the signal pressure (output signal).

The positioner operates according to the force-balance principle. In this way, the motion of the actuator stem or the plug stem (controlled variable x) is transmitted to the lever (1) and the range spring (6) over the plate (20). This action twists the range spring and varies its spring force.

The reference variable, i.e. the control signal (p_e) of the upstream controller, produces a force which acts on the surface of the measuring diaphragm (8) and is compared to the force of the range spring (6). At the same time, the motion of the measuring diaphragm is transferred to the flapper plate (10.2) over the feeler pin (9.1) and the nozzle (10.1) releases pressure. The supply air is fed to the booster (12) and flows through the X_p restriction (13) and the nozzle (10.1) and hits the flapper plate (10.2).

Any change in the control signal p_e or the valve position causes the pressure to change upstream or downstream of the booster. The air controlled by the booster (signal pressure p_{st}) flows through the volume restriction (14) to the pneumatic actuator, causing the plug stem to move to a position corresponding to the reference variable.

The adjustable restrictions (13 and 14) are used to optimize the positioner control loop.

The range spring (6), which can be exchanged, is assigned to both the rated valve travel and the span of the reference variable.

Legend for Fig. 1 and Fig. 2

1	Lever for valve travel
1.1	Shaft
2	Pin
2.1	Nut
3	Sleeve
4	Zero point adjustment
5	Fastening screw
6	Range spring
6.1	Bracket
7	Fastening screw
8	Measuring diaphragm
9	Diaphragm lever
9.1	Feeler pin
10	Nozzle block
10.1	Nozzle
10.2	Flapper plate
11	Cover plate
12	Booster
13	X_p restriction
14	Volume restriction Q
15	Hole for fastening screw
20	Plate

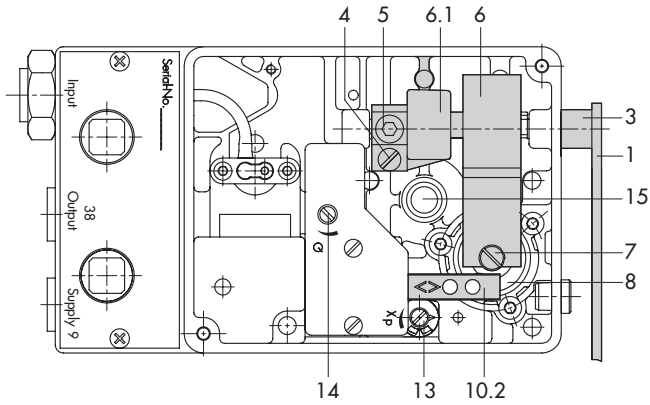


Fig. 1: Positioner (opened)

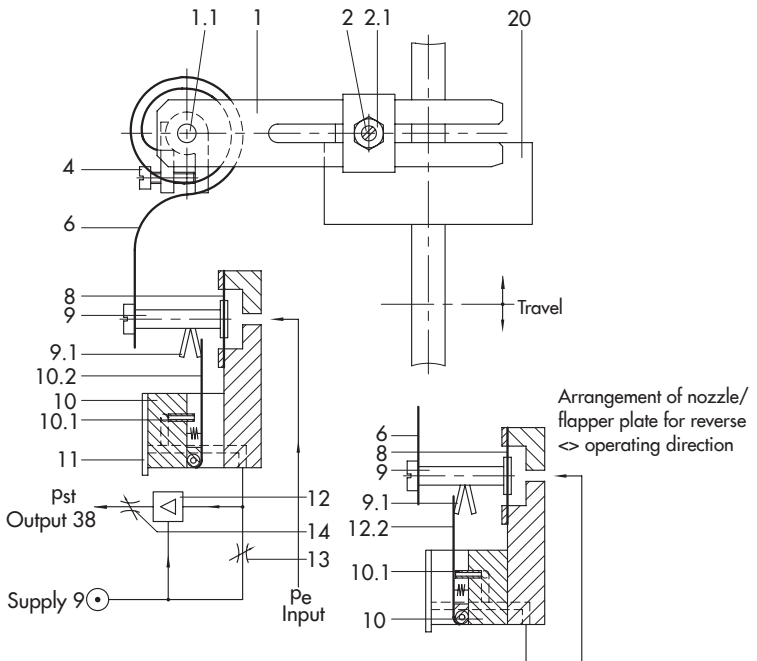


Fig. 2: Functional diagram

3.1 Accessories, mounting parts and conversion kits

Accessories – Mounting parts	Ordering number
Range spring 1	1190-0736
Range spring 2	1190-0737
Range spring 3	1190-0738
Lever I	1690-6469
Lever extension	1400-6716
Pressure gauge attachment, up to device index .02	1400-6718
Pressure gauge attachment, device index .03 and higher	1402-0938
Pressure gauge attachment (copper-free), up to device index .02	1400-6719
Pressure gauge attachment (copper-free), device index .03 and higher	1402-0939
Mounting kit for valves with cast yoke according to NAMUR	1400-5745
Valves with rod-type yoke according to NAMUR for 18 to 35 mm rod diameter	1400-5745 and 1400-5342
Assortment of spare parts including gaskets and diaphragms	1400-6792
Assortment of spare parts including gaskets, diaphragms and pneumatic parts (for devices with device index .02 and higher)	1402-0040
Upgrade to degree of protection IP 65: Venting over check valve	1790-7408

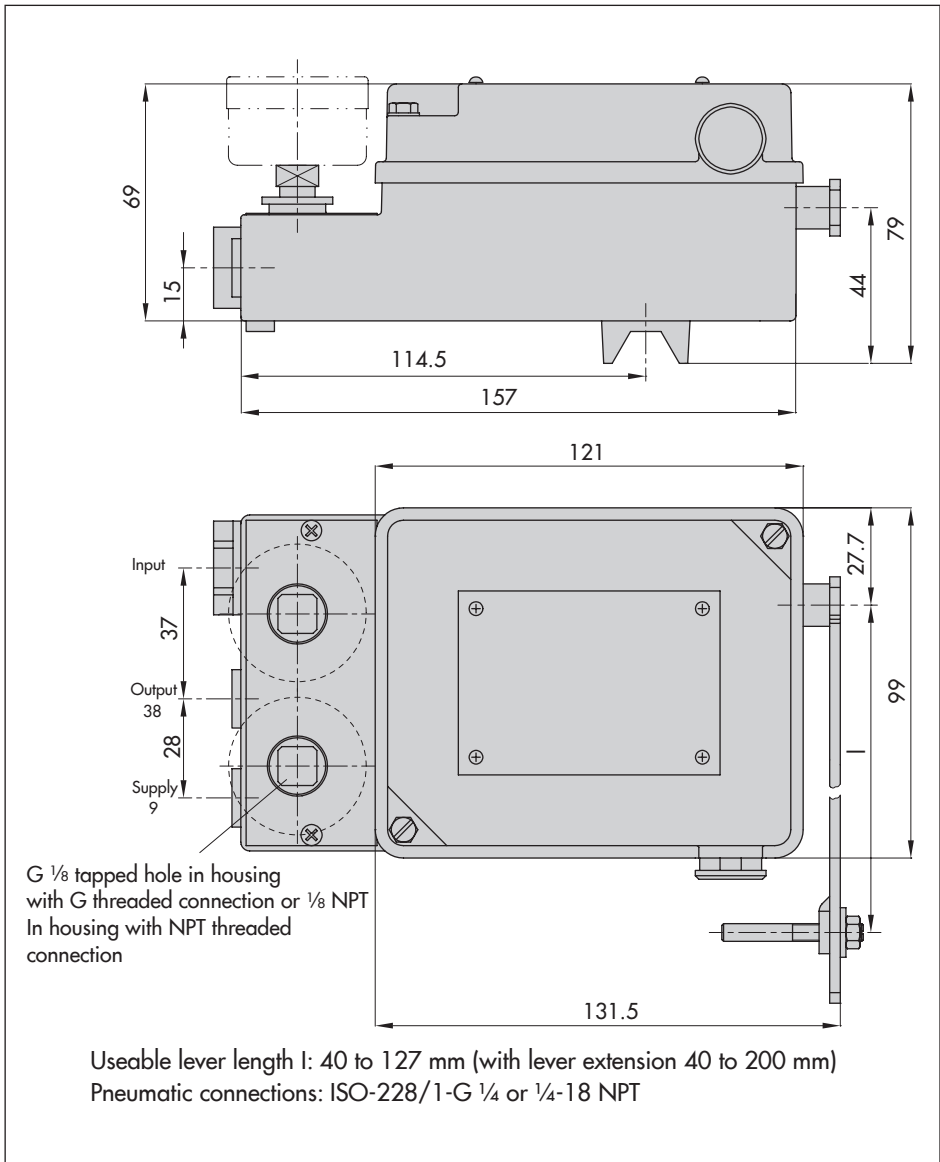
Required input signal (reference variable)	Required i/p module Type (order no.)	Additional conversion kit (device index .03 and higher) Order no.
4 to 20 mA	6109-0010	1400-6797
0 to 20 mA	6112-002110	1400-6798
1 to 5 mA	6112-003110	1400-6798

3.2 Technical data

Controlled variable (travel range)	7.5 to 60 mm, with lever extension: 7.5 to 90 mm
Reference variable	0.2 to 1 bar (3 to 15 psi)
Split-range 0 to 50 % or 50 to 100 % reference variable span (up to 50 mm travel)	0.2 to 0.6 bar (3 to 9 psi) and 0.6 to 1 bar (9 to 15 psi)
Range spring	See Table 1 on page 21 for selection
Supply	Supply air: 1.4 to 6 bar (20 to 90 psi) Air quality acc. to ISO 8573-1: max. particle size and density: Class 4 · Oil content: Class 3 · Pressure dew point: Class 3
Signal pressure p_{st} (output)	Max. 0 to 6.0 bar (0 to 90 psi)
Characteristic	Linear characteristic Deviation from terminal-based conformity $\leq 1.5\%$
Hysteresis	$< 0.5\%$
Sensitivity	$< 0.1\%$
Direction of action	Reversible
Proportional band X_p (at 1.4 bar supply air)	1 to 3.0 % with spring 1 1 to 2.0 % with spring 2 1 to 1.5 % with spring 3
Air consumption in steady state, $X_p = 1\%$	With 1.4 bar supply air: $0.13 \text{ m}_n^3/\text{h}$ With 6 bar supply air: $0.33 \text{ m}_n^3/\text{h}$
Air output	At $\Delta p = 1.4 \text{ bar}$: $3.0 \text{ m}_n^3/\text{h}$ · At $\Delta p = 6 \text{ bar}$: $8.5 \text{ m}_n^3/\text{h}$
Transit time with Type 3271 Actuator, "stem extends"	$240 \text{ cm}^2 \leq 1.8 \text{ s} \cdot 350 \text{ cm}^2 \leq 2.5 \text{ s} \cdot 700 \text{ cm}^2 \leq 10 \text{ s}$
Perm. ambient temperature ¹⁾	$-20 \text{ to } +80 \text{ }^\circ\text{C}$
Influences	Temperature: $< 0.02\%/1 \text{ K}$ Supply: $< 0.20\%/0.1 \text{ bar}$ Variable position when turned by 180° : $< 3.50\%$
Degree of protection	IP 54 · Venting over check valve (1790-7408): IP 65
Compliance	FAI
Weight	Approx. 1.1 kg
Materials	Housing: Die-cast aluminum, chromated and plastic coated External parts: Stainless steel

¹⁾ Extended temperature range on request

3.3 Dimensions in mm



4 Measures for preparation

After receiving the shipment, proceed as follows:

1. Check the scope of delivery. Compare the shipment received with the delivery note.
2. Check the shipment for transportation damage. Report any transportation damage.

4.1 Unpacking

! NOTICE

Risk of positioner damage due to foreign particles entering it.

Do not remove the packaging and protective film/protective caps until immediately before mounting and start-up.

1. Remove the packaging from the positioner.
2. Dispose of the packaging in accordance with the valid regulations.

4.2 Transporting

- Protect the positioner against external influences (e.g. impact).
- Protect the positioner against moisture and dirt.
- Observe transport temperature depending on the permissible ambient temperature (see technical data in section 3.2).

4.3 Storage

! NOTICE

Risk of positioner damage due to improper storage.

- *Observe the storage instructions.*
- *Avoid long storage times.*
- *Contact SAMSON in case of different storage conditions or long storage periods.*

Storage instructions

- Protect the positioner against external influences (e.g. impact, shocks, vibration).
- Do not damage the corrosion protection (coating).
- Protect the positioner against moisture and dirt. In damp spaces, prevent condensation. If necessary, use a drying agent or heating.
- Observe storage temperature depending on the permissible ambient temperature (see technical data in section 3.2).
- Store the positioner with the cover closed.
- Seal the pneumatic connections.

5 Mounting and start-up

To attach the positioner to valves with cast yokes), mounting parts (order no. 1400-5745) are used. For valves with rod-type yokes (pillars), the mounting kit (order no. 1400-5745) and additionally the mounting kit (order no. 1400-5342) are necessary (see page 10).

Since the positioner can be attached on either side of the valve, the physical location (left or right attachment) should be determined before actual attachment.

→ See Fig. 5 to Fig. 8 on page 17.

5.1 Attachment to valve with cast yoke

1. Fasten the plate (20) to the stem connector (22) of the valve using the screws (21).
2. Unscrew the positioner cover and secure the positioner to the valve yoke using the fastening screw (15). Make sure that the pin (2) is inserted through the wire strap and, as a result, clamped against the plate (20).

5.2 Attachment to valve with rod-type yoke

1. Fasten the plate (20), off-centered, to the travel indicator (24) of the plug stem (23) using the screws (21).
2. Place both the support (28) and the clamping plate (26) on the rod (27) and lightly fasten. Move the support until both the center of the plate (20) and the support (28) are aligned when the valve is at half of the valve travel.
3. Fasten tight the support and the clamping plate.
4. Mount the positioner to the support using the fastening screw (15). Make sure that the pin (2) is inserted through the wire strap and, as a result, clamped against the plate (20).

5.3 Housing cover

After attaching the positioner, make sure that the vent plug of the housing cover faces downward when the valve is installed.

Legend for Fig. 3 and Fig. 4

1	Lever
2	Pin
2.1	Nut
15	Fastening screw
20	Plate
21	Screw
22	Stem connector
23	Plug stem
24	Travel indicator
26	Clamping plate
27	Rod (pillar)
28	Support

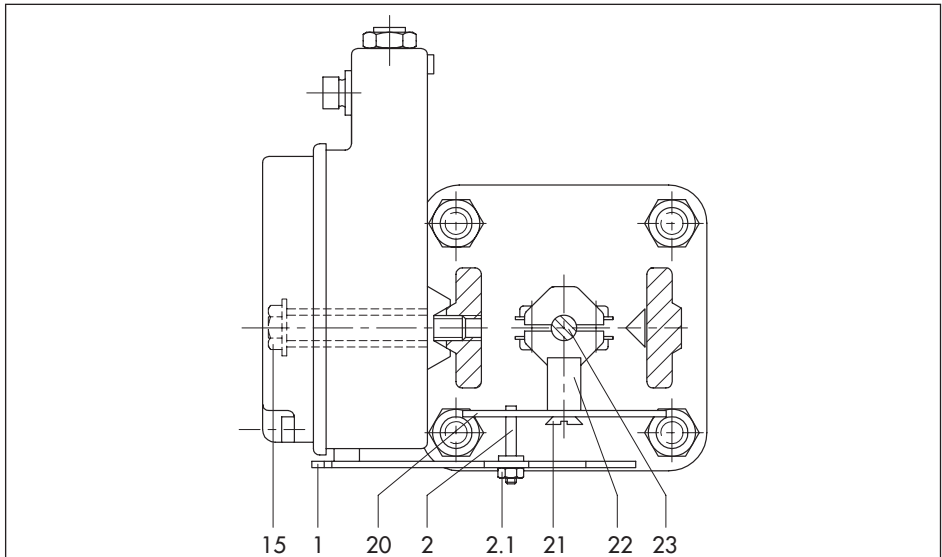


Fig. 3: Attachment to valves with cast yokes (NAMUR rib)

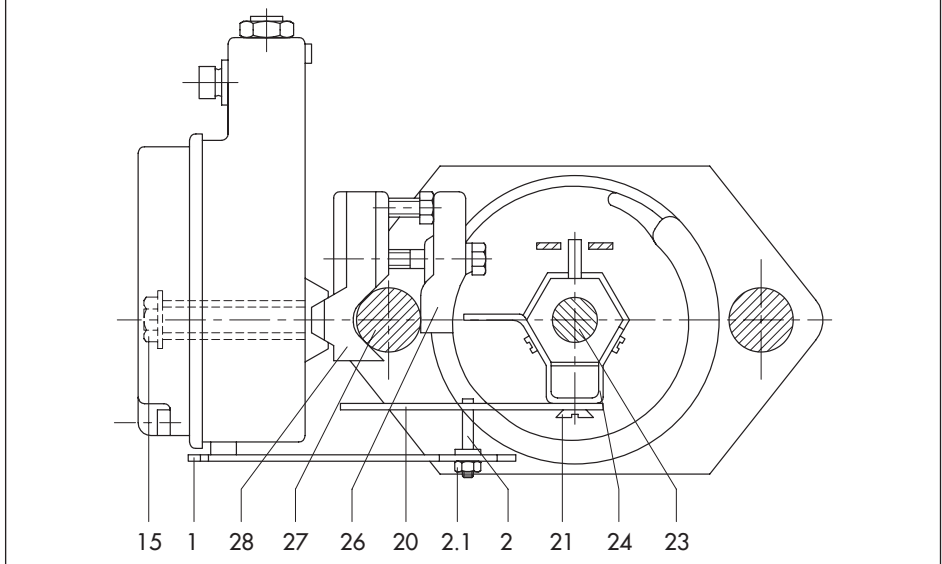


Fig. 4: Attachment to valves with rod-type yokes

5.4 Pneumatic connections

The pneumatic connections are optionally designed as a bore with NPT or ISO 288/1-G thread.

Customary fittings for metal or copper tubing or plastic hoses can be used.

NOTICE

Risk of malfunction due to failure to comply with air quality requirements.

- Only use supply air that is dry and free of oil and dust.
- Read the maintenance instructions for upstream pressure reducing stations.
- Blow through all air pipes and hoses thoroughly before connecting them.

5.4.1 Pressure gauges

To monitor the positioner, we recommend installing pressure gauges for the supply air and signal pressure. The required parts are listed on page 10.

5.4.2 Supply pressure

The required supply air pressure depends on the bench range and the actuator's direction of action (fail-safe action).

The bench range is written on the nameplate either as the bench range or signal pressure range. The operating direction is marked **FA** or **FE** or by a symbol.

Actuator stem extends (FA)

Fail-close

(for globe and angle valves)

Required supply pressure =
Upper bench range value + 0.2 bar,
minimum 1.4 bar

Actuator stem retracts (FE)

Fail-open

(for globe and angle valves)

For tight-closing valves, the maximum signal pressure $p_{st,max}$ is roughly estimated as follows:

$$p_{st,max} = F + \frac{d^2 \cdot \pi \cdot \Delta p}{4 \cdot A} \text{ [bar]}$$

d = Seat diameter [cm]

Δp = Differential pressure across the valve [bar]

A = Actuator area [cm²]

F = Upper bench range value of actuator [bar]

If there are no specifications, calculate as follows:

Required supply pressure =
Upper bench range value + 1 bar

The positioner output pressure is routed to the top or bottom diaphragm case of the actuator as shown in Fig. 5 to Fig. 8.

6 Operating the positioner

6.1 Assignment of the positioner and actuator

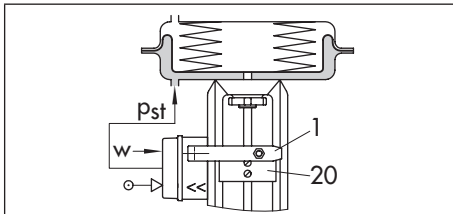
Arrangement of the actuator, the mounting position of the positioner, the reference variable and the operating direction:

→ See Fig. 5 to Fig. 8

When any subsequent changes are made, e.g. reversing the operating direction of the positioner control loop or changing the actu-

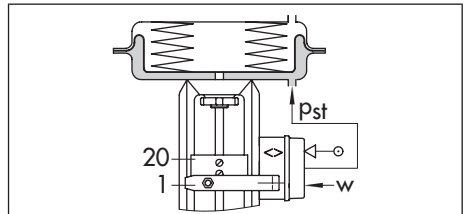
ator fail-safe action from "actuator stem extends" to "actuator stem retracts" or vice versa, the positioner's mounting position must be changed accordingly.

Actuator stem extends (FA)



Lever (1) located at top of plate (20)

Fig. 5: Operating direction << Left attachment



Lever (1) located at bottom of plate (20)

Fig. 6: Operating direction >> Right attachment

Actuator stem retracts (FE)

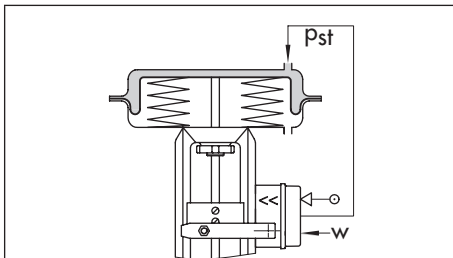


Fig. 7: Operating direction << Right attachment

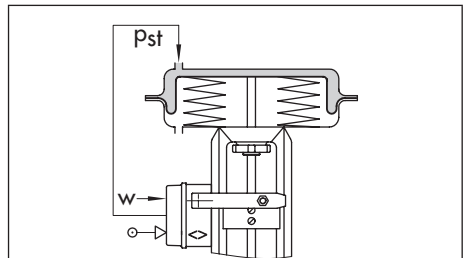


Fig. 8: Operating direction >> Left attachment

6.1.1 Determining and changing the operating direction

For an increasing input signal (reference variable), the signal pressure p_{st} can either be increasing (direct action <<) or decreasing (reverse action <>).

Similarly, as the reference variable decreases, the signal pressure can either decrease (direct action <<) or increase (reverse action <>).

On the flapper plate, the operating direction is indicated by symbols (direct <<, reverse <>). Depending on the position of the flapper plate, the adjusted operating direction and the associated symbol is visible.

If the required operating direction does not correspond to the visible symbol or if the operating direction is to be changed, proceed as follows:

1. Unscrew both screws on the cover plate and lift off the nozzle block along with the cover plate.
2. Reinstall the nozzle block turned by 180° together with the cover plate and refasten.

Make sure that the nozzle block and flapper plate are correctly located above or below the feeler pin as shown in Fig. 10.

If the operating direction is to be changed after the initially determined arrangement of positioner and actuator, note that the positioner must be mounted in a different location and the nozzle block must be turned.

Make sure the location of the lever (1) and the plate (20), "lever located at top of plate" or "lever located at bottom of plate" is correct (Fig. 5 to Fig. 8).

Operating direction increasing/increasing (direct <<) Operating direction increasing/decreasing (reverse <>)
 feeler pin on top of flapper plate
 flapper plate on top of feeler pin

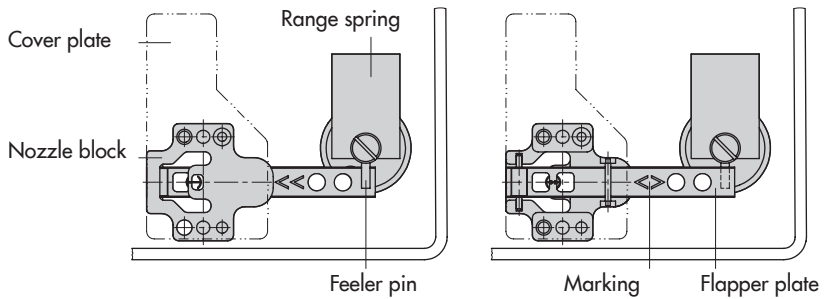


Fig. 10: Position of nozzle block, cover plate removed

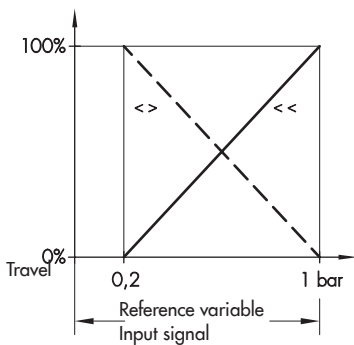


Fig. 11: Normal operation

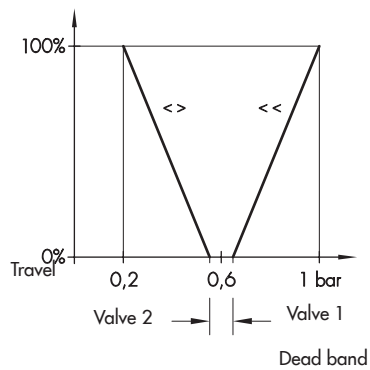


Fig. 12: Split-range operation, two valves operating in opposing directions

6.2 Starting point and reference variable

The attached lever and the installed range spring of the positioner are assigned to the values of rated valve travel and the reference variable (input signal) as in Table 1.

In normal operation, the reference variable span is $100\% = 0.8$ bar. A smaller span of, for example $50\% = 0.4$ bar is only required for split-range operation (Fig. 12).

The span can be changed by exchanging the range spring (section 6.4).

On making adjustments to the positioner, the travel must be adapted to the reference variable and vice versa.

With a reference variable, for example 0.2 to 1 bar, the valve must move through its entire travel range from 0 to 100 %.

The starting point then is 0.2 bar and the upper range value 1 bar.

In split-range operation, the controller output signal is used to control two control valves, dividing it such that the valves move through their entire travel range at half the input signal range each (e.g. first valve set to 0.2 to 0.6 bar, second valve set to 0.6 to 1 bar). To avoid overlapping, allow for a dead band of 0.05 bar as shown in Fig. 12.

The starting point (zero) is adjusted at the screw (4); the reference variable span, i.e. the upper range value, is adjusted at the pin (2).

6.3 Adjustment after mounting the positioner on the valve

Connect the control signal input to a compressed air source of max. 1.5 bar using a remote adjuster and a pressure gauge. Connect the supply air to the supply input (supply 9).

6.3.1 Setting the air delivery (volume restriction Q) and proportional band Xp

1. Close the volume restriction (14) as far as the required positioning speed permits. Check the positioning speed by pushing the range spring (6) as far it will go.
2. Adjust the reference variable at the input to approx. 50 % of its range. Then, turn the zero adjustment screw (4) until the valve is at approximately 50 % valve travel.

On setting the Xp restriction, observe the relationship with the supply pressure as indicated in Fig. 9. The preset value of Xp should be approximately 3 %.

3. Check the plug stem's tendency to oscillate by pressing the range spring (6) briefly as far as it will go. The Xp value is to be adjusted to be as small as possible, without considerable overshooting occurring.

Additional points that apply concerning adjustment:

- Always adjust the Xp restriction before setting the starting point.

- ➔ In case of a zero shift (e.g. due to a subsequent change in the restriction setting or supply pressure), check the zero setting and readjust it.
- ➔ The adjustment range of the Xp restriction is restricted by the pointer and stop to one turn (Fig. 9). Do not remove the pointer.

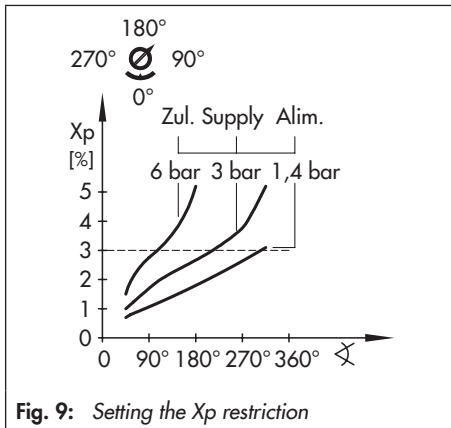


Fig. 9: Setting the Xp restriction

If the pointer has been removed by mistake, a basic calibration can be performed as follows:

1. Close the restriction until slight resistance can be felt.
2. From this position, open the restriction one ¼ turn.
3. Push on the plastic ring with pointer pointing to the 0° position.
4. Set the restriction in the range between 90° and 180°.
5. Set Xp as described in section 6.3.1.

Table 1: Range springs

Rated travel [mm]	Min./max. travel [mm]	Reference variable (input signal)	Range spring
Standard travels for SAMSON valves with lever I (40 to 127 mm in length)			
15	7.5 to 15	100 % 50 %	1 2
30	14 to 32	100 % 50 %	2 3
60	30 to 70	100 %	3
Further travel ranges with lever I and lever extension (40 to 200 mm in length)			
20	7.5 to 26	100 % 50 %	1 2
40	14 to 50	100 % 50 %	2 3
> 60	30 to 90	100 %	3

6.3.2 Setting for actuator with fail-safe action "stem extends"

To ensure that the total closing force of the actuator acts on the valve, proceed as follows:

- ➔ With direct operating direction <<: adjust starting point to 0.23 bar (slightly raised).
- ➔ With reverse operating direction <>: adjust starting point to 0.97 bar (slightly lowered).

Starting point (zero) e.g. 0.23 bar

1. Turn the zero adjustment screw (4) until the plug stem just starts to move out of its resting position (observe travel indicator).
2. Reduce the input signal to 0 bar and slowly increase it again. Check whether the plug stem starts to move at exactly 0.23 bar and correct, if necessary.

Upper range value (span) e.g. 1 bar

3. Once the starting point has been set, increase the input signal. At exactly 1 bar, the plug stem must stand still, having moved through 100 % travel (watch the travel indicator at the valve).

If the upper range value is incorrect, move the pin (2) as follows to correct it:

4. Move towards
 - Lever end → To increase the travel
 - Fulcrum → To reduce the travel

After correcting the input signal, re-adjust zero. Then check the upper range value again.

Repeat the correction procedure until both values are correct.

If a pressure gauge is available, check whether the actuator is completely vented at an input signal of exactly 0.2 bar (operating direction <<) or exactly 1.0 bar (operating direction <>).

6.3.3 Setting for actuator version "stem retracts"

When using an actuator with fail-safe action "actuator stem retracts", the diaphragm chamber must be pressurized with a signal pressure that is high enough to tightly close the valve against the upstream pressure in the plant.

- ➔ Operating direction <<: Upper range value of reference variable 1 bar
- ➔ Operating direction <>: Lower range value of reference variable 0.2 bar

The required signal pressure is either indicated on the positioner label or it can be roughly calculated as described in section 5.4.2.

Starting point (zero) e.g. 1 bar

1. Adjust the input signal to 1 bar at the pressure adjuster.
Turn the zero adjustment screw (4) until the valve just starts to move from its initial position.
2. Increase the input signal and slowly reduce it again to 1 bar. Check whether

the valve starts to move at exactly 1.0 bar.

Correct any deviation at the zero adjustment screw (4).

- Turn it counterclockwise to make the valve move earlier from its final position
- Turn it clockwise to make the valve move later from its final position

Upper range value (span) e.g. 0.2 bar

3. Once the starting point has been set, increase the input signal to 0.2 bar at the pressure adjuster.

At exactly 0.2 bar, the plug stem must stand still, having moved through 100 % travel (watch the travel indicator at the valve).

4. If the upper range value is incorrect, move the pin (2) to correct it. Readjust 1 bar and turn the zero adjustment screw (4) until the pressure gauge indicates the required signal pressure (see also section 5.4.2).
If no pressure gauge has been installed, set the starting point to 0.97 bar instead.

2. Exchange range spring. Slide lever with shaft through sleeve (3), positioner housing and bracket (6.1).
3. Secure range spring with the screw (7).
4. Move bracket and shaft until the screw (5) sits on the flattened part of the shaft. Tighten screw (5). Allow for a play of 0.05 to 0.15 mm between the lever (1) and the sleeve (3) as well as between the range spring (6) and the positioner housing.

6.4 Exchanging the range spring

If the range is to be altered or changed to split-range operation, replace the range spring (Fig. 1) as follows:

1. Unscrew screw (7) on the range spring. Undo hex socket screw (5) and pull out the lever together with shaft.

7 Upgrading the pneumatic positioner

The pneumatic positioner can be converted into a Type 4763 Electropneumatic Positioner with a conversion kit.

Besides the required Type 6109 or Type 6112 i/p module (see Fig. 13), the associated conversion kit (including printed circuit boards, cable gland and mounting screws) must be ordered.

i Note

For details on the converted Type 4763 Positioner refer to *Mounting and Operating Instructions* ► EB 8359-2.

With Type 6109:

1. Undo the connecting plate (6) and remove along with sealing element (7). Pull off the hose (5).
2. Unscrew the connecting nipple (4) from the housing.
3. Push the i/p module over the plug connection onto the printed circuit board.
4. Insert the sealing element (7), on the bottom, into the opening of the printed circuit board so that the restriction with filter (8) are situated on the right side above the innermost of the two housing holes (supply air) when the module (dashed line in Fig. 13) is installed.
5. Secure the module and the printed circuit board in the housing (two screws for the module, one screw for the printed circuit

board). Mount the cable gland (1) together with the seal.

With Type 6112:

1. Proceed as described for steps 1 and 2 of Type 6109
2. Place the i/p module on the plug of the printed circuit board and tighten the side terminal screws.
3. Check whether the seals (10, 11) are properly inserted on the bottom. When the module (dashed line in Fig. 13) is installed, the seal with restriction and filter must be situated on the right side above the innermost of the two housing holes (supply).
4. Secure the module and the printed circuit board in the housing (two screws for the module, one screw for the printed circuit board). Mount the cable gland (1) together with the seal.

Legend for Fig.

- | | |
|----|-----------------------|
| 1 | Cable gland |
| 2 | Printed circuit board |
| 3 | i/p converter module |
| 4 | Connecting nipple |
| 5 | Hose |
| 6 | Connecting plate |
| 7 | Sealing element |
| 8 | Restriction |
| 10 | Seal |
| 11 | Seal with restriction |

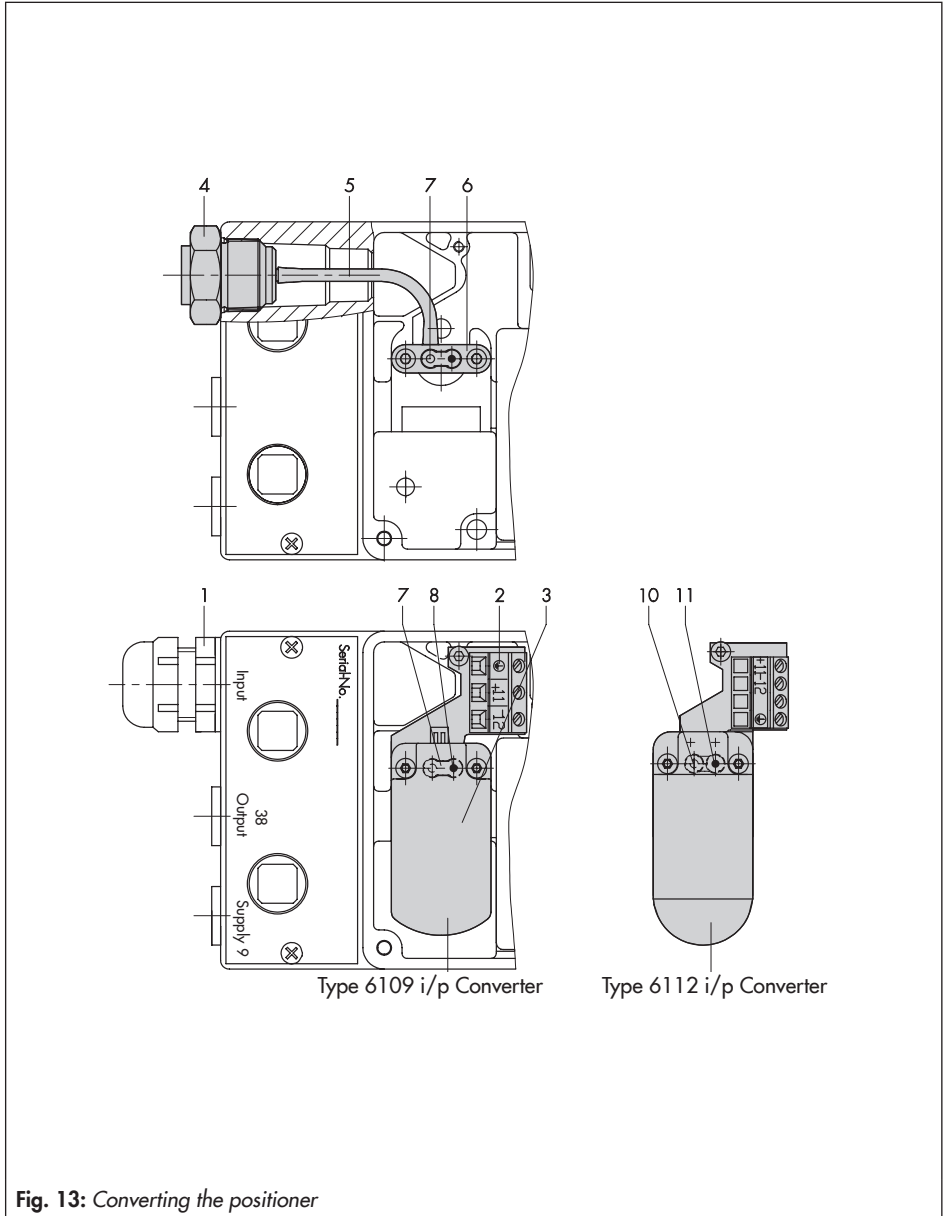


Fig. 13: Converting the positioner

8 Servicing

i Note

The positioner 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 Type 4765 Positioner requires no maintenance.

- Observe the maintenance instructions of any upstream supply air pressure reducing stations.

8.1 Preparation for return shipment

Proceed as follows to return devices to SAMSON:

1. Put the control valve out of operation.
See associated valve documentation.
2. Remove the positioner (see section 9.2)
3. Continue as described on our website at
▶ www.samsongroup.com > Service & Support > After-sales Service > Returning goods.

9 Decommissioning and removal

! NOTICE

The process is disturbed by interrupting closed-loop control.

Do not mount the positioner while the process is running and only after isolating the plant by closing the shut-off valves.

9.1 Decommissioning

To decommission the positioner before removing it, disconnect and lock the air supply and signal pressure.

9.2 Removing the positioner

1. Disconnect the lines for air supply and signal pressure.
2. To remove the positioner, loosen the fastening screw on the positioner.

9.3 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.

💡 Tip

On request, we can appoint a service provider to dismantle and recycle the product.

10 Annex

10.1 After-sales service

Contact SAMSON's After-sales Service for support concerning service or repair work or when malfunctions or defects arise.

E-mail address

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

aftersalesservice@samsongroup.com

Addresses of SAMSON AG and its subsidiaries

The addresses of SAMSON AG, 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:

- Order number and position number in the order
- Type, serial number, device version

EB 8359-1 EN



SAMSON AKTIENGESELLSCHAFT
Weismüllerstraße 3 · 60314 Frankfurt am Main, Germany
Phone: +49 69 4009-0 · Fax: +49 69 4009-1507
samson@samson.de · www.samson.de