

Electropneumatic Positioner Type 4763

Pneumatic Positioner Type 4765



Application

Single-acting positioner for attachment to pneumatic control valves. Supplied with either an electric input signal from 4(0) to 20 mA or 1 to 5 mA (Type 4763) or a pneumatic input signal from 0.2 to 1 bar (3 to 15 psi) (Type 4765).

Rated travels from 7.5 to 90 mm



The positioners ensure a predetermined assignment of the valve stem position (controlled variable x) to the electric or pneumatic input signals (reference variable w). They compare the input signal issued by the controller with the travel of the control valve and issue the corresponding output signal pressure p_{st} (output variable y).

Special features

- Compact, low-maintenance design
- Any mounting position possible
- Insusceptible to mechanical vibrations
- Reversible operating direction
- Excellent dynamic behavior
- Suitable for normal or split-range operation
- Adjustable proportional band (P-band)
- Adjustable air output capacity
- Low air consumption
- Special versions for oxygen service

Attachment to valves with cast yokes or rod-type yokes according to IEC 60534-6.

Optionally available with two pressure gauges to monitor supply air and signal pressure. Stainless steel pressure gauge housing with connections either nickel-plated or made of stainless steel.

An existing Type 4765 Pneumatic Positioner can be upgraded into an electropneumatic positioner.

Versions

Type 4763-0 (Fig. 1) · Electropneumatic positioner, without explosion protection

Type 4763-1 · Electropneumatic positioner for hazardous areas, input circuit $\text{Ex II 2 G EEx ia IIC T6}$ according to ATEX

Type 4763-8 · Electropneumatic positioner in EEx nA "non-sparking"

Type 4765/6116 (Fig. 3) · Electropneumatic positioner with type of protection "Flameproof enclosure" EEx d with Type 6116 i/p Converter (Fig. 2; refer to T 6116 EN for approvals)

Type 4765 (Fig. 1) · Pneumatic positioner reference variable 0.2 to 1 bar (3 to 15 psi)



Fig. 1 · Type 4763/Type 4765 Positioner



Fig. 2 · Type 6116 i/p Converter, opened housing



Fig. 3 · Type 4765/6116 Ex d Positioner attachment to NAMUR rib

Principle of operation

The only difference between the Type 4765 Pneumatic Positioner and the Type 4763 Electropneumatic Positioner is the electropneumatic (i/p) converter unit in the electropneumatic positioner to convert the electric signal from the controller into a proportional pneumatic signal.

These positioners use a flapper-nozzle system which operates according to the force-balance principle. They can be applied for both normal and split-range operation.

Operating direction

When the reference variable (p_a) increases, the output signal pressure p_{st} can be selected to be increasing-increasing (direct action \gg) or increasing-decreasing (reverse action \ll). The operating direction depends on the position of the nozzle assembly that can be turned by 180°. The visible marking (\gg or \ll) indicates which operating direction is effective. On changing the operating direction or the fail-safe position, note that the positioner must also be mounted in a different position (Figs. 5 to 8).

Attachment according to IEC 60534-6 and NAMUR

The various ways in which the positioner can be attached to the actuator meet the requirements of IEC 60534-6 and NAMUR recommendation. Positioners may be attached to valves with either cast yokes (e.g. SAMSON Series 240) or rod-type yokes. Each type of attachment requires special mounting parts.

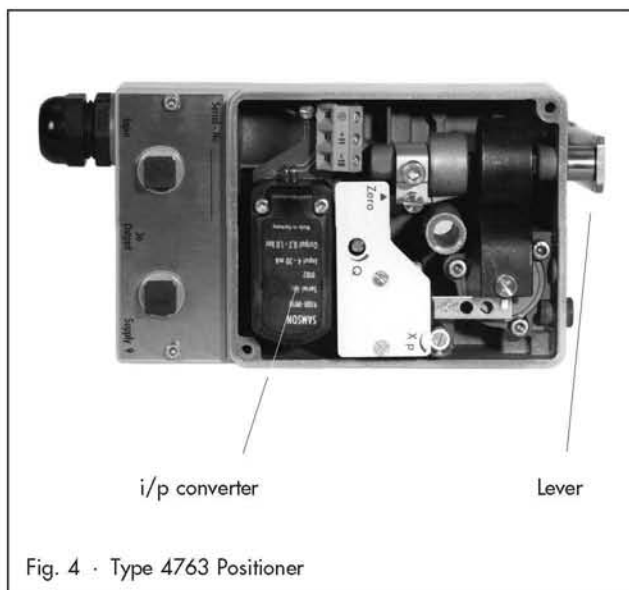


Fig. 4 · Type 4763 Positioner

Assignment of the positioner and the actuator

Figs. 5 to 8 schematically illustrate the arrangement of the actuator, the mounting position of the positioner, the reference variable and the operating direction.

Fail-safe action

The Type 3271 and Type 3277 Pneumatic Actuators are available with the following fail-safe actions:

Actuator stem extends (Figs. 5 and 6)

Whenever the pressure acting on the diaphragm decreases or upon air supply failure, the compression springs in the actuator force the actuator stem to extend.

Actuator stem retracts (Figs. 7 and 8)

Whenever the pressure acting on the diaphragm decreases or upon air supply failure, the compression springs in the actuator force the actuator stem to retract.

Refer to Data Sheets T 8310-1 EN and T 8310-2 EN for details.

Figs. 5 to 8 illustrate the different operating directions and the mounting positions of the positioner. Right and left attachment apply when looking onto the lever (1) and plate (2).

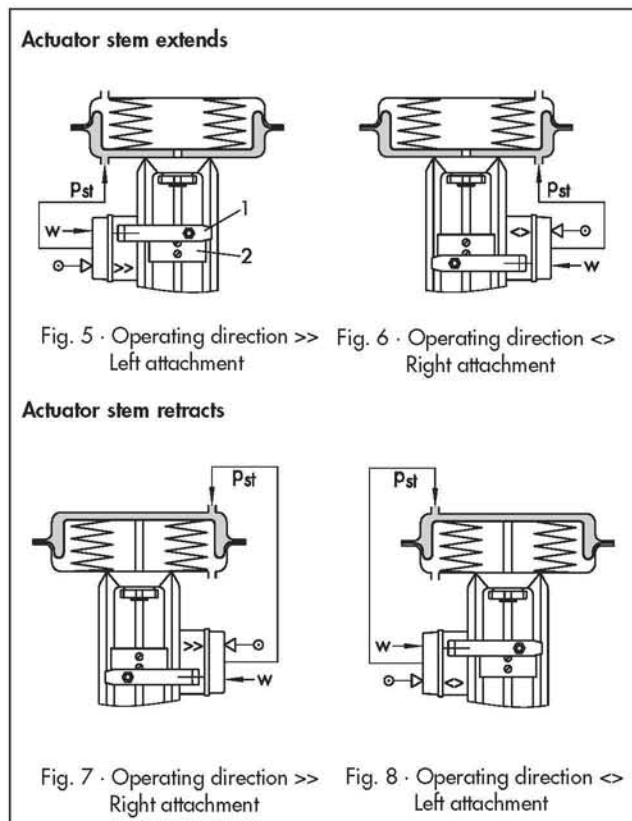


Table 1 · Technical data

Positioner	Type 4763	Type 4765
Travel range with lever extension	7.5 ... 60 mm 7.5 ... 90 mm	
Reference variable	4 ... 20 mA (only Ex) · $R_i \cong 250 \Omega \pm 7\%$	0.2 ... 1 bar (3 ... 15 psi)
Span for split-range operation 0 to 50 % and 50 to 100 %	4 ... 20 mA (not Ex) · $R_i \cong 200 \Omega \pm 7\%$	
(R_i = Internal resistance at 20 °C)	0 ... 20 mA · $R_i \cong 200 \Omega \pm 7\%$	
Supply air	Supply air	1.4 ... 6 bar (20 ... 90 psi)
	Air quality acc. to ISO 8573-1(2001)	Maximum particle size and density: Class 4 · Oil contents: Class 3 Pressure dew point: Class 3 or at least 10 K below the ambient temperature to be expected
Output signal pressure p_{st}		Max. 0 ... 6 bar