Pneumatic Positioner Type 3766

Electropneumatic Positioner Type 3767

Application

Single-acting or double-acting positioners for attachment to pneumatic control valves. Supplied with standardized pneumatic signal 0.2 to 1 bar or 3 to 15 psi (Type 3766) or a standardized electric signal from 4 (0) to 20 mA or 1 to 5 mA (Type 3767).

Rated travels from 7.5 to 120 mm or opening angle up to 90°

Conversion of valve sizing coefficients:

C_v (in U.S. gallons/min) = 1.17 · K_{vs} (in m^3/h)

K_{vs} (in m^3/h) = 0.86 · C_v (in U.S. gallons/min)

The positioners ensure a preselected correspondence between the valve stem position (controlled variable x) and the pneumatic or electric input signal supplied by the controller (reference variable w). They compare the reference input signal received from the control device to the travel of the control valve and, depending on the comparison, produce the corresponding pneumatic output signal pressure p_{st} (output variable y). The output from the positioner is the input signal to the actuator. A reversing amplifier (booster) in the double-acting actuators produces two opposed signal pressures.

Special features include:

- Compact design requiring very little maintenance; arbitrary mounting position; very insensitive to mechanical vibrations; excellent dynamic response; suitable for normal or split-range operation; adjustable proportional band (P-band); adjustable air output capacity; low supply consumption; negligibly small supply influence.

For the circuits of the solenoid valves, position transmitters and limit switches and also the signal circuit of the electropneumatic positioner, versions are available for hazardous areas with Type of Protection "Intrinsic Safety" EEx ia IIC T6 (see "Summary of the explosion protection certifications" on page 8). Type of Protection "Flameproof Enclosure" EEx d with Type 3766 Positioner and Type 6116 i/p Converter (Fig. 2).

Special version with case made of CrNiMo steel available.

Direct attachment to Type 3277 Pneumatic Actuator (Fig. 4).

Attachment to actuators according to DIN IEC 534-6 (Fig. 3).

Attachment of rotary actuators according to VDI/VDE 3845 (Fig. 5); double-acting actuators have a reversing amplifier.

Benefits of direct positioner attachment: (Fig. 4)

- Tight and exact mechanical connection between actuator and positioner. No false adjustment during shipping.
- Concealed linkage protected against touch and external influences; therefore, the requirements of the accident prevention regulations UVV (VBG 5) are met.
- Simple pneumatic connection between actuator and positioner
- Presetting of the unit: "Actuator with attached positioner"

Optional pressure gauge for monitoring the input and output signal pressure (scale 0 to 6 bar and 0 to 90 psi).

Details on the selection and application of positioners, converters, limit switches and solenoid valves, see Information Sheet T 8350 EN.

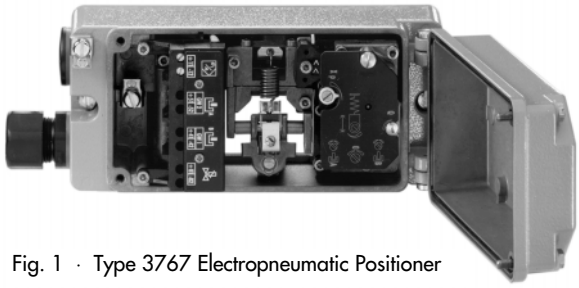


Fig. 1 · Type 3767 Electropneumatic Positioner

Fig. 2 · Type 3766 Ex d Positioner with Type 6116 i/p Converter

Fig. 3 · Attachment according to DIN IEC 534 (NAMUR)

Fig. 4 · Direct attachment to Type 241-7 Control Valve

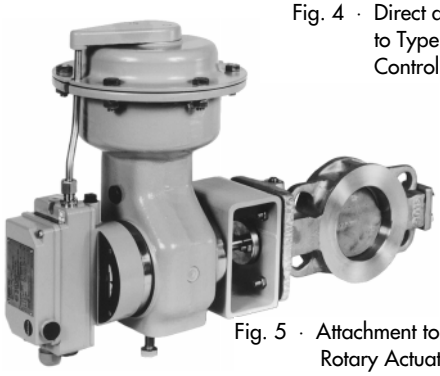


Fig. 5 · Attachment to Type 3278 Rotary Actuator

Principle of operation (Figs. 6 to 8)

The only difference between the Type 3766 Pneumatic Positioner (Fig. 6) and the Type 3767 Electropneumatic Positioner (Fig. 7) is that an electropneumatic (i/p) converter (E) has been added to the latter in order to convert the electric signal received from a controller into a proportional pneumatic signal.

With the Type 3767 Electropneumatic Positioner (Fig. 7), the dc current signal (i), which is received from a control device, flows through the plunger coil (E2) in the field of a permanent magnet (E1). On the balance beam (E3), the force, which is proportional to the dc current i, is balanced against the force of the back-pressure which is generated on the flapper plate (E7) by the jet stream leaving the nozzle (E6). Any changes of the current signal proportionally vary the input pressure p_e supplied to the pneumatic control system.

With linear-motion valves, the travel and therefore the valve stem position is transmitted to the follower lever (1) via the pin (1.1) and determines the force of the measuring spring (4). When the positioner is attached to rotary-motion valves (Fig. 8), a follower roll (20) is attached to the front end of the lever (1). The rotary motion of the actuator shaft (21) is converted into the linear motion necessary for the pneumatic control system. The cam disk (22) and the follower roll (20) are used for this purpose.

The positioners operate according to the force-balance principle. The force of the measuring spring (4) is compared to the control force, which produces the pressure p_e on the measuring diaphragm (5). If the control signal, the pneumatic input pressure (p_e) or the position of the lever (1) changes, the diaphragm lever (3) forming the flapper plate varies the distance to the nozzle (2.1 or 2.2). The operating direction (7) selected by the position of the internal turnboard determines which nozzle is effective.

The supply air is piped to the pneumatic amplifier (10) and the pressure regulator (9). The controlled supply flows against the diaphragm lever (3) via the X_p restriction (8) and the nozzle (2.1 or 2.2). Any changes of the control signal or the position of the lever (1) cause a variation of pressure both upstream and downstream of the amplifier (10). The output signal pressure p_{st} released by the amplifier flows to the pneumatic actuator via the volume restriction (11) and causes the diaphragm or control piston to take a position corresponding to the reference input signal.

If the positioner is to be attached to a double-acting, springless (no spring return) pneumatic rotary actuator, the signal pressure (p_{st}) is to be led to a reversing amplifier, which generates two opposed signal pressures (p_{st1} and p_{st2}). The adjustable restrictions X_p (8) and Q (11) are used to optimize the control loop. – Two adjusting screws (6.1 and 6.2) are used to adjust the position of the control valve to the signal pressure. ZERO and SPAN of the reference input signal can be adjusted for deviating operating modes, such as split-range operation.

Operating direction

When the reference input signal (p_e) increases, the output signal pressure (p_{st}) can be selected to be increasing-increasing (direct action >>) or increasing-decreasing (reverse action <>). The operating direction is determined by how the board (7) is turned, and is shown on the board. Subsequent modification of the operating direction is possible in the field.

Legend to Figs. 6 to 8

1	Lever	**E**	**Electropneum. converter**
1.1	Pin	E1	Permanent magnet
1.2	Rotary shaft	E2	Plunger coil
2.1	Nozzle, direct action (>>)	E3	Balance beam
2.2	Nozzle, reverse action (<>)	E4	Cross spring pivot
3	Diaphragm lever (flapper plate)	E5	Spring
4	Measuring spring	E6	Nozzle
5	Measuring diaphragm	E7	Flapper plate
6.1	SPAN adjustment screw	E8	Restriction
6.2	ZERO adjustment screw	E9	Damping
7	Turnboard for operating direction	E10	Protective diode
8	X_p restriction (gain)		
9	Pressure regulator		
10	Amplifier (booster)	20	Follower roll
11	Volume restriction Q	21	Actuator shaft
12	Solenoid valve (option)	22	Cam disk

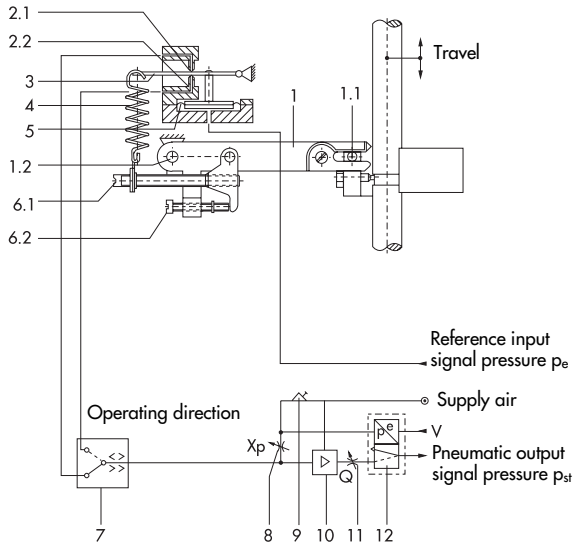


Fig. 6 · Functional diagram of the Type 3766 Pneumatic Positioner (deflection of the pick-off lever when directly attached to the Type 3277 Pneumatic Actuator)

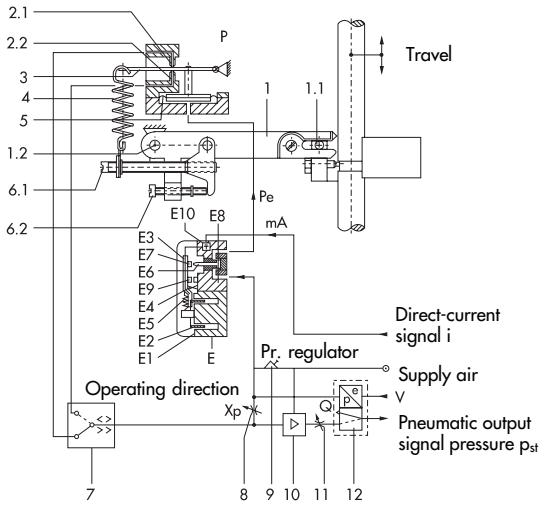


Fig. 7 · Functional diagram of the Type 3767 i/p Positioner

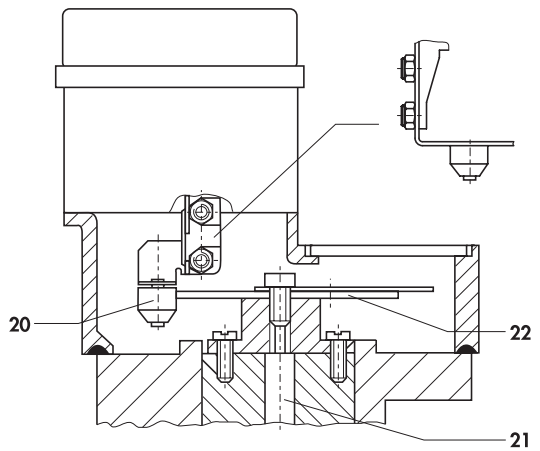


Fig. 8 · How the rotary motion is transmitted to the positioner

Table 1 · **Technical data** · All pressures in bar (gauge)

Type 3766 Pneumatic and Type 3767 Electropneumatic Positioners						
Travel range			When directly attached to Type 3277 Pneumatic Actuator: 7.5 ... 30 mm			
			When attached according to DIN IEC 534 (NAMUR): 7.5 ... 120 mm			
Opening angle			Depending on the cam, 70°, 75° or 90°			
Reference input signal w Type 3766 Positioner	Signal range	bar (psi)	0.2 ... 1 bar (3 ... 15 psi)			
	Span	bar (psi)	0.4 ... 0.8 bar (6 ... 12 psi)			
	Overload limit	to max.	2 bar (29 psi)			
Reference input signal w Type 3767 i/p Positioner	Signal range		4(0) ... 20 mA	or	1 ... 5 mA	
	Span		8 ... 20 mA		2 ... 4 mA	
	Internal resistance at 20 °C		200 Ω		880 Ω	
Supply air			1.4 ... 6 bar (20 ... 90 psi)			
Output signal pressure			Can be limited between 0 ... approx. 2.5 and 0 ... 6 bar (0 ... approx. 35 and 0 ... 90 psi)			
Characteristic			Linear; deviation from terminal-based conformity ≤ 1 %			
Hysteresis			≤ 0.3 %			
Sensitivity			≤ 0.1 %			
Operating direction			Reversible			
Proportional band X_p			0.5 ... 2.5 % (proportional coefficient K_p: > 200 ... 40)			
Air consumption			At supply air 1.4 bar		At supply air 6 bar	
	Type 3766 Positioner		≤ 200 l_n/h		≤ 200 l_n/h[1]	
	Type 3767 i/p Positioner		≤ 280 l_n/h		≤ 280 l_n/h	
Air output capacity	Add air to actuator		3.0 m_n^3/h		8.5 m_n^3/h	
	Vent air from actuator		4.5 m_n^3/h		14.0 m_n^3/h	
Permissible ambient temperature			−20 °C with plastic cable gland; −40 °C with metal cable gland Up to +80 °C (only −20 °C...+70 °C with position transmitter) [2]			
Influence			Temperature: ≤ 0.3 %/10 K · Supply air: ≤ 1 % between 1.4 ... 6 bar			
Electromagnetic compatibility			According to EN 50 081 and EN 50 082			
Effect of vibration			Between 10 and 150 Hz and 4 g, no influence			
Explosion protection [2]			Type of protection EEx ia IIC			
Degree of protection			IP 54 (special version IP 65)			
Weight			Approx. 1 kg			
Accessories						
Limit switches						
Inductive limit switches (proximity switches)			Two Type SJ2-SN			
Control circuit			Values according to the connected transistor relay			
Switching differential at rated travel			≤ 1 %			
Solenoid valve						
Electrical input			Binary dc voltage signal			
Nominal signal			6 V dc	12 V dc	24 V dc	
Signal "0" (off) [3]			≤ 1.2 V	≤ 2.4 V	≤ 4.7 V	
Signal "1" (on) [4]			≤ 5.4 V	≤ 9.6 V	≤ 18.0 V	
Maximum permissible electrical signal			28 V	25 V	32 V	
Internal resistance R_i at 20 °C			2909 Ω	5832 Ω	11714 Ω	
Air consumed in the steady state			Additionally with positioner "off" ≤ 60 l_n/h · "on" ≤ 10 l_n/h [1]			
Closing time for rated travel and signal pressure range (K_{vs} value 0.14)	Type 3277 Pneumatic Actuator		120 cm^2	240 cm^2	350 cm^2	700 cm^2
	0.2 ... 1 bar		≤ 0.5 s	≤ 0.8 s	≤ 1.1 s	≤ 4 s
	0.4 ... 2 bar		≤ 0.5 s	≤ 2 s	≤ 2.5 s	≤ 8 s
	0.6 ... 3 bar		[6]	≤ 1 s	≤ 1.5 s	≤ 5 s
Analog position transmitter	Output current		4 ... 20 mA			
	Permissible load		$R_B = \frac{U_s - 12\ V}{20\ mA}$			
	Power supply (Two-wire system 24 V)		Voltage range 12 ... 45 V		The pos. transmitter may only be connected to a certified intrinsic. safe circuit [5]	

1) For minimum adjusted pressure regulator
2) Special version: Up to −45 °C on request (for Ex-versions, see Table 2)
3) Direct voltage signal at −25 °C
4) Direct voltage signal at +80 °C
5) E.g., via SAMSOMATIC Type 994-0103-CS-412 Loop Isolator or Type 994-0103-CMC-0303-5 Direct-Current Disconnector

Table 2 · Technical data for Type of Protection EEx ia II C

Electropneumatic converter (Type 3767 i/p Positioner only)					
Maximum values for:	Connection to certified intrinsically safe circuits				
U_0	28 V				25 V
I_0	85 mA		100 mA		150 mA
P	–		–		1 W
Internal inductance and capacitance negligibly small					
Inductive limit switches					
Maximum values for:	Connection to certified intrinsically safe circuits				
U_0	16 V				
I_0	52 mA				
P	169 mW				
Internal inductance	L_i = 100 µH (130 µH with connector)				
Internal capacitance	C_i = 60 nF (80 nF with connector)				
Solenoid valve					
Nominal signal	6 V		12 V		24 V
Maximum values for:	Connection to certified intrinsically safe circuits				
U_0 (V)	25	27	28	30	32
I_0 (mA)	150	125	115	100	90
Internal inductance and capacitance negligibly small					
Analog position transmitter					
Maximum values for:	Connection to a certified intrinsically safe circuit				
U_0	25 V				
I_0	100 mA				
P	0.8 W				
Internal inductance and capacitance negligibly small					
Permissible ambient temperatures					
Temperature class	T 6			T 5	T 4
Control current (mA) (Type 3767 only)	85	100	150	100 150	100 150
Permissible ambient temperature	60 °C	55 °C	60 °C	70 °C	80 °C
Permissible ambient temperature with analog position transmitter	60 °C			70 °C	70 °C

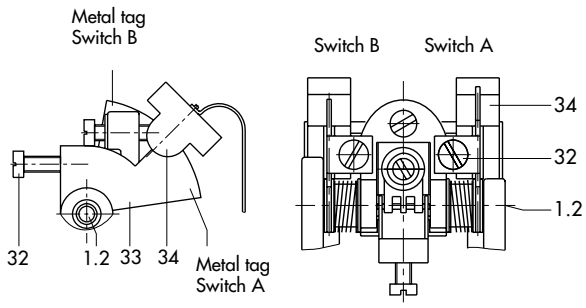


Fig. 9 · Inductive limit switches (proximity switches)

Accessories

The positioners can optionally be equipped with the following accessories.

Positioner with inductive limit switches (Fig. 9)

This positioner version has a rotary shaft (1.2) with two adjustable metal tags (33) for inductively actuating the proximity switches (34). The switches are infinitely adjustable and can be overridden. To operate them, corresponding transistor relays are to be connected in the output circuit.

The proximity switches can also be subsequently retrofitted.

Positioner with solenoid valve (Fig. 10)

The positioners can be fitted with an intrinsically safe, pilot-controlled solenoid valve - also along with the inductive limit switches. When the positioner is equipped with this solenoid valve, the control valve can be moved in the fail-safe position independent of the positioner's output signal.

The solenoid valve essentially consists of an electropneumatic converter (12.1) and a 3/2-way solenoid valve (12.2). If a control signal corresponding to the binary signal 0 (off) is applied to the input, the following occurs: The nozzle (12.3) of the electropneumatic converter is opened; the signal pressure p_{st} is blocked; and air is vented out of the actuator. The force of the compression springs installed in the actuator move the control valve in the predetermined fail-safe position.

If a control signal corresponding to binary signal 1 (on) is applied to the input, the relay coil (12.4) is energized, and the flapper plate (12.5) closes the nozzle (12.3). The increasing cascade pressure switches over the 3/2-way valve (12.2). In this position, the signal pressure p_{st} is connected through to the actuator. The control valve is in control operation.

The solenoid valve can also be subsequently retrofitted.

Legend to Figs. 9 and 10

1.2	Rotary shaft	12.5	Flapper plate
12	Solenoid valve	12.6	Restriction
12.1	Electropneumatic (e/p) converter		
12.2	3/2-way solenoid valve	32	Adjusting screw
12.3	Nozzle	33	Metal tag
12.4	Relay coil	34	Proximity switch

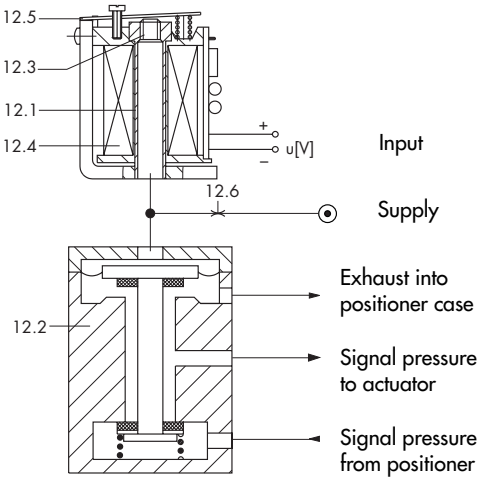


Fig. 10 · Functional diagram of the solenoid valve

Positioner with analog position transmitter

Because of the amount of space that the position transmitter requires, note that this option cannot be combined with installed limit switches or a solenoid valve!

With the position transmitter, the position of the throttling member of the control valve (i.e., valve travel or opening angle) is converted into a proportional output signal from 4 to 20 mA. Three basic types of limit positions are signalized: Control valve opened; control valve closed; and all intermediate positions.

Attachment to linear and rotary actuators (Figs. 12 and 13)

With linear-motion actuators, the positioner can be attached either directly (Type 3277 Pneumatic Actuator) or according to DIN IEC 534 (NAMUR) (Type 271 Pneumatic Actuator). With rotary-motion actuators, the positioner is attached with an interface according to VDI/VDE 3845, together with an intermediate piece.

Combining the positioner and the actuator (Fig. 11)

How the positioner and actuator can be arranged depends on the operating direction of the reference input signal (p_e) and the output signal pressure (p_{st}), plus the fail-safe position of the actuator, namely:

– Actuator stem "extends"
– Actuator stem "retracts"

Direct attachment to Type 3277 Pneumatic Actuator (Fig. 4)

This method of attachment provides the benefit of being a self-contained, preconfigured actuator-positioner unit. Direct attachment of actuator sizes 240, 350 and 700 cm² requires a connection block (Fig. 11).

With actuator version *actuator stem "extends,"* the loading pressure p_{st} from the positioner is introduced to the bottom diaphragm case via the connection block and a hole in the actuator yoke. If the spring chamber need be vented with the exhaust air of the positioner, the air can be connected to the connection block using a prefabricated pipe.

With actuator version *actuator stem "retracts,"* the loading pressure p_{st} from the positioner is introduced to the top diaphragm case via a prefabricated pipe. Air can be exhausted from the bottom diaphragm chamber (spring chamber) without additional measures via an internal hole.

With the Type 3277-5 Pneumatic Actuator (actuator size 120 cm²), the loading pressure is connected via a rear hole in the positioner, therefore eliminating external piping.

Table 3 · Direct attachment: travel and measuring spring

Actuator size in cm²	Travel in mm	Meas. spring
120/240/350	7.5	2
120/240/350	15	1
700	15	2
700	30	1

The positioner is delivered with measuring spring 1; measuring spring 2 can be found in the accessories.

Fail-safe action: actuator stem "extends"

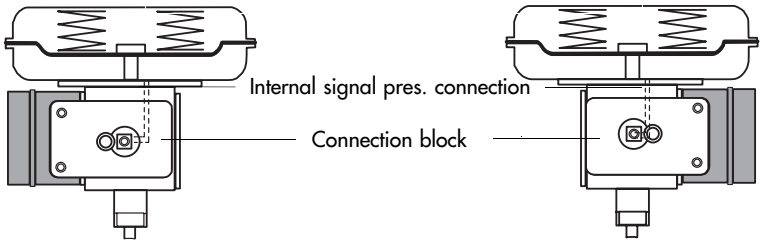


Fig. 11.1 · Direct operating direction >> Left attachment

Fig. 11.2 · Reverse operating direction <> Right attachment

Fail-safe action: actuator stem "retracts"

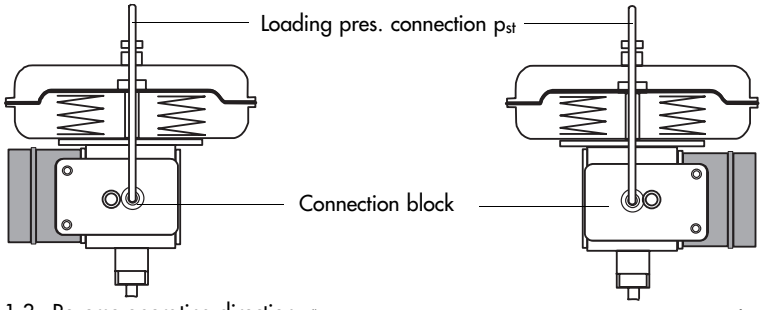


Fig. 11.3 · Reverse operating direction <> Left attachment

Fig. 11.4 · Direct operating direction >> Right attachment

Fig. 11 · Directly attached to Type 3277 Pneumatic Actuator

Attachment according to DIN IEC 534 (Figs. 3 and 12)

The positioners can be attached to actuators with casted yokes (Fig. 3) (e.g., Series 240, 250 and 280) and valves with rod-type yokes (Fig. 12) with the aid of the mounting adapter (15). A clamping plate (15.1) is additionally required for valves with rod-type yokes.

By selecting the appropriate lever (1) and link point on the lever (16), the positioners can be matched to different travels in the range from 7.5 to 120 mm.

There is no prescribed mounting position for the positioner. The operating direction is determined by how the positioner and the adapter are arranged and how the internal turnboard is positioned.

The measuring spring is to be selected according toTable 4.

Table 4 · Choosing the measuring spring for the travel range required: Attachment according to DIN IEC 534

Travel mm	Measuring spring
7.5 ... 15	2
> 15 ... 60	1
22 ... 120	1

The positioner is delivered with measuring spring 1; measuring spring 2 can be found in the accessories.

Attachment to rotary actuators (Fig. 13)

The positioners can be attached to the Type 3278 Rotary Actuator via an intermediate piece (2). Attachment to other rotary actuators is possible with an interface according to VDI/VDE 3845. Via the cam disk (7), the rotary motion of the actuator is converted into a linear motion required by the positioner. A follower roll (3) is attached to the lever (5) of the positioner in order to detect the cam disk. Various cams are available depending on the control valve characteristic required (e.g., linear or equal percentage).

Double-acting, springless (no spring return) actuators require, in addition, a pneumatic **reversing amplifier** which produces two opposed signal pressures.

Choose the measuring spring as follows:

Reference input variable for split-range operation:
- Measuring spring 1

Reference input variable for normal (full) signal range:
- Measuring spring 2

The positioner is always delivered with measuring spring 1; measuring spring 2 is included in the mounting kit for rotary actuators.

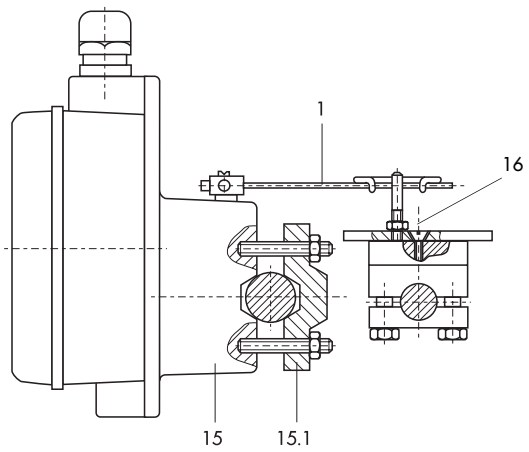
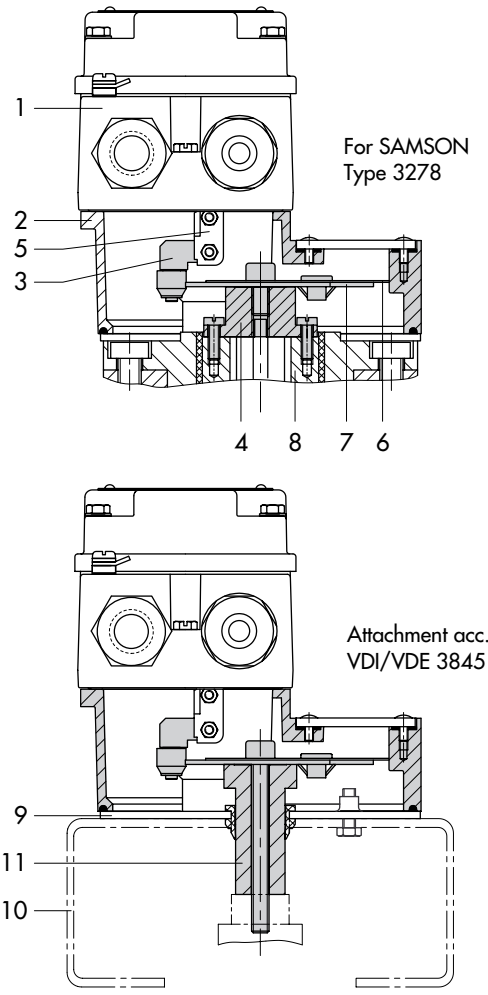


Fig. 12 · How to attach to valves with rod-type yokes



1 Positioner
2 Intermediate piece
3 Lever with follower roll
4 Mounting adapter
5 Transmission lever
6 Scale
7 Cam disk
8 Actuator shaft
9 Disc
10 Clamp
11 Coupling
15 Adapter
15.1 Clamping plate
16 Slide

Fig. 13 · How to attach to rotary actuators

Materials (WN = Material Number according to DIN)

Case Special version	Die-cast aluminum chromized and plastic-coated CrNiMo steel, WN 1.4404 (316 L)
External parts	Stainless steel WN 1.4571 and WN 1.4104
Measuring diaphragm	Fluorosilicone rubber

Electrical connections

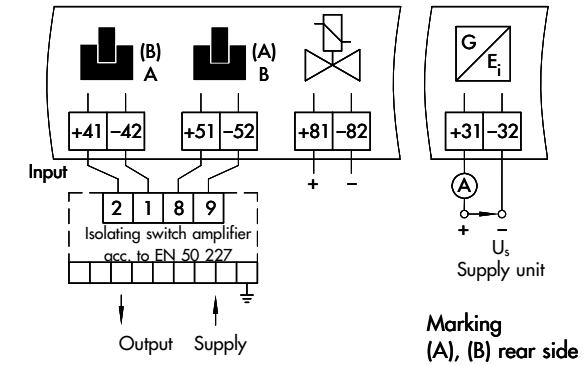
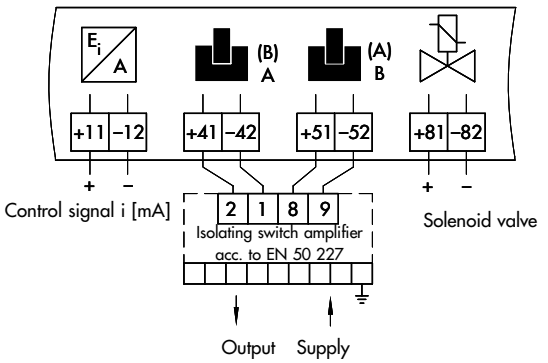


Fig. 14.1 · Type 3766 Pneumatic Positioner



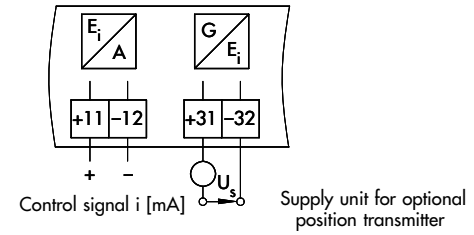
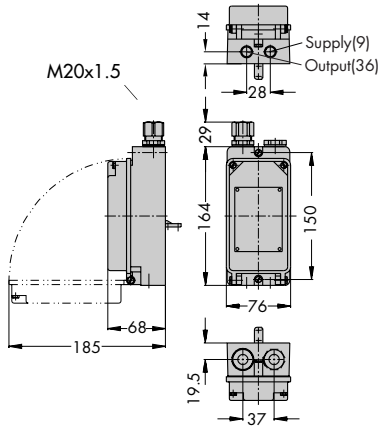


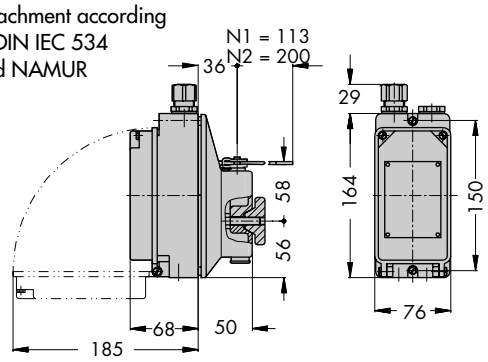
Fig. 14.2 · Type 3767 Electropneumatic Positioner

Dimensions in mm

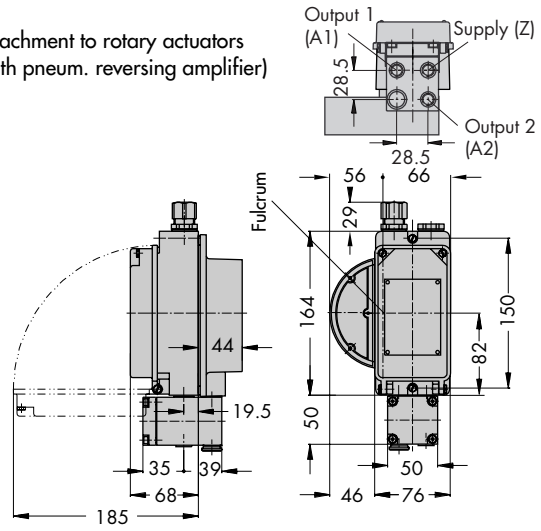
Direct attachment to Type 3277
Pneumatic Actuator



Attachment according
to DIN IEC 534
and NAMUR



Attachment to rotary actuators
(with pneum. reversing amplifier)



Summary of the approved explosion protection certificates for the Type 3766 Positioner

Certificate type	Certificate number	Date	Comments
Certificate of Conformity	PTB No. Ex-89.C.2165	1989-11-06	EEx ia IIC T6
First Addendum		1991-02-12	Position transmitter
Second Addendum		1992-01-17	Higher Ex i parameters
Third Addendum		1993-11-22	–45 °C ambient temperature
Fourth Addendum		1995-06-13	Round connector
Fifth Addendum		1997-07-11	Solenoid valve, position transmitter
SEV Certificate	98.5. 50771.04	1998-04-24	EEx ia IIC T4-T6
GOST Certificate	A-0393	1996-07-05	Valid until 2001; Ex ia IIC T6
CSA Certificate	LR 54227-11	1991-01-29	Class I; Groups A, B, C, D
Enclosure 3		1992-04-21	Class I; Div. 2; Groups A, B, C, D
	LR 54227-17	1993-02-03	Position transmitter
	LR 54227-27	1997-09-17	Groups A, B, C, D
FM Certificate	J.I. 2 V 9 A9.AX	1991-11-18	Class I, II, III; Div. 1, Groups A, B, C, D, E, F, G
	J.I. 4W9 A0.AX	1993-04-22	Position transmitter
		1998-10-20	Revision position transmitter
NEMA 3R	J.I. 0W 4 A0.AX	1991-02-19	

Please refer to Data Sheet T 6116 EN for EEx d certification for the Type 6116 i/p Converter (Fig. 2).

Summary of the approved explosion protection certificates for the Type 3767 Positioner

Certificate type	Certificate number	Date	Comments
Certificate of Conformity	PTB No. Ex-89.C.2166	1989-11-06	EEx ia IIC T6
First Addendum		1991-02-12	Position transmitter
Second Addendum		1992-01-17	Higher Ex i parameters
Third Addendum		1993-01-15	Additional Ex i values
Fourth Addendum		1993-11-22	–45 °C ambient temperature
Fifth Addendum		1995-06-13	Type of connection altered
Sixth Addendum		1997-07-11	Internal design and nameplate altered
SEV Certificate	98.5 50771.05	1998-04-24	EEx ia IIC T4-T6
GOST Certificate	A-0394	1996-07-05	Valid until 2001
CSA Certificate	LR 54227-11	1991-01-29	Class I; Groups A, B, C, D
Enclosure 3		1992-04-21	Class I; Div. 2
	LR 54227-17	1993-02-03	Position transmitter
	LR 54227-26	1997-09-17	Div. 1; Groups A, B, C, D, E, F, G
FM Certificate	J.I. 2 V 9 A9.AX	1991-11-18	Class I, II, III; Div. 1; Groups A, B, C, D, E, F, G
NEMA 3R	J.I. 0W 4 A0.AX	1992-02-19	
FM Certificate	J.I. 4 W 9 A0.AX	1993-04-22	Position transmitter
	J.I. 5Y2 A3.AX	1995-04-26	Div. 2
		1998-10-20	Revision position transmitter
AUS Certificate	1478 X	1993-08-04	Ex ia IIC T6, Class I, Zone 0
	EX 1482	1993-08-04	Ex n IIC T6, Class I, Zone 2
JIS Certificate	C-13674	1999-07-09	Ex ia IIC T6

Nomenclature for ordering

Type designation	**3766-**	□	□	□	0	1	□	□	0	□	0
	3767-	□	□	□	0	1	□	□	0	□	□
Explosion protection											
Without		0									
EEx ia IIC T6		1									
CSA/FM		3									
Accessories											
Inductive proximity switch											
Without			0								
With two Type SJ2-SN			2								
Solenoid valve											
Without				0							
6 V dc				2							
12 V dc				3							
24 V dc				4							
Analog pos. transmitter			6	0							
Pneumatic connection											
NPT ¼ – 18							1				
ISO 288/1-G ¼							2				
Electrical connection											
M 20x1.5 blue							1				
M 20x1.5 black							2				
Connector HAN 7D, angle-type (not with CSA/FM)							4				
Special version											
None										0	
Enclosure made of CrNiMo steel										2	
Reference input signal (only for Type 3767)											
4 to 20 mA											1
0 to 20 mA											2
1 to 5 mA											3

Positioner **only** functioning as an analog position transmitter

3766	□	6	0	0	0	0	□	0	9	0

Accessories

Adapter to NPT ½ for the electrical connections

Measuring spring 2

Additional specifications

Without/with pressure gauge for monitoring the signal pressure and supply air

Specify when mounting on a control valve:
Adjusted reference input signal
Operating direction: direct (increasing-increasing) or reverse (increasing-decreasing)

Specify for devices with inductive limit switches:
Metal tag in the active zone (contact closed)/
Metal tag out of the active zone (contact open)

Specify for direct attachment to the Type 3277 Pneumatic Actuator:
Actuator size: 120/240/350/700 cm²

Specify for attachment according to DIN IEC (NAMUR):
Travel: ...mm

Specify for attachment to valves with rod-type yokes:
Travel: ...mm
Rod diameter: ...mm

Specify for attachment to Type 3278 Rotary Actuators:
Actuator sizes 160 or 320 cm²
Rotary actuator according to VDI/VDE 3845, single-acting or
Rotary actuator according to VDI/VDE 3845, double-acting
With linear control valve characteristic
With equal percentage control valve characteristic
Opening angle 70°/75°/90°

When the positioner is delivered without a specific arrangement to a certain control valve, refer to the "Mounting and operating instructions" EB 8355-1 EN (for Type 3766 Pneumatic Positioner) or EB 8355-2 EN (for Type 3767 Electropneumatic Positioner).

Specifications subject to change without notice.

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