

Operating and maintenance manual series 810

**Electropneumatic
positioner**

For linear actuators



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1. Warning symbols

Safety information and warnings serve to avert danger to life and health of users or maintenance personnel or to prevent damage. They are emphasized by the signal concepts defined here. Safety informations are also marked by warning symbols (pictograms) in the place where they appear. The signal concepts used have the following meaning:

Danger means that death, severe injury and/or considerable material damage will occur if the appropriate precautions are not taken and observed.



Warning means that death, severe injury and/or considerable material damage can occur if the appropriate precautions are not taken and observed.



Caution means that minor injury and/or material damage can occur if the appropriate precautions are not taken and observed.



Note is an important information about the product itself and the handling of the device to which special attention should be paid.



2. Safety instructions

The positioner is intended for use only in accordance with the specification of our order confirmation. Any other use is considered to be non-conform. The user alone is responsible for any resulting damages. Unauthorized alterations, as well as the use of non-original von Rohr spare parts, exclude liability for resulting damages. The risk therefor is also borne solely by the user.



Maintenance and repair work on the valve may only be carried out by qualified personnel, with particular reference to the relevant directives.

It is expressly pointed out the necessary observance of regulations for explosive systems.

3. Qualified personnel

Qualified personnel in the meaning of the operating instructions are persons who are familiar with the assembly, commissioning and operation of this product and have the appropriate qualifications such as:

- Training or instruction according to the current standards of safety engineering in the care and use of appropriate safety equipment.
- First aid training.
- For facilities with explosion protection: Training or instruction or authorization to work in potentially explosive atmospheres.
- Training at von Rohr Armaturen AG, CH-4132 Muttenz.



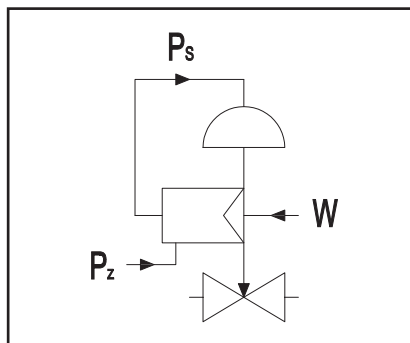
I. Description

1.1 Introduction

This manual is intended to help you become familiar with the setting, function and maintenance. Please read these instructions carefully so that you are running the positioner optimally and achieve a long service life.

1.2 Functioning

A linear function between the input signal and stroke is the best way to ensure maximum control precision. Control valves with pneumatic actuators, however, are subject to friction, media pressure, and high flow forces, which means that this linearity is not intrinsic in the system. Only a positioner can eliminate positioning errors. To do so, it compares the input signal (reference variable w) with the actual stroke (control variable x). Depending on the control deviation (x_w), the positioner uses the air supply pressure (p_s) to yield the actuating pressure (p_z) for the actuator (actuating variable y). The input signal is either pneumatic 0.2 to 1.0 bar, or electric 4 to 20 mA.



1.3 Electrical specifications

Signal circuit in type of protection intrinsic safety EEx ib IIC/IIB only for connection to certified intrinsically safe circuits according to EN 60079-25 with the following maximum values: **U i = 28 V, Ii and Pi** (see table below).

Ci negligible

Li negligible

The admissible ambient temperature for use of the positioner is between -20°C and maximum temperature arising from the temperature class required at the place of installation considering the value of Ii and Pi reported in the below table.

Ii	Pi	Maximum permissible ambient temperature	Temperature class
55 mA	1.54 W	80°C	T4
		80°C	T5
		60°C	T6
100 mA	2.8 W	80°C	T3
		75°C	T4
		40°C	T5

Test connection (connection sockets)

Only for the connection of certified passive, ground-free, intrinsically safe test devices. The rules for the interconnection of intrinsically safe circuits must be taken into account.

1.4 Basic setting

Typ SReP 810.6. ... According to the symbol in the device and information on the nameplate.

Check basic setting.

- The device contains permanent magnets.
- Remove cover only for adjustment.



1.5 Design (drawing and bill of materials)

See pages 7, 8, 9 and 12.

II. Mounting to linear actuators

(see page 8)

- Fit the feedback lever «5» to the positioner (see Fig. 1). The bearing lever «6» and the feedback lever «5» must be on one axle (see Fig. 2).
- Connect the actuating element to the air supply and set it to the stroke center of the stroke scale «7» (see figure 2).
- Assemble carrier rail «1» to spindle coupling «2».
- Assemble the adapter «3» to the actuator, so that the center mark (notch) on adapter «3» is aligned with center of carrier rail «1».
- Pay attention to squaring adapter «3» with carrier rail «1».
- Mount the positioner to adapter «3».
- Place the transmission pin «4» on the feedback lever «5» at the desired stroke.

III. Settings

1. Settings SReP 810.6.1. ... single acting

(see page 9)

- Connect output y via pressure gauge to actuator
- Connect supply air Z and signal w

Po-actuator (AA) directly acting

Increasing signal results in increasing output (4–20 mA/close–open)

- Enter signal corresponding to the state ACTUATOR OPEN, (20 mA).
- Turn screw ZERO until max. stroke is reached.
- Enter signal corresponding to the state ACTUATOR CLOSE, (4 mA).
- Turn the screw stroke until a pressure of $>0 \pm 0.02$ bar is set in the output y.

Po-actuator (BB) indirectly acting

Increasing signal results in decreasing output (4–20 mA/open–close)

- Enter signal corresponding to the state ACTUATOR OPEN, (4 mA).
- Turn screw ZERO until max. stroke is reached.
- Enter signal corresponding to the state ACTUATOR CLOSE, (20 mA).
- Turn the screw stroke until a pressure of $>0 \pm 0.02$ bar is set in the output y.

Ps-actuator (BA) directly acting

Increasing signal results in increasing output (4–20 mA/open–close)

- Enter signal corresponding to the state ACTUATOR OPEN, (4 mA).
- Turn screw ZERO until max. stroke is reached.
- Enter signal corresponding to the state ACTUATOR CLOSE, (20 mA).
- Turn the screw stroke until a pressure of $>0 \pm 0.02$ bar is set in the output y.

Ps-actuator (AB) indirectly acting

Increasing signal results in decreasing output (4–20 mA/close–open)

- Enter signal corresponding to the state ACTUATOR OPEN, (20 mA).
- Turn screw ZERO until max. stroke is reached.
- Enter signal corresponding to the state ACTUATOR CLOSE, (4 mA).
- Turn the screw stroke until a pressure of $>0 \pm 0.02$ bar is set in the output y.

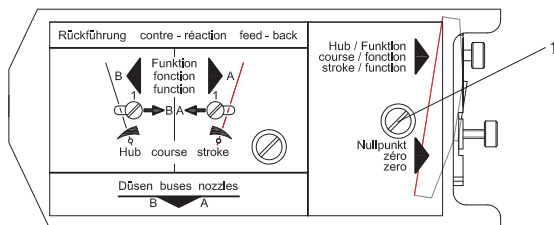
Note! After each stroke adjustment, the end point of the stroke must be checked again.

2. Function reversal

Feedback function «A»

(see figure below)

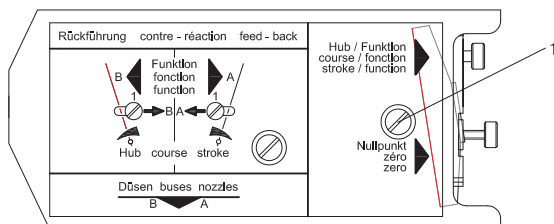
- Bring the inclination of the radial cam into position «A» by turning the screw STROKE/FUNCTION clockwise.
- Loosen the slotted screw «1», push it against «A» and retighten it.



Feedback function «B»

(see figure below)

- Bring the inclination of the radial cam into position «B» by turning the screw STROKE/FUNCTION counter-clockwise.
- Loosen the slotted screw «1», push it against «B» and retighten it.



Nozzle function

- Remove internal cover.
- Attach the nozzle tube according to the desired function A or B (see cover).

3. Setting the proportional band Xp

The proportional band «Xp» can be set from approx. 0,7–3,5% of the control range, in adaptation to different actuator sizes resp. friction conditions. The adjustment is made at the amplifier relay (only to be carried out by trained service personnel).

4. Mounting drawing (example)

Figure 1

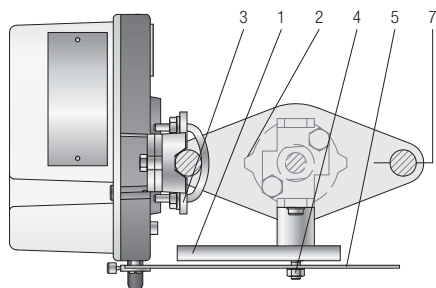
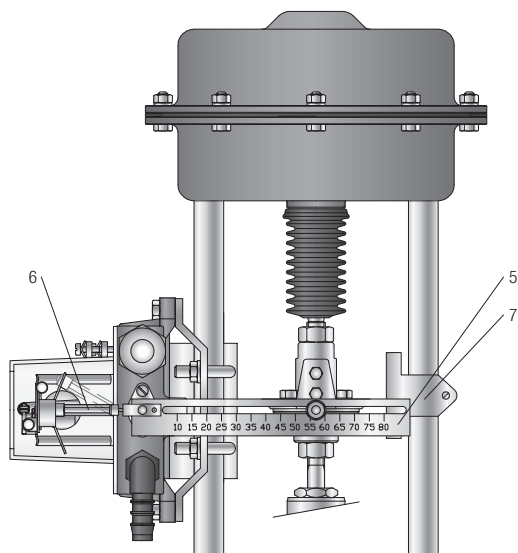


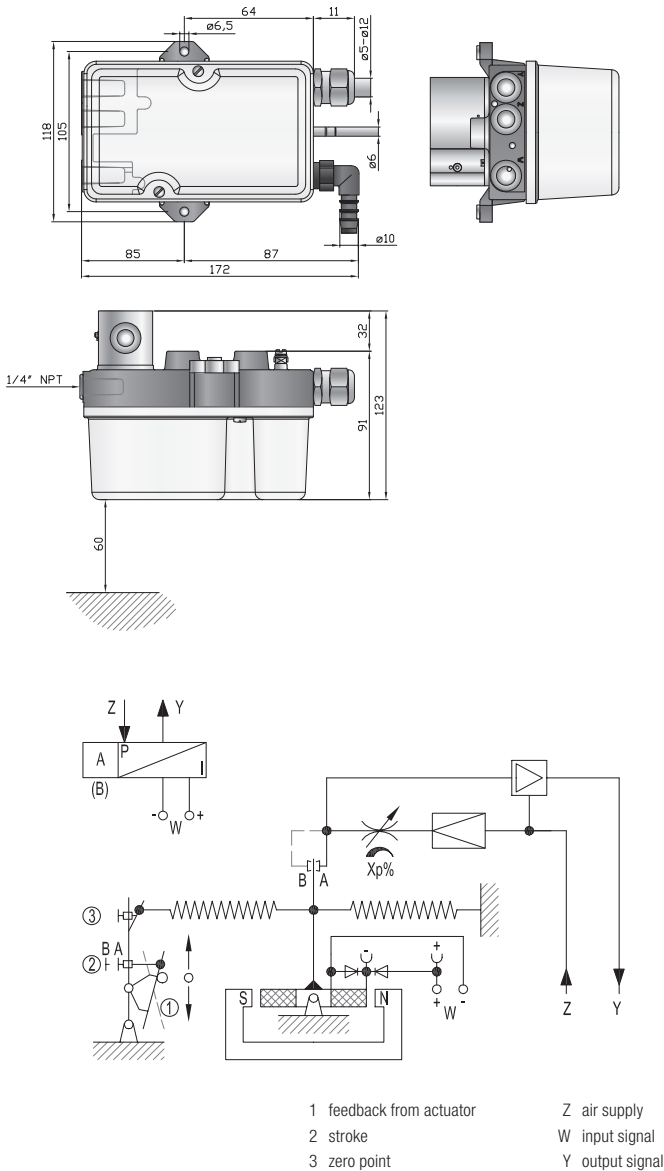
Figure 2



- 1 Carrier rail
- 2 Spindle coupling
- 3 Adapter
- 4 Transmission pin
- 5 Feedback lever
- 6 Bearing lever
- 7 Stroke scale

IV. Dimensional drawings and technical principle

Simple acting



V. ATEX-Type code

- II** = Equipment group II: explosive atmosphere
- 2** = Device category 2: zone 1, 2
- G** = Type of explosive atmosphere: mixture of air and gases, vapors or mist
- Ex** = Device with one or more types of protection
- ib** = Intrinsically safe: zone 1, 2
- IIC** = Group: Typical gases (hydrogen)
- T6...T3** = Temperature class: maximum surface temperature in °C
- Gb** = Equipment protection level: corresponds to category 2G
- Ui** = Induced tension
- Ii** = Maximum input current
- TA** = Initial temperature

von Rohr CH-4132 Muttenz
Armaturen AG SReP810.../25

TÜV IT 21 ATEX 043 X
II 2G Ex ib IIC T6...T3 Gb

Ui= 28V **T6/T5/T4/T3**

Ii= 55mA **TA(°C)= -20...60/80/80**

Ii= 100mA **TA(°C)= -20... /40/75/80**

VI. Test certificate

CERTIFICAT

CERTIFICADO

СЕРТИФИКАТ

認證書

CERTIFICATE

ZERTIFIKAT

CERTIFICATE



- [1] **EU-TYPE EXAMINATION CERTIFICATE**
- [2] **Equipment or Protective System intended for use in potentially explosive atmospheres Directive 2014/34/EU**
- [3] EU-Type Examination Certificate number:
TÜV IT 21 ATEX 043 X
- [4] Equipment or Protective System: Electropneumatic positioner mod. SReP 810.../25
- [5] Manufacturer: VON ROHR ARMATUREN AG
- [6] Address: Fichtenhagstrasse 4
4132 MUTTENZ - Switzerland
- [7] This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- [8] TÜV Italia, notified body no. 0948 in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.
- The examination and test results are recorded in confidential report no. R 21 EX 035
- [9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN IEC 60079-0 : 2018 EN 60079-11 : 2012
- [10] If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.
- [11] This EU - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.
- [12] The marking of the product shall include the following:



II 2G Ex ib IIC T6...T3 Gb

This certificate may only be reproduced in its entirety and without any change, schedule included.

Issue date: 01st December 2021



PRD N° 081B

Membro degli Accordi di Mutuo Riconoscimento
EA, IAF e ILAC
Signatory of EA, IAF and ILAC Mutual
Recognition Agreements



TÜV Italia S.r.l.
Notified body N° 0948

Alberto Carelli
Alberto Carelli

**Industry Service - Real Estate & Infrastructure
Managing Director**

TÜV Italia has been authorized by Italian government to operate as notified body for the certification of equipment or protective system intended for use in potentially explosive atmospheres. This document is not valid without official signature and logo. The internal reference code is 722239424.

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PEX-01-M002_r07 del 29/03/2018

[13]

SCHEDULE

[14]

**EU-TYPE EXAMINATION CERTIFICATE
No. TÜV IT 21 ATEX 043 X**



Italia

Certificate History

Revision:	Description:	Report rev.:	Issue Date:
-	First issued	-	01/12/2021

[15] **Description of equipment**

The electropneumatic positioner type SRep 810.../25 is used to couple pneumatic actuators with electronic controllers or electrical level indicators.

Rated characteristics

Max temperature range	-20°C...+80°C (see table below and special conditions for safe use)
Housing material/top cover	Anodized aluminium / colour coated aluminium
Input signal	4-20mA

Electrical Intrinsic Safety Parameter:

U_i = 28V

I_i and P_i see table below

C_i negligible

L_i negligible

I _i	P _i	Max permissible ambient temperature	Temperature class
55mA	1.54W	80°C	T4
		80°C	T5
		60°C	T6
100mA	2.8W	80°C	T3
		75°C	T4
		40°C	T5

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VII. Spare parts offer / order

To: **von Rohr Armaturen AG**
 Member of the  Group
 Fichtenhagstrasse 4
 CH-4132 Muttenz
 Phone +41 (0)61 467 91 20
 Fax +41 (0)61 467 91 21
 info@von-rohr.ch
 www.von-rohr.ch

Sender

We refer to the serial
 number(s)

Bill of materials

Number	Designation	Quantity
868361	Amplifier single acting	
868450	Cascade	

Attention!

**Amplifier/cascade may only be replaced by the
 customer for non-intrinsic use.**

- We would like to request a spare
 parts offer for the following positions
- We order the following spare parts