POSITIONER
810-SERIES

Electro-pneumatic positioner

For linear and rotary actuators

Operating and maintenance instructions

Armaturen AG
von Rohr

Pneumatic and electric control valves and appliance
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1. Warning symbols

Safety advices and warnings are made for preventing danger against life and health of users and maintenance personnel resp. preventing material damage. They are being stressed by the presently described signal terms and in addition marked with warning symbols (pictograms). The applied symbols have the following meanings:

Danger: Death, severe injury and/or significant material damage will be the consequence, if the appropriate precautions should not be taken.

Warning: Death, severe injury and/or significant material damage may be the consequence, if the appropriate precautions should not be taken.

Caution: Light injury and/or material damage may be the consequence, if the appropriate precautions should not be taken.

Note: Important information about the product itself, about how to handle the product, to which special attention is being called

2. Safety advices

The positioner has been exclusively designed for the use according to the specification in our order confirmation. Any other use is not according to the directives. For resulting damages the user alone is liable. Unauthorized changes, as well as the use of non original von Rohr spare parts exclude any responsibility for damages caused. Any change brought to the installation is done at the users own risk.

Maintenance and repair operation may only be done by qualified personnel observing the respective directives.

It is expressively pointed out to observe the instructions for explosive devices where appropriate.

3. Qualified personnel

According to the spirit of this manual, such persons are familiar with assembly, initiation and operation of this product, and have the qualifications for executing their function, like:

- Training or instruction according to the actual standards in safety features maintaining and using appropriate safety equipments.
- Training in first aid.
- Training resp. permission to perform tasks with explosive devices.
- Training at von Rohr Armaturen AG, CH-4132 Muttenz.

I. Description

1.1 Introduction

The purpose of this manual is to make yourself familiar with design, function and maintenance. Please read this manual thoroughly in order to be able to operate the positioner effectively and obtain a long life time.

1.2 Electric data

Marking current cicuit in type of protection intrinsic safety Eex ib IIC/IIB only for connecting to certified intrinsic safe electric cicuits with the following maximum values: U i = 28 V, I i see table below.

Ii	Classe of temperature	Maximal allowed ambient temperature
55 mA	T4	80ºC
	T5	80ºC
	T6	60ºC
100 mA	T3	80ºC
	T4	75ºC
	T5	40ºC

Test port (connecting socket)
Only for connecting certified passive floating intrinsic safe test devices. Standards about interconnecting intrinsic safe electric circuits are to be respected.

1.3 Basic adjustment

Type SReP 810.6. ... According to symbol inside the device and the information on the type plate.

Verify the basic adjustment.

- The device contains permanent magnets.
  Remove the cap only for adjusting.

1.4 Specifications (drawings and bill of materials)

See pages 6, 7 and 8.

II. Mounting

1. Mounting to linear actuator

(see page 6)

- Position valve to STROKE CENTER.
- Mount carrier track «1» onto coupling shaft «2».
- Mount adapter «3» onto actuator, that the center mark on the adapter aligns the center of the carrier track.
- Verify that adapter and carrier track are positioned right-angled.
- Mount control valve to the adpter.
- Position transmission stud «4» on tap lever «5» to desired stroke.

2. Mounting to the shaft of a rotating actuator

- Position actuator to SEMI ROTATION ANGLE.
- Mount the positioner so that the plug cone is positioned in a right angle inside the case.

III. Settings

1. Settings SReP 810.6.1. ... simple acting

(see figure 1, page 7)

- Connect outlet «y» via manometer to actuator.
- Connect supply air «Z» and command variable «w».
- Enter command variable which corresponds to the state VALVE CLOSED.

Po-Actuator
- Turn the screw ZERO, until the outlet «y» manometer shows a pressure of $> 0 \leq 0{,}02$ bar.

Ps-Actuator
- Turn the screw ZERO, until the outlet «y» manometer shows a pressure of max. 0,02 bar additional air pressure.

- Enter command variable «w» which corresponds to the state VALVE OPEN.
- Use screw STROKEs to do he fine tuning of the range.
- After each fine tuning, the ZERO must be re-verified.

2. Settings SReP 810.6.2. ... double acting

(see figure 2, page 7)

- Connect outlets «y1» and «y2» via manometer to actuator.
- Connect supply air «Z» and command variable «w».
- Enter command variable which corresponds to the state VALVE SEMI-CLOSED.
- Turn the screw ZERO until this state is approximately achieved.
- Remove inner covering cap.
- Correct nozzle spacing until both outlet manometers show approx. 20% of the air pressure. Additional adjusting of the proportional band «Xp» requires a readjusting of the nozzle spacing.
- Enter command variable which corresponds to the state VALVE CLOSED.
- Turn the screw ZERO until this state VALVE CLOSED is achieved.
- Enter command variable which corresponds to the state VALVE OPEN.
- Turn the screw STROKE until this state VALVE OPEN is achieved.
- After each stroke adjustment the ZERO must be re-verified.

3. Function reversal

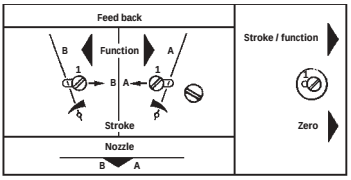
(see figure page 6)

Feed back function «A»

- Bring the incline of the radial cam into position «A» with the STROKE/FUNCTION screw.
- Loosen the slotted head screw «1», push to stop position «A» and tighten.

Feed back function «B»

- Bring the incline of the radial cam into position «B» with the STROKE/FUNCTION screw.
- Loosen the slotted head screw «1», push to stop position «B» and tighten.



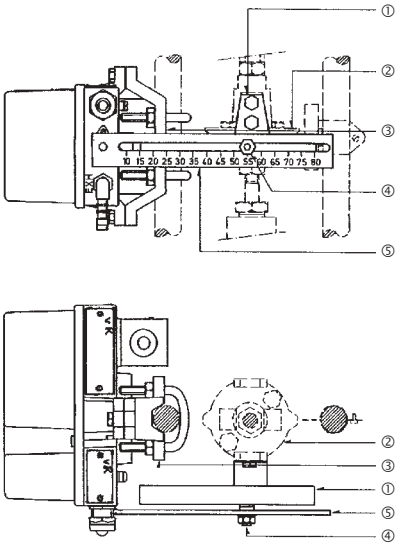
Nozzle function

- Remove inner cover.
- Attach nozzle tube according to the desired function.

4. Adjusting the proportional band Xp

The proportional banc «Xp» can be adjusted from about 0.7 – 3,5% of the control range, adapting to different actuator sizes resp. friction conditions. Adjustment is done via amplifier relay.

5. Mounting drawing (Example)

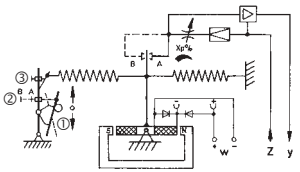


① Carrier track
② Shaft coupling
③ Adapter
④ Transmission stud
⑤ Tab lever

IV. Drawings and principle

Figure 1 (simple acting)

Symbol(s)



Principle

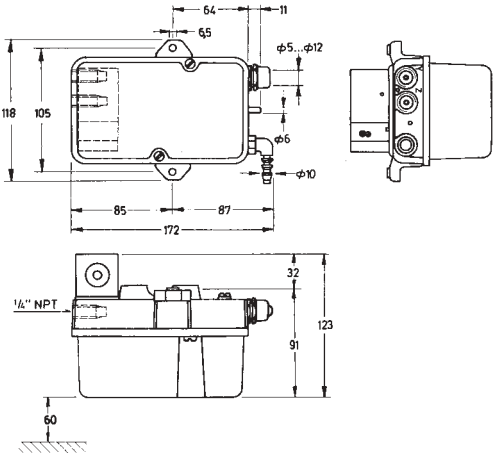
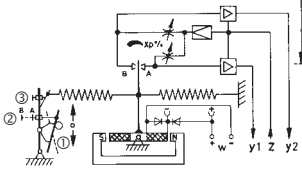
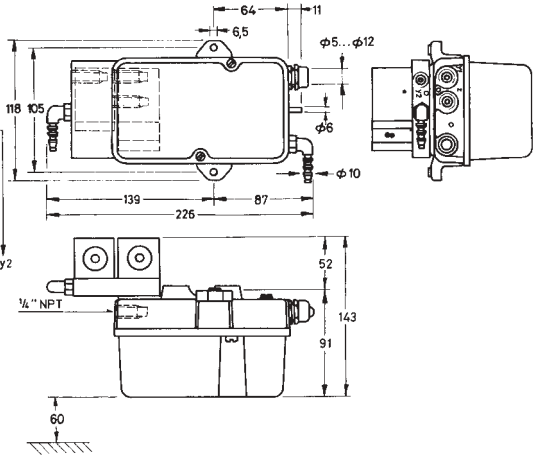


Figure 2 (double acting)

Symbol(s)



Principle



① Feed back from actuator	Z	Supply air	1,4 … max. 6 bar
② Stroke	y1, y2	Output signal	0 … 1,4 bar resp. 0 … supply pressure
③ Zero	w	Command variable	4 … 20 mA (0 … 20 mA)

V. Verification certificate

VI. Bill of materials (Spare parts)

Number	Description
868361	Simple acting amplifier
868450	Cascade

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