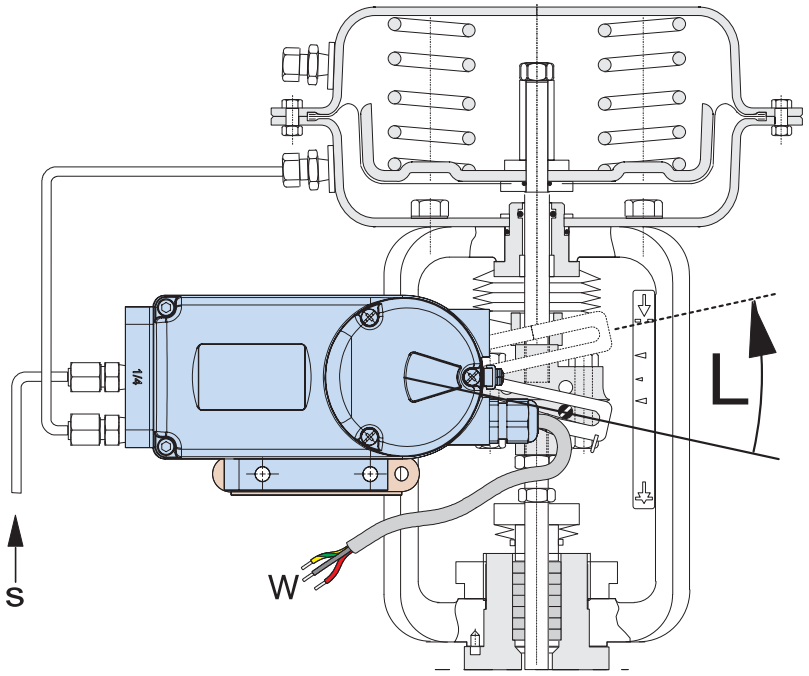
SRD998 Intelligent Positioner with HART Communication

Quick Guide

These instructions are to be used as a guide for quick start-up. For more detailed information refer to the standard documents MI EVE0108 and PSS EVE0108 available on SE website.

⚠ WARNING
EQUIPMENT OPERATION HAZARD
During installation work, switch off the electrical power and the supply air.
Failure to follow these instructions can result in death or serious injury.

Figure 1. Typical Mounting



Schneider Electric

Important Information

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this manual or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of either symbol to a "Danger" or "Warning" safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER
DANGER indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

⚠ WARNING
WARNING indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

⚠ CAUTION
CAUTION indicates a hazardous situation which, if not avoided, **could result in** minor or moderate injury.

NOTICE
NOTICE is used to address practices not related to physical injury.

Please Note

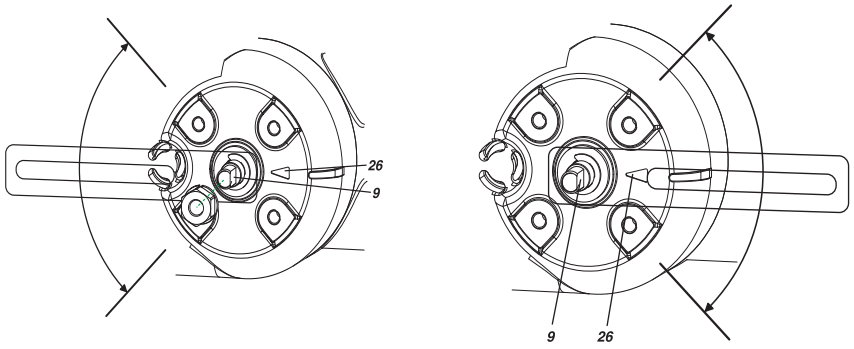
Electrical equipment should be installed, operated, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction, installation, and operation of electrical equipment and has received safety training to recognize and avoid the hazards involved.

Mounting to Actuators

During operation, the flat side of the spindle **9** on the back of the positioner is always pointed towards the arrow **26**. The working angle around this position is ±45°.

Figure 2. Mounting to Actuators

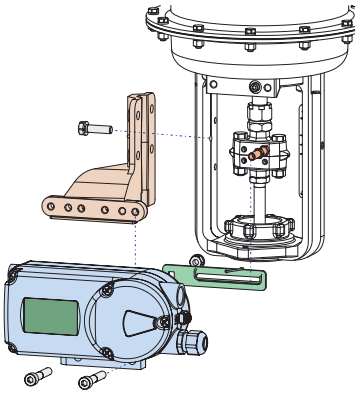


Left Side ***Right Side***

NAMUR Mounting Linear Actuator

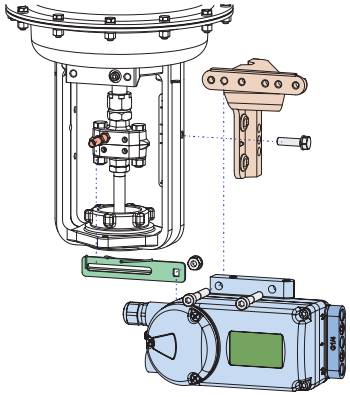
Applicable to actuators with cast yoke or pillar yoke according to NAMUR (DIN IEC 534-6). Mount the positioner with pneumatic connections on the left side and electrical connections on the lower right side as shown in Figure 3.

Figure 3. Mounting Linear Actuator Left Hand



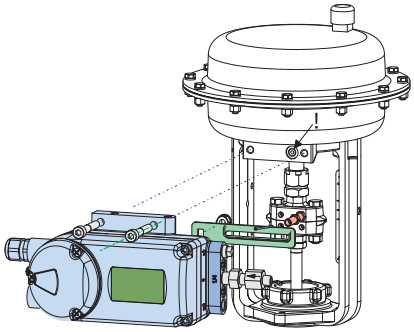
Right-hand mounting is done if for instance left-hand mounting is not possible for structural reasons. Applicable to actuators with cast yoke or pillar yoke according to NAMUR (DIN IEC 534-6). Mount the positioner with pneumatic connections on the right side and electrical connections on the left side as shown in Figure 4.

Figure 4. Mounting Linear Actuator Right Hand



Actuators with appropriately prepared yoke enable mounting of the SRD directly to the actuator yoke as shown in Figure 5.

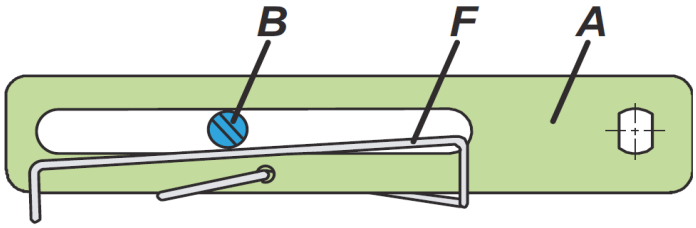
Figure 5. Mounting Linear Actuator Direct Mounting



Feedback Lever for Linear Actuators

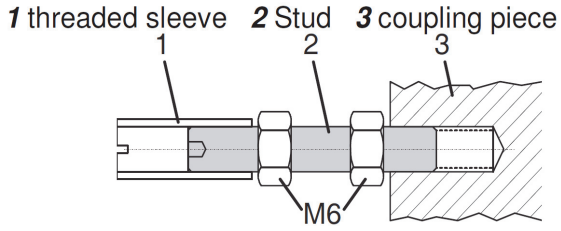
The carrier bolt B is in the slot of the feedback lever A and the compensating spring F touches the carrier bolt as shown in Figure 6.

Figure 6. Feedback Lever for Linear Actuators



Carrier Bolt B

Figure 7. Carrier Bolt B



Mounting to Rotary Actuators

Applicable to rotary actuators that meet the VDI/VDE 3845 standard for mounting.

Figure 8. Mounting Rotary Actuators

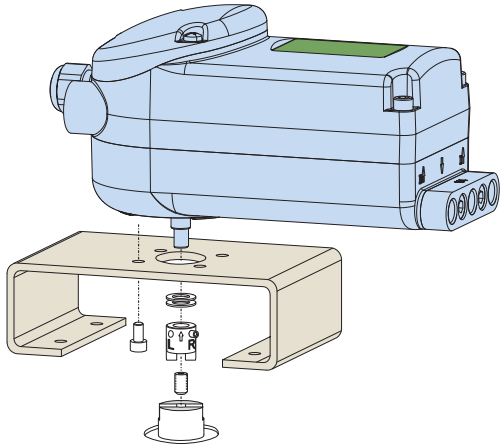
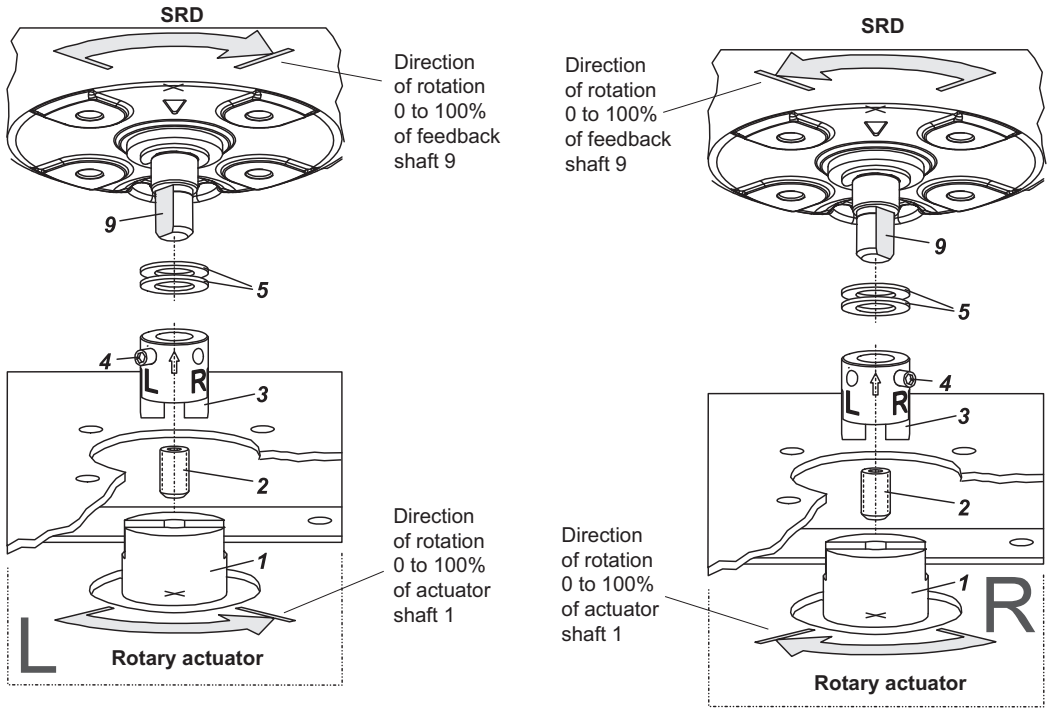


Figure 9. Mounting Actuator



Left Rotating *Right Rotating*

- Do not tighten grub screw **4** against the thread of spindle **9**.
- When in use the flat side of the spindle **9** moves (0 ⇒100%) in front of the arrow.
- When the product temperature rises, the drive shaft **1** increases in length. Therefore, the rotary adapter **3** is mounted so that approximately 1 mm (0.04 in.) of clearance results between the drive shaft **1** and the rotary adapter **3**. This is achieved by placing an appropriate number of washers **5** on the feedback spindle **9**, before attaching the rotary adapter. Two washers results in a clearance of 1 mm.

Connections

⚠ WARNING

SAFETY HAZARD

- To avoid any personal injury resulting from bursting of parts, do not exceed maximum supply pressure of positioner and actuator.
- To avoid any personal injury or equipment damage from sudden or fast movement, during air connection:
  - Do not put your finger or other part at any time inside the valve or in any moving part of the actuator.
  - Do not put your finger or other part at any time in the feedback lever mechanism.
- Do not touch the rear part of the positioner at any time.

Failure to follow these instructions can result in death or serious injury.

⚠ CAUTION

POTENTIAL EQUIPMENT DAMAGE

Check before mounting fittings and cable glands if threads are matching, otherwise housing can be damaged. NPT or G (gas) thread is marked at connection block.

Failure to follow these instructions can result in equipment damage.

Ground

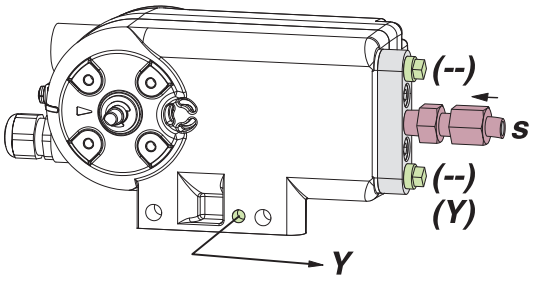
Connect earth cable to screw 4 inside or outside of the electrical compartment as shown in “Electrical Connection” on page 8.

Pneumatic Connections

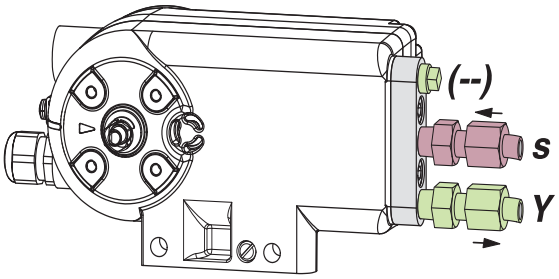
Air supply(s): 1.4 to 6 bar (but not more than the maximum pressure of actuator), free of oil, dust and water. See Figure 10 for more information.

- s: supply
- Y=Y1=I, Y2=II: pneumatic outputs
- (--): closed

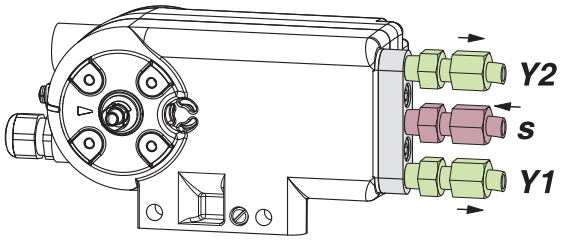
Figure 10. Pneumatic Connections



Single Acting, Direct Mounting



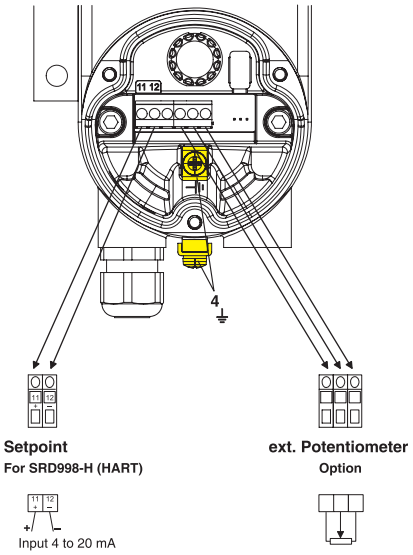
Single Acting



Double Acting

Electrical Connection

Figure 11. Electrical Connection



More detailed technical specifications see PSS EVE0108. For intrinsically safe circuits, refer to data label for maximum operating voltages etc.

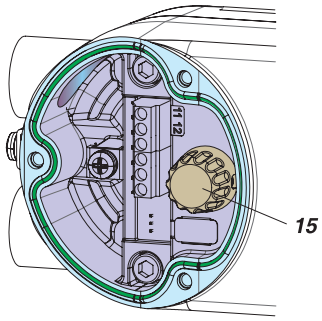
Start Up

After mounting the positioner on the actuator, air and electrical input connected, you can start-up the SRD. Configuration of SRD can be carried out via PC, HART communication and FDT/DTM software, or local with the Rotary Selector 15 and LCD.

Setting by means of Rotary Selector and LCD

The SRD can be adjusted when the cover is removed. To configure the various items, select the relevant menu by turning the Rotary Selector **15** and confirm by pushing it down.

Figure 12. Rotary Selector



After power ON, the SRD goes to configuration, if no Autostart has already been done. First select the display orientation as shown in Figure 13. Select with Rotary selector and confirm by pushing it down.

Then the LCD text language is selected as shown in Figure 14. The default language is set to English. When you select the language the positioner automatically switches to the next menu.

Select using the Rotary selector and confirm by pushing it down. Then automatically continue to configuration.

Figure 13. LCD Orient

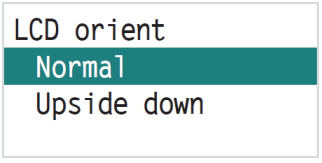


Figure 14. LCD Text Language

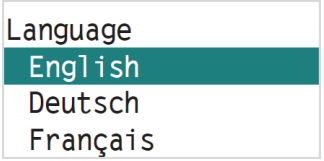
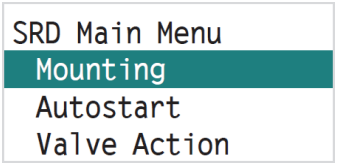


Figure 15. SRD Main Menu



To leave any menu, select `Exit` and confirm by pushing down the Rotary Selector 15 as shown in Figure 12.

Display at IN OPERATION

By *turning* the Rotary Selector, further information of process will be displayed. By *pushing down* the Rotary Selector, the configuration menus will be displayed. At configuration, the selected item is displayed with dark background.

Figure 16. Process Variable

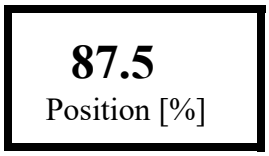
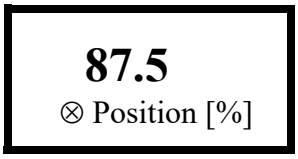


Figure 17. Process Variable and Diagnostics

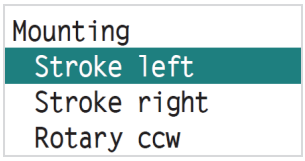


Display at Configuration: Main Menu

In Menu 1 you can select the type of mounting. See Figure 19 for more information about Menu 1.

Stroke actuator, left-hand mounted Stroke actuator, right-hand mounted etc. as shown in Figure 18.

Figure 18. SRD Mounting Options



Select, confirm and Exit to Main menu. Now turn Rotary Selector to select `Autostart` as shown in Figure 15.

Push Rotary Selector, and select Autostart options as shown in “Types of Autostart”.

Types of Autostart

`End points`	Serves for reduced automatic adjustment of the SRD positioner to only the mechanical end points. Determines only the mechanical stops of actuator/valve.
`Standard`	Serves for automatic adjustment of the SRD positioner to the mechanical end points and to the optimization of the controller parameters. Recommended for standard application.
`Extended (a)`	To the optimization of the controller parameters in relation to standard mode.
`Smooth response (a)`	Extended, damped controller parameters for smaller actuators.
`Fast response (a)`	Extended, undamped controller parameters for larger actuators.

a. After running one of these Autostart options, the SRD branches to Menu 6.11 Position tuning at Stroke actuators as shown in Figure 19. Refer to MI EVE0108 for more information on types of menus.

Select and confirm to launch `Autostart`. After `Exit` the device is `IN OPERATION`.

Menu Structure

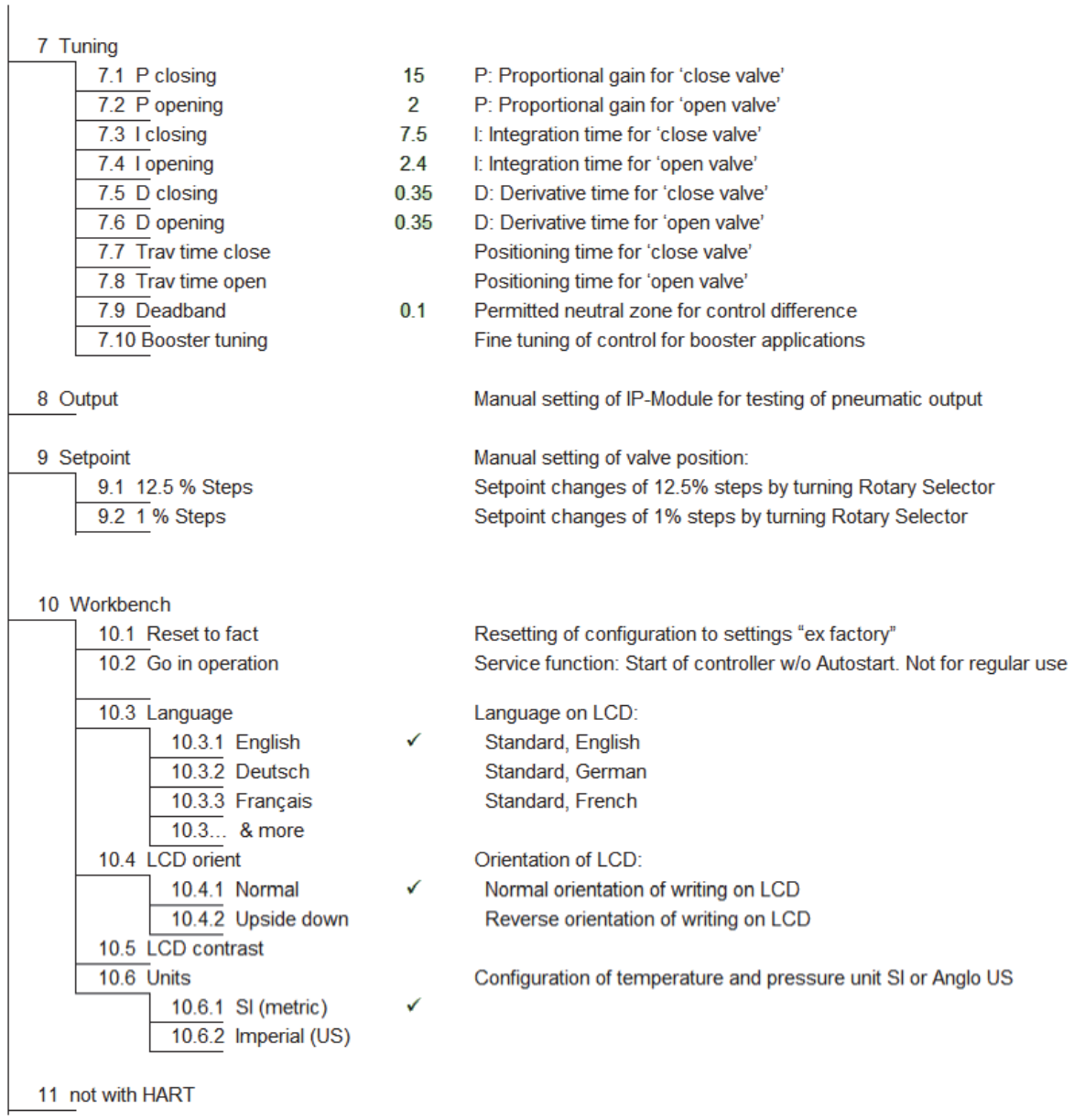
Figure 19. Menu Structure 1

Menu structure for SRD998

SRD Main Menu

Menu	Factory configuration	Description
1 Mounting		
1.1 Stroke left	✓	Stroke actuator, left-hand or direct mounting
1.2 Stroke right		Stroke actuator, right-hand mounting
1.3 Rotary ccw		Rotary actuator, opening counter-clockwise
1.4 Rotary clockw		Rotary actuator, opening clockwise
1.5 Linear Pot.		Mounting with external linear potentiometer
2 Autostart		
2.1 Endpoints		Adaptation of the mechanical stops only
2.2 Standard		Autostart recommended for standard application
2.3 Extended		Enhanced Autostart. Optimized control behaviour compared to Standard Autostart
2.4 Smooth response		Extended Autostart. Damped control behaviour for smaller actuators
2.5 Fast response		Extended Autostart. Undamped control behaviour for larger actuators
3 Action menu		
3.1 Valve action		Action of Positioner:
3.1.1 Direct	✓	Valve opens with increasing setpoint value
3.1.2 Reverse		Valve closes with increasing setpoint value
4 Accessories		
4.1 None		No accessories mounted
4.2 Booster		Booster mounted
5 Valve character		
5.1 Linear	✓	Linear characteristic
5.2 Equal % 1:50		Equal percentage characteristic 1:50
5.3 Quick open		Inverse equal percentage characteristic 1:50 (quick opening)
5.4 Custom		Custom characteristic (configuration via DTM)
6 Limits/Alarms		
6.1 Lower limit	0 %	Closing limit is set to input value
6.2 Cutoff low	1 %	0%-tight sealing point is set to input value
6.3 Cutoff high	100 %	100%-tight sealing point is set to input value
6.4 Upper limit	100 %	Opening limit is set to input value
6.5 Split-range 0 %	4 mA	Split range 0 %: input value corresponds to 0 %
6.6 Split-rng 100 %	20 mA	Split range 100 %: input value corresponds to 100 %
6.7 Lower Alarm	-10 %	Lower position alarm on output 1 is set to input value
6.8 Upper Alarm	110 %	Upper position alarm on output 2 is set to input value
6.9 Valve 0 %	4 mA	Configuration of rated-stroke of 0% at 4 mA
6.10 Valve 100%	20 mA	Configuration of rated-stroke of 100% at 20 mA
6.11 Pos Tuning		Tuning of position for mounting adaption
6.12 Stroke	x° / 20mm	Configuration of nominal travel

Figure 20. Menu Structure 2



Schneider Electric Systems USA, Inc.
38 Neponset Avenue
Foxboro, MA 02035
United States of America
http://www.schneider-electric.com

Global Customer Support
Inside U.S.: 1-866-746-6477
Outside U.S.: 1-508-549-2424
https://pasupport.schneider-electric.com