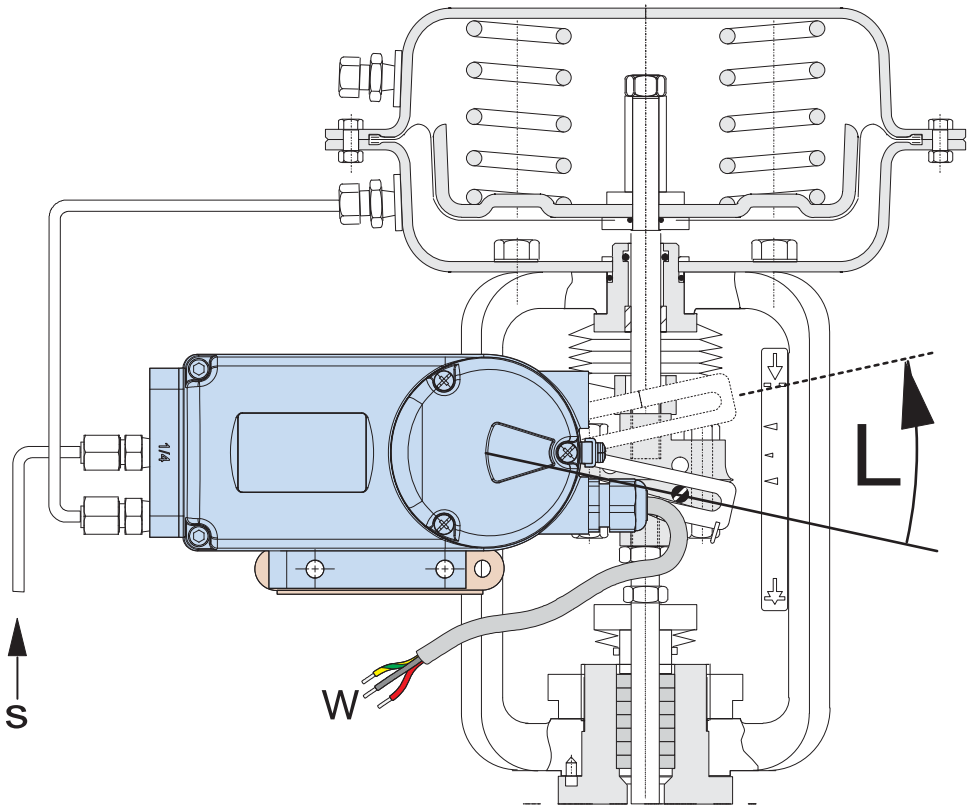
SRD998 Intelligent Positioner (Version HART Basic Diagnostic)

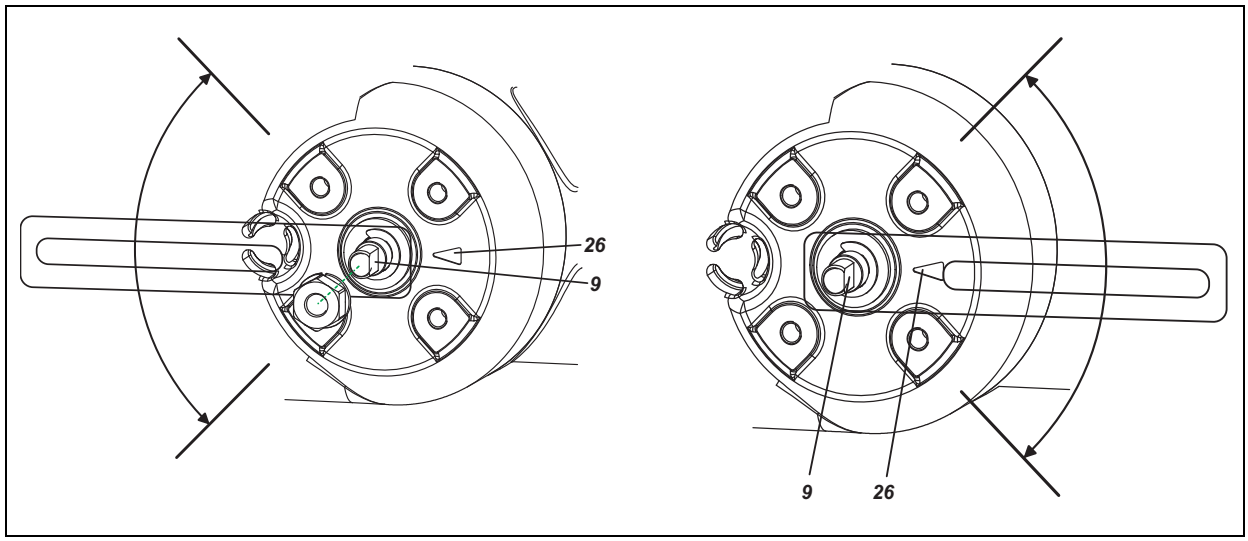
These instructions are to be used as a guide for quick start-up. For more detailed information please refer to the standard documents “Master Instructions” and “Product Specification Sheet”. These can be found on our Website.

Typical mounting



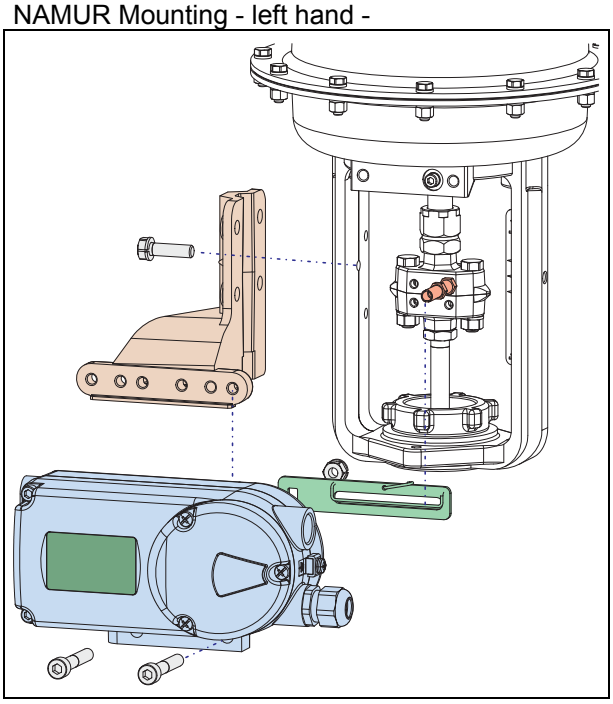
1. MOUNTING TO ACTUATORS

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

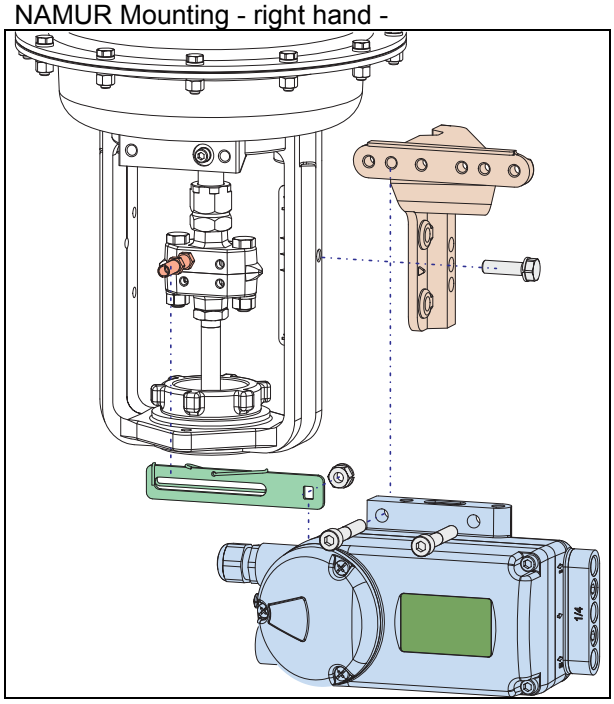


MOUNTING TO LINEAR ACTUATORS

NAMUR Mounting - left hand -

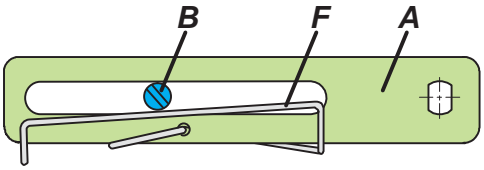


NAMUR Mounting - right hand -



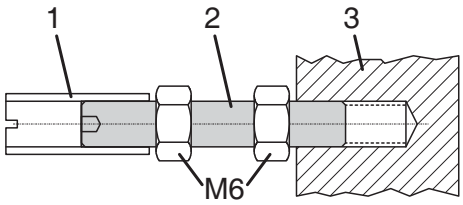
Feedback lever for linear actuators :

The carrier bolt ***B*** is in the slot of the feedback lever ***A*** and the compensating spring ***F*** touches the carrier bolt.



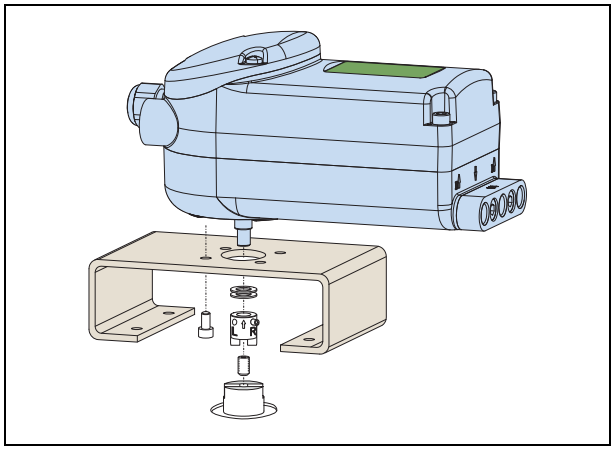
Carrier bolt B:

1 threaded sleeve 2 Stud 3 coupling piece

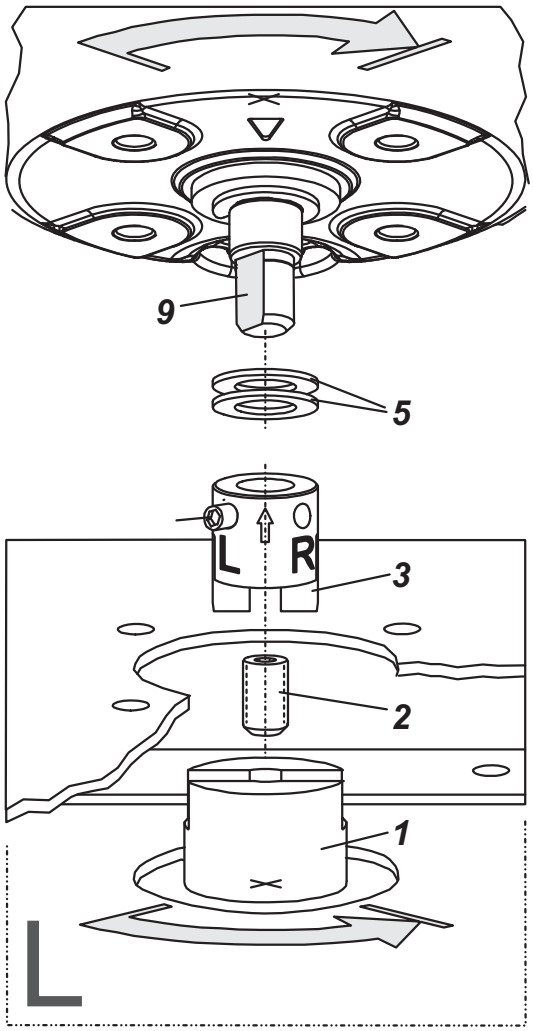


MOUNTING TO ROTARY ACTUATORS

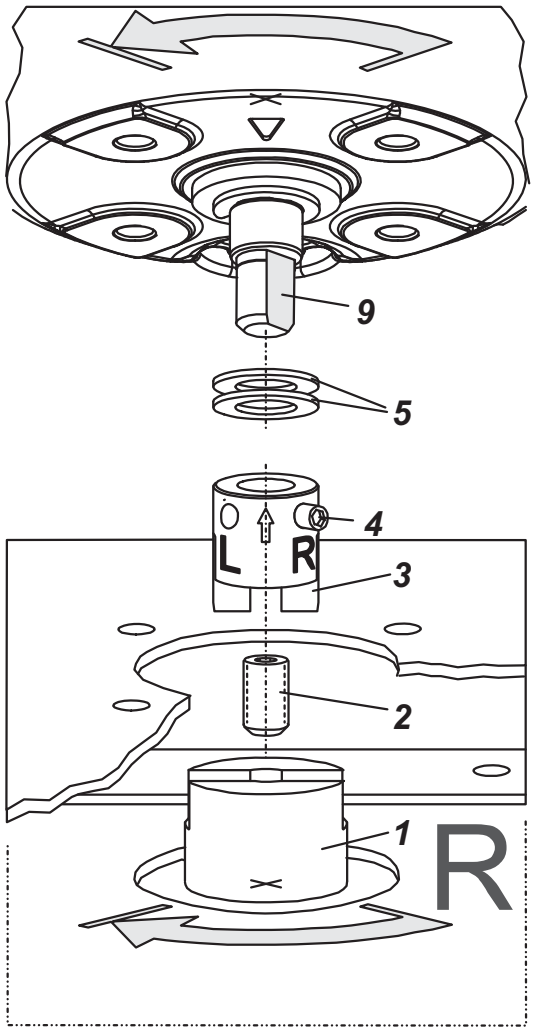
- Do not tighten grub screw 4 against the thread of spindle 9 !
- When in use the flat side of the spindle 9 must move (0 ↔ 100%) in front of the arrow 26.
- When the product temperature rises, the drive shaft 1 increases in length. Therefore, the rotary adapter 3 must be mounted so that approx. 1 mm (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 should result in a clearance of 1 mm.



Actuator, left turning



Actuator, right turning



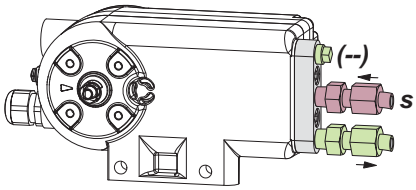
2. CONNECTIONS

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

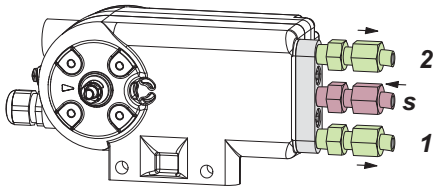
Ground
Connect earth cable to screw ***4*** (see next page) inside or outside of the electrical compartment.

PNEUMATIC CONNECTIONS
Air supply (s): 1.4 to 6 bar (but not more than the max. pressure of actuator), free of oil, dust and water !

Single acting



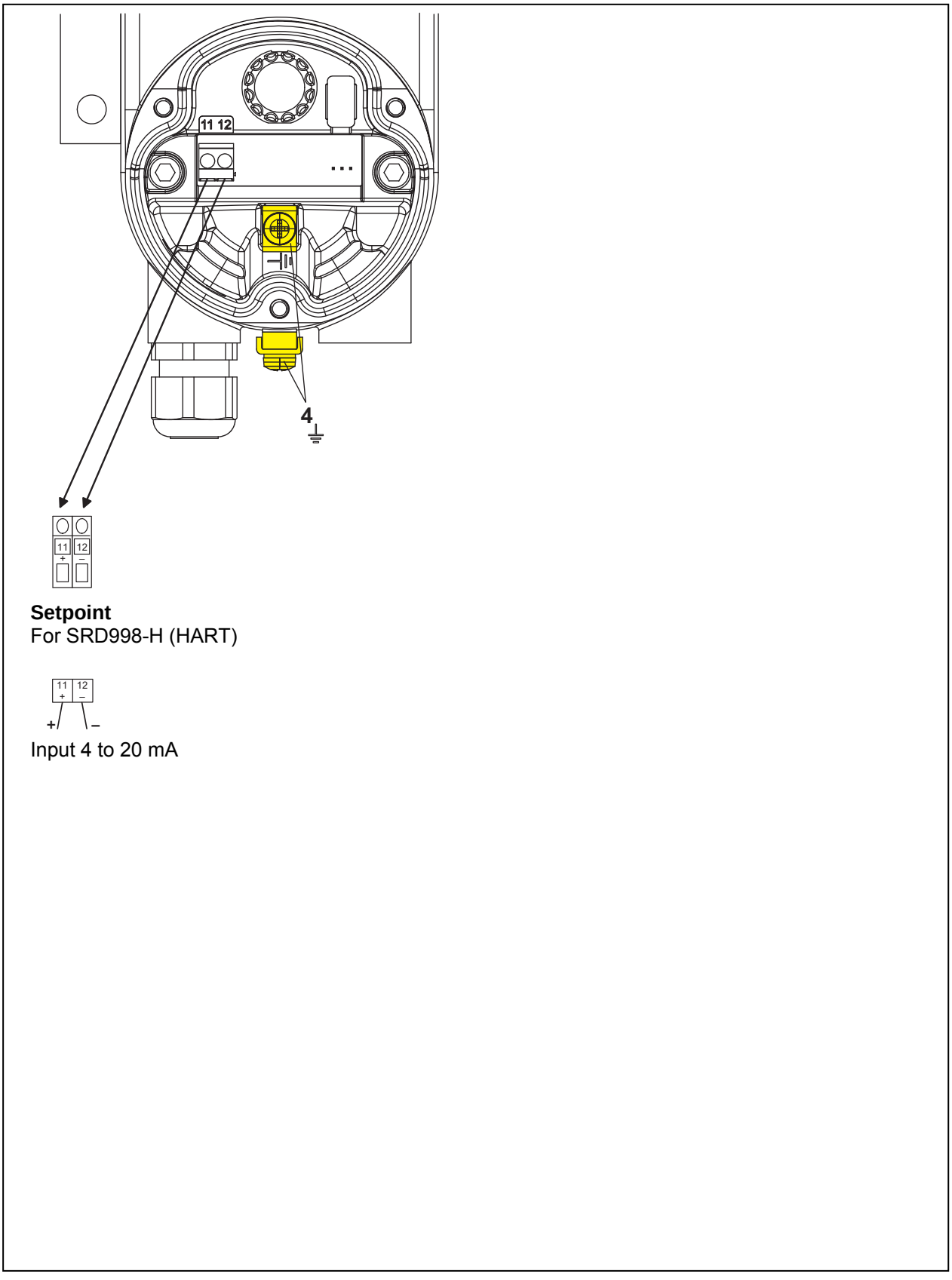
Double acting



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

3. ELECTRICAL CONNECTIONS

The safety requirements of document EX EVE0108 as well as the requirements of PSS EVE0108 and MI EVE0108 for SRD998 must be observed!



Setpoint
For SRD998-H (HART)

Input 4 to 20 mA

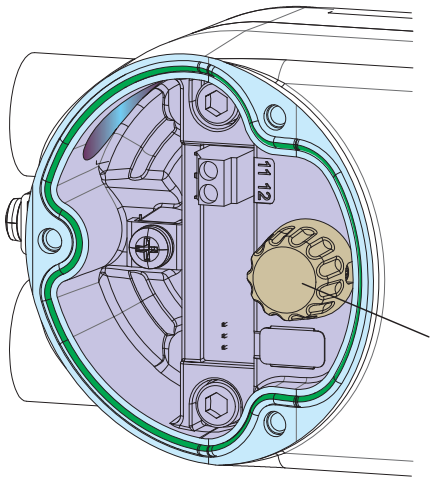
More detailed technical specifications see PSS EVE0108.
For intrinsically safe circuits please refer to certificate / data label for max. operating voltages etc.

4. START UP (Setting by means of Rotary Selector and LCD)

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. This is decribed on the following pages.

Attention: Do not touch behind the positioner housing! DANGER OF INJURIES!

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.



After power ON, the SRD goes to configuration, if no Autostart has already been done.
Then first select display orientation ...

```
LCD orient
 Normal
 Upside down
```

Select with Rotary selector and confirm by pushing it down
... and the LCD text language is selected...

```
Language
 English
 Deutsch
 Français
```

... then automatically continued to configuration:

```
SRD Main Menu
 Mounting
 Autostart
 Valve Action
```

To leave any menu, select “Exit” and confirm by pushing down the Rotary Selector.

Display at IN OPERATION

```
87.5
Position [%]
```
Process variable

```
87.5
⊗ Position [%]
```
Process variable and diagnostics

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.

Display at configuration: Main menu

```
SRD Main Menu
 Mounting
 Autostart
 Valve Action
```
In menu 1 you can select the type of mounting:

```
Mounting
 Stroke left
 Stroke right
 Rotary ccw
```
Stroke actuator, left-hand mount.
Stroke actuator, right-hand mount.
Rotary actuator, opening ccw
Rotary actuator, opening cw
Linear potentiometer

Select, confirm and exit to Main menu.
Now turn Rotary Selector to select Autostart:

```
SRD Main Menu
 Mounting
 Autostart
 Valve Action
```
Push Rotary Selector, and different Autostart options are available:

Endpoints	Determines only the mechanical stops of actuator/valve
Standard	Recommended for standard application
Enhanced	Optimized control behaviour compared to Standard Autostart.
Smooth resp.	Damped control behaviour for smaller actuators
Fast resp.	Undamped control behaviour for larger actuators.

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

Menu structure for SRD998

SRD Main Menu

Menu	Factory configuration	Description
		07.2016
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. Dampened control behaviour for smaller actuators
2.5 Fast response		Extended Autostart. Undampened control behaviour for larger actuators
3 Valve Action		
3.1 SRD		Action of Positioner:
3.1.1 Direct	✓	Valve opens with increasing setpoint value
3.1.2 Reverse		Valve closes with increasing setpoint value
3.2 Feedback		Action of Feedback unit:
3.2.1 Direct	✓	Increasing Current with increasing valve position
3.2.2 Reverse		Decreasing Current with increasing valve position
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

Continued on the next page...

7 Tuning		
7.1 P closing	15	P: Proportional gain for ‘close valve’
7.2 P opening	2	P: Proportional gain for ‘open valve’
7.3 I closing	7.5	I: Integration time for ‘close valve’
7.4 I opening	2.4	I: Integration time for ‘open valve’
7.5 D closing	0.35	D: Derivative time for ‘close valve’
7.6 D opening	0.35	D: Derivative time for ‘open valve’
7.7 Trav time close		Positioning time for ‘close valve’
7.8 Trav time open		Positioning time for ‘open valve’
7.9 Control gap	0.1	Permitted neutral zone for control difference
7.10 Booster tuning		Fine tuning of control for booster applications
8 Output		Manual setting of IP-Module for testing of pneumatic output
9 Setpoint		Manual setting of valve position:
9.1 12.5% Steps		Setpoint changes of 12.5% steps by turning Rotary Selector
9.2 1% Steps		Setpoint changes of 1% steps by turning Rotary Selector
9.3 Do PST		Starts the Partial Stroke Test, with the given parameters by DTM
10 Workbench		
10.1 Reset to fact		Resetting of configuration to settings “ex factory”
10.2 Go in operation		Service function: Start of controller w/o Autostart. Not for regular use
10.3 Language		Language on LCD:
10.3.1 English	✓	Standard, English
10.3.2 Deutsch		Standard, German
10.3.3 Français		Standard, French
10.3… & more		
10.4 LCD orient		Orientation of LCD:
10.4.1 Normal	✓	Normal orientation of writing on LCD
10.4.2 Upside down		Reverse orientation of writing on LCD
10.5 LCD contrast		
10.6 Units		Configuration of temperature and pressure unit SI or Anglo US
10.6.1 SI (metric)	✓	
10.6.2 Imperial (US)		
11 not with HART		
11 Profibus PA - Bus address		
11.1 Address LSB		Ratio from Dec. 0 / Hex 00 to Dec. 15 / Hex 0F
11.2 Address MSB		Ratio from Dec. 0 / Hex 00 to Dec. 112 / Hex 70
11.3 Address	126	Display of Bus Address from Dec. 1 to 127 (Hex 00 to 7F)
11 FOUNDATION Fieldbus H1		
11.1 Simulate		
Disabled	✓	Simulate disabled
Enabled		Simulate enabled
11.2 Profile		
Link Master	✓	Link Master active
Basic Device		Link Master de-activated

Invensys Systems, Inc.
38 Neponset Avenue
Foxboro, MA 02035
United States of America

schneider-electric.com

Global Customer Support
Toll free: 1-866-746-6477
Global: 1-508-549-2424
Website:
http://support.ips.invensys.com

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