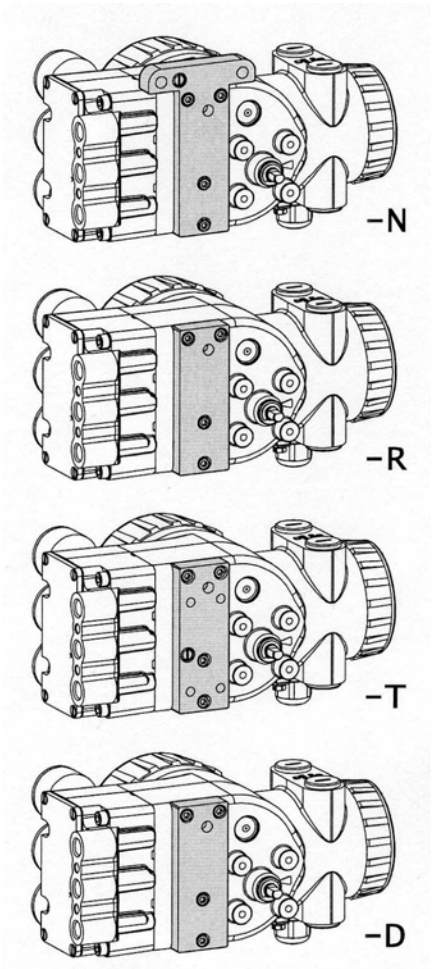
SRD960 Universal Positioner

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.

1. MOUNTING TO ACTUATORS

Mounting adapters

Be sure to have the right mounting adapter.



Option N:
NAMUR mounting, according to IEC 534-6
Direct mounting to FoxPak and FoxTop actuators
Rotary actuators, according to VDI/VDE 3845

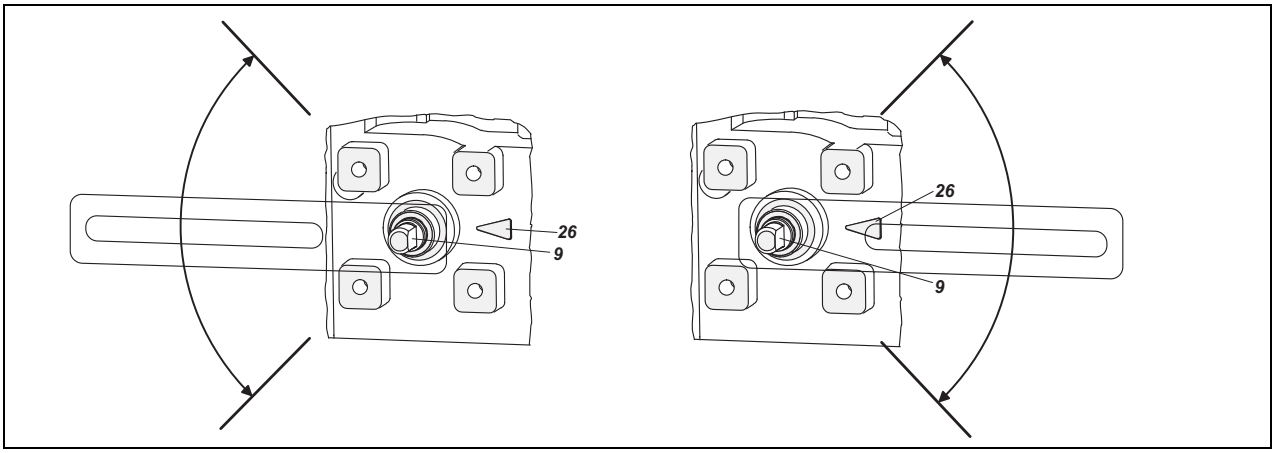
Option R:
Rotary actuators, according to VDI/VDE 3845

Option T:
Integrated mounting with air connections on rear
Rotary actuators, according to VDI/VDE 3845

Option D:
NAMUR mounting, according to VDI/VDE 3847
Rotary actuators, according to VDI/VDE 3845

MOUNTING TO ACTUATORS

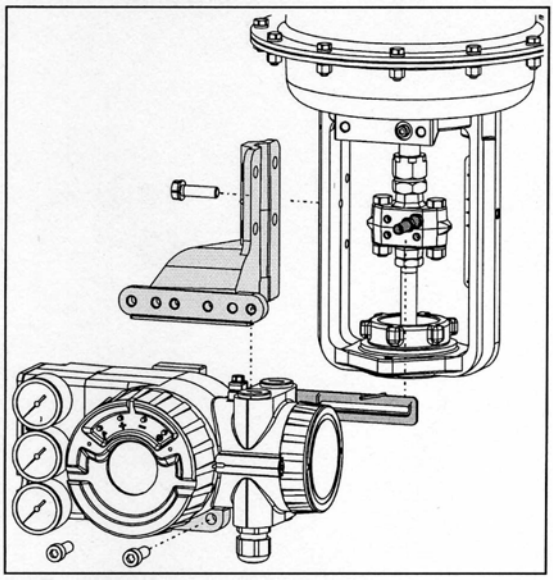
During operation the flat side of the spindle ***9*** on the back of the positioner must **always** point towards the arrow ***26***. The working angle around this position is ±45º.



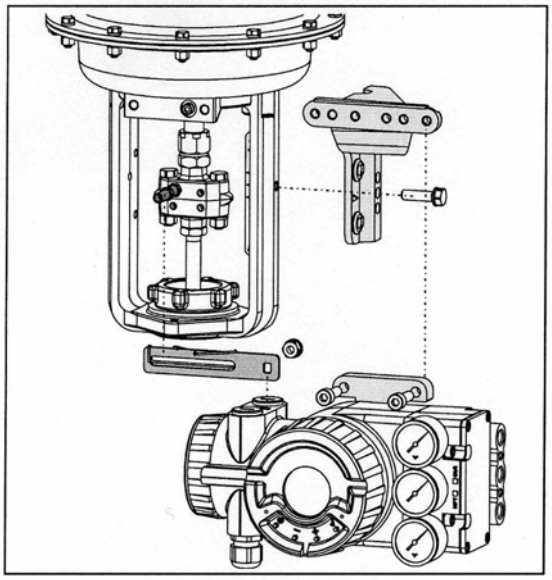
Life Is On Foxboro by Schneider Electric

MOUNTING TO LINEAR ACTUATORS

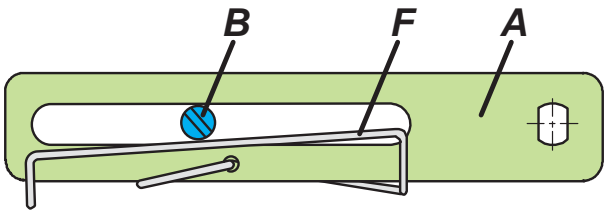
NAMUR Mounting - left hand -



NAMUR Mounting - right hand -

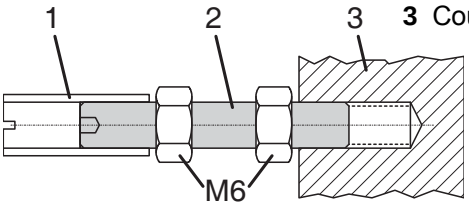


Feedback lever for linear actuators:
The carrier bolt ***B*** is in the slot of the feedback lever ***A*** and the compensating spring ***F*** touches the carrier bolt.

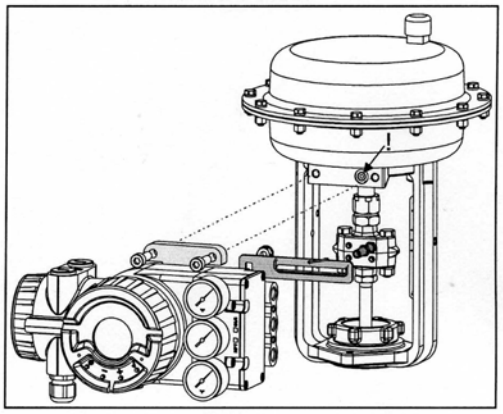


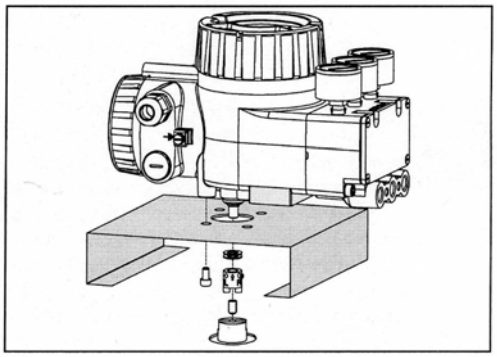
Carrier bolt B:

1 Threaded sleeve
2 Stud
3 Coupling piece



Direct Mounting





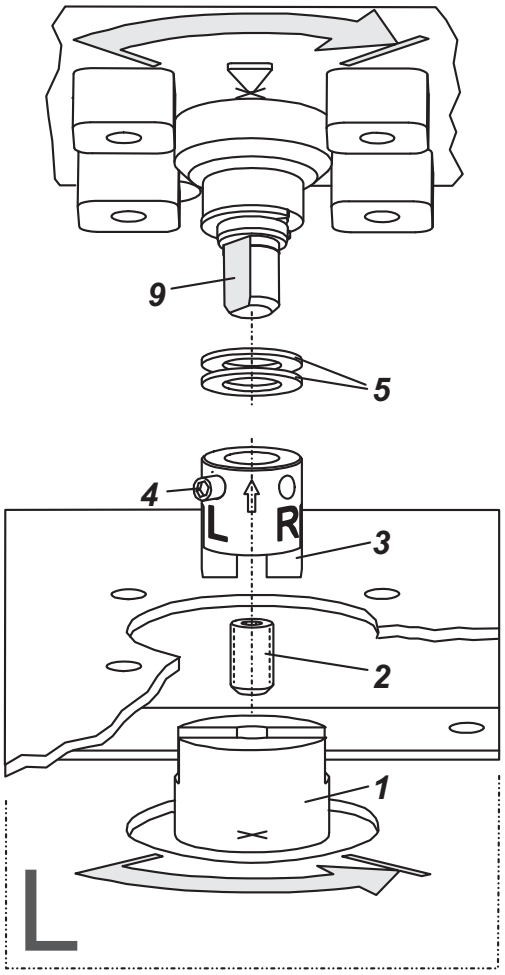
MONTAGE SUR SERVOMOTEURS ROTATIFS

• Do not tighten grub screw 4 against the thread of spindle **9**!

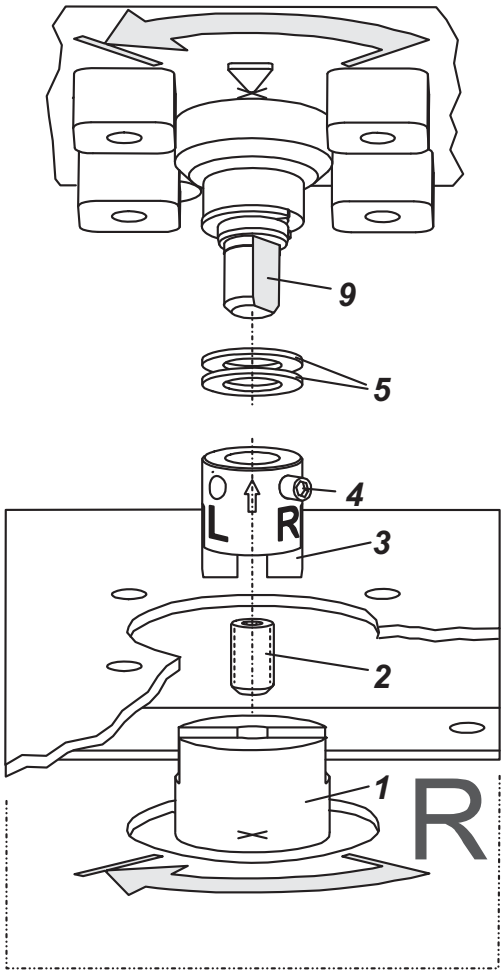
• When in use the flat side of the spindle **9** must move (0 ↔ 100%) in front of the arrow **26**.

• 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



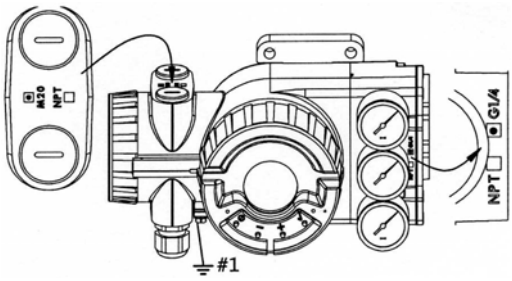
Actuator, right turning



2. CONNECTIONS

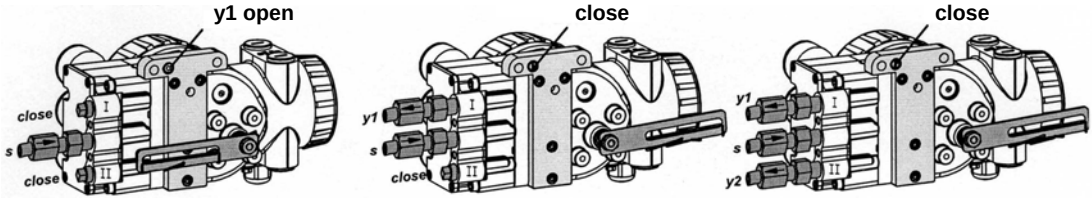
Check before mounting fittings and cable glands if threads are matching, otherwise housing can be damaged.
Type of thread is marked at housing.

<u>Ground:</u>
Connect earth cable to screw #**1** or screw #**2** (in the electrical connection 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!



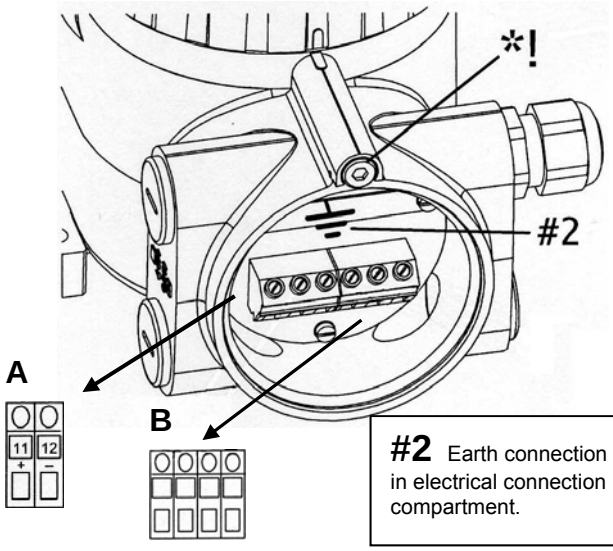
Direct mounting (simple acting) ***Simple acting*** ***Double acting***

3. ELECTRICAL CONNECTIONS

The safety requirements must be observed.

***!** Loosen protection screw first, to open the cover and access the electrical connection compartment.

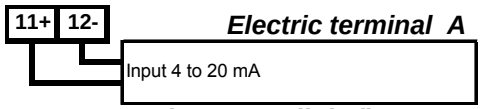
This screw also unlocks the cover for electronic compartment



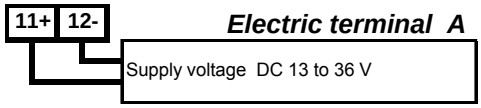
#2 Earth connection in electrical connection compartment.

3.1 Setpoint

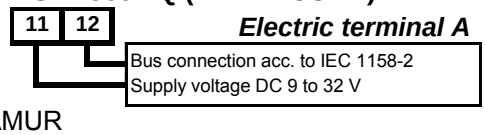
3.1.1 SRD960-xD (Intelligent w/o comm.)
SRD960-xH (HART)
SRD960-xA (Analog)



3.1.2 SRD960-xF (FoxCom digital)



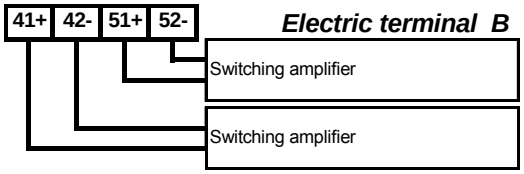
3.1.3 SRD960-xP (PROFIBUS PA)
SRD960-xQ (FIELDBUS FF)



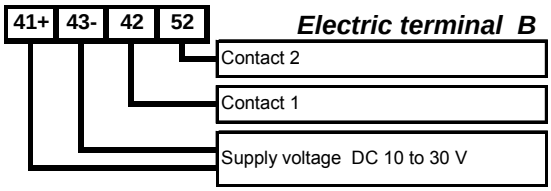
3.2 Limit Switch

3.2.1 SRD960-xxxT or U

Two-wire proximity sensors, Acc. to DIN 19234 or NAMUR



3.2.2 SRD960-xxxR



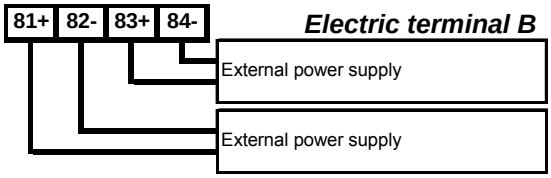
3.2.3 SRD960-xxxV

Warning: For connection of micro switches please refer to MI (Master Instruction) and respect the safety requirements described in document EX EVE0001.

3.3 Additional i/o

3.3.1 Two binary outputs (SRD960-xxP)

Two-wire system, acc. to DIN 19234 or switched output

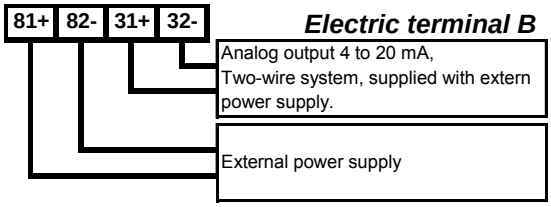


3.3.2 Two binary inputs (SRD960-xxB)

Binary inputs with internal supply for connection of sensors or switches (switch **closed** for a normal operation!)

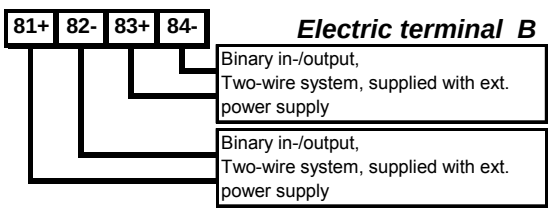
3.3.3 Position feedback 4 to 20 mA and 1 Alarm (SRD960-xxQ)

Analog output 4 to 20 mA and Binary output Two-wire system acc. to DIN 19234 or switched.



3.3.4 Two binary in-/outputs (SRD960-xxE)

Two-wire system acc. to DIN 19234 or switched in-/output.



4. START UP (Setting by means of local keys and LCD / LEDs)

After mounting the positioner on the actuator, air and electrical input connected, you can start-up the SRD. The SRD960 can be adjusted by means of a local key-pad and LCD / LED display.

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

Description of display LCD

Process variable

```
  87.5 %
Valve position
```

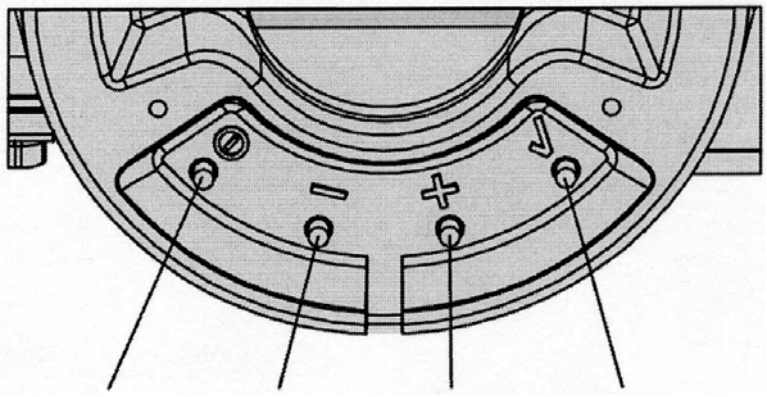
Process variable and diagnostics

```
  87.5 %
Valve position
Ctrl diff error
```

At configuration: Main Menu

```
SRD Main Menu
1  Mounting
2  Autostart
3  Valve Action
```

Push buttons



❶	(-)	(+)	✓
Main menu: enter or exit	Previous menu or parameter	Next menu or parameter	Enter / store

At configuration the selected item is displayed with dark background. Further Menus with **(+)** key.

Configuration and operation with push buttons …

and LCD:

An already configurated device may show the following display:

```
  87.5 %
Valve position
```

For configuration press **(❶)** and Main Menu appears.

If the SRD wasn't configurated yet, the Main Menu*) appears automatically after power-up:

```
SRD Main Menu
1  Mounting
2  Autostart
3  Valve Action
```

In Menu 1 you can select the type of mounting

*) On delivery the menu language in the display is English. The menu language can be changed over to another stored language. For this select 9.8.2 [german] or 9.8.3 [as ordered] and confirm with keys (UP)+(DOWN) (simultaneously).
Leave menu by repeated pressing of (M) key..

and LED display:

An already configurated device is IN OPERATION after power up, and all LEDs are off.

M 1 2 3 4

❍ ❍ ❍ ❍ ❍

For configuration press **(❶)**, and LEDs 'M/F' and '1' flash (= Menu 1 is offered).

If the SRD wasn't configurated yet, Menu 1 is offered automatically after power-up:

M 1 2 3 4

✷ ✷ ❍ ❍ ❍

In Menu 1 you can select the type of mounting

Legend: ❍ LED off, ● LED on, ✷LED flash

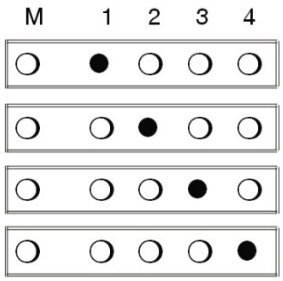
... and LCD:

... and LED display:

Press keys **(✓)** to enter Menu 'Type of mounting'.
Select the 'Type of mounting' by pressing **(+)** or **(-)**.

```
1  Mounting
1.1 Lin left
1.2 Lin right
1.3 rot cclockw
```

(Further Menus with **(+)** key.)



Linear actuator, left-hand mounted

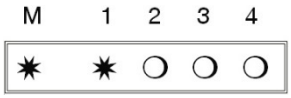
Linear actuator, right-hand mounted

Rotary, opening counter-clockwise

Rotary, opening clockwise

Press keys **(✓)** to confirm and save.
The SRD moves back to Menu level 1 and is in Main Menu again.

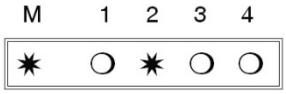
```
SRD Main Menu
1  Mounting
2  Autostart
3  Valve Action
```



To enter next Menu (= Menu 2, Autostart) press **(+)** once.

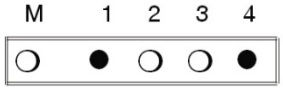
To enter next Menu (= Menu 2, Autostart) press **(+)** once, and the LEDs 'M' and '2' flash.

```
SRD Main Menu
1  Mounting
2  Autostart
3  Valve Action
```



Press keys **(✓)** to enter Menu 'Autostart'.
Select the autostart by pressing **(+)** or **(-)**.

```
2  Autostart
2.1 Endpoints
2.2 Standard
2.3 Enhanced
```



Standard Autostart

Different **Autostart** options are available:

`2.1 Endpoints`
Determines only the mechanical stops of actuator/valve.

`2.2 Standard`
Autostart recommended for standard application.

`2.3 Enhanced`
Enhanced Autostart. Optimized control behaviour compared to Standard Autostart.

`2.4 Smooth resp.`
Extended Autostart. Dampened control behaviour for e.g. smaller actuators.

`2.5 Fast resp.`
Extended Autostart. Undampened control behaviour for e.g. larger actuators.

Press keys **(✓)** to confirm and to launch Autostart.

The automatic adaptation to the valve is composed of a sequence of steps, explained on the LCD or indicated by the LEDs.

Following the last step the device is IN OPERATION

Menustructure for SRD991/SRD960 with LCD

SRD Main Menu

Menu	Factory configuration	Description
1 Mounting		
1.1 Lin left	✓	Linear actuator, left-hand or direct mounting
1.2 Lin right		Linear actuator, right-hand mounting
1.3 Rot cclockw		Rotary actuator, opening counter-clockwise
1.4 Rot clockw		Rotary actuator, opening clockwise
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 resp.		Extended Autostart. Dampened control behaviour for e.g. smaller actuators
2.5 Fast resp.		Extended Autostart. Undampened control behaviour for e.g. larger actuators
3 Valve Action		
3.1 SRD		
3.1.1 Direct	✓	Valve opens with increasing setpoint value
3.1.2 Reverse		Valve closes with increasing setpoint value
3.2 Feedback		
3.2.1 Direct	✓	Increasing Current with increasing valve position
3.2.2 Reverse		Decreasing Current with increasing valve position
4 Character		
4.1 Linear	✓	Linear characteristic
4.2 Eq Perc 1:50		Equal percentage characteristic 1:50
4.3 Quick open		Inverse equal percentage characteristic 1:50 (quick opening)
4.4 Customer		Custom characteristic
5 Limits/alarms		*Not locally available with LED versions of communication FF and Profibus*
5.1 Lower limit	0 %	Closing limit is set to input value
5.2 Cutoff low	1 %	0%-tight sealing point is set to input value
5.3 Cutoff high	100 %	100%-tight sealing point is set to input value
5.4 Upper limit	100 %	Opening limit is set to input value
5.5 Splitr 0 %	4 mA	Split range 0 %: input value corresponds to 0 %
5.6 Splitr 100 %	20 mA	Split range 100 %: input value corresponds to 100 %
5.7 Lower Alarm	-10 %	Lower position alarm on output 1 is set to input value
5.8 Upper Alarm	110 %	Upper position alarm on output 2 is set to input value
5.9 Valve 0%	4 mA	Configuration of rated-stroke of 0% at 4 mA
5.10 Valve 100%	20 mA	Configuration of rated-stroke of 100% at 20 mA
5.11 Stroke Range	x° / 20mm	Configuration of nominal travel
5.12 Units	SI	Configuration of temperature and pressure unit SI or Anglo US
6 Parameters		
6.1 Gain closing	15	P: Proportional gain for ‘close valve’
6.2 Gain opening	2	P: Proportional gain for ‘open valve’
6.3 Res time cl	7.5	I: Integration time for ‘close valve’
6.4 Res time op	2.4	I: Integration time for ‘open valve’
6.5 Rate lim cl	0.35	T63: Setting time for ‘close valve’
6.6 Rate lim op	0.35	T63: Setting time for ‘open valve’
6.7 Control gap	0.1	Permitted neutral zone for control difference
7 Output		Manual setting of IP-Module for testing of pneumatic output
8 Setpoint		Manual setting of valve position
8.1 12.5% Steps		Setpoint changes of 12.5% steps by using push buttons Up or Down
8.2 1% Steps		Setpoint changes of 1% steps by using push buttons Up or Down
8.3 Do PST		Start Partial Strok Test

Continue on the next page...

9 Workbench		
9.1 Reset Config		Resetting of configuration to setting “ex factory”
9.2 Calib. 4 mA		Calibrate input current to 4 mA
9.3 Calib. 20 mA		Calibrate input current to 20 mA
9.4 Calib. -45°		Calibrate position measuring value to –45°
9.5 Calib. +45°		Calibrate position measuring value to +45°
9.6 Reset all 1		Resetting of configuration and Calibration (!) to “ex factory” setting for **single-acting** output
9.7 Reset all 2		Resetting of configuration and Calibration (!) to “ex factory” setting for **double-acting** output
9.8 Go Online		Setting position into mode Online
9.9 Menu Lang		
9.9.1 English	✓	Standard
9.9.2 Deutsch		Standard
9.9.3 Français		Preselected / Freely Defiable
9.10 LCD orient		
9.10.1 Normal	✓	Normal orientation of writing on LCD
9.10.2 Flipped		Reverse orientation of writing on LCD
9.11 Cal. Feedbk		Calibration of output current of position transmitter
9.11.1 Cal 4mA		Calibration of 0% at 4mA
9.11.2 Cal. 20mA		Calibration of 100% at 20mA
10 - not available - for HART		
10 Profibus PA - Bus Address		
10.1 Address LSB		Ratio from Dec. 0 / Hex 00 to Dec. 15 / Hex 0F
10.2 Address MSB		Ration from Dec. 0 / Hex 00 to Dec. 112 / Hex 70
10.3 Address	126	Display of Bus Address from Dec. 1 to 127 (Hex 00 to 7F)
10 FOUNDATION Fieldbus H1		
10.1 Simulate		
Disabled	✓	Simulate disabled
Enabled		Simulate enabled
10.2 Profile		
Link Master	✓	Link Master active
Basic Device		Link Master de-activated

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