

SRD998 Intelligent Positioner with HART Communication

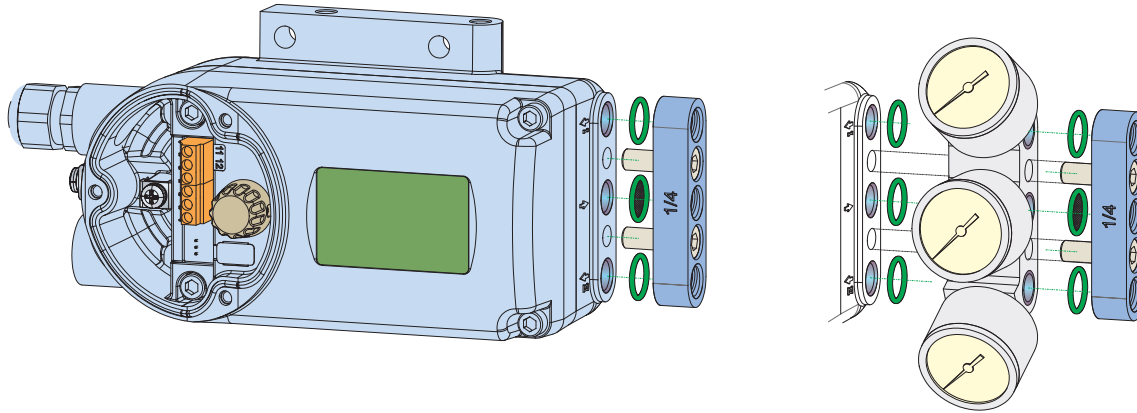


The intelligent positioner SRD998 is designed to operate pneumatic valve actuators and can be operated from control systems (e.g. the I/A Series System and Evo™), controllers or PC-based configuration and operation tools such as the FDT/DTMs VALcare™. The positioner is available with HART 7 Communication Protocol. The extra large multi-lingual full text graphical-LCD, in conjunction with the rotary selector, allows a comfortable and easy local configuration and operation. For installations in contact with explosive atmospheres certificates are available.

FEATURES

- ▶ Auto-start with self-calibration
- ▶ Self diagnostics, status and diagnostic messages
- ▶ DTM for valve diagnostics and predictive maintenance
- ▶ Easy local operation with the rotary selector
- ▶ Extra large multi-lingual full text graphical LCD
- ▶ With HART 7 communication
- ▶ Stroke 8 to 260 mm (0.3 to 10.2 in) with standard lever; larger stroke with special lever
- ▶ Angle range up to 95° (up to 120° on request)
- ▶ Mounting onto any linear or rotary actuator
- ▶ Supply air pressure up to 10 bar (145 psig)
- ▶ Single or double acting
- ▶ Protection class IP 66
- ▶ Explosion protection: Intrinsic Safety according to ATEX/IECEX, INMETRO, NEPSI, PESO, CNS, EAC

*Equipment should be installed, operated, serviced, and maintained only by qualified personnel.
No responsibility is assumed by Schneider Electric for any consequences arising from the use of this material.*

DESIGN*Figure 1. Design*

Using the modular concept of the SRD998, the positioner can be optimally adapted to the application. In addition to connection manifolds with various threads, mounting kits for each drive and extensive accessories, these also include integrated pneumatic amplifiers in various performance classes.

Pneumatic Amplifiers

Depending on the actuator, a single or double-acting pneumatic amplifier is used.

- ▶ Codes BxS - Single Acting
- ▶ Codes CxS - Double Acting

Single-acting pneumatics have versions B0S, B1S and B2S that differ in air flow. For the double-acting pneumatics, there are the versions C0S, C1S and C3S, which differ in the air performance.

For drives with increased air output, a correspondingly powerful supply air station is required.

TECHNICAL DATA

Supply

Supply air pressure

- ▶ B0S, C0S - 1.4 to 6 bar (20 to 87 psig)
- ▶ B1S, B2S - 1.4 to 10 bar (20 to 145 psig)
- ▶ C1S, C3S - 1.4 to 10 bar (20 to 145 psig)

Output to actuator - 0 to ~100% of supply air pressure (up to 5.5 bar at 6 bar supply air pressure)

Air supply - according to ISO 8573-1

- ▶ Solid particle size and density class 2
- ▶ Oil rate - class 3
- ▶ Pressure dew point 10 K under ambient temperature

We recommend the use of a filter regulator for air supply of the positioner. It reduces the air pressure to the actuator's maximum pressure, keeps it constant, and filters the air. For the pneumatics with standard flow (B0S, B1S, C0S) we recommend the FRS02, FRS03, or FRS923 filter regulator. When using other brands, a filter grade of 30 µm or better is supported.

For the pneumatics with high flow (B2S, C1S, C3S) we recommend the High Flow Filter Regulator FRS04 or FRS05 with a filter grade of 5 µm. When using other brands, a filter grade of 5 µm is supported.

Travel Range

Stroke range	8 to 260 mm (0.3 to 10.2 in) with standard feedback levers; special levers on request
Rotation angle range	Without mechanical stop up to 95° angle (up to 120° on request)

Response Characteristic^{(1) (2)}

Sensitivity	< 0.1% of travel span
Non-linearity (terminal based adjustment)	< 0.6% of travel span
Hysteresis	< 0.3% of travel span
Supply air dependence	< 0.1%/1 bar (15 psi)
Temperature effect	< 0.3%/10 K
Mechanical vibration effect according to IEC 60068-2-6 (2007) for 10 to 500Hz up to 2g	
For Pneumatics B0S	<ul style="list-style-type: none"> ▶ < ±0.25% up to 80Hz and 1g ▶ < ±0.25% up to 70Hz and 2g
For Pneumatics B1S, B2S	<ul style="list-style-type: none"> ▶ < ±0.25% up to 70Hz and 1g ▶ < ±0.25% up to 50Hz and 2g
For Pneumatics C0S	<ul style="list-style-type: none"> ▶ < ±0.25% up to 400Hz and 1g ▶ < ±0.25% up to 70Hz and 2g
For Pneumatics C1S, C3S	<ul style="list-style-type: none"> ▶ < ±0.25% up to 55Hz and 2g

In case of high vibrations, we recommend using remote mounting solution.

Note for Single/Double Acting Operation

For optimal control performance, the use of double acting positioners onto single acting actuators is not recommended.

1. Data measured according to VDI/VDE 2177 and IEC 61514-2

2. With 90° angle, rotary actuator

USABILITY

SRD998 Pneumatic Type		SRD998 Pneumatic Technique	Recommended Filter Regulator	Booster, if required
Single Acting	B0S	Diaphragm Amplifier	FRS923/FRS02/FRS04	VBS200/VBS300 Series
Double Acting	C0S	Diaphragm Amplifier	FRS923/FRS02/FRS04	VBS200/VBS300 Series
Single Acting	B1S	Diaphragm Amplifier	FRS923/FRS02/FRS04	VBS200/VBS300 Series
Single Acting	B2S	Diaphragm Amplifier	FRS04	VBS200/VBS300 Series
Double Acting	C1S	Spool Valve	FRS04	Booster not recommended
Double Acting	C3S	Spool Valve	FRS04	Booster not recommended

PNEUMATIC PERFORMANCE - AIR FLOW

Pneumatic Performance - Air Flow			
Air flow at Air Input/Output		3 bar	
Pneumatic Code B0S (Single Acting - Standard Flow, Standard Pneumatic)			
to pressurize actuator		7000	NI/h
to vent actuator		5000	NI/h
Pneumatic Code B1S (Single Acting - Standard Flow, High Performance Pneumatic)			
to pressurize actuator		7000	NI/h
to vent actuator		5000	NI/h
Pneumatic Code B2S (Single Acting - High Flow, High Performance Pneumatic) Cv 0.58			
to pressurize actuator		21500	NI/h
to vent actuator		15000	NI/h
Pneumatic Code C0S (Double Acting - Standard Flow, Standard Pneumatic)			
to pressurize actuator		5000	NI/h
to vent actuator		3750	NI/h
Pneumatic Code C1S (Double Acting - High Flow, High Performance Pneumatic)			
to pressurize actuator		7000	NI/h
to vent actuator		7000	NI/h
Pneumatic Code C3S (Double Acting - Very High Flow, High Performance Pneumatic) Cv 0.85			
to pressurize actuator		33500	NI/h
to vent actuator		33500	NI/h

Recommended pneumatics, depending on the actuator size:

- ▶ For actuators < 1 dm³ use the C0S, C1S, B0S, or B1S
- ▶ For actuators > 1 dm³ use the B2S, or C3S

PNEUMATIC PERFORMANCE - AIR CONSUMPTION [NL/H]⁽³⁾

Pneumatic Performance - Air Consumption [NL/h]			
Air consumption at steady state	3 bar		
Pneumatic Code			
B0S (Single Acting - Standard Flow)	250		NI/h
B1S (Single Acting - Standard Flow, High Performance Pneumatic)	400		NI/h
B2S (Single Acting - High Flow, High Performance Pneumatic)	400		NI/h
C0S (Double Acting - Standard Flow)	335		NI/h
C1S (Double Acting - High Flow, High Performance Pneumatic)	400		NI/h
C3S (Double Acting - Very High Flow, High Performance Pneumatic)	400		NI/h

BOOSTERS FOR INCREASED AIR FLOW

Volume Booster Series (to order as accessory)

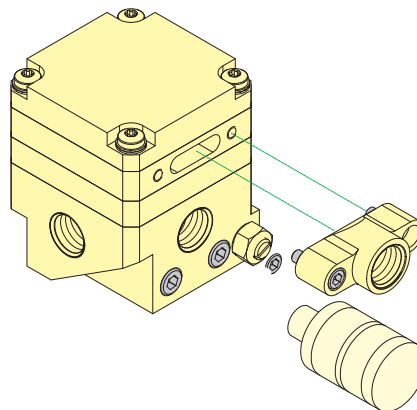
For large actuators or to reduce action time, a volume booster may be necessary.

VBS200/VBS201

Volume boosters with Cv1.4 and pneumatic connection 1/2"

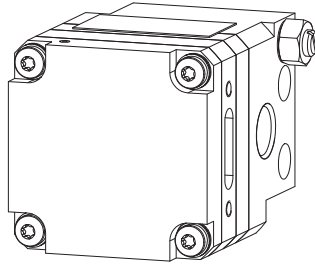
Optional with Exhaust Collector or Silencer

Figure 2. VBS201 Directly Flanged to the Positioner, Optional with Silencer



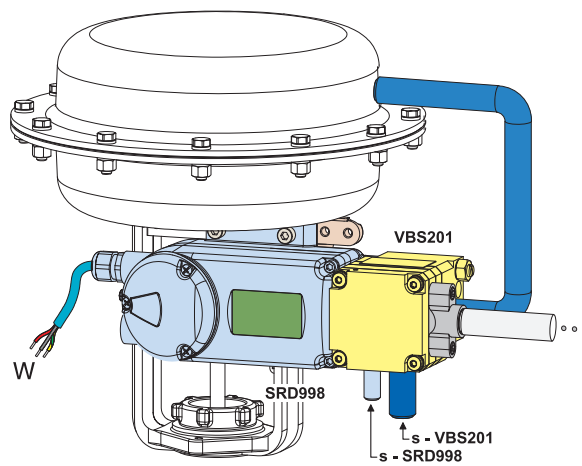
3. Measured according to ANSI/ISA-75.13.01-2013

Figure 3. VBS200 for Remote Mounting



For more information, see PSS EVE0602.

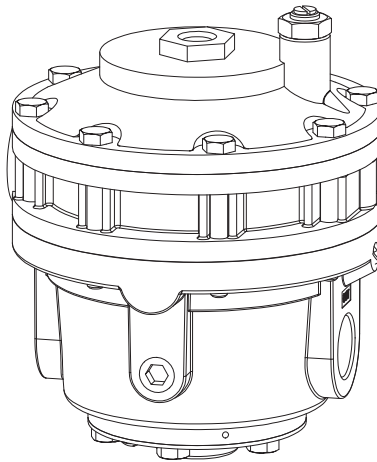
Figure 4. Mounting Example 1



VBS300/VBS310

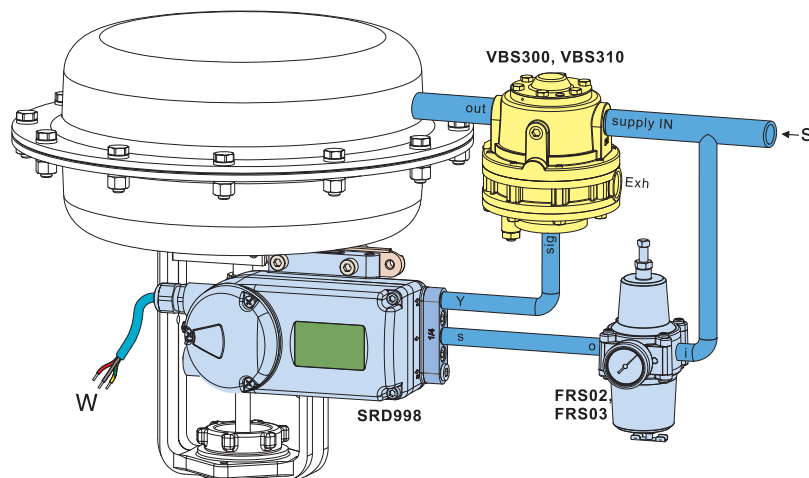
Volume boosters with Cv 7 and pneumatic connection 1" for remote mounting.

Figure 5. VBS300 in Aluminum, VBS310 in Stainless Steel 316



For more information, see PSS EVE0603.

Figure 6. Mounting Example 2



FUNCTIONAL SPECIFICATIONS

FEATURES

Automatic Start-up (Autostart Functionality)

Automatic determination of the mechanical end positions of the valve (initial value and final value), IP motor parameters, direction of action of the spring, and control parameters. The control parameters are optimized dynamically during this routine. This procedure makes an adjustment and optimization to the actuator possible without additional manual settings. Several Autostart modes are available.

OPERATION AND CONFIGURATION

The local LCD enables a fast and easy configuration as well as clear diagnostic messages.

- ▶ Local - with local rotary selector
- ▶ Display - multi lingual graphic LCD

The positioner contains the following menu languages:

English, German, French, Chinese, Portuguese, Spanish, Polish, Korean, Swedish, Italian, Russian, Turkish

MANUAL LOCAL AND REMOTE SETTINGS

Table 1. Manual Local and Remote Settings

Actuator mode <ul style="list-style-type: none"> ▶ Linear valve ▶ Rotary actuator 	Linear or rotary actuator <ul style="list-style-type: none"> ▶ Left or right mounted ▶ Opening clockwise or counter-clockwise
Valve characteristic	Linear, equal percentage, inverse-equal percentage or custom (22 points)
Valve action	Opens or closes with increasing set point
Split range	Free upper and lower values
Travel limits	Free upper and lower values
Cutoffs	Free upper and lower values
Stroke range	Configurable
Temperature unit	Configurable (°C or °F)
Autostart	<ul style="list-style-type: none"> ▶ Endpoints ▶ Standard Autostart ▶ Enhanced Autostart ▶ Smooth response ▶ Fast response
Control parameters	Determined during Autostart
Working range	Freely adjustable (for indication on LCD)
Manual adjustment of	P-gain, I-time, D-time, T63-time, and dead band
Manual operation	Manual input of set point to drive the valve in steps of 12.5% or 1%
Pneumatic test	Function to test the pneumatic output
LCD orientation	Standard, and upside down

SOFTWARE SUPPORTED CONFIGURATIONS

- ▶ By means of Hand Held Terminal (HART)
- ▶ PC by means of VALcare DTM Software
- ▶ I/A Series System, Evo™ and other DCS

ISSUE HANDLING

In case of Single Acting, Safety position at

- ▶ Air supply loss - pressure y1 = zero
- ▶ Electric power loss - pressure y1 = zero
- ▶ Electronics issue - pressure y1 = zero

In case of Double Acting or spool valve amplifier, safety position at

- ▶ Air supply loss - pressure y1 = zero; y2 = zero
- ▶ Electric power loss - pressure y1 = zero; y2 = full air supply pressure
- ▶ Electronics issue - pressure y1 = zero; y2 = full air supply pressure

DIAGNOSTIC

To monitor the high performance of the positioner, see Table 2.

Table 2. Diagnostic Utilities

Type	Basic Diagnostics	Advanced Diagnostics
Configuration data surveillance	Yes	Yes
Input current adjustment surveillance	Yes	Yes
A/D converter surveillance	Yes	Yes
Position value surveillance	Yes	Yes
Connection to I/P converter surveillance	Yes	Yes
Potentiometer surveillance	Yes	Yes
Angle adjustment surveillance	Yes	Yes
Surveillance of reaching the set point in a specific time	Yes	Yes
Temperature limit min or max surveillance	Yes	Yes
Autostart surveillance	Yes	Yes
Custom Characterization		Yes
Auto diagnostic		Yes
Alarm Management		Yes
Alarm Output for Switching (with Option board)		Yes
Status List according to NE107		Yes
Position History		Yes
Response History		Yes
Step Response Analyze		Yes

PHYSICAL SPECIFICATIONS (COMMON DATA FOR ALL VERSIONS)

Mounting**Attachment to Stroke Actuators**

- ▶ For casting yoke according to IEC 534-6 (NAMUR) with attachment kit EBZG –H or –H1
- ▶ For pillar yoke according to IEC 534-6 (NAMUR) with attachment kit EBZG –K or –K1

Stroke range with feedback lever:

- ▶ Standard (EBZG-A) - 8 to 70 mm/0.31 to 2.76 in
- ▶ Extended (EBZG-B) - 60 to 120 mm/2.36 to 4.72 in
- ▶ Extended (EBZG-A1) - 110 to 260 mm/4.33 to 10.24 in

Larger stroke ranges can be realized with special levers.

Attachment to Rotary Actuators according to VDI/VDE 3845

With Attachment Kit - EBZG -R

- ▶ Attachment kits, see "MODEL CODE ACCESSORIES"
- ▶ Mounting orientation see "MODEL CODE ACCESSORIES"

Materials

Housing and covers	Aluminum Alloy No. 230 (GD-AISi12) Polyester Powder coated
Sealings between covers	Silicone elastomer and silicone core with Ag/Cu particles
LCD Window	Polycarbonate, U.V. stabilized
External Screws	Stainless Steel V2A 1.4301
Motherboard	Coated with protective resin
All moving parts of feedback system (e.g. shaft)	1.4306/1.4571/1.4104
Attachment kits	V4A 1.4401 or (depending upon version). Aluminum Alloy No. 230 (GD-AISi12) finished with DD varnish
Mounting bracket	Aluminum Alloy No. 230 (GD-AISi12)
Pneumatic diaphragms	VMQ, PVMQ (Silicone Elastomer, suitable for use in the paint industry) (depending upon version)

Weight

With pneumatic

- ▶ B0S - approximately 2.1 kg (4.7 lbs)
- ▶ B2S - approximately 2.2 kg (4.9 lbs)
- ▶ C0S - approximately 2.3 kg (5.1 lbs)
- ▶ C3S - approximately 2.2 kg (4.9 lbs)

Pneumatic Connection

NAMUR mounting - G 1/4 or 1/4-18 NPT via manifold

Electrical Connection

Line entry	1 cable gland M20 x1.5, 1/2-14 NPT (with Adapter AD-)
Cable diameter	6 to 12 mm (0.24 to 0.47 in)
Screw terminals	2 terminals for input
Wire cross section	0.3 to 2.5 mm ² (AWG 22-14) max torque 0.6 Nm

Ambient Conditions

Operating conditions	According to IEC 654-1, the device can be operated at a class Dx location
Ambient temperature	Operation –40 to 80°C (–40 to 176°F)
	Transport and storage –40 to 80°C (–40 to 176°F) If the device is exposed to sunlight and the temperature may rise above 80°C/176°F, we recommend a sun shade.
Storage conditions According to IEC 60721-3-1	1K5; 1B1; 1C2; 1S3; 1M2
Indicators LCD (visible) (a)	–25 to 70°C (–13 to 158°F)
Relative humidity	Up to 100%
Protection class ▶ According to IEC 60529 ▶ According to NEMA	IP 66 Type 4X

- a. Below –20°C the LCD reacts only slowly; above +70°C the background becomes dark (no damage when back into –20 to +70°C range)

Electromagnetic Compatibility EMC

Operating conditions	Industrial environment
Immunity according to ▶ EN 61326 ▶ IEC 61326 ▶ EN 61000-6-2	Fulfilled Fulfilled Fulfilled
Emission according to EN 61326 Class A and Class B	Fulfilled
EN 61000-6-4	Fulfilled
EN 55011 Group 1 Class A and Class B	Fulfilled
NAMUR recommendation EMV NE21	Fulfilled

Safety Requirements

CE Label

Electromagnetic Compatibility	2014/30/EC
Low-voltage regulation	Not applicable See Declaration of Conformity

Safety

According to EN 61010-1 (or IEC 1010-1)	Safety class III Overvoltage Category I
External fuses	Limitation of power supplies for fire protection is observed according to EN 61010-1, appendix F (or IEC 1010-1)

ELECTRICAL CERTIFICATIONS⁽⁴⁾ (5)

These positioners have been designed to meet the electrical safety descriptions listed in the following table. For detailed information or status of testing laboratory approvals/certifications, contact Global Customer Support.

Certification	Model Code Option
Intrinsically Safe according to ATEX/IEC Ex II 2 G Ex ia IIC T4/T6 Gb/II 1 D Ex ia IIIC T100°C Da	A1
Intrinsically Safe according to ATEX/IEC Ex II 2 G Ex ib IIC T4/T6 Gb/II 2 D Ex ib IIIC T100°C Db	A2
Intrinsically Safe according to ATEX/IEC Ex II 3 G Ex ic IIC T4/T6 Gc/II 3 D Ex ic IIIC T100°C Dc	A3

For use in hazardous areas in certified safe circuits with the following maximum values:

Pi	Ui	Ii	T4	T6
900 mW	30 V	130 mA	–40°C to 80°C	
660 mW	28.1 V	130 mA	–40°C to 80°C	–40°C to 44°C
630 mW	25.7 V	130 mA	–40°C to 80°C	–40°C to 46°C
590 mW	25.3 V	130 mA	–40°C to 80°C	–40°C to 48°C
510 mW	26 V	130 mA	–40°C to 80°C	–40°C to 52°C

Li = < 10 µH

Ci = < 2.5 nF

IP degree according to IEC 60529 - IP 66

4. With appropriate order only.

5. National requirements are observed.

SRD998 WITH HART COMMUNICATION

Signal Input	Two wire system
Reverse polarity protection	Standard feature
Signal range	4 to 20 mA
Operating range	3.6 to 21.5 mA
Input voltage (a)	DC 12 to 36 V (unloaded) ▶ min 12 V at 4 mA ▶ min 8.4 V at 20 mA
Load	420 Ohms, 8.4 V at 20 mA
Communication signal	HART 7, 1200 Baud, FSK (Frequency Shift Key) modulated on 4 to 20 mA 0.5 Vpp at 1 kOhm load
Input impedance Zi	Z = 320 Ohms for ac voltage 0.5 to 10 kHz with < 3 dB non-linearity (b) (c) (d)
Start-up time	Approximately 3 seconds
Interruption time without power down	Typ. 8 ms (e)

- a. Higher voltage limits may be available upon request.
- b. Cable capacity and inductance see HART standard specifications (e.g. $C < 100 \mu\text{F}$).
- c. Impedance of other devices at the input (parallel or serial) are within HART specifications.
- d. Applications without communication cannot exceed input capacitance parallel to the input not higher than $5 \mu\text{F}$.
- e. Worst case conditions 4-20 mA, I/P-Output with maximum current.

Configuration

The SRD998 positioner can be configured via HART by any host system using PC with a HART Modem, Hand Held Terminal or a DCS.

Local

By means of rotary selector and LCD display.

DTM (Device Type Manager)

The DTM can be downloaded from the Schneider Electric homepage:

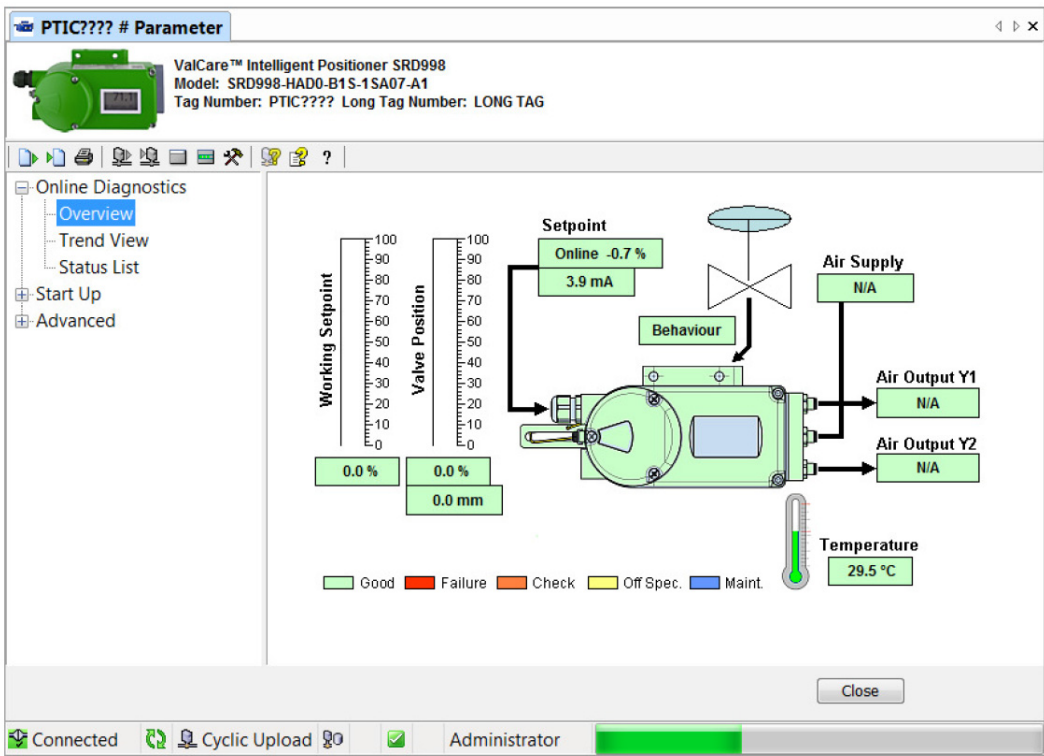
<https://www.schneider-electric.com/en/download/range/63514-Valve%20Positioners/?docType=4889330-DTM+files>

The DTM is fully certified for its interoperability and with the state-of-the-art presentation and diagnostics features.

DD (Device Description) and EDD (Enhanced Device Description)

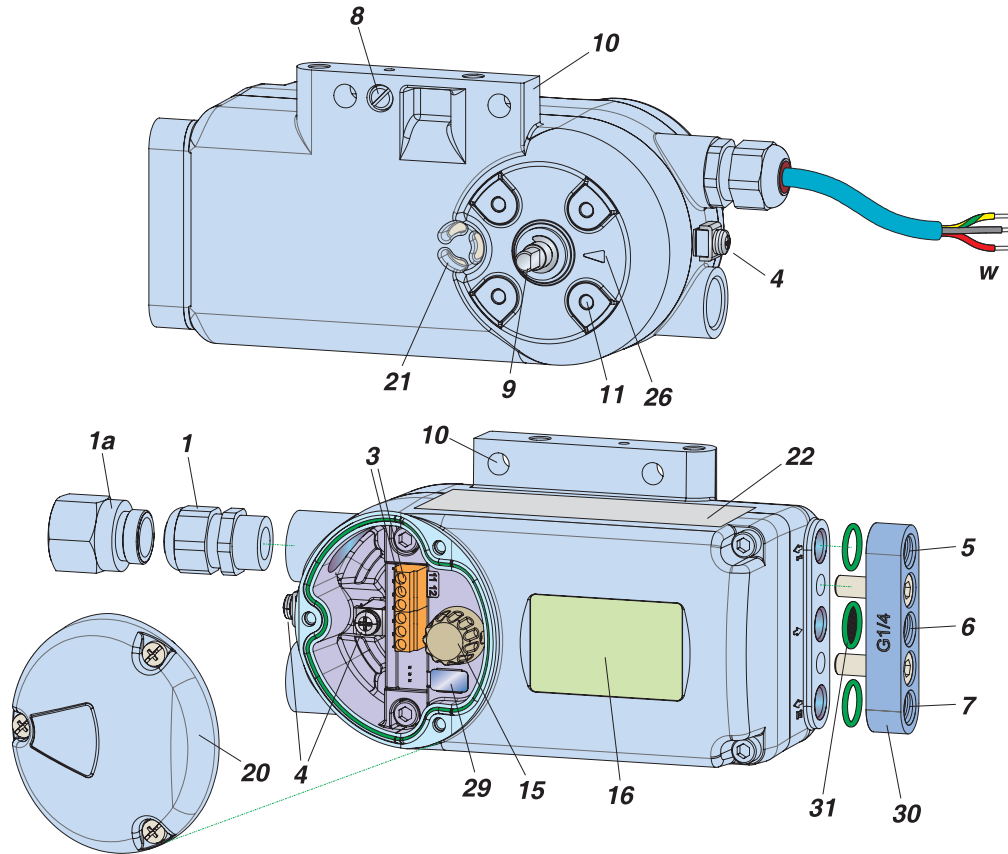
In case the host system is not supporting the FDT-DTM technology, you can download the DD and/or EDD from the Schneider Electric home page.

Figure 7. Sample Intelligent Positioner SRD 998



FUNCTIONAL DESIGNATIONS

Figure 8. Functional Designations



- | | | | |
|-----------|--|-----------|---|
| 1 | Cable gland | 11 | Connection base for attachment to rotary actuators |
| 1a | Adapter, e.g. 1/2"-14 NPT | 15 | Turn Rotary Selector for Menu selection and press to confirm |
| 3 | Screw terminals (11/12) for input (w) | 16 | LCD with true text in different languages |
| 4 | Ground connection (inner and outer) | 20 | Cover for electrical connection compartment |
| 5 | Output I (y1) | 21 | Air vent, dust and water protected |
| 6 | Air supply (s) | 22 | Data label |
| 7 | Output II (y2) | 26 | Arrow is perpendicular to shaft 9 at angle 0 degree |
| 8 | Direct attachment hole for output I (y1) | 29 | Plug for service connector under the lid (factory only) |
| 9 | Feedback shaft | 30 | Connecting manifold, G 1/4 or 1/4 NPT Not required when mounting a gauge manifold, or a direct mounted volume booster |
| 10 | Connection manifold for attachment to stroke actuators | 31 | O-ring with filter, for air supply connection |

MODEL CODE SRD998

Intelligent Positioner SRD998	Model
<u>Communication</u>	
HART	H
<u>Diagnostics Performance</u>	
Basic Diagnostics	BD
Advanced Diagnostics	AD
<u>Electrical In-Out Option</u>	
No In-Out Option	0
<u>Version</u>	
Single Acting	B
Double Acting	C
<u>Pneumatic Performance</u>	
Standard Pneumatic (max 6 bar air supply)	0
Standard Flow - High Performance Pneumatic (10 bar max air supply)	1
High Flow - High Performance Pneumatic (10 bar max air supply)	2
Very High Flow - High Performance Pneumatic (CV 0.85 – 10 bar max air supply)	3
<u>Fail in case of loss of power</u>	
Fail safe	S
<u>Housing</u>	
Aluminum	1
<u>Mounting</u>	
Standard	S
Direct mounting	T
Remote Mounting of positioner with side mounting potentiometer unit	V
Remote Mounting of positioner with top mounting potentiometer unit	W
Remote Mounting of positioner w/o potentiometer unit (order potentiometer separately)	Y
<u>Pneumatic Connection</u>	
1/4 NPT	A
1/4 G	B
<u>Gauges</u>	
Without gauge	0
With 2 standard gauges for single acting (a)	1
With 2 Nickel plated gauges connection for single acting (a)	2
With 3 standard gauges for double acting (b)	3
With 3 Nickel plated gauges connection for double acting (b)	4
<u>Electrical Connection</u>	
M20x1.5	7
1/2 NPT (made with an adaptor)	8

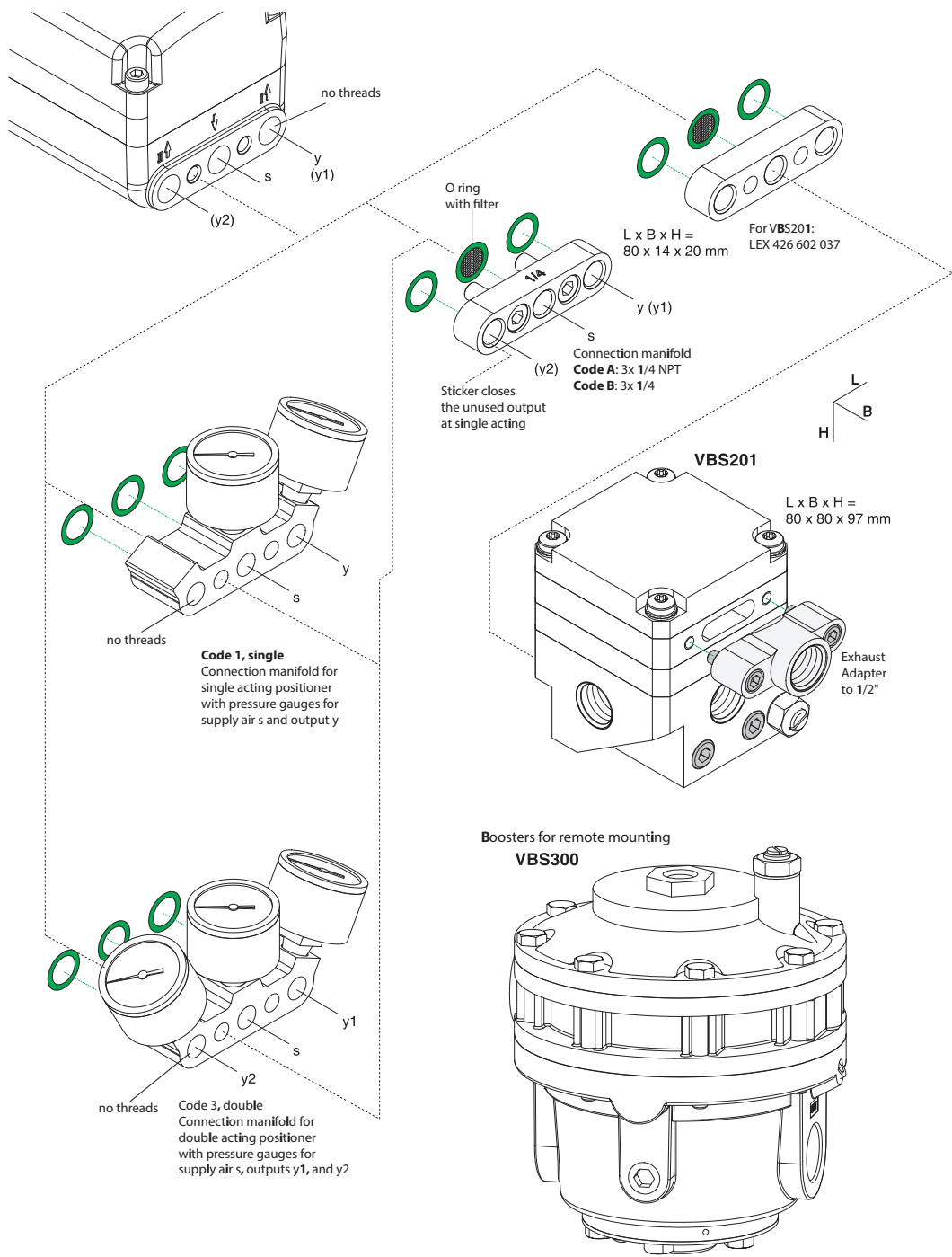
MODEL CODE SRD998 (CONTINUED)

<u>Intelligent Positioner SRD998</u>	<u>Model</u>
<u>Electrical Certification</u>	
without certification	ZZ
ATEX/IEC Ex: II 2G Ex ia IIC T4/T6 Gb, II 1D Ex ia IIIC T100°C Da	A1
ATEX/IEC Ex: II 2G Ex ib IIC T4/T6 Gb, II 2D Ex ib IIIC T100°C Db	A2
ATEX/IEC Ex: II 3G Ex ic IIC T4/T6 Gc, II 3D Ex ic IIIC T100°C Dc	A3
INMETRO: Ex ia IIC T4/T6 Gb, Ex ia IIIC T100°C Da, IP66	B1
INMETRO: Ex ib IIC T4/T6 Gb, Ex ib IIIC T100°C Db, IP66	B2
INMETRO: Ex ic IIC T4/T6 Gc, Ex ic IIIC T100°C Dc, IP66	B3
NEPSI: Ex ia IIC T4/T6 Ga, Ex ia D20 T100 Da, IP66	N1
NEPSI: Ex ib IIC T4/T6 Gb, Ex ib D21 T100 Db, IP66	N2
NEPSI: Ex ic IIC T4/T6 Gc, Ex ic D22 T100 Dc, IP66	N3
EAC: 1 Ex ia IIC T4/T6 Gb X, Ex ia IIIC T100°C Da	G1
EAC: 1 Ex ib IIC T4/T6 Gb X, Ex ib IIIC T100°C Db	G2
EAC: 2 Ex ic IIC T4/T6 Gc X, Ex ic IIIC T100°C Dc	G3
CNS certification IS (c)	
PESO certification IS (d)	
<u>Options</u>	
Stainless Steel Label, fixed with wire	-L

- Only to be ordered with single acting model code Version B.
- Only to be ordered with double acting model code Version C.
- The SRD998 has the CNS certificate for usage in Taiwan.
- The SRD998 has the PESO certificate for usage in India.

ACCESSORIES FOR ALL BASIC DEVICES

Figure 9. Accessories for all Basic Devices



MODEL CODE ACCESSORIES

Accessories for SRD998	Model
<u>Filter Regulators</u>	
Filter Regulator for -30°C to 70°C	FRS02
Stainless Steel (316) Filter Regulator	FRS03
High Flow Filter Regulator 1/2 inch/Aluminum	FRS04
High Flow Filter Regulator 1/2 inch/Stainless Steel	FRS05
Mounting Bracket for FRS02 or FRS03	EBZG-FR1
Orientable Mounting Bracket for FRS02 or FRS03	EBZG-FR2
Nipple for direct mounting Filter regulator 1/4 NPT both sides	VG-91
Mounting Bracket for FRS04	EBZG-FR4
Mounting Bracket for FRS05	EBZG-FR5
Nipple 1/2 NPT (FRS04/05 side) to 1/4 NPT (SRD998 side) for direct piping	VG-93
<u>Communication/Modem/DTM</u>	
HART USB Modem (made by Ifak) with ATEX IS Certification	MOD900
DTM for SRD Series for HART	VALCARE
Service Modem	EDC90
<u>Booster Relay (in case of double acting, quantity 2 pieces)</u>	
Remote version for a positioner	VBS200
Integral volume booster for SRD991, SRD960, SRD998, and SRI990 (directly flanged to positioner)	VBS201
Booster Cv7 - Alum Housing - Remote mounting	VBS300
Booster Cv7 - SST Housing - Remote mounting	VBS310
<u>Limit Switch</u>	
Mechanical Limit Switch weatherproof and plastic housing (TE Sensors XCKN2118P20)	MLS01
<u>Cable Gland</u>	
Cable Gland, M20x1.5 Plastics, Color Gray/Black	BUSG-K6
Cable Gland, M20x1.5 Plastics, Color Blue	BUSG-K7
Cable Gland, M20x1.5 Plastics, Color White	BUSG-K9
Cable Gland, M20x1.5 Stainless Steel	BUSG-S6
<u>Adapter</u>	
Adapter (Brass With Nickel Coating) M20 x 1.5 To 1/2 - 14 NPT (Internal Thread)	AD-A5
Adapter (ss) M20x1.5 to 1/2-14 NPT (Internal Thread)	AD-A6
<u>Attachment Kits</u>	<u>EBZG</u>
For diaphragm actuators with casting yoke according to NAMUR (incl. standard Couple lever)	-H
For diaphragm actuators with pillar yoke according to NAMUR (incl. standard Couple lever)	-K
For FoxTop/FoxPak	-E1
For mounting to rotary actuators according to VDI/VDE 3845 (without bracket)	-R
Brackets VDI/VDE 3845 (A = 80 mm/3.15 in; B = 20 mm/0.79 in)	-C1
Brackets VDI/VDE 3845 (A = 80 mm/3.15 in; B = 30 mm/1.18 in)	-C2
Brackets VDI/VDE 3845 (A = 130 mm/5.12 in; B = 50 mm/1.97 in)	-C3
Brackets VDI/VDE 3845 (A = 130 mm/5.12 in; B = 30 mm/1.18 in)	-C4
Universal Brackets VDI/VDE 3845 (A = 80 or 130 mm; B=20 or 30 or 50 mm)	-C5
<u>Couple Lever</u>	<u>EBZG</u>
Standard (stroke max. 80 mm)	A
Extended (stroke max. 260 mm)	-A1
Reduced (stroke < 8 mm)	-A2
Fold feedback lever (stroke 8 to 70 mm)	-A3
Short stroke (stroke 8 to 35 mm)	-A4
Couple Lever Folded (stroke special)	-A5
Extended (stroke max. 120 mm)	-B

MODEL CODE ACCESSORIES (CONTINUED)

<u>Accessories for SRD998</u>	<u>Model</u>
Carrier bolt	SRXG
Carrier bolt extra short 23 mm	-A
Adjustable carrier bolt 20 to 37 mm	-B
Carrier bolt 38 mm	-C
Carrier bolt 47 mm	-D
Carrier bolt 57 mm	-E
Carrier bolt 65 mm	-F
Adjustable carrier bolt with fixing system for stem diameter up to 21 mm	-G
Adjustable carrier bolt with fixing system for stem diameter up to 34 mm	-H
Carrier Bolt 80 mm	-I
Adjustable carrier bolt for thread 3/8"	-J
Adjustable carrier bolt for thread 5/16"	-K
Extension for carrier bolt	-L
Adjustable carrier bolt with fixing system centered for stem diameter up to 64 mm	-M
Adjustable carrier bolt with fixing system centered for stem diameter up to 21 mm	-G1
Adjustable carrier bolt with fixing system centered with extension up to 80 mm for stem diameter up to 21 mm	-G2

MOUNTING TO LINEAR ACTUATORS

Figure 10. Attachment to Stroke Actuators according to IEC 534-6 (NAMUR), Left Hand

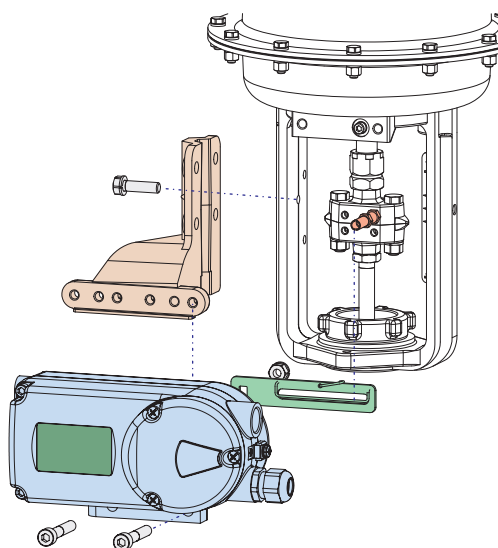


Figure 11. Direct Attachment to Stroke Actuators

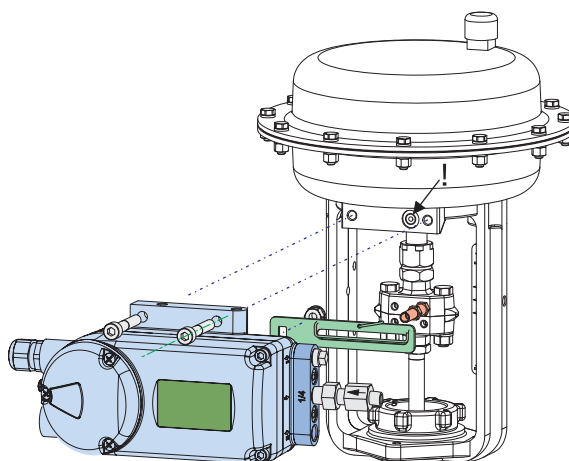


Figure 12. Attachment to Stroke Actuators according to IEC 534-6 (NAMUR), Right Hand, Mounting Bracket EBZG-K

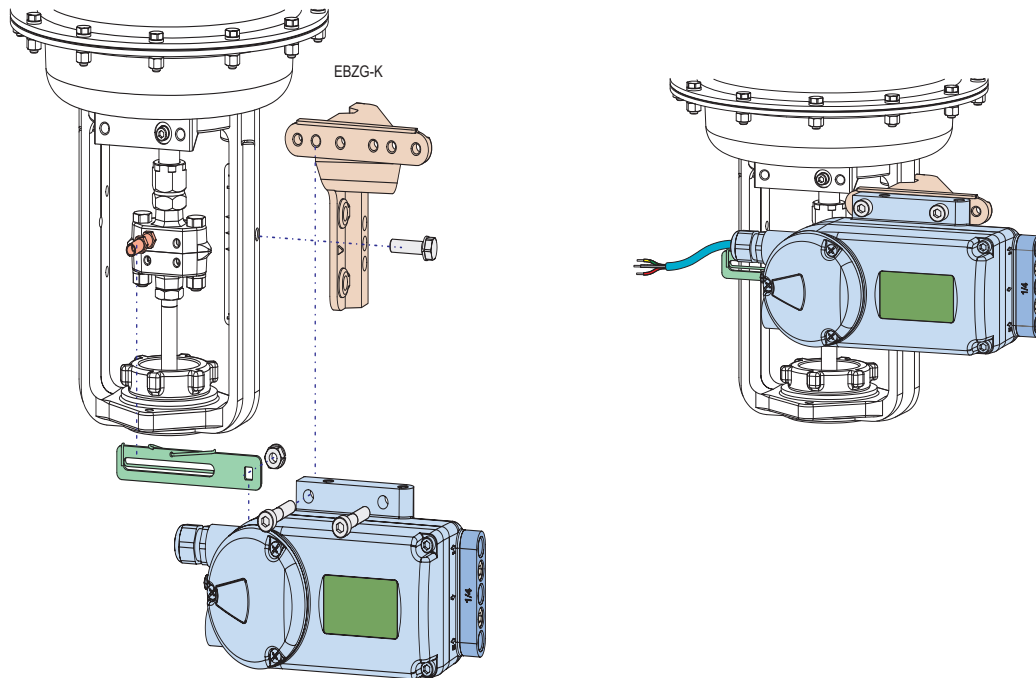
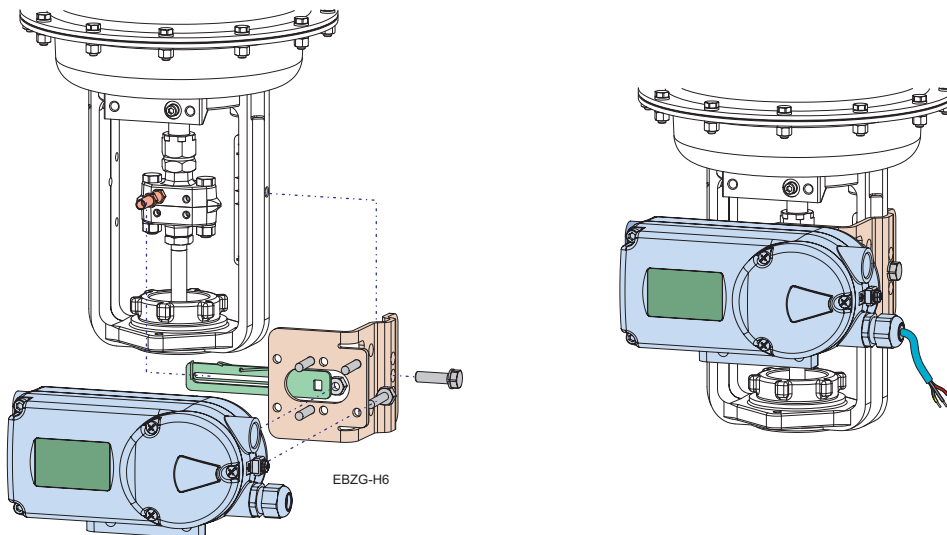
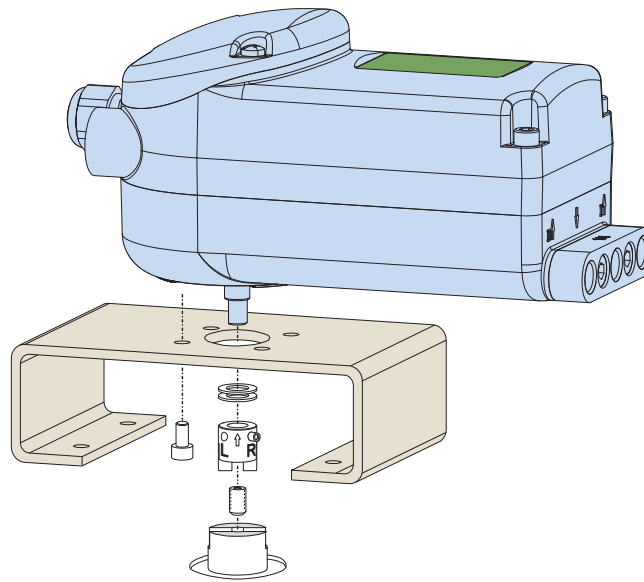


Figure 13. Compact Stainless Steel Attachment Kit with Mounting Bracket EBZG-H6



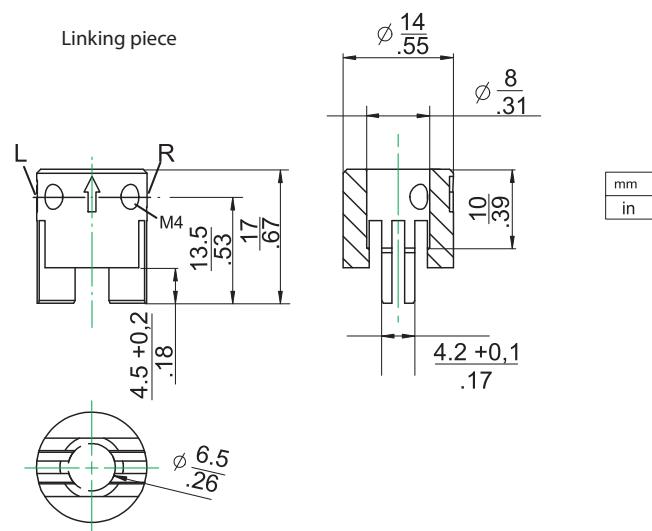
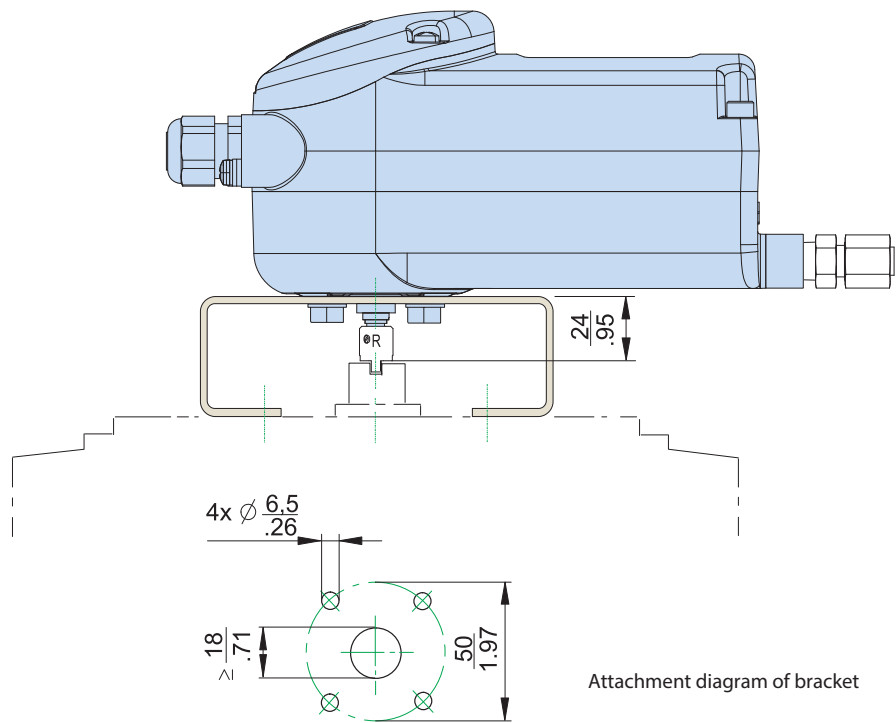
MOUNTING TO ROTARY ACTUATORS

Figure 14. Delivery of Bracket by Manufacturer of Actuator



DIMENSIONS

Figure 15. Attachment to Rotary Actuator



Components of Attachment Kits (Samples)

Figure 16. Components of Attachment Kit

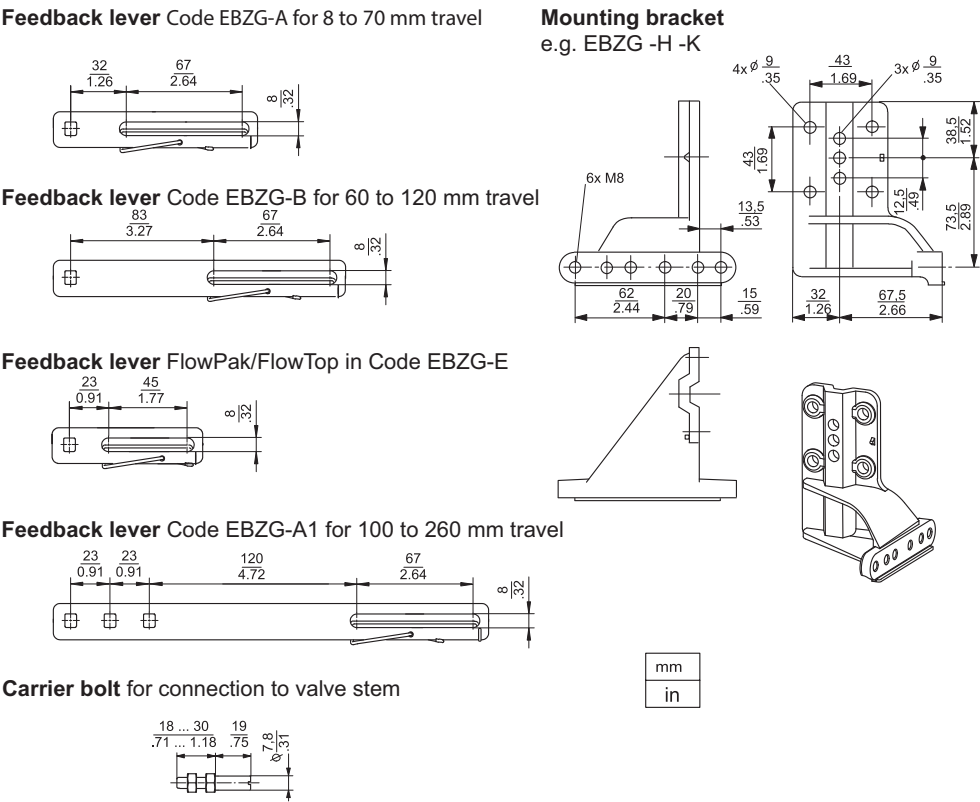


Figure 17. Dimensions with Manifold

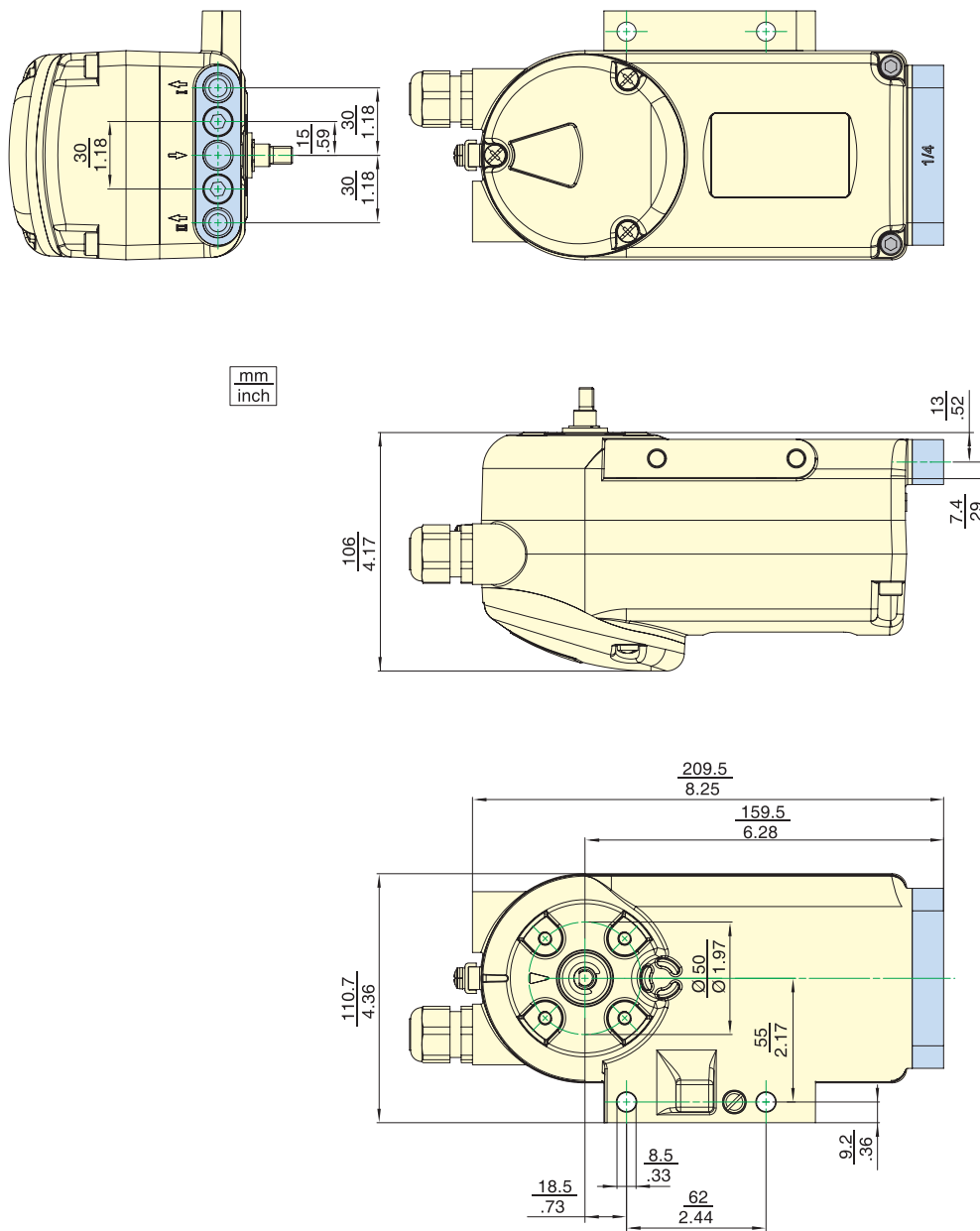
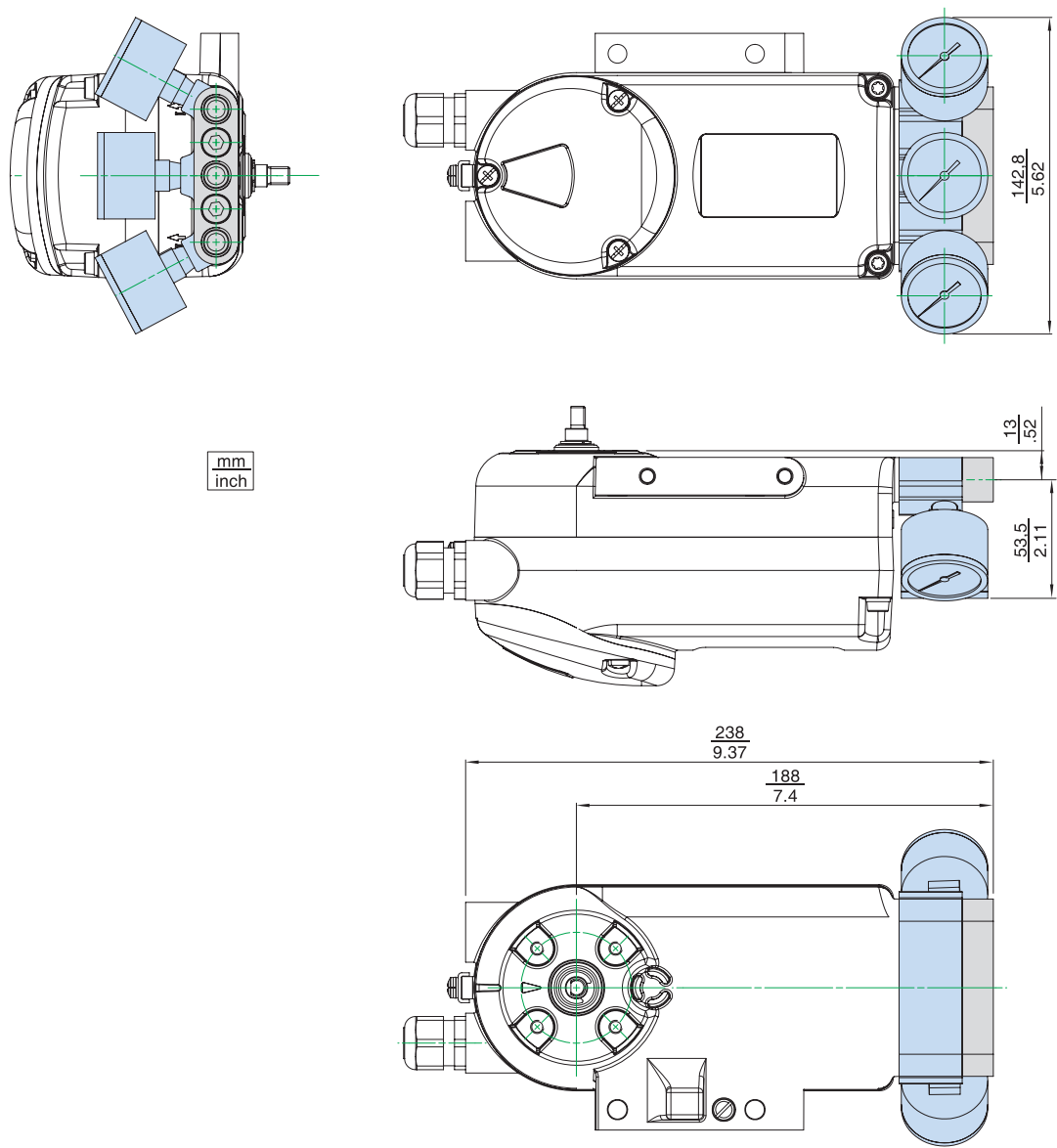


Figure 18. Dimensions with Gauges and Manifold



TYPICAL MOUNTING

Figure 19. SRD998 with Remote Mounting Unit RMU998-V

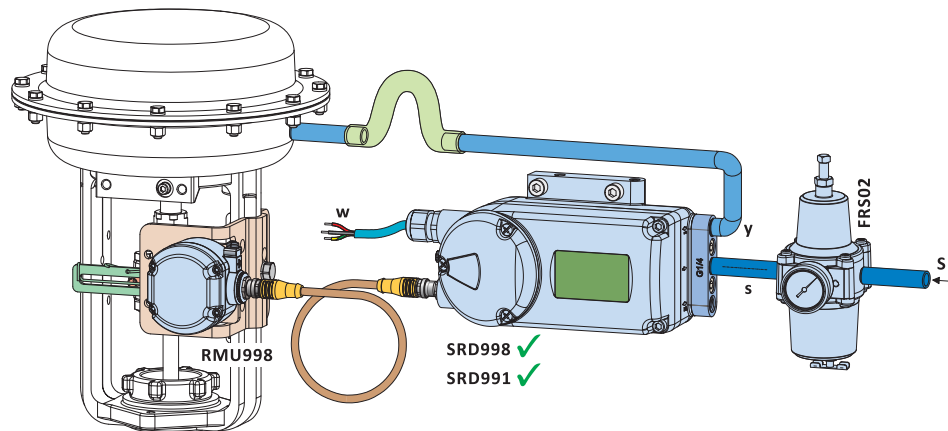
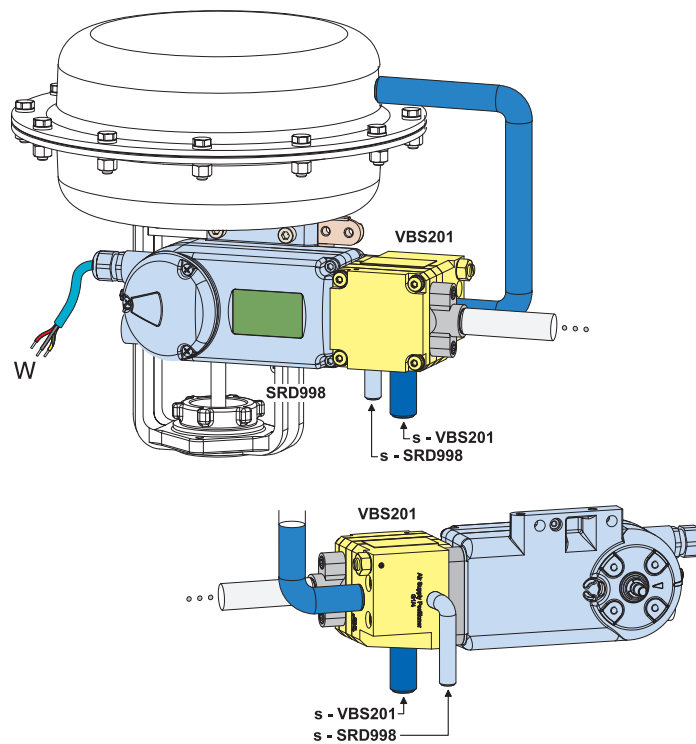


Figure 20. SRD998 with Booster VBS201, Directly Flanged to SRD998 with Connection to an Exhaust Collecting System



NOTES



ADDITIONAL PRODUCTS

These product lines offer a broad range of measurement and instrument products, including solutions for pressure, flow, analytical, temperature, positioning, controlling, and recording.

For a list of these offerings, visit our web site at:

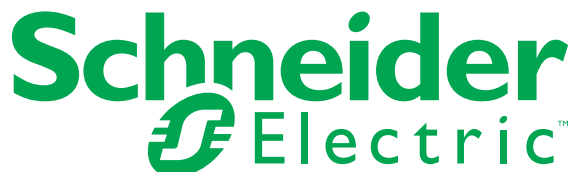
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