SVP3000 Alphaplus
Smart Valve Positioner
Model AVP100/102

OVERVIEW

SVP3000 Alphaplus series Smart Valve Positioners are microprocessor based current-to-pneumatic valve positioners.The SVP3000 Alphaplus receives a DC current signal from control devices and controls the openings of valves. In addition to this basic function, SVP3000 Alphaplus has communication capabilities, automatic configuration program, and self-diagnostics functions that increase productivity and efficiency of plant operation.

FEATURES

Easy to use, easy to maintain

• Auto setup

Its auto-setup software is a fully- automatic configuration program.
Unlike other brands of smart positioner, the SVP3000 Alphaplus has no external device requirements. No handhelds or Pc are required for basic configuration and the program can be run off a switch.

• Smart field communication

Smart communication is possible for calibration and configuration of SVP using an Azbil Corporation's Field Communication Software (CommStaff) model CFS100 that is compatible for use with all an Azbil Corp. smart field instruments.

Valve diagnostic
(for model AVP102, software version 4.9 or newer)

Following parameters can be monitored by HART communicator or Control Valve Maintenance Support System "Valstaff".

- Stick Slip
- Total Stroke
- Travel Histogram
- Cycle Count
- Shut-Off Count
- Max. Travel Speed.

Optimum settings for various application

• Positive seating setting

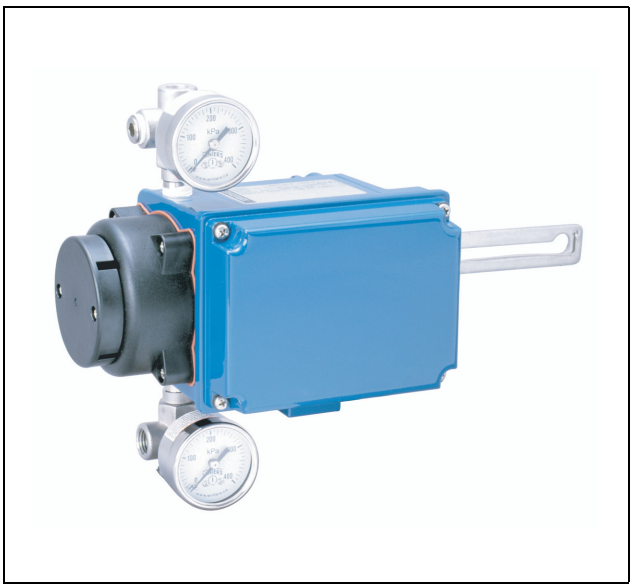
When the process needs tight shut-off of valves, this setting assures valve's original shut-off performance continuously by cutting off unnecessary supply pressure to actuator at a specified signal point.

• Flow characteristic customization

Valve's overall characteristics can be modified to suit the installed process by setting customized In/Out characteristic of positioner.

• Precise split-range setting

SVP can be installed for split range applications with no extra instrumentation. Because signal range can be configured easily using the Smart Field Communicator,



you can optimize positioner's signal range to the process character.

Effective and reasonable maintenance

• Reduce spare-parts inventory

Because every specification can be changed through software configuration, lower spare parts inventory is possible.

• Self-diagnostics

Self-diagnostics program of SVP assures quick and correct action for failure of control valves.

China RoHS

This device is used in the Oil & Gas, Petrochemical, Chemical, Pulp & Paper, Food & Beverage, Machinery, Steel/Metal & Mining, and Automobile industries and therefore does not fall under the China RoHS Legislation. If this device is used in semiconductor manufacturing equipment, labeling on the device and documents for the China RoHS may be required. If such documents are required, consult an Azbil Corp. representative.

FUNCTIONAL SPECIFICATIONS

Applicable actuator
- Single acting actuator
- Linear and rotary motion actuator

Approvals

NEPSI Intrinsically safe approval for model AVP100
Ex ia IIC T4-T6 Ga T4 at -40°C to +60°C
T5 at -40°C to +60°C
T6 at -40°C to +40°C
The barriers should be NEPSI certified types and comply with the following condition as follows.
Vi=30V, Ii=95mA, Pi=0.66W, Ci=6nF, Li=0.2mH

NEPSI Intrinsically safe approval for model AVP102
Ex ia IIC T4-T6 Ga T4 at -40°C to +60°C
T5 at -40°C to +60°C
T6 at -40°C to +40°C
The barriers should be NEPSI certified types and comply with the following condition as follows.
Ui=30V, Ii=100mA, Pi=1.0W, Ci=0.015μF, Li=0.2mH
The circuit shall be considered to be connected to ground from a safety point of view.

Control signal input
4-20 mA DC (Split Range Configurable-4mA span Min.)

Input resistance
Model AVP100: 300 Ω max./ 20 mA DC
Model AVP102: 600 Ω max./ 20 mA DC

Output characteristics
- Linear, Equal percentage, Quick opening
- Custom user characteristics (16 points)

Stem travel range
Feedback lever Angle ± 4° to ± 20°
Valve stem rotation 90° max. (rotary motion actuator)

Bypass operation
Auto / Manual switch (For single acting actuator only)

Air supply pressure
140 to 700 kPa (1.4 to 7.0 kgf/cm²)

Air consumption
4 ℓ(N)/minutes maximum at 140 kPa (1.4 kgf/cm²)
5 ℓ(N)/minutes maximum at 280 kPa (2.8 kgf/cm²)
6 ℓ(N)/minutes maximum at 500 kPa (5.0 kgf/cm²)

Maximum air deliver flowrate
110L(N)/minutes at 140 kPa (1.4 kgf/cm²)

Lightning protection
Peak value of voltage surge: 12 kV
Peak value of current surge: 1000A

Vibration tolerance
2G (5 to 400 Hz) with standard mounting kit on Azbil Corporation's HA actuator

Ambient temperature limits
-40°C to 80°C for general model
NEPSI Intrinsically safe: -20°C to 60°C

Ambient humidity limits
10% to 90% RH

Configuration tools
Model CFS100 (Field Communication Software CommStaff)

PERFORMANCE SPECIFICATIONS

Accuracy
For 8 mA ≤ input signal span ≤ 16 mA
± 1% F.S. (± 2.5% with custom output characteristics)
For 4 mA ≤ input signal span < 8 mA, ± 1.5% F.S.

PHYSICAL SPECIFICATIONS

Enclosure classification
IEC529 IP66, NEMA Type 4X equivalent

Finish
Baked acrylic

Color
Dark blue

Material
Body: Aluminum casting
Pilot relay cover: PBT

Weight
Positioner: 1.7 kg

INSTALLATION

Air connections
1/4NPT internal thread

Electrical connections
1/2NPT internal thread

Conditions of supply air

Particles
Maximum diameter 3 μm

Oil mist
None acceptable

Dew point
10°C below ambient temperature

Specifications for instrument air (JIS C1805-1 (2006))

Particles
Maximum diameter 3 μm

Oil mist
Less than 1 ppm at mass

Humidity of the air supply
The dew point should be at least 10°C lower than the temperature of this device.

To meet the above specifications for instrument air, install the air purification devices listed in Table 1 properly in the specified installation location.

Table 1 Examples of air purification devices

Installation location	Air purification device	SMC Corp.	CKD Corp.
Compressor outlet or main line	Line filter	AFF Series	AF Series
	Mist separator	AM Series	
Terminal device	Air combination	AW30	M3000 (S type)

TYPICAL INSTALLATION

Figure 1 shows wiring for model AVP100/102 (Smart positioner). In this case, you can communicate with SVP at its terminal.

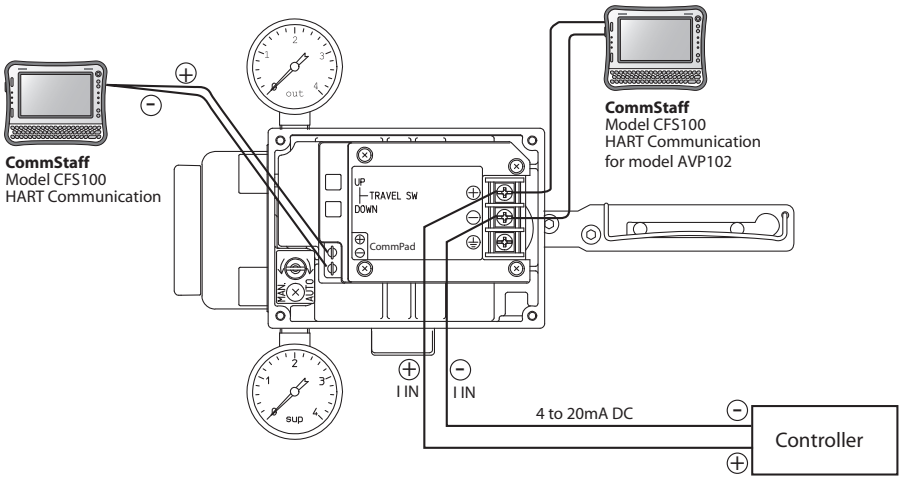


Figure 1 Wiring for model AVP100/102

MODEL SELECTION

Model	Selections	Options				
AVP100	- (1)	- (2)	(3)	- (4)	(5)	

Analog Signal (4 to 20mA.DC.)

Model	Selections	Options				
AVP102	- (1)	- (2)	(3)	- (4)	(5)	

Analog Signal (4 to 20mA.DC.) with HART communication protocol

		Code
(1) Structure	Water-proof	P
	NEPSI Intrinsically safe	H

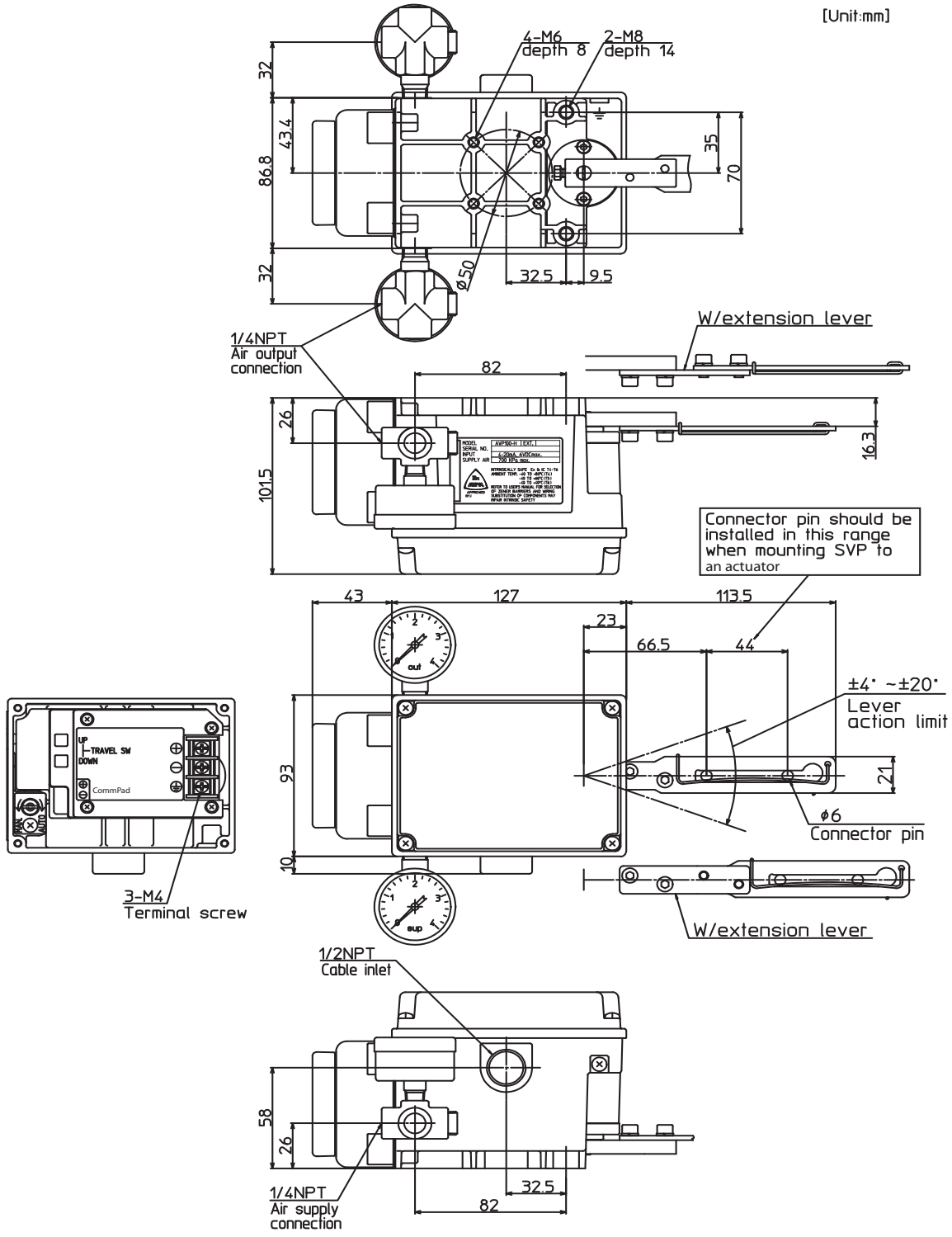
(2) (3)	None	XX
Supply Air-pressure	140 < Ps ≤ 150 kPa with T-joint and pressure gauge (200 kPa)	1X
Classification	150 < Ps ≤ 300 kPa with T-joint and pressure gauge (400 kPa)	2X
Pressure gauge	300 < Ps ≤ 450 kPa with T-joint and pressure gauge (600 kPa)	3X
T-joint	450 < Ps ≤ 700 kPa with T-joint and pressure gauge (1000 kPa)	4X

(4) (5) Option	None	XX
	With bracket for PSA1, 2	DS
	With bracket for PSA3, 4	DQ
	With bracket for HA2, 3	DT
	With bracket for HA4	DN

Configuration Following shows default and optional settings of each configurable parameter of SVP
Useless otherwise specified, the Smart Valve Positioner will be shipped with the following configuration

1. Input control signal	4 to 20 mA	The minimal span for custom range = 4 mA
2. Output characteristic	Linear	EQ or QO can be ordered or set by user.
3. Valve action	Direct (Plug above seat)	Reverse (Plug below seat) can be ordered or set by user.

DIMENSIONS



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http://www.azbil.com/products/bi/order.html

Specifications are subject to change without notice.

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