
ABB MEASUREMENT & ANALYTICS | DATA SHEET

AV1 and AV2

Characterizable pneumatic and electro-pneumatic positioners





Ordering information

Pneumatic positioner type AV1

The AV1 pneumatic positioner accepts linear or non-linear pneumatic input signal ranges to provide sensitive, accurate positioning of a pneumatic final control element.

A feedback cam in the positioner establishes the actual position of the final control element and can be characterized to provide a square root, square or linear relationship to the input signal.

Split range signal - can be field calibrated for 100 % stroke for 50 % signal span or 50 % stroke for 100 % signal span.

The optional manifold / gage block provides gage ports - one for instrument (internal input signal) and two for positioner output. A supply gage can be installed in the supply line (piping by customer).

When converting a 3 to 15 psig positioner to a 3 to 27 input positioner, or vice versa, both the diaphragm assembly kit and the appropriate diaphragm cover are required.

Refer to Note 4 for AV1 application details.

Pneumatic positioner	AV1	X	X	X	X	X	X
Input signal							
0.2 to 1 bar (3 to 15 psi), standard temperature range -40 to 82 °C (-40 to 180 °F)	1						
0.2 to 1.86 bar (3 to 27 psi), standard temperature range -40 to 82 °C (-40 to 180 °F)	2						
0.2 to 1 bar (3 to 15 psi), extended temperature range -20 to 121 °C (-4 to 250 °F)	5						
0.2 to 1.86 bar (3 to 27 psi), extended temperature range -20 to 121 °C (-4 to 250 °F)	6						
Stroke or rotary motion							
12.7 to 50.8 mm (0.5 to 2.0 in) or 45° rotation	1						
25.4 to 101.6 mm (1.0 to 4.0 in) or 90° rotation	2						
Manifold / gage block							
No manifold				0			
Manifold with equalizing valve, filters and gage ports (see Notes 1 and 2)				1			
Gage block, gage ports only				3			
Position transmitter							
No position transmitter						0	
Potentiometric resistive transmitter (see Note 2)						1	
4 to 20 mA output (see Note 2)						2	
Drive shaft							
Standard with drive arm (for linear actuators) and UP3 / 4 / 5 / 6							0
12.7 mm (0.500 in) square end (most common for 90° actuators)							1
8.69 mm (0.342 in) square end (older DeZurik / K&M actuators)							2
6.35 mm (0.250 in) flats (UP1 / UP2 manufactured after August, 1995)							3
9.525 mm (0.375 in) square end (for DeZurik PowerRac actuators)							4
4 mm (0.157 in) flats (for NAMUR rotary mounting)							5
Options							
No options							0
NEMA 4X enclosure rating (must be installed in accordance with drawing 258567)							N
Performance series, high pneumatic gain							P

Notes.

1. Required for double acting actuators with manual override (for example, UP or AC actuators)
2. Not available with input signal codes 5 and 6
3. This optional manifold is recommended on all AC and UP Drives. Not available for AV15_____ and AV16_____
4. From 1st June 2014, AV1 is approved only for general purpose and non-incendive installations.



Electropneumatic positioner type AV2

The AV2 electropneumatic positioner receives a 4 to 20 mA input from a controller and converts the signal via an I/P converter to a pneumatic output that positions a power actuator.

The AV2 can be adjusted by the user to default automatically to either the fully open or fully closed position in the event of input signal loss.

The optional manifold / gage block provides gage ports - one for instrument (internal input signal) and two for positioner output.

A supply gage can be installed in the supply line (piping by customer).

Electropneumatic positioner	AV2	X	X	X	X	X	X
Intrinsically safe / explosion-proof design							
Non-incendive design cFMus (see Note 1)	3						
Explosion-proof and intrinsically safe design FM/CSA (see Note 2)	7						
Stroke or rotary motion							
4 to 20 mA input, 12.7 to 50.8 mm (0.5 to 2.0 in) or 45° rotation		1					
4 to 20 mA input, 25.4 to 101.6 mm (1.0 to 4.0 in) or 90° rotation		2					
Manifold / gage block							
No manifold				0			
Manifold with equalizing valve, filters and gage ports (see Notes 3 and 4)				1			
Gage block, gage ports only (see Note 4)				3			
Position transmitter							
No position transmitter						0	
Potentiometric resistive transmitter (see Note 3)						1	
4 to 20 mA output (see Note 3)						2	
Drive shaft							
Standard with drive arm (for linear actuators) and UP3 / 4 / 5 / 6							0
12.7 mm (0.500 in) square end (most common for 90° actuators)							1
8.69 mm (0.342 in) square end (older DeZurik / K&M actuators)							2
6.35 mm (0.250 in) flats (UP1 / UP2 manufactured after August, 1995)							3
9.525 mm (0.375 in) square end (for DeZurik PowerRac actuators)							4
4 mm (0.157 in) flats (for NAMUR rotary mounting)							5
Options							
No options							0
NEMA 4X enclosure rating (must be installed in accordance with drawing 258567) (see Note 4)							N
Performance series, high pneumatic gain							P

Notes.

1. From 1st June 2014, AV23 _____ is approved only for general purpose and non-incendive applications
2. AV27 _____ is FM/CSA approved (explosion-proof or intrinsically safe) for Class I, Division 1 applications.
3. Required for double acting actuators with manual override (for example, UP or AC actuators)
4. Not available with intrinsically safe / explosion-proof design code 7.



Accessories

Accessories for AV1 and AV2 (except where indicated)

Description	Part number
Mounting kits, for diaphragm actuators with yoke mounting bosses (includes mounting bracket, linkage and hardware)	
For stem size 9.53 to 19.1 mm (0.375 to 0.75 in), adjustable stud length 68.2 mm (2.687 in)	5327321A12
For stem size 19.2 to 25.4 mm (0.75 to 1.0 in), adjustable stud length 87.3 mm (3.437 in)	5327321A13
For stem size 9.53 to 25.4 mm (0.375 to 1.0 in), adjustable stud length 86.5 mm (3.406 in) - Fisher	5327321A14
Mounting bracket, for reciprocating valves (contained in above kits)	5400266A1
Connecting link, adjustable length 304.8 mm (12 in) (contained in above kits)	5312449A4
Mounting kits, for retrofitting UP drives from AP to AV positioners	
For UP10, UP20	5400309A1
For UP30, UP40	258493A1
For UP50, UP60	258494C1
Mounting kits, for retrofitting AC drives from old Bailey-Fischer and Porter part number positioners to AV positioners	
For AC0404	258527C1
For AC0608	258528A1
For AC0816	258529A1
For AC1016	258530A1
Mounting kits, for retrofitting AC drives from AP to AV positioners	
For AC0404	258527C1
For AC0608	258528A1
For AC0816	258529A1
For AC1016	258530A2
Mounting kits, for adding a Beacon™ indicator or a limit switch package onto the cover of an AV positioner	
For adding a Beacon™ Indicator (includes a Westlock black and yellow indicator)	258570B1
For adding limit switches, Westlock 2004/2007 or equivalent (does not include limit switch package) - for more information see drawing 258570B	258570A4
Speed control orifices, for use when more than one final control element is being operated from the same control signal and designed to equalize speeds between units	
1.016 mm (0.040 in)	5327327A1
Blank (drill as required)	5327327A2
Pressure gages, for calibration	
Instrument - 0 to 30 psig range (AV1 only)	5326605A4
Supply - 0 to 160 psig range	5326605A5
Output - 0 to 160 psig (quantity 2 required for double-acting applications)	5326605A6
External by-pass valve (for single acting diaphragm applications only)	
Permits transfer of pneumatic control signal directly to diaphragm to enable final control element to be operated during positioner servicing. Use with AV1 __ 1 __ only	5326945A1
Supply air filter (coalescing) with bracket. Maximum inlet pressure 250 psi, 1/4 – 18 NPT	5328563D2
Supply air regulator with bracket. Maximum inlet pressure 250 psi, 1/4 – 18 NPT	1951029D5



Spare parts

Parts kits for AV1 and AV2

Description	Part number
Diaphragm parts	
Diaphragm assembly kit (3 to 15 psig and 3 to 27 psig)	258486A1
3 to 15 psig positioner, diaphragm cover	5400295A1
3 to 27 psig positioner, diaphragm cover (AV1 only)	5400295A2
Note. When converting a 3 to 15 psig positioner to a 3 to 27 psig positioner, or vice versa, both the diaphragm assembly kit and the appropriate diaphragm cover are required.	
Gage block kit for field addition	
	258569A1
Manifold parts	
Manifold kit with equalizing valve for field addition	258491A1
Filter replacement kit	258487A1
Shut off valve kit	258270A1
Note. The optional manifold/gage block provides gage ports – one for instrument (internal input signal) and two output gages. A supply gage can be installed in the supply line (by customer)	
Characterizing cams	
Forward-acting full rise cam, 90 degree rotation	5400281A1
Reverse-acting full rise cam, 90 degree rotation	5400281A2
Forward-acting half rise cam, 45 degree rotation	5400289A1
Reverse-acting half rise cam, 45 degree rotation	5400289A2
Pilot valve assemblies	
Pilot valve assembly kit	258488B1
Pilot valve assembly kit (performance series, AV _____ P)	258488A3
Pilot valve assembly kit (high temperature model, AV15/6)	258488A2
Pilot valve assembly kit (high temperature and performance series model, AV1 5/6 _____ P)	258488A4
Feedback arm	
Feedback arm for linkage attachment, for 90 degree cam rotation	5327445A1
Feedback arm for linkage attachment, for 45 degree cam rotation	5327445A2
Cover assembly (includes cover, window, gasket and plastic cover inserts)	
	258545A1
Cam follower arm assembly	
	258544A1
Position transmitter – field addition kits	
Pneumatic position transmitter	258492A1
4 to 20 mA position transmitter	258670A1
Cam shaft	
1/2 in square end connection	5400278A1
Tapered end connection for linear feedback arm	5400287A1
0.342 in square end for older DeZurik / K&M actuators	5400287A2
0.250 in flats (UP1 / UP2 after 8/95)	5400287A3
0.375 in Square End (for DeZurik PowerRac actuators)	5400287A4
4 mm (0.156 in) flats (for Namur rotary mounting)	5400287A5
Also requires conversion plate	5400321A1

Parts kits for AV2

Description	Part number
I/P converter replacement kit (AV23 only)	
	258651A1
Explosion-proof positioner parts (AV27 only)	
Kit to mount explosion-proof I/P converter to pneumatic positioner (does not include I/P)	258612A1
I/P converter for AV27	1949547A2



www.bennypass.com