



AVC4000

US Patent 7,543,759

Laboratories, Life Sciences, Healthcare



Innovative features for the AVC4000!

- Intuitive Graphical User Interface Dashboard
- Software Configurable
- BACnet® is Software Configurable (no dip switches)
- Bluetooth® Configuration Optional

Plus, these standard AccuValve features...

- Exceptionally Low Pressure Drop
 - Design System Pressure – as low as 0.05" (12.5 Pa)
- Electronic Pressure Independence
- True Airflow Feedback
- No Straight Run Requirements
- Linear Control Response
- High Accuracy and Turndown
- Can be Mounted in Any Position
- Native BACnet® MS/TP
- 5-Year Manufacturer Warranty

Manufactured in the USA.



The Accutrol AVC4000 is an electronically pressure independent AccuValve®. It takes the revolutionary design of the exceptionally low pressure drop AccuValve and builds airflow control into the electronics. The integral native BACnet® MS/TP allows direct communication to the Building Automation System (BAS) where desired.

Features & Benefits

The AVC4000 is designed for critical environment airflow control in laboratories, life science and healthcare facilities where precise airflow measurement and control is required. The AccuValve's ISO 9001:2015 certified, award winning design incorporates:

Exceptionally Low Pressure Drop

AccuValve's award winning design incorporates a streamlined compression section and a carefully designed static regain section. These features provide lower pressure drop, lower noise level and better flow measurement conditions than any other available technology.

True Airflow Measurement

The integral high accuracy vortex airflow sensing provides high turndown while maintaining accuracies of 5% of reading over the flow range, ensuring precise airflow control.

No Straight Run Requirements

There are no straight duct runs required before or after the valve, making application of the valve very simple. The air compression in the valve provides laminar airflow throughout the airflow range providing repeatable airflow measurement regardless of inlet or outlet conditions.

ASHRAE Standard 90.1 Compliant without need for additional hardware

ASHRAE Standard 90.1 calls for the reset of the static pressure setpoint in VAV systems equipped with DDC controls. The AccuValve design allows the Building Automation System to provide this benefit to the owner without the requirement of any additional hardware or complexity. This is unique to the AccuValve for critical environments.

Simple Layout and Installation

All parts of the AccuValve are accessible from the front of the valve simplifying installation requirements. In addition, the valve can be mounted at any angle and rotated 360°.

Intuitive Insight Software

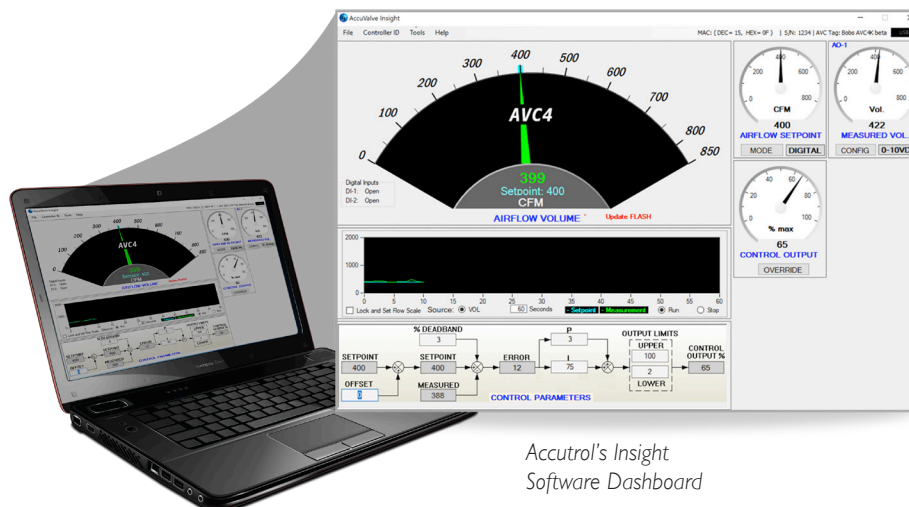
The AVC4000 also incorporates a simple and intuitive graphical user interface which enables the user to configure the valve for their specific requirements. Accutrol's Insight software, provided free of charge, insures that the owner is not required to contact the manufacturer of the airflow control system when changes are required in the field.

BACnet®

The integral, native BACnet® MS/TP allows direct communication to the Building Automation System (BAS) where desired.

Bluetooth® Configuration Option

The AVC4000 is available with a Bluetooth® configuration option, which alleviates the requirement for a USB connector when accessing the airflow valve via Accutrol's Insight graphical user interface software.



Accutrol's Insight
Software Dashboard

Standard Control Information

Constant Volume Application

- Single set point
- Dry contact input (up to 4 discrete set points determined by 2 dry-contact inputs)
- BACnet® MS/TP programmed set point value
- Airflow output or valve position is available either through hardwired analog output and BACnet MS/TP

Variable Volume Applications

- Analog input (set point received via analog output from another controller)
- BACnet MS/TP programmed set point value
- Airflow output or valve position is available either through hardwired analog output and BACnet MS/TP

Tracking Pair Configurations

- Lead AVC analog output is wired directly to tracking AVC analog input
- Lead AVC setpoint can be pre-programmed at factory as analog input, digital inputs and BACnet MS/TP
- Airflow output or valve position is available either through hardwired analog output and BACnet MS/TP

Operating Pressure Selector

Valve Size (mm)	Eng Units	Airflow Range							
		Minimum	Maximum Design Airflow						Maximum
6" (152)	CFM	30	99	143	174	206	230	254	315
	L/S	14	47	67	82	97	108	120	149
	CMH	51	168	243	296	350	391	432	535
8" (203)	CFM	80	252	367	447	528	589	650	800
	L/S	38	119	173	211	249	278	307	378
	CMH	136	428	624	760	897	1000	1104	1359
10" (254)	CFM	120	428	606	733	860	958	1056	1300
	L/S	57	202	286	346	406	452	498	614
	CMH	204	727	1030	1245	1461	1627	1794	2209
12" (305)	CFM	180	591	840	1016	1192	1326	1461	1790
	L/S	85	279	396	479	563	626	690	845
	CMH	306	1004	1427	1726	2025	2253	2482	3041
14" (356)	CFM	250	979	1364	1624	1884	2079	2275	2750
	L/S	118	462	644	766	889	981	1074	1298
	CMH	425	1663	2317	2759	3201	3533	3865	4672
12"x18" (305x457)	CFM	260	1003	1437	1761	2086	2341	2596	3200
	L/S	123	473	678	831	984	1104	1225	1510
	CMH	442	1704	2441	2992	3544	3977	4411	5437
12"x24" (305x610)	CFM	350	1261	1812	2213	2614	2925	3237	4000
	L/S	165	595	855	1044	1234	1381	1528	1888
	CMH	595	2142	3079	3760	4441	4970	5500	6796
Operating Pressure	"W.C.	< 0.01	0.05	0.1	0.15	0.2	0.25	0.3	0.45
	Pa	< 2.5	12.5	25	37.5	50	62.5	75	112.5



* Minimum operating pressure when tested in accordance with ANSI/ASHRAE 130-2008

For further assistance in making your AccuValve selections, please refer to the AccuValve Selection Guide for Operating Pressure.
An AccuValve selection tool for iPhone, iPad and Android devices is also available to assist with AccuValve selections.

Specifications

ELECTRICAL

Input Power	24VAC $\pm 20\%$ 50/60Hz, 17 VA 24VDC $\pm 10\%$, 9W
Analog Input	Software configurable
Voltage	0-10VDC range, 100K ohm impedance
Current	0-20mA range, 500 ohm impedance
Resistance	20K ohm range, 500uA Current Source 100uA current source 12-bit resolution
Digital Inputs	2 dry-contact inputs
Analog Output	Software configurable 0-20mA, 4-20mA, 0-10v, 2-10v, 0-5v or 1-5v 12-bit resolution V-out capable of driving 1K ohm load
Network Com Port I	EIA 485 2-wire BACnet MS/TP Full Master Node State Machine Data Rates 9600, 19200, 38400, 57600, 76800 and 115200 Software provided for setting the MAC address ¼ Unit load receiver input impedance Network bias and EOL termination not provided within the AVC
Configuration Port	USB 2.0, Isolated, "C" type connector Optional Bluetooth®
Status Indicators	LED for AVC status
Terminal Blocks	
Power	2-Position, pluggable, 12-30 AWG
IO	7 position, 16-30 AWG
BACnet	2 position, 16-30 AWG
Electromagnetic Compatibility	2014/30/EU, EMC Directive EN61236-1:2013 2014/53/EU, Radio Equipment Directive EN301489-1, V1.9.2:2011 ETSI EN301489-1, V2.2.0:2017 ETSI EN301489-3, V1.6.1:2013/V2.1.1:2017 ETSI EN301489-17, V2.2.1:2012/V3.2.0:2017
Product Safety	2014/35/EU, Low Voltage Directive EN61010-1:2010/A1:2019/AC:2019

PERFORMANCE

Accuracy	$\pm 5\%$ of reading or 5 CFM (2 L/S; 8 CMH), whichever is greater
Speed of Response	< 1 second
Shut-off Leakage Rate @ 3"wc valve DP	Standard round valves (size 06 through 14) <1.5% FS max. Round valves with blade seals (size 08 through 14) <0.5% FS max. Standard rectangular valves (size 18 and 24) <2% FS max. Rectangular valves with blade seals (size 18 and 24) <1% FS max.
Max. Operating Pressure	3"wc differential pressure across valve
Failure Mode	Fail Last Position

ENVIRONMENTAL

Temperature	
Operating	-20° to 165° F (-29° to 74° C)
Storage	-40° to 165° F (-40° to 74° C)
Humidity	0% to 90% non-condensing

MATERIALS OF CONSTRUCTION

Valve Housing	Aluminum (16 Gauge) 304SS (20 Gauge) 316SS (20 Gauge)
Shafts	316SS
Shaft Bearings	Teflon®
Seals	EPDM with aluminum valves Viton with stainless steel valves
Airflow Sensors	Polycarbonate plastic, UL94-VO

Ordering Guides

Please see the following page for Ordering Guides.

AVC4000 AccuValve® Ordering Guide

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Valve Housing Material

- 2** = 304SS, 20 Gauge
3 = 316SS, 20 Gauge
4 = Aluminum, 16 Gauge

Size

- 06** = 6" Diameter
08 = 8" Diameter
10 = 10" Diameter
12 = 12" Diameter
14 = 14" Diameter
18 = 12"h x 18"w
24 = 12"h x 24"w

Options

- Blank = No Options
F = Flanges
I = Insulation
S = Tight Shut-off*
W = Wireless Bluetooth® Configuration
 *Blade seals are standard on all 6" valves

Actuator Type

- 17** = Fail Last Position, 2-10v (Standard Speed)

Your representative is:

