AVC5000

US Patents 6,991,177 & 7,543,759
US Patent Pending 13/238,155

Laboratories, Life Sciences, Healthcare



2008 AHR Expo®
INNOVATION AWARDS
Value
Impact
Application
WINNER

AccuValve® ePI®

- Low Pressure Drop
- Electronic Pressure Independent
- Fast Speed of Response
- Constant Volume / Multi-Position Constant Volume
- Variable Volume
- Tracking Pair
- Fume Hood Control / Specialty Exhaust
- Native BACnet® MS/TP
- Intuitive Graphical User Interface Dashboard
- 5-Year Manufacturer Warranty

Manufactured in the USA.

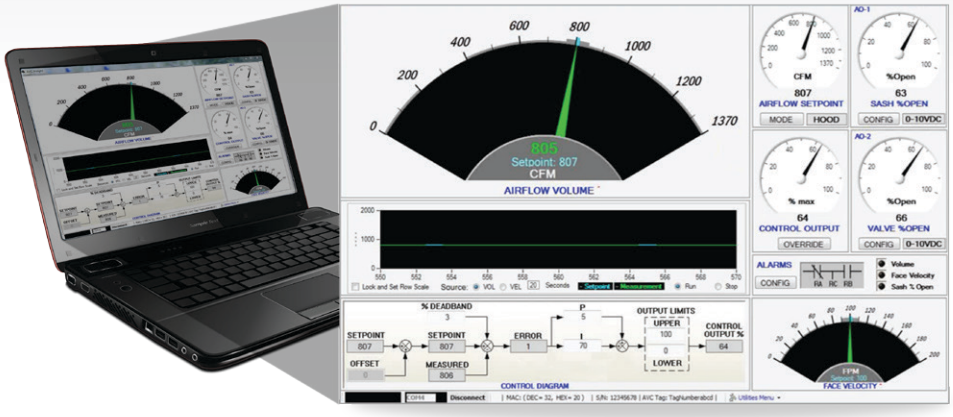
Accutrol, LLC • 600 Pepper Street, Monroe, CT 06468 • p 203-445-9991 • f 203-261-1981 • www.accutrolllc.com

Contents and specifications are subject to change without notice.

The Accutrol AVC5000 is an electronically pressure independent AccuValve®. It takes the revolutionary design of the low pressure drop AccuValve and builds airflow control into the electronics. The AVC5000 is designed for critical airflow control in laboratories and other specialized areas where fast speed of response and precise airflow measurement is required. The integral native BACnet® MS/TP allows direct communication to the Building Automation System (BAS) where desired.

Intuitive Insight Software

The AVC5000 also incorporates a simple and intuitive graphical user interface which enables the user to configure the valve for their specific requirements. The Accutrol 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.



The dashboard of Accutrol's Insight software.

Overview

- Designed for critical environments
- Fast speed of response
- Measures true airflow
- No straight-run requirement
- Low pressure drop operation
- High accuracy and turn-down with linear response
- Can be mounted in any position
- Controller/Actuator can be in an inverted position
- Integral access port
- No scheduled maintenance required
- 5-year manufacturer warranty standard

Benefits

- Plug and play operation (can be factory programmed)
- True closed-loop airflow control
- Native BACnet MS/TP
- Valve position available via BACnet MS/TP
- Demand based static pressure reset control "ready" Meets ASHRAE STD 90.1 without additional hardware
- Set point offset for intuitive bias programming for tracking pair
- USB user interface for field configuration
- Intuitive graphical user interface dashboard

Standard Control Information

Constant Volume Application

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

Fume Hood Control Applications

- The AVC5000 incorporates a selectable Fume Hood Mode, which will configure the AVC to operate as a fume hood controller using AFC5000 Local Fume Controller Display and Accutrol Sash Sensor(s)
- The AVC5000 allows multiple occupancy / set back mode changes through dry contact closures
- Configurable purge mode function
- Configurable alarm functions
- Air flow output to BAS is available either through hardwired analog output* or BACnet MS/TP

  * Recommended hardwired connection when utilizing airflow signal for lab airflow balancing
- Face velocity output to BAS is available either through hardwired analog output or BACnet MS/TP
- Sash position or valve position output to BAS is available either through hardwired analog output or BACnet MS/TP
- Fume hood control specific BACnet MS/TP available read/write points

Additional Accutrol Product Reference

Accutrol AVC Fume Hood Control System

Operating Pressure Selector

Optimal Energy Efficiency

Valve Size (mm)	Eng Units	Airflow Range							
		Minimum	Maximum Design Airflow						Maximum
6" (152)	CFM	30	69	99	123	143	206	254	315
	L/S	14	33	47	58	67	97	120	149
	CMH	51	117	168	209	243	350	432	535
8" (203)	CFM	80	169	252	315	367	528	650	800
	L/S	38	80	119	149	173	249	307	378
	CMH	136	287	428	535	624	897	1104	1359
10" (254)	CFM	120	304	428	524	606	860	1056	1300
	L/S	57	143	202	247	286	406	498	614
	CMH	204	516	727	890	1030	1461	1794	2209
12" (305)	CFM	180	413	591	726	840	1192	1461	1790
	L/S	85	195	279	343	396	563	690	845
	CMH	306	702	1004	1233	1427	2025	2482	3041
14" (356)	CFM	250	678	979	1191	1364	1884	2275	2750
	L/S	118	320	462	562	644	889	1074	1298
	CMH	425	1152	1663	2024	2317	3201	3865	4672
12"x18" (305x457)	CFM	260	722	1003	1235	1437	2086	2596	3200
	L/S	123	341	473	583	678	984	1225	1510
	CMH	442	1227	1704	2098	2441	3544	4411	5437
12"x24" (305x610)	CFM	350	890	1261	1558	1812	2614	3237	4000
	L/S	165	420	595	735	855	1234	1528	1888
	CMH	595	1512	2142	2647	3079	4441	5500	6796
12"x36" (305x915)	CFM	520	1443	2005	2470	2875	4172	5191	6400
	L/S	245	681	946	1166	1357	1969	2450	3020
	CMH	883	2452	3407	4197	4885	7088	8820	10874
12"x48" (305x1220)	CFM	700	1780	2522	3115	3625	5228	6473	8000
	L/S	330	840	1190	1470	1711	2467	3055	3776
	CMH	1189	3024	4285	5292	6159	8882	10998	13592
Operating Pressure	"W.C.	< 0.01	0.025	0.05	0.075	0.1	0.2	0.3	0.45
	Pa	< 2.5	6.25	12.5	18.75	25	50	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 guide for iPhone and iPad application is also available to assist with AccuValve selections.

Specifications

ELECTRICAL

Input Power	24VAC ±20% 50/60Hz 28VA max. for round, 12"x18" and 12"x24" 55VA max. for 12"x36" and 12"x48"
	24VDC ±10% 15W max. for round, 12"x18" and 12"x24" 30W max. for 12"x36" and 12"x48"
Analog Inputs	AI-1, AI-2 and AI-3: (jumper configurable)
Voltage	0-10VDC range, 100K ohm impedance
Current	0-20mA range, 500 ohm impedance
Resistance	20K ohm range, 500uA Current Source AI-2 and AI-3 also include 100K ohm range, 100uA current source
	12-bit resolution
Digital Inputs	2 dry-contact inputs
Analog Outputs	0-20mA, 4-20mA, 0-10v, 2-10v, 0-5v or 1-5v (software configurable)
	12-bit resolution
	V-out capable of driving 1K ohm load
Alarm Relay Output	DPDT, NC/NO contacts,
	Rated load 1A @ 30VDC or 0.3A @ 125VAC
	Max. operating voltage = 125VAC or 60VDC
	Max. carry current = 1A
	Max. switching capacity = 37VA, 30W
Network Com Port	EIA 485 2-wire BACnet MS/TP
	Full Master Node State Machine
	Data Rates 9600, 19200, 38400, 57600, 76800 and 115200
	DIP Switch 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, Mini connector
Status Indicators	LED status indicators for Power, Alarm, Analog output, BACnet communications, USB communications and AVC status
Terminal Blocks	2 and 3 position vertical pluggable screw terminal blocks

PERFORMANCE

Accuracy	±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 (model AVC51xx-xx) <1.5% FS max.
	Round valves with blade seals (model AVC51xx-xx-S) <0.5% FS max.
	Standard rectangular valves (model AVC52xx-xx) <2% FS max.
	Rectangular valves with blade seals (model AVC52xx-xx-S) <1% FS max.
Max. Operating Pressure	3"wc differential pressure across valve
Failure Mode	Fail Last Position or Fail Open/Closed (selectable by model code)

ENVIRONMENTAL

Temperature	
Operating	0° to 150° F (-18° to 66° C)
Storage	-40° to 150° F (-40° to 66° C)
Humidity	0% to 90% non-condensing

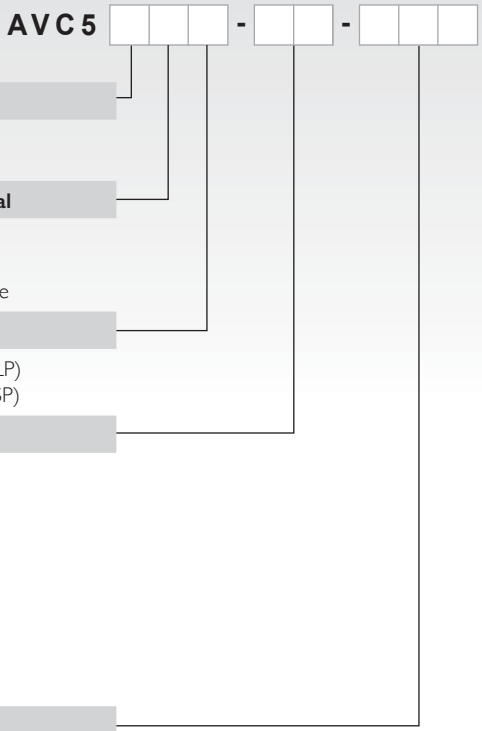
MATERIALS OF CONSTRUCTION

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

Ordering Guides

Please see the following page for Ordering Guides.

AVC5000 AccuValve®
Ordering Guide



Shape

1 = Round
2 = Rectangular

Valve Housing Material

2 = 304ss, 20 Gauge
3 = 316ss, 20 Gauge
4 = Aluminum, 16 Gauge

Actuator Type

3 = Fail Last Position (FLP)
5 = Fail Open/Close (FSP)

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
36 = 12"h x 36"w
48 = 12"h x 48"w

Options

Blank = No Options
F = Flanges
I = Insulation
S = Tight Shut-off*

* Blade seals are standard on all 6" valves

Your representative is: