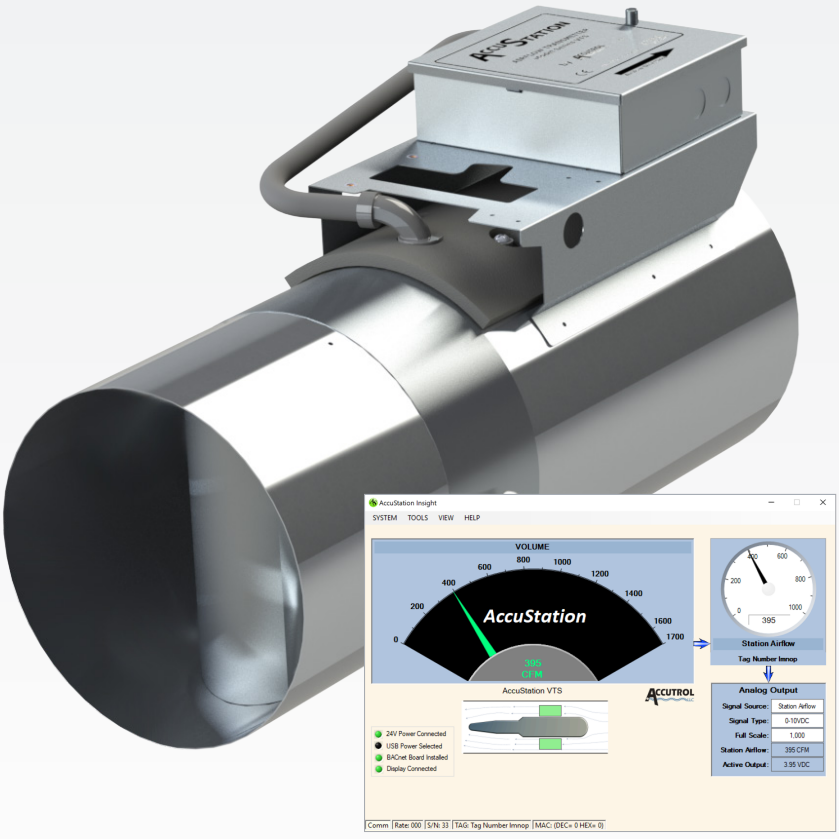
ACCUTROL® LLC

AccuStation VTS Series

US Patent 7,543,759

Digital Airflow Measurement Station



Innovative features of the AccuStation VTS Series!

- Digital Airflow Sensing
- Modular Design
- Intuitive User Interface
- Stable – Drift Free
- Resistant to Contamination
- Not Affected by Humidity
- Not Affected by Temperature
- Not affected by Altitude
- Linear Over Entire Range
- Low Power Requirements
- Universal Voltage and Current Output
- Native BACnet® MS/TP Optional

MADE IN U.S.A.

TÜV SÜD ISO 9001 CE

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The Accutrol AccuStation® Model VTS is designed for use when standard airflow sensing is difficult to apply. This product is also ideal for Outside Airflow measurement for smaller ducted AHU's. The VTS utilizes digital VorTek airflow sensing and laminarizes the airflow profile for precise airflow measurement.

Features & Benefits

The Accutrol AccuStation Model VTS is an ISO 9001:2015 certified, low pressure drop airflow station designed for use in very tight spaces when standard airflow sensing is difficult to apply.

Exceptionally Low Pressure Drop

The Accutrol VTS'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 measurement.

No Straight Run Requirements

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

Simple Layout and Installation

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

Intuitive Insight Software

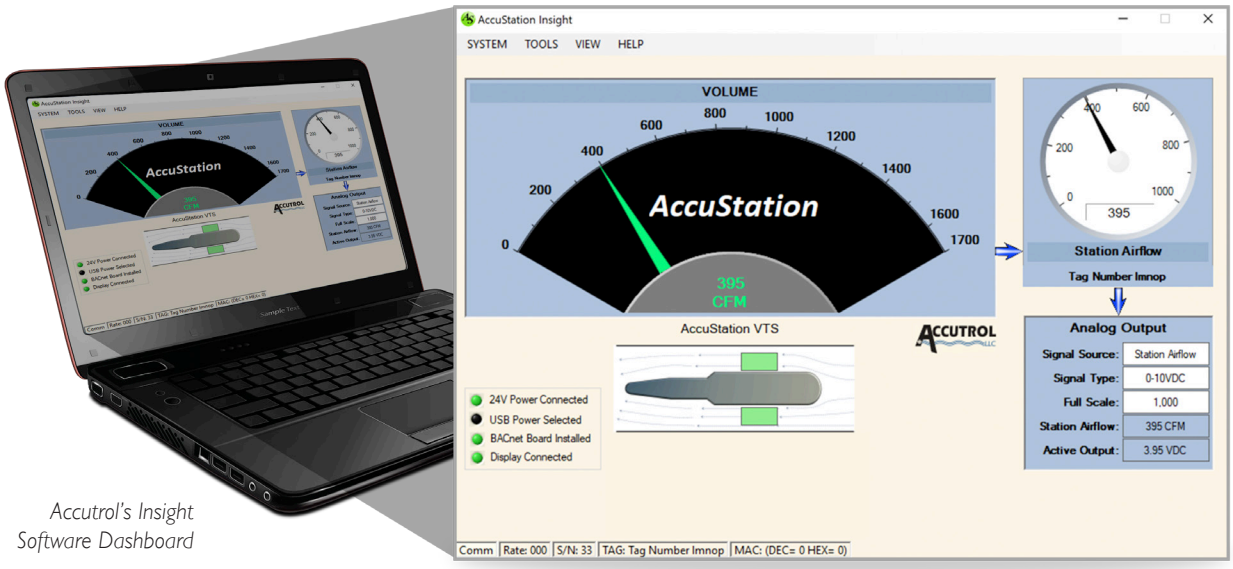
The VTS also incorporates a simple and intuitive graphical user interface, which is provided free of charge.

BACnet® Option

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

Remote Airflow Monitor Option

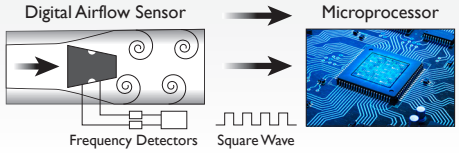
The VTS is available with an optional airflow monitor that can be mounted remotely, which displays actual measured airflow.



Accutrol's Insight Software Dashboard

Digital Airflow Sensing

Accutrol's vortex shedding airflow measuring device is the ***only*** digital airflow sensing device on the HVAC market. By utilizing vortex shedding technology, the shedder mounted in the air stream creates pressure pulses, which are converted to an electronic frequency. This electronic frequency is related to airflow velocity in a linear manner. That is why the VTS is able to maintain high accuracy over a very large range.



Pressure Pulses Converted to Electronic Frequency

Stable – Drift Free

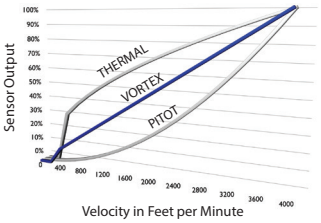
One of the many advantages of vortex shedding is that the sensing is not amplitude based and cannot drift over time. Therefore, no recalibration is required – ever.

Vortex Shedding Cannot Drift Over Time

Other airflow sensors rely on an amplitude measurement device, which is susceptible to inaccuracies and drift.

- Pitot and orifice sensors rely on differential pressure transmitters, which require periodic calibration.
- Thermal airflow sensors use thermistors, which will drift over time and must be matched to the electronics.

Linear Airflow Measurement



Vortex Shedding Is Linear

Our vortex shedding design is the ***only*** airflow measurement technology that is linear. The inherent physics of vortex shedding is a linear relationship between frequency and air velocity. That means that as air velocity changes, the frequency of the pulses changes in a linear manner. This eliminates the need for complicated curve matching associated with thermal devices.

Contamination Resistant

Vortex sensors are contamination resistant. Other airflow measurement technologies, such as thermal dispersion, are severely affected by contaminants in the air stream. As a thermistor gets coated with dust or dirt, the thermal transfer is impacted, seriously affecting the accuracy of the device.

Unaffected by Humidity, Temperature, Altitude

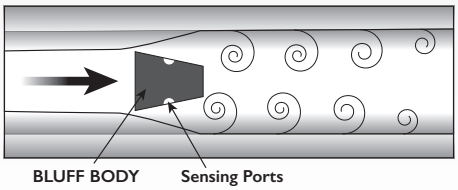
Vortex shedding is also unaffected by changes in air density and humidity, which do affect thermal airflow measurement systems.

Vortex Shedding Around a Volcanic Island

How Vortex Sensing Works

The vortex shedding phenomena can be seen all around us in everyday life. Swirling vortices, or eddy currents, are generated whenever air flows around an obstruction in its path. Common examples are the eddy currents that develop behind rocks in a stream or the fluttering of a flag behind a flagpole. The satellite photo (left) shows clouds flowing around a volcanic island. As clouds pass the mountains, the vortices are created on a grand scale.

Accutrol's sensors simply utilize this same vortex shedding phenomena to measure the velocity of the air on a smaller scale. As airflow passes around the trapezoidal shedder, it creates alternating low pressure vortices. Sensing ports on opposite sides of the shedder relay these pressure pulses to frequency detectors, which then output a digital signal to the electronics. The electronics subsequently convert these digital pulses to analog output signals.



Vortex Shedding on a Smaller Scale

Operating Pressure

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
12"x36" (305x915)	CFM	520	2005	2875	3523	4172	4681	5191	6400
	L/S	245	946	1357	1663	1969	2209	2450	3020
	CMH	883	3407	4885	5986	7088	7954	8820	10874
12"x48" (305x1220)	CFM	700	2522	3625	4426	5228	5850	6473	8000
	L/S	330	1190	1711	2089	2467	2761	3055	3776
	CMH	1189	4285	6159	7520	8882	9940	10998	13592
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

Specifications

TRANSMITTER ELECTRICAL

Input Power	24VAC ±20% 50/60Hz, 4 VA max. (8.5 VA max with remote monitor)
	24VDC ±10%, 1.5m W max. (3.5 W max with remote display)
Output Signal	Software configurable 0-20mA, 4-20mA, 0-10v, 2-10v, 0-5v or 1-5v
	12-bit resolution Capable of driving 1K-ohm load
Electromagnetic	EMC Directive 2004/108/EC
Compatibility	Low Voltage Directive 2004/108/EEC
	EN61326-1-2006
	FCC Part 15
Product Safety	IEC/EN/UL/CSA 61010:2001
	CAN/CSA-C22.2 No. 61010-1

ELECTRICAL (COM & CONFIGURATION)

Network Com Port 1	EIA 485 2-wire BACnet MS/TP (optional)
	Galvanically isolated
	Data Rates 9600, 19200, 38400, 57600, 76800 and 115200
	Software provided for setting the MAC address
	⅛ Unit load receiver input impedance
	Network bias and EOL termination not provided with the transmitter
Configuration Port	USB 2.0, Isolated, "C" type connector

PERFORMANCE

Accuracy	±5% of reading or 5 CFM (2 L/S; 8 CMH), whichever is greater

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

VTS Housing	Aluminum (16 Gauge) 304SS (20 Gauge) 316SS (20 Gauge)
Airflow Sensors	Polycarbonate plastic, UL94-VO

VTS AccuStation®
Ordering Guide

VTS [ ][ ][ ] - [ ][ ][ ]

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

Options

Blank = No Options
B = BACnet MS/TP
F = Flanges
I = Insulation

VTM Remote Airflow Monitor (sold separately)

The VTS is available with an optional airflow monitor that can be mounted remotely from the transmitter. The monitor is connected to the VTS with factory cable and can be located up to 100' away. The VTM includes a USB connection to enable the operator to use the Insight User Interface without accessing the transmitter.

VTM Remote Airflow Monitor Ordering Guide

VTM [ ][ ][ ] - [ ]

Cable Length

000 = No cable
025 = 25' (7.6m) Plenum Rated Cable
050 = 50' (15.2m) Plenum Rated Cable
075 = 75' (22.9m) Plenum Rated Cable
100 = 100' (30.5m) Plenum Rated Cable

Cable Type

BLANK = Standard Plenum Rated Cable

Your representative is: