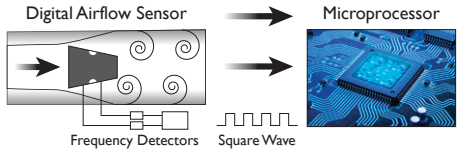
ACCUTROL LLC

VorTek G3

Superior Performance

Digital Airflow Sensing

The VorTek[G3] 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 directly proportional to the airflow velocity and remains perfectly linear. That is why the VorTek[G3] is able to maintain high accuracy over a very large range.



Pressure Pulses Converted to Electronic Frequency

Stable – Drift Free

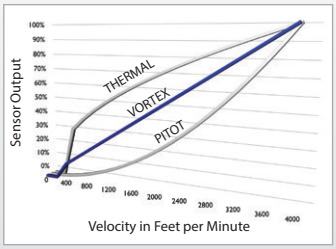
One of the many advantages of vortex shedding is that the sensing is not amplitude based and ***cannot*** drift over time. Therefore, no recalibration is required – ever.

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

The VorTek[G3] 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 since the sensing ports are on the downstream side of the sensor. This puts them out of the path of contaminants, so the "sensing side" of the device remains clean. 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

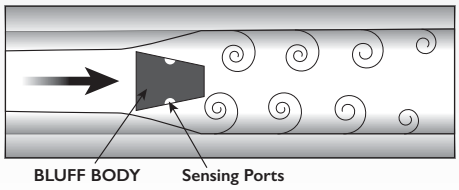
Vortex shedding is also unaffected by changes in air density and humidity, which do affect thermal airflow measurement systems.

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.

VorTek[G3] 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

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