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Flow Measurement Solutions

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Air Monitor
Precision Airflow Measurement
An ONICON Brand



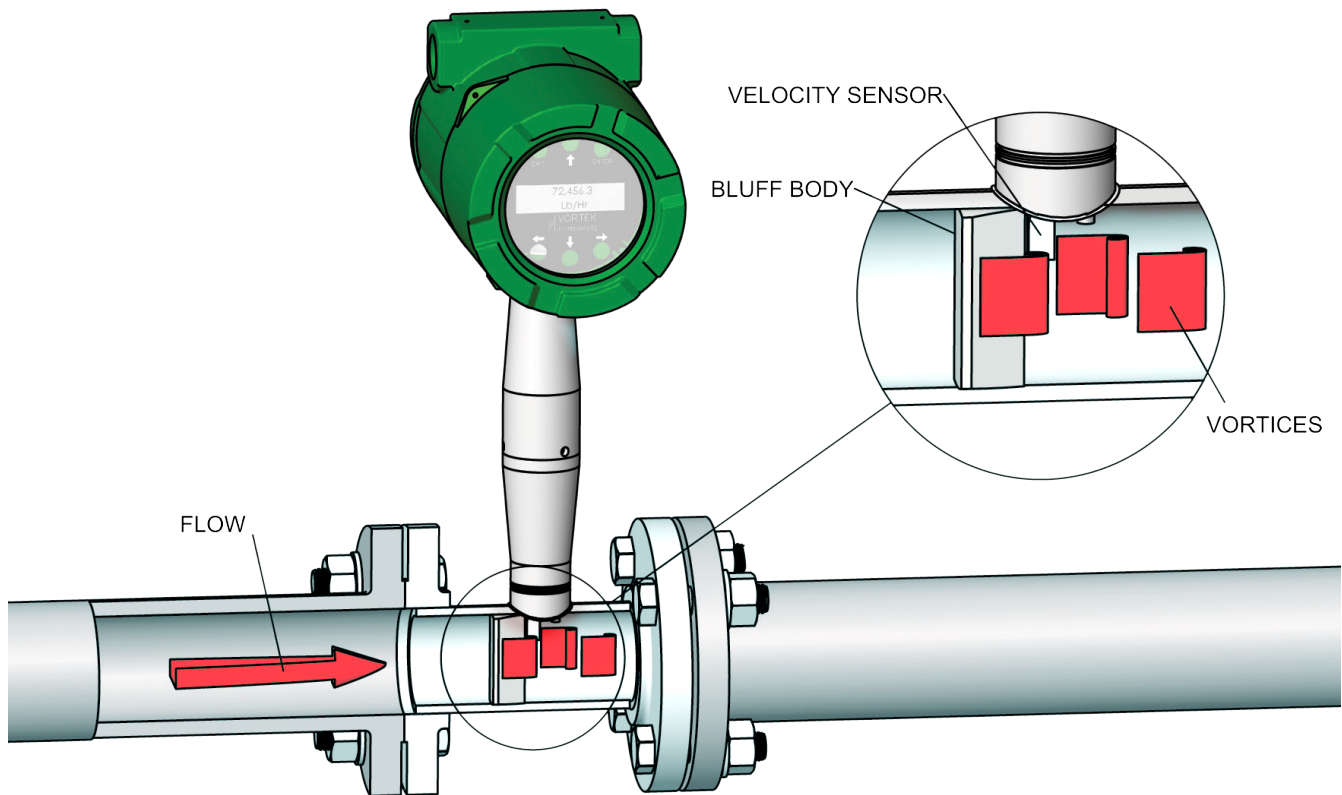
Vortex Flowmeters

Vortex flowmeters measure fluid velocity using a principle of operation called the von Kármán effect. It states that when flow passes by an obstruction in the flow path, vortices are generated in a repeating pattern.

In a vortex flowmeter, this obstruction is referred to as a bluff body. The bluff body causes the process fluid to separate and form areas of alternating differential pressure known as vortices around the backside of the bluff body. In Pro-V® vortex flowmeters, a sensitive piezoelectric crystal sensor detects these vortices. The frequency at which the vortices are shed is directly proportional to the fluid velocity. With the fluid velocity and area of the pipe known, a volumetric flow rate can be calculated.

Pro-V vortex flowmeters can provide a compensated mass flow rate by adding optional integrated temperature and pressure sensors. Pro-V flowmeters can also provide a reliable energy measurement (BTU) of water, thermal oils, and steam.

Insertion style vortex flowmeters are a more economical option on large line sizes and can be installed under full process conditions (hot tapping).



Pro-V® Vortex Flowmeters

- Multivariable Vortex (Integrated Temperature & Pressure Sensors)
- Inline and Insertion models
- Density compensated mass flow measurement
- Advanced communication options such as BACnet™/IP and Modbus® TCP/IP
- Rugged design, no moving parts
- Thermal energy (BTU) metering
- Power over Ethernet (PoE) functionality
- Loop powered models
- Rangeability up to 100:1
- FM, FMC, ATEX, IECEx Approved

Pro-V® Inline Vortex Flowmeter

(Model M22)

KEY FEATURES

- Multivariable design
- Rugged design, no moving parts
- Thermal energy metering (BTU)

COMMON APPLICATIONS

- Saturated & superheated steam
- Density compensated mass flow metering
- Thermal energy metering (BTU)



Pro-V® Inline Vortex Flowmeter

(Model M24)

KEY FEATURES

- Multivariable design
- Reduced bore option for low flows
- Thermal energy metering (BTU)

COMMON APPLICATIONS

- Saturated & superheated steam
- Density compensated mass flow metering
- Low flow rate applications



Pro-V® Insertion Vortex Flowmeter

(Model M23)

KEY FEATURES

- Multivariable design
- Economical option for large line sizes
- Process shutdown not required for installation

COMMON APPLICATIONS

- Saturated & superheated steam
- Density compensated mass flow metering
- Thermal energy metering (BTU)



Transit-Time Ultrasonic Flowmeters

Transit-time ultrasonic flowmeters operate using sound wave signals which travel between a pair of transducers. Both transducers act as transmitters and receivers of these sound wave signals.

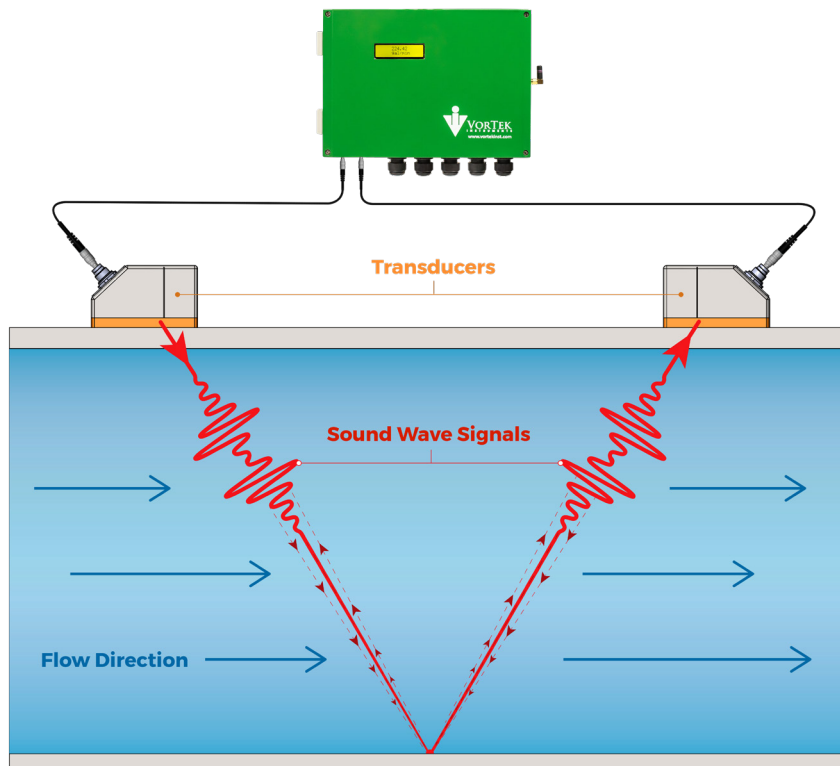
Sound waves moving in a fluid carry faster when traveling in the fluid flow direction (downstream) and slower when traveling against the fluid flow (upstream). If there were no fluid flow, the travel times would be identical. The difference in these travel times is measured, and from that, a fluid velocity is calculated. With the area of the pipe and fluid velocity known, the meter calculates a volumetric flow rate. If the fluid density is also known, a mass flow rate can be calculated as well.

SonoPro® ultrasonic flowmeters incorporate high accuracy transit-time ultrasonic technology to deliver accurate

and reliable flow metering. The innovative design incorporates matched precision transducers and signal processing circuitry to accurately measure the flow of most liquids over a wide range of velocities.

SonoPro flowmeters are available with clamp-on or insertion transducers. Clamp-on meters have no wear, create zero pressure loss, and do not require process interruptions to install them since they are attached to the outside of the pipe.

With the addition of external temperature inputs, SonoPro meters can provide a reliable (BTU) energy measurement.



SonoPro® Transit-Time Ultrasonic Flowmeters

- No maintenance required
- Non-invasive installation
- No wetted or moving parts
- No pressure drop
- High turndown ratio
- No drifting, no recalibration required
- Bi-directional flow measurement
- Low total cost of ownership

SonoPro® Professional Series Flowmeter (Model S36)

KEY FEATURES

- High accuracy flow metering (Up to $\pm 0.75\%$ of reading)
- BACnet™ IP & ModBus® TCP/IP communications
- Compatible with SonoConfig™ software



COMMON APPLICATIONS

- Glycol metering
- Boiler feedwater
- Chemicals

SonoPro® Water Flowmeter (Model U43)

KEY FEATURES

- Non-invasive flow measurement of clean liquids
- Economical flow metering
- Thermal energy metering (BTU)



COMMON APPLICATIONS

- Cost Allocation/ Sub-Metering
- Make-up water
- Potable water

SonoPro® Portable Flowmeter (Model U44)

KEY FEATURES

- Portable non-invasive flow measurement of clean liquids
- Internal data logging
- Economical flow metering



COMMON APPLICATIONS

- Spot checking
- Verifying the accuracy of another flowmeter
- Temporary placeholder for fixed mount flowmeter

Ultrasonic Thickness Gauge (Model MT160)

KEY FEATURES

- Non-invasive pipe wall thickness measurements
- No wetted or moving parts

COMMON APPLICATIONS

- Determining pipe thickness



SonoPro® Commercial Series Flowmeter (Model U42)

KEY FEATURES

- Non-invasive flow measurement of clean liquids
- Modbus® RTU & 4-20mA communications
- Thermal energy metering (BTU)



COMMON APPLICATIONS

- Hot/Chilled water systems
- Condenser water supply/return
- Condensate return

SonoPro® Professional Series Portable Flowmeter (Model S34)

KEY FEATURES

- Portable non-invasive flow measurement of clean liquids
- Internal data logging
- Compatible with SonoConfig™ software



COMMON APPLICATIONS

- Spot checking
- Verifying the accuracy of another flowmeter
- Temporary placeholder for fixed mount flowmeter

SonoConfig™ Instrument Interface Software

KEY FEATURES

- Setup feature allows for easy transducer installation
- Diagnostic feature makes troubleshooting easy
- Chart logged data in easy-to-understand graphs



COMMON APPLICATIONS

- Communicate with SonoPro® flowmeters (Models S34 & S36) providing setup, diagnostic, and data logging tools.

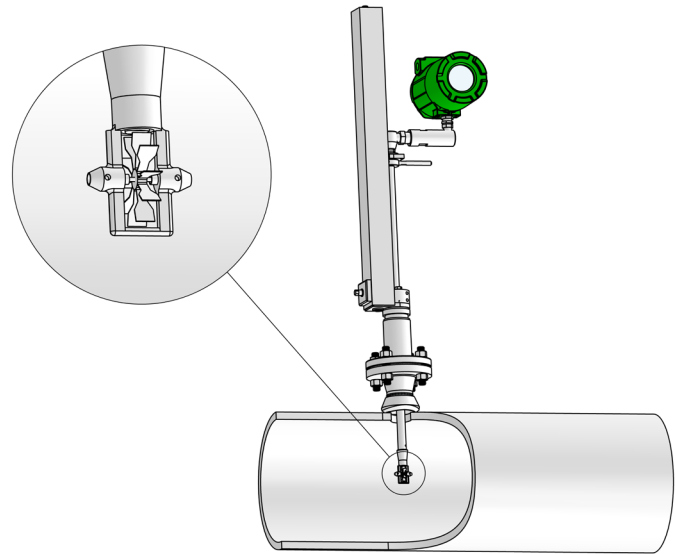
Turbine Flowmeters

Turbine flowmeters measure liquid, gas, and steam flows by detecting the rotational velocity of a turbine rotor in the flow stream.

The rotational velocity of the turbine rotor is directly proportional to the fluid velocity flowing through the turbine. In TurboPro® turbine flowmeters, the turbine blade movement is detected magnetically, with each blade generating a pulse measured by an electrical pickup. This local fluid velocity is used along with other parameters such as pipe size and Reynolds Number to calculate the average fluid velocity in the pipe. With the average fluid velocity and area of the pipe known, a volumetric flow rate is calculated.

TurboPro turbine flowmeters can provide a compensated mass flow rate by adding optional integrated temperature and pressure sensors. TurboPro flowmeters can also provide a reliable energy measurement (BTU) of water, thermal oils, and steam.

Insertion style turbine flowmeters are a more economical option on large line sizes and can be installed under full process conditions (hot tapping).



TurboPro® Turbine Flowmeters

- Multivariable design
- Low flow metering
- Minimal pressure drop
- Economical option for large line sizes
- Process shutdown not required for installation

TurboPro® Insertion Turbine Flowmeter (Model Pro-T®)

KEY FEATURES

- Expanded low-flow measuring range
- Economical option for large line sizes
- Process shutdown not required for installation

COMMON APPLICATIONS

- Saturated & superheated steam
- Low flow rate applications
- Thermal energy metering (BTU)

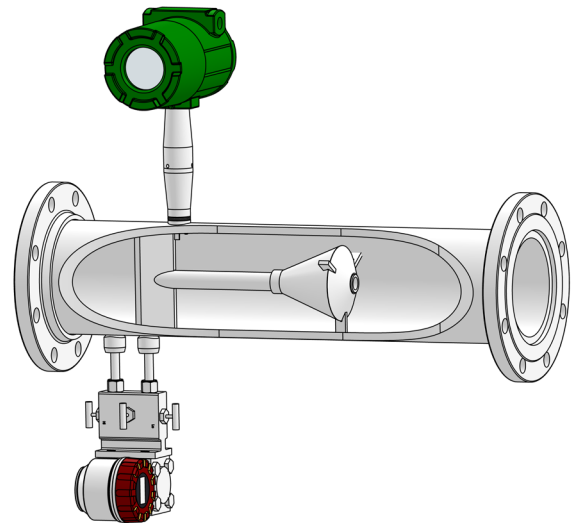


VorCone[®] Steam Quality & Flow Meter

VorCone meters utilize two different flowmeter technologies in combination; vortex and differential pressure.

The design has blended the two separate flow metering principles into one hybrid system where the two meters complement each other's performance. This combination allows for the prediction of the fluid density, volumetric flow rate, and mass flow rate without any fluid density information being required from an external source.

This ability to measure fluid density allows the meter to provide several valuable outputs. In saturated steam service, the meter produces a reliable steam quality (dryness) measurement and mass flow rate reading. In gas service, the meter can calculate the density of changing gas mixtures. For example, natural gas is typically composed of many different gases that vary over time and by application. In wet natural gas service, the meter can provide a reliable liquid loading measurement and gas mass flow rate reading. These are a few examples of the unique capabilities of the VorCone meter.



VorCone[®] Flowmeters

- Measures fluid density, volumetric flow rate and mass flow rate without any density information being required from an external source.
- Able to calculate the density of changing gas mixtures.
- In saturated steam service, provides a reliable steam quality (dryness) measurement and steam total mass flow rate reading (steam & water mixture).
- In wet gas service, provides a reliable liquid loading measurement and gas mass flow rate reading.

VorCone[®] Steam Quality & Flow Meter

(Model MVC)

KEY FEATURES

- Wet steam metering & steam quality measurement
- Wet gas metering & liquid loading measurement
- Measures fluid density, volumetric flow & mass flow rate

COMMON APPLICATIONS

- Saturated steam quality metering
- Gas mixtures with a changing composition
- Wet gas flow metering

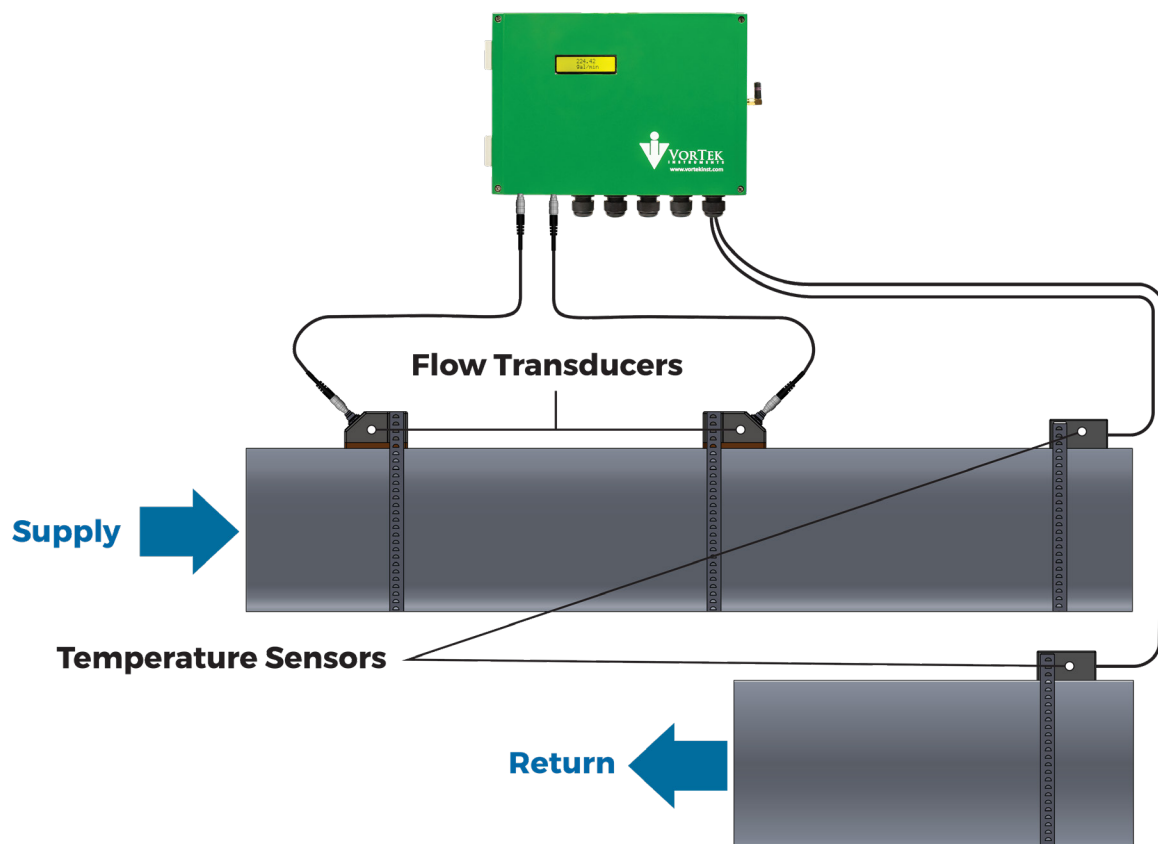


Thermal Energy Metering (BTU)

Thermal energy meters, or BTU meters, measure the energy of hydronic or steam-based heating and cooling systems.

Thermal energy meters consist of a volumetric flow sensor, temperature sensors, and a flow computer. Volumetric flow rate and temperature measurements feed into the flow computer, where the necessary calculations are performed to produce a thermal energy measurement.

Metering thermal energy in this fashion continues to grow in importance, with environmental regulations and financial incentives being the primary drivers. District energy systems and commercial facilities such as universities, hospitals, and airports are adopting thermal energy metering to optimize the performance of their HVAC systems. These modern systems are complex, consisting of chilled and hot water systems, boilers, cooling towers, pumps, and metering equipment. Optimizing these systems is well worth the investment. Increasing energy efficiencies of the heating and cooling infrastructure leads to more environmentally friendly facilities and significant cost savings.



✓ All VorTek flow metering products have thermal energy metering capabilities.

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Thermal Gas Mass Flow Meters for Industrial Applications



PRECISE, RELIABLE, TRUSTED **SOLUTIONS** IN GAS FLOW MEASUREMENT

- INDUSTRIAL PROCESSING PLANTS
PULP & PAPER, STEEL, & CHEMICAL
- OIL & GAS INDUSTRY
- ENVIRONMENTAL MONITORING
- WASTEWATER INDUSTRY

Fox Thermal
Precision Mass Flow Measurement
An ONICON Brand



Benefits of Thermal Mass Flow Technology

- Direct mass flow measurement of air and gases in standard volumetric units (e.g., SCFM or NM3/H) or mass units (e.g., LBS/M or KG/H)
- No additional pressure or temperature compensation required
- Repeatability and exceptionally broad measurement range: up to 1000:1 (100:1 typical)
- Standard linear 4-20mA output proportional to mass flow rate
- Low pressure drop
- No moving parts
- Cost-effective
- Insertion, inline & remote* styles
- Measures flow rate and temperature

*Features and approvals vary by model number

Industries and Applications

Major Industries Served

- Industrial facilities
- Oil & Gas
- Wastewater
- Environmental & emissions monitoring
- Aluminum & steel production
- Pulp & Paper facilities
- Chemical plants
- Textile plants
- Manufacturing of glass & ceramics
- Food & beverage facilities
- Automotive plants
- Pharmaceutical facilities

Industrial

- Pure & mixed gas measurement of industrial processes

Oil & Gas

- Measurement of gas to flares or combustors
- Gas measurement for gas allocation
- Gas from Vapor Recovery Units (VRU's)
- Gas from separators
- Fuel & natural gas monitoring

Wastewater Treatment Facilities

- Air flow monitoring of aeration to pools
- Natural gas flow to sludge incinerators

Environmental & Emissions Monitoring

- Natural gas monitoring for emissions calculations
- Vent or flash gas monitoring
- Flare or waste gas monitoring
- Landfill gas (LFG) monitoring





Certifications, Accuracy Compliance, and Approvals

Quality you can count on!

- ISO 9001:2015 certified Quality Management System
- CE Mark
- FM/FMc product certifications
- ATEX/IECEX certifications*
- CRN approvals*
- Welding qualifications to ASME IX
- BLM 3175 and API 14.10 accuracy compliant



Award-Winning Features on Fox Thermal Products

The entire line of thermal gas mass flow meters from Fox Thermal have consistently won innovation and breakthrough product awards.

Compare model features below:

- 4 Innovation Awards
- 4 Breakthrough Product Awards
- 1 Product of the Year Award



The Fox Thermal Difference

- Microprocessor-based, field-rangeable electronics
- DDC-Sensor™ proprietary flow sensor design*
- Gas-SelectX® field selectable gases / gas mixes without affecting accuracy*
- CAL-V™ and Zero CAL-CHECK® Calibration Validation*
- Free FT View™ Software to configure meter, print Calibration Validation certificates, run simulations, and more!*
- Data Logger with 7-year history*



MODEL FT1

The "Plug 'n Play" Flow Meter

An economical solution for a variety of industrial and wastewater applications.

- Advanced DDC Sensor™
- Gas-SelectX® technology: Pure gas menu and a 5-gas mix
- Zero CAL-CHECK® & CAL-V™ Calibration Validation
- Optional Modbus RTU (RS485), BACnet MS/TP, or HART communication protocols
- Insertion and inline styles



MODEL FT2A

The industrial facility favorite!

Extensive communications options!

- Contact input to reset total
- Optional Modbus RTU (RS485), BACnet MS/TP (RS485), Profibus-DP, DeviceNet, or Ethernet Modbus TCP communication protocols
- DC or AC input power options
- Insertion, inline, integral, and remote styles





MODEL FT3

Offshore favorite!

Ask us about the BSEE response to the FT3 Calibration Validation feature!

- Infrared (IR) buttons on display/configuration panel
- Zero CAL-CHECK® & CAL-V™ Calibration Validation tests
- Optional Modbus RTU (RS485) or HART communication protocols
- DC or AC input power options
- Insertion, inline, integral, and remote styles



Processing's
**Breakthrough
Products 2012**

MODEL FT4A

Great for digester applications and much more!

A precision meter for landfill gas, biogas, and flare gas measurement!

- Advanced DDC Sensor™
- Gas-SelectX® technology with 3 Menus: Pure Gas, Gas Mix, and Oil & Gas Mix
- CAL-V™ Calibration Validation
- Optional Modbus RTU (RS485) or HART communication protocols
- Insertion and inline styles



Processing
**BREAKTHROUGH
PRODUCTS 2017
WINNER**



MODEL FT4X

BLM 3175 and API 14.10 Accuracy Compliant!

The perfect flow meter for oil & gas applications!

- Data Logger with date/time stamp
- Advanced DDC-Sensor™
- Gas-SelectX® technology with 3 Menus: Pure Gas, Gas Mix, and Oil & Gas Mix
- CAL-V™ Calibration Validation
- Optional Modbus RTU (RS485) or HART communication protocols
- Insertion, inline, integral, and remote styles



FT4X Standard Data Logger with Date/Time Stamp

The advanced features of the Model FT4X Data Logger include:

- 40 daily totals (24-hour totals)
- Settable Contract Time defines Contract Day
- Time/date stamped alarm & event logs; 7 year history
- Power off totalizer; power failure creates event log entry

Access logs to learn about the meter's settings and functionality:

- View the meter's gas or gas mix composition
- View the meter's configuration and other meter settings
- View Calibration Validation historical test data
- View and print logs of events and alarms



STATE-OF-THE-ART TECHNOLOGY

FT View™ Software

Free, advanced downloadable software!

- PC-based software application, installed in minutes
- Configure flow meter settings
- Available for every Fox Thermal flow meter model
- Flow meter connected by USB port

Calibration Validation

Know if your flow meter is reading accurately in the field!

- Calibration Validation at the push of a button
- Eliminate the cost and inconvenience of annual factory calibration
- Tests take less than 5 minutes to run
- Produces a pass/fail result
- Certificate can be produced (using FT View software only)

DDC-Sensor™ - Direct Digitally Controlled Sensor

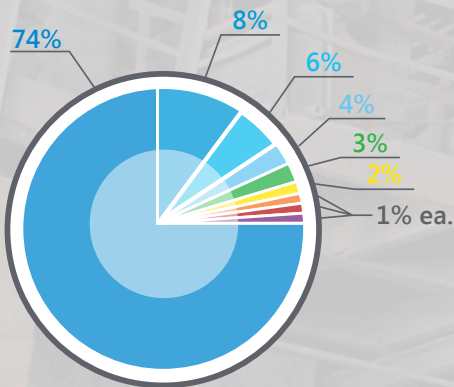
Innovative design for precise measurement and full-featured flow meters!

- Interfaces directly with the flow meter's microprocessor
- Faster speed and more versatile programmability
- Robust, non-cantilevered RTD elements to eliminate vibration
- Provides the technology platform necessary for calculating accurate gas correlations



GAS-SELECTX®

Create a custom gas mix for your Fox Thermal flow meter



- Methane
- Ethane
- Propane
- i-Butanes
- Pentanes
- CO2
- Nitrogen
- Hexanes
- n-Butanes

STATE-OF-THE-ART TECHNOLOGY (CONT'D)

Gas-SelectX® Gas Selection Menu

- Allows the user to choose from gas menus
- Switch gases or gas mixes in the field
- No need to return the flow meter to the factory for a re-calibration
- Three gas menus:
 - Pure gas menu
 - Mixed gas menu
 - Oil & gas menu*

The 3 menus of Gas-SelectX®		
Pure Gas Menu	Mixed Gas Menu	O&G Gas Menu*
Air	Air	Carbon Dioxide
Argon	Argon	Nitrogen
Butane	Butane	Methane (C1)
Carbon Dioxide	Carbon Dioxide	Ethane (C2)
Methane	Ethane	Propane (C3)
Natural Gas**	Methane	i-Butane (C4)
Nitrogen	Nitrogen	n-Butane (C4)
Oxygen	Oxygen	Pentanes (C5)
Helium	Helium	Hexanes (C6)
Hydrogen	Hydrogen	Heptanes (C7)
Propane	Propane	Octanes (C8)
Ethane***		Nonanes+(C9)+

*Not available on model FT1

**Choosing Natural Gas sets the NAESB average in a pre-programmed mix of methane, ethane, propane, nitrogen, and carbon dioxide.

***Ethane available in FT1 Pure Gas Menu

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Depuis 1953, Produits De Qualités Pour Détecter, Mesurer & Contrôler

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Accurate Airflow Measurement for Demanding Industrial Applications



PRECISE, RELIABLE, TRUSTED **SOLUTIONS** IN AIRFLOW MEASUREMENT

- CLEAN AIRFLOW
- COMBUSTION AIRFLOW
- DIRTY AIRFLOW
- PRESSURE MEASUREMENT

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INDUSTRIAL APPLICATIONS

COMBUSTION AIRFLOW APPLICATIONS – A variety of equipment used in industrial applications like boilers, furnaces, etc are tuned with an optimal air to fuel ratio to improve efficiency and achieve optimal process performance. Measuring airflow is key to finding this ratio and achieving combustion optimization. An optimized system will also result in less maintenance costs over time.

Power, Biomass, and Recovery Boilers – Regardless of the fuel type used to power the boiler, measuring the air flow into the combustion chamber is necessary to calculate the perfect air to fuel ratio. A system that is running too lean or too rich results in either performance or cost issues.

Heaters, Furnaces, Ovens, and Kilns – Whether for ceramics and glass or annealing and debinding, the industrial sector relies on heat from a variety of sourced burner equipment to perform essential process functions. With some processes requiring extremely high temperatures, fuel costs can become burdensome. Combustion optimization of burner equipment lowers operating costs by increasing efficiencies.

CLEAN AIR PROCESS APPLICATIONS – Clean airflow measurement in industrial applications like quench airflow or aeration to digesters requires a higher level of accuracy to ensure that process efficiencies are maintained, and the system is operating at capacity. Achieving accurate airflow measurement in large ducts or in systems with up or downstream disturbances can be tricky. A flow meter system by Air Monitor is the most accurate, low velocity, large-duct capable flow meter in the world and offers engineered solutions for challenging industrial applications.

Aeration to Digesters – Typically used in an activated sludge sewage treatment plant, aerobic digesters require precise airflow measurement to ensure that the appropriate amount of oxygen is supplied to the bacteria that break down organic matter during the aerobic process.

		Industries						
		P&P	Power/ Utilities	Refining	Mining	Food & Bev	O&G Exploration	Manufacturing
Applications	Aeration Control		FGD Control		Flotation Column	Fermentation Control		
	Combustion Optimization	Black liquor Bark Furnaces	Gas Turbine Control	Burner Control		Oven Controls	Flare optimization	Solvent Recovery
	Pneumatic Conveying		Pulverized Coal	Pressurized air		Material filling		Paint Booths QC
	Material Drying	Coating dryer Wood drying		Bulk material drying	Solids drying	Solids drying Seed Dryers Coatings		Cement Kiln Ceramic Oven Solids drying Fiber Quench
	Air Flow Verification	Digester Gas Flow	Control room pressure	Tank Blanketing			Control room pressure	Greenhouse air flow Stack Vent Gas
	Boiler Control	Kraft process	Gas Turbine Air/Fuel Mix	Air/Fuel Mix		Air/Fuel Mix		Air/Fuel Mix



DIRTY AIR PROCESS APPLICATIONS – Unlike clean airflow applications, particulate matter is found in dirty airflows. Air Monitor offers the AUTO-purge III system to ensure that the sensing elements are kept free of debris and the highest accuracy can be maintained.

Dust Collection Systems – Optimizing airflow in dust collection systems is crucial for product quality and offers important benefits such as extending filter life, energy efficiency, and cost savings. To get the best results, the airflow must be accurately measured to achieve an optimal airflow control strategy.

Quench Exhaust - A quench tower or condenser is used to condition a high temperature, polluted air stream. This enables particulate, acid gases, metals and other emissions to be removed after use of thermal treatment systems. These systems can include incinerators, reactors, boilers, and other process systems that produce contaminated gas streams at high temperatures. Interruption airflow can reduce the system's ability to remove enough of the contaminants to comply with environmental regulations. So, accurate airflow measurement is a necessary component of quenching.

PRESSURE MEASUREMENT – Maintaining positive air pressure in an area effectively improves air quality by controlling the migration of air contaminants by inducing drafts between spaces.

Clean room Pressurization – Product quality in electronics manufacturing depends on the ability to keep dust and other particulate matter out of a clean-room space. For a system to maintain the right room pressure, it must be able to measure that pressure and adjust key area airflow ventilation in a timely manner.

Industries							Applications
Wastewater	Automotive	Electronics Mfg	Aerospace	Foundries	Pharma.	Petrochemical / Chemical	
Aeration pools		LCD Glass					
Boilers Heat Exchangers	Steam boilers		Heat Treating Composite Curing	Melting Furnaces		Recovery Boilers	
				Frac sand Resin coated sands Ceramics	Tablet granulations Excipients Active ingredients Finished tablets	Mixing / Blending Powders	
			Paint booths		Pill Coating	Fluidized Bed	
Digesters	Paint Booths	Semiconductor	Wind Tunnel Testing				
					Medicinal drying Sterilization / Purification	Incinerators Thermal Oxidizers	Boiler Control



CAMS COMBUSTION AIRFLOW MANAGEMENT SYSTEM

The Air Monitor Power CAMS™ (Combustion Airflow Management System) is designed to fulfill the need for a reliable and accurate means of flow measurement in combustion airflow applications. This single engineered package consists of two components. The CAMM™ (Combustion Airflow Management Module) contains the microprocessor based instrumentation to measure the airflow and manage the purge cycle. The AUTO-purge protects against any performance degradation of the duct-mounted measurement device(s) due to the presence of airborne particulate.



AUTO-purge III AUTOMATIC PURGING AT REGULAR FIELD-SELECTABLE INTERVALS

Air Monitor's AUTO-purge III is designed for applications where the continuous exposure to airborne particulate might impair the measurement accuracy of Air Monitor's CA (Combustion Airflow) Station or VOLU-probe/SS array. When activated by an Air Monitor smart flow transmitter such as the VELTRON II, MASS-tron II or VELTRON DPT-plus, or a distributed control system, a combination of valves are operated to introduce high pressure/high volume air into the flow measurement device's sensing ports for a short duration while simultaneously isolating the transmitter from over pressurization. This periodic purging assists in maintaining the sensing ports of the total and static pressure manifolds in a clear, unobstructed condition.

VELTRON DPT-plus MICROPROCESSOR-BASED ULTRA-LOW RANGE PRESSURE & FLOW TRANSMITTER

The VELTRON DPT-plus transmitter is furnished with an automatic zeroing circuit capable of electronically adjusting the transmitter zero at predetermined time intervals while simultaneously holding the transmitter output signal. The automatic zeroing circuit eliminates all output signal drift due to thermal, electronic or mechanical effects, as well as the need for initial or periodic transmitter zeroing. For transmitters operating in a moderately steady temperature location (thus no thermally induced span drift), this automatic zeroing function essentially produces a "self-calibrating" transmitter. The automatic zeroing circuit will re-zero the transmitter to within 0.1% of its operating span; for a transmitter with a 0.02 IN w.c. operating span, this represents a zeroing capability within 0.00002 IN w.c. To permit manual calibration of the VELTRON DPT-plus, an electronic switch is provided to permit manual positioning of the zeroing valve.





CA Station COMBUSTION AIRFLOW MEASUREMENT STATION

Air Monitor's ruggedly constructed CA (Combustion Airflow) Station, with both integral airflow processing cell and Fechheimer-Pitot measurement technology, is engineered to meet challenging operating conditions while providing mass flow measurement of PA, SA, and OFA within an accuracy of $\pm 2-3\%$ of actual airflow. The CA Station measures the total and static pressure components of airflow. The combination and dispersion of total and static pressure sensing ports minimizes the effect of directional airflow, and the addition of the honeycomb airflow processing cell makes the CA Station extremely effective at accurately measuring airflow in limited straight duct runs.



VOLU-probe/SS and VOLU-probe/SM STAINLESS STEEL AIRFLOW TRAVERSE PROBES

The VOLU-probe/SS and VOLU-probe/SM stainless steel airflow traverse probes are ideally suited for new installations or retrofit applications requiring accurate airflow measurement in locations having limited straight pipe runs. VOLU-probe/SS consists of two side-by-side manifolds (one for static and the other for total pressure) traversing the pipe or duct and connected by a single manifold used to average the sensed pressures. Alternatively, the VOLU-probe/SM has two manifolds constructed in a tube-in-tube design with multiple total and static pressure sensing ports along the length of the probe to traverse the airstream in a single line across the duct or pipe, providing separately averaged pressures at the signal connections. While VOLU-probe/SS can be used in both clean or particulate laden applications, the VOLU-probe/SM is more effective in clean air applications. Both probes offer excellent accuracy at $\pm 2-3\%$ of actual flow, operate in temperatures ranging from -20°F to 900°F , and can be used over a velocity range of 400 to 10,000 FPM.



ACCU-flo/NP NOZZLE PITOT FLOW STATION

The ACCU-flo/NP is a combination precision nozzle and multi-point, self-averaging, Fechheimer-Pitot airflow measuring station. When combined with an ultra high accuracy transmitter such as Air Monitor's VELTRON II, MASS-tron II or VELTRON DPT-plus, the ACCU-flo/NP provides high accuracy ($\pm 0.5\%$) flow measurement for process monitoring and control applications. Due to the combined effect of the integral flow straightener cell and the nozzle, the ACCU-flo/NP requires little or no upstream straight run to achieve its published measurement accuracy. Constructed of either type 316 stainless steel or carbon steel with a combination of welded and bolted flanges, the ACCU-flo/NP is capable of operation up to 900°F and is suitable for corrosive gases within the limitations of 316 stainless steel.





LO-flo/SS STAINLESS STEEL PITOT TRAVERSE PROBE

The LO-flo Pitot Traverse Station is a combination air equalizer-straightener with self-averaging Pitot tube traverse station. The LO-flo is fabricated entirely of type 316 stainless steel with all welded construction. It is capable of operation up to 1000°F and is suitable for application to corrosive gases within the limitation of the 316 stainless steel construction. The LO-flo provides highly accurate measurement of low air volumes from 2 to 2000 CFM for monitoring, indicating, and controlling applications when coupled with ultra-low span electronic differential pressure or flow transmitters (such as the Air Monitor VELTRON II, MASS-tron II, and VELTRON DPT-plus transmitters).



SAP STATIC AIR PRESSURE SENSORS

The Air Monitor SAP family of static air probes is designed for room or space pressurization applications where it is essential that the static pressure level within a room or space, and that of a reference pressure (corridor, adjacent space, outdoor location, etc.), be accurately sensed, free of pulsations or effects of air movement in the vicinity of the sensing probe(s). The SAP/R can also be utilized to sense the static pressure within fan inlet and discharge plenums or large ducts, where the presence of multi-directional and turbulent airflows prohibit the use of flow sensitive static pressure tips or probes.



SOAP STATIC OUTSIDE AIR PROBE

The SOAP was designed for accurate and instantaneous sensing of outside static air pressure levels without being adversely impaired by the presence of directionalized gusting wind. Typical locations are an elevated position in an outdoor parking lot, in a below ground location like a parking garage with non-forced ventilation, or on a rooftop mounted pole sufficiently elevated to be outside any anticipated wind induced pressure envelope.





VELTRON II SMART TRANSMITTER

The VELTRON II Transmitter is an ultra-low differential pressure and flow smart transmitter. With its $\pm 0.1\%$ of natural span accuracy, it is intended for the most critical and demanding industrial applications requiring the utmost accuracy and long-term stability. The VELTRON II transmitter is furnished with an automatic zeroing circuit capable of electronically adjusting the transmitter zero at predetermined time intervals while simultaneously holding the transmitter output signal. The automatic zeroing circuit eliminates all output signal drift due to thermal, electronic or mechanical effects, as well as the need for initial or periodic transmitter zeroing. For transmitters operating in temperature controlled spaces (with no thermal effect upon span), this automatic zeroing function essentially produces a self-calibrating transmitter.



MASS-tron II MULTI-VARIABLE FLOW COMPUTER

The MASS-tron II Multi-variable Mass Flow Transmitter is a VELTRON II Transmitter with the addition of both process temperature and pressure compensation. This ultra high accuracy transmitter includes analog outputs for process differential pressure, temperature and absolute pressure, an analog input for process temperature, and a temperature compensation selection feature.

CEMS SYSTEMS CONTINUOUS EMISSIONS MONITORING

Required for differential pressure flow monitoring systems is a back purging means to ensure that the in-stack flow monitor probe has its pressure sensing ports and averaging manifold maintained free of particulate build-up and vapor condensation. When activated by Air Monitor's MASS-tron/CEM or the Data Acquisition System (DAS), the AUTO-purge/CEM System sequentially operates a combination of failsafe valves to automatically back purge the sensing lines and the STACK-probes with high volume/high pressure compressed air for a short duration, while simultaneously isolating the transmitter from over-pressurization. Standard AUTO-purge/CEM construction mounts all components in a steel NEMA 4 rated enclosure, with all wetted parts made of copper or brass. The AUTO purge/CEM is optionally available in a stainless steel NEMA 4X enclosure, with stainless steel wetted parts for corrosive applications.

