PRODUCT OFFERINGS

MAGNETIC FLOW METERS

ULTRASONIC FLOW METERS

ULTRASONIC WATER METERS

OPEN CHANNEL FLOW METERS

		APPLICATION			
Technology	SMC Product Family	WATER	DI WATER	DIRTY WATER	OPEN CHANNEL
Electromagnetic Flowmeters	ALAMG WP	✓	✗	Fluids ≥5µs/cm	✗
	ALAMG BAT	✓	✗	Fluids ≥20µs/cm	✗
	ALAMG MN	✓	✗	✗	✗
	ALAMG IS	✓	✗	Fluids ≥20µs	✓
	ALAMG HP	✓	✗	✗	✗
	ALAMG EG	✓	✗	✗	✗
Ultrasonic Flowmeters	ALSONIC FX2	✓	✓	≤2% TSS	✗
	ALSONIC MN	✓	✓	✗	✗
	ALSONIC DSP	✓	✓	≤30% TSS	✗
	ALSONIC EG	✓	✓	≤2% TSS	✗
Ultrasonic Water Meters	ALSONIC BAWM	✓	✓	✗	✗
	ALSONIC BAEG	✓	✓	✗	✗
Open Channel Flowmeters	ALSONIC AVM	✗	✗	✗	✓
	ALSONIC DAVM	✗	✗	✗	✓
	ALSONIC RAVM	✗	✗	✗	✓

Visit us online at www.smartmeasurement.com

- View the complete SmartMeasurement product offering, with up-to-date technical data sheets for all flow meters and pressure transmitters offered by SMC
- Industry-leading technical reference with detailed theory-of-operation articles for every commercially available flow metering technology
- Application notes
- Online calculators for fluid velocity, flow rate, ACFM-to-SCFM conversion, pipe friction, Reynolds numbers, and fluid conductivity

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SMARTMEASUREMENT

Smart solutions for water and wastewater industries

Smart Solutions with SmartMeasurement™

SUPPORTED INDUSTRIES

Building Automation

Municipal Water/ Wastewater

Industrial Automation

Agriculture

Food & Beverage

ALSONIC ULTRASONIC FLOWMETERS

SmartMeasurement™ offers the widest selection of ultrasonic flow meters in the industry. Our comprehensive array of non-invasive clamp-on flowmeters includes devices employing both the time-proven transit time and the Doppler ultrasonic flow measurement technologies, with either clamp-on or threaded/flanged installation options available. We also offer low-cost spool-piece water meters and BTU/energy ultrasonic meters. All of our clamp-on ultrasonic products are available in both fixed and portable styles.

For any flow measurement application, the amount of suspended solids or gas bubbles/aeration present is a key consideration in selecting the proper ultrasonic flowmeter. For clean water applications having ≤ 1-2% solids or aeration, the low cost clamp-on ALSONIC-FX2 is offered. For applications having higher particle counts of up to 30%, our ALSONIC-DSP product is available in either single or dual path configurations to accommodate dirtier fluids. When particles/bubbles are less than 40% our ALSONIC-DPL doppler technique can be used.

The clamp-on installation method, unique among flow metering technologies, allows ultrasonic flow meters to be used in applications where the process cannot be shut down and the pipe cannot be cut for installation. Clamp on flow meters also cause no pressure drop, suffer no mechanical wear and tear, allow for bidirectional measurement, and provide the ability to pass unlimited solids past the meter without damage.

■ Wall-Mount & Portable ALSONIC DSP

- Fluids: liquids w/ ≤ 30% particulates/bubbles
- Line sizes: DN20~DN6000
- Flow Range (Velocity): 0.02~20m/s
- Temperature: -40~+120 °C
- Accuracy: std ±1.0% of reading
  opt ±0.5% of reading
- Transducer: Clamp on
- Output: Relay, 4-20mA, RS485, graphic display
- Application: Clean or dirty fluids with high accuracy requirements

■ Standard Wall Mount ALSONIC FX2

- Fluids: Clean liquids <1-2% bubble/particles
- Line sizes: DN 15~DN1200
- Flow Velocity: 1~33ft/s (0.3~10m/s)
- Temperature: -20~+110 °C
- Accuracy: ±1% of reading
- Transducer: Clamp-on or inline
- Outputs: 4-20 mA, pulse, RS-485
- Inputs: PT1000-optional
- Application: Low cost flow and/or energy/BTU

ALMAG ELECTROMAGNETIC FLOWMETERS

SmartMeasurement™ offers a complete line of magnetic flow meters suitable for use in the water and wastewater industries. For general-purpose applications, our value-priced ALMAG-WP is available with wafer-type connections or ANSI & DIN flanges and features an easy-to-read OLED display module with variety of outputs including frequency/pulse, analog 4-20 mA, RS-485/Modbus, Profibus, and HART.

For applications where either no power or only solar power are available, the battery powered ALMAG-BAT is available. It features its own internal long-life lithium-ion battery along with special firmware that de-energizes and re-energizes the electromagnetic coils at predetermined intervals in order to extend battery life. The ALMAT-BAT is popular in irrigation and agricultural applications.

For large pipe sizes, the insertion style ALMAG-IS can accommodate pipe sizes of up to 120" (3000 mm) at a fraction of the cost of an inline magnetic flow meter. The insertion mounting method provides further savings opportunities via reduced installation costs.

SmartMeasurement™ also offers the ALMAG-EG which is frequently used for BTU/energy flow measurement required in building automation applications. The ALMAG-EG is actually a multi-component system that consists of an inline electromagnetic flowmeter, two RTD temperature sensors, and a flow computer to calculate a BTU/energy consumption rate and total BTU usage.

■ Standard Magnetic Flow/Energy Meter

- Line Sizes: DN10~DN2000
- Flow Range (Velocity): 0.3~12 m/s
- Accuracy: ±0.5% of reading (Velocity ≥ 0.5 m/s)
  ±3 mm/s (Velocity < 0.5 m/s)
- Connections: Flanged, wafer, sanitary
- Outputs: Pulse, 4-20mA, HART, RS485, Relay
- Power: 110/220 V_{AC} 24 V_{DC}
- Applications: Any conductive fluids

■ Mini Magnetic Flow/Energy Meter

- Line Sizes: DN3, DN6, DN8, DN10, DN15
- Flow Range (Velocity): 0.1~10 m/s
- Accuracy: ± (0.5% of reading + 1 mm/s)
- Connections: Threaded
- Outputs: Pulse, 4-20mA, Relay, HART, RS485
- Power: 24 V_{DC}
- Applications: Chemical injection / dosing, very low flows

■ Insertion Magnetic Flow/Energy Meter

- Line Sizes: DN50~DN3000
- Flow Range (Velocity): 0.5~10 m/s
- Accuracy: ±1.5% of reading (Velocity ≥ 0.6 m/s)
  ±9 mm/s (Velocity < 0.6 m/s)
- Connections: Threaded, weld-type, ball valve
- Outputs: Pulse, 4-20mA, HART, RS485, Relay
- Power: AC, DC
- Applications: Water & wastewater, large pipe sizes

■ Battery Magnetic Flow Meter

- Line Sizes: DN10~DN600
- Flow Range (Velocity): 0.5~8 m/s
- Accuracy: ±0.5% of reading (Velocity ≥ 0.6 m/s)
- ±3 mm/s (Velocity < 0.6 m/s)
- Connections: Flange, wafer, sanitary
- Output: Pulse, RS485, GPRS, CDMA
- Power: Battery
- Applications: Irrigation, sites with no power available

ALSONIC ULTRASONIC FLOWMETERS

■ Portable ALSONIC PL

- Fluids: Clean liquids <1-2% bubble/particles
- Line sizes: DN15~DN1200
- Flow range (Velocity): ±0.1~±12m/s
- Temperature: -40 ~ + 75 °C
  -40 ~ + 110 °C
- Accuracy: ±1% of reading
- Range: ±0.1~±12 m/s standard;
- Outputs: 4-20mA, RS485/Modbus
- Applications: Portable flow/energy meter

■ ALSONIC MINI

- Fluids: clean liquid <1-2% bubble/particles
- Line sizes: DN15~DN40
- Flow range (Velocity): 0.1 m/s~5.0 m/s
- Temperature: 0~+50 °C
- Accuracy: std ±2% of reading, opt ±1% of reading
- Transducers: Plug and play; no need for transducer alignment
- Analog output: 4~20mA, Maximum load: 600Ω
- Alarm output: OCT, Upper and lower limit alarm function (optional)
- Digital Communication: RS-485/Modbus,
- Applications: DI water, dosing, very low flows

■ Water Meter: ALSONIC BAWM

- Fluids: Drinking /domestic water
- Line sizes: DN15~DN300; BSP threads and flanged
- Flow Range: (Velocity) 0.5~12m/s
- Temperature: -10~+70 °C
- Accuracy: std±2.0% of reading
  opt±1.5% of reading
- Mounting: Inline
- Outputs: Pulse, Mbus, MODBUS RS485
- Applications: Homes, apartments, building automation

■ Threaded: ALSONIC BAEG

- Fluids: Hot water
- Line size: DN15~DN300 BSP threaded/flanged
- Flow Range (Velocity): 0.5~12m/s
- Temperature: Up to 95 °C
- Accuracy: 2% of full-scale
- Mounting: Inline
- Outputs: M-Bus (default). MODBUS,
  AMAR compatible and many more
- Applications : Homes, apartments, building automation

OPEN CHANNEL FLOW METERS

An Area-Velocity Measurement (AVM) technique for open channel flow monitoring requires the measurement of both fluid velocity and level. Traditionally, this has been done by using primary elements such as flumes or weirs in conjunction with a liquid level ultrasonic sensor. Flow velocity is inferred by the shape of the flume/weir making it highly inaccurate. Recent advances in ultrasonic technologies have made it possible to measure both velocity and level in a complete package, providing better accuracies, reliability, ease of installation, multiple outputs and diagnostic capabilities versus traditional methods.

SmartMeasurement™, a leader in ultrasonic flow technology, offers a complete package of AVM technologies for open channel flow measurement. The most accurate of these is our ALSONIC-AVM, which uses our patented "fine time measurement technology", making use of ultrasonic beams that can measure at pico-seconds time intervals enabling it to measure both clean and very dirty water. Either a 2 or 4 transducer pairs are placed along the channel to provide velocity measurements with better than 1% accuracy for channels greater than 1.5- to 40 meters. A sewer pipe version, the ALSONIC-SAVMS, is designed open channel measurement in cylindrical conduits of 150-1200mm.

For non-contact open channel flow measurement SmartMeasurement™ offers the ALSONIC-RAVM which makes use of a microwave radar transducer for velocity and radar for level. A single ALSONIC-RAVM can be deployed for channels less than 15 meters in width or multiple transducers can be placed every 15 meters for wider systems. Optional single transducer radar velocity is available for users making use of their own level transmitters. Transducer signals are sent via remote transmitter where the necessary Area • Velocity calculations are made along with graphic display of performance and multiple signal outputs, system setup, diagnostics, and data logging.

SmartMeasurement™ also offers the traditional ultrasonic Doppler AVM measurement system. This meter features an ultrasonic Doppler transducer with an integrated Piezo sensor that allows it to measure both velocity and liquid level with a single sensor. Sewer systems having many solids and particles are ideal for ultrasonic Doppler meters such as this. Historically, Doppler measurement has been less accurate (5-10%) than the more advanced transit time techniques or micro-wave radar technologies. The ALSONIC-DAVM provides a lower cost, slightly less accurate alternative to other open channel Area Velocity Measurement (AVM) technologies.

■ Doppler open channel: ALSONIC DAVM

- Fluids: Dirty liquid
- Line sizes: DN150, up to 6m
- Accuracy: ±2.0% of reading
- Output: Relay, 4-20mA, RS-485/Modbus
- Application: Portable or wall mount sewer systems,/ dirty water

■ Ultrasonic open channel: ALSONIC AVM/SAVM

- Fluids: Clean and/or dirty water including waste water
- Line sizes: DN150~DN1200 (SAVM), up to 40m (AVM)
- Transducers: up to 4-path
- Accuracy: std ±1.0% of reading
- opt ±0.5% of reading
- Output: Relay, 4-20mA, RS-485/Modbus
- Application: Streams, channels, rivers, sewer systems

■ Radar open channel-non contact: ALSONIC RAVM

- Fluids: Clean or dirty water
- Flow path: 0.45~15m per transducer
- Depth: 0-70 meters
- Transducer: Single or multi(up to 32 points)
- Output: Relay, RS-485/Modbus
- Application: Non contact open channel for streams, channels, rivers, sewer systems