

Wall-Mount Ultrasonic Flow meter Accusonic 500 Series

Ultrasonic Flow Meter

Model 500 Series

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Why Ultrasonic Technology ?

Wide Turndown Range

Extensive Weight and Space Reduction (50-60%)

Substantial Cost Reduction (30-40%)

Non-Intrusive Design, No Pressure Drop

Virtually Maintenance Free

Inline Transducer Removal

Improved Accuracy and Repeatability

Bi-Direction Operation

STATE-OF-THE-ART CLAMP-ON TRANSIT-TIME TECHNOLOGY

NEWLY RELEASED. FULLY FEATURED FOR NON-INTRUSIVE
ACCURATE LIQUID FLOW MEASUREMENT
WITH
ENERGY MEASUREMENT CAPABILITY

The Wall-Mount ultrasonic flowmeter Accusonic 500 series is an ideal tool for service work and quick control measurements. Its clamp-on flow transducers are simply mounted onto the pipe from the outside and are thus quickly installed, without process interruption and without production stop.

The measurement is pressure independent and can take place on pipes of almost any materials and on almost any liquid. The measurement is possible on pipes with diameter between 25 mm to 6000 mm and at temperatures ranging from 0 °C to 100 °C (150 °C option). Accusonic 500 series is thus highly flexible and can be used on the most various applications on totally different measuring points. Two pairs of transducers usually are enough to cover the standard industrial applications.

To start the measurement, you only have to mount the



transducers on the pipe, enter the pipe and medium parameter and adjust the distance between the transducers as indicated by the meter. No zeroing procedure is necessary since all transducer pairs are factory calibrated and the calibration data is permanently stored in the transducers themselves. The user interface is always automatically adapted to the actually connected transducers.

The status display enables even the inexperienced user to

judge online the quality and precision of the measurement.

The Wall-mount ultrasonic flowmeter Accusonic 500 series allows for a quick flow control with a good precision, even under difficult measuring conditions.

The ACCUSONIC 500W ultrasonic thermal energy meter provides abundant capabilities for accurate thermal energy measurement of a liquid-based thermal energy production / transferring system

DESCRIPTIONS:

The Wall-Mount clamp-on ultrasonic flowmeter provides abundant capabilities for accurate liquid flow measurement. The utilization of proprietary ultrasound transmission / receiving, transit-time measurement and ultrasonic signal processing technologies allows

our flowmeter to measure liquid flow rate from outside of a pipe reliably and accurately.

The flowmeter is carefully designed so that its user-interfaces are self-explanatory and the instrument is very easy to operate. The unique clamp-on fixture

design makes the installation very simple and no special skills or tools required. Due to the non-intrusive nature of the clamp-on technique, there is no pressure drop, no moving parts, no leaks, no risk of contamination, no risk of corrosion, not pressure dependent

Ultrasonic Technology Application ?

Chemical industry

Petrochemical industry

Pharmaceutical and semiconductor industry

Food and beverages industry

Water supply and wastewater services

Power plants

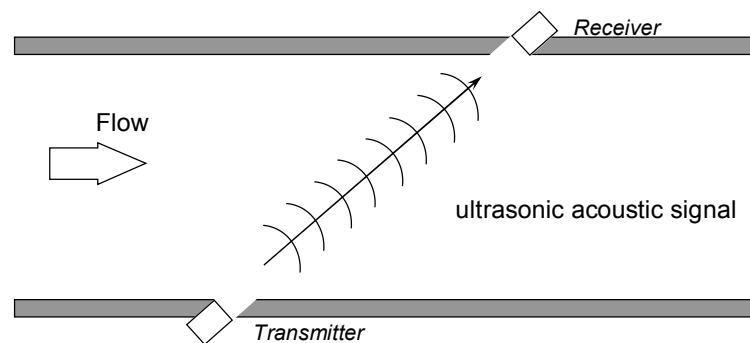
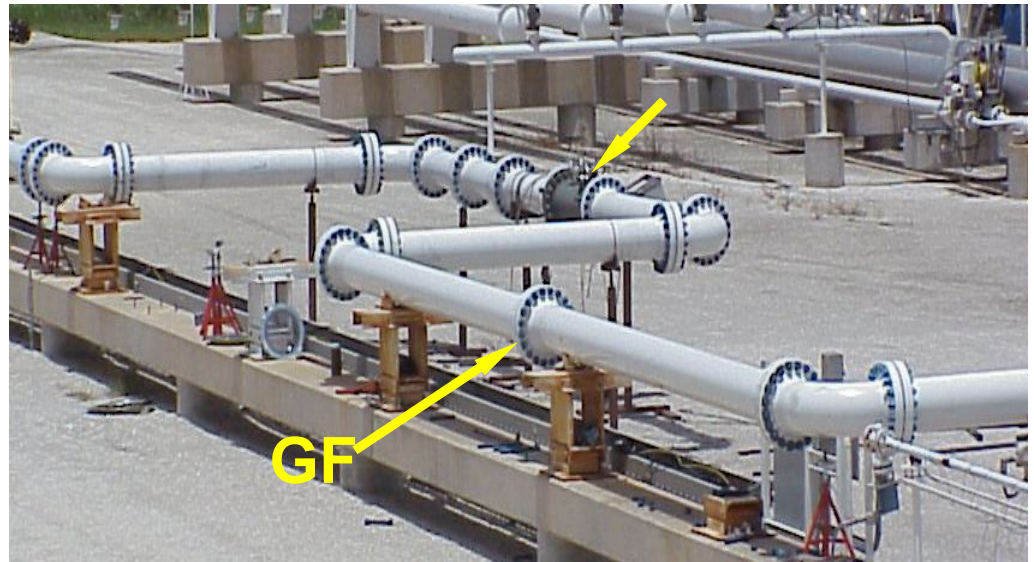
Power supply

Machine and plant construction

Shipbuilding industry

Aeronautical industry

Refrigeration systems, air conditioning and chillers



BENEFITS

- All components of system 500W flowmeters, temperature sensors and net heat computing unit are manufactured
- High accuracy. Normally, $\pm 1\%$. When on-site calibration available, $\pm 0.5\%$.
- Wide flow range 0.03 to 105ft/s.
- Wide pipe size range (from 1" to 240").
- Noninvasive. No pipe disturbance. No moving parts, no pressure drop.
- Easy and economical installation. No cutting pipe, non drilling hole.
- Suitable for all commonly used pipe materials
- Easy to use and set up. Self-explanatory menu programming
- Energy units ,Velocity, volumetric and totalized flow
- GPRS / GSM networking capability with certain model
- Temperature sensors used are matched pair and accurate
- Wide choice of user defined flow units for the flowmeter
- Flowmeters display instantaneous and totalized flow
- User defined (Factory set) units for the Net Heat ccomputing units Kcal / GJ / BTU

SPECIFICATIONS:

Main Unit	Repeatability	Better than $\pm 0.5\%$
	Accuracy	Better than $\pm 1\%$
	Response Time	0.5s
	Velocity	$\pm 0.03 - \pm 105$ ft/s ($\pm 0.01 - 32$ m/s), bi-directional.
	Display	LCD with backlight. 2x20 letters. Display instantaneous flow rate, accumulated flow rate (positive, negative and net rates), velocity, time, analog inputs, etc. Energy Measurement ,units Kcal / GJ / BTU
	Units	English (U.S.) or metric
	Signal Outputs	Current output: 4-20mA or 0-20mA. Impedance 0-1k. Accuracy 0.1%
		OCT output: pulse signal for accumulated flow rate (positive, negative and net rates); frequency signal for instantaneous flow rate (0-9,999Hz selectable)
		Relay: able to output 20 signals, such as no signal, reverse flow, etc.
		Sound alarm
Liquids	Signal Inputs	2 channel analog signal inputs (for signals such as temperature, pressure, liquid level, etc.) RTD interface: two temperature channels with two PT100 3-wire -40-200 deg.C
	Recording	Automatically record the following information: 1) The totalizer data of the last 64 days / 64 months / 64 years; 2) The power time and corresponding flow rate of the last 64 times power on and off events; 3) Allow manual or automatic flow loss compensation; 4) The instrument working status of the last 64 days.
	Communication Interface	RS-232. RS-485 (optional) GPRS / GSM module for networking, remote monitoring and remote control (for some model)
	Enclosure	Protection Class: IP65 (NEMA 4X) Explosive Proof Class: ExdIIBT4 (some model)
Pipe	Liquid Types	Virtually all commonly used liquids (full pipe)
	Liquid Temp	0°C - 100°C (150 °C option)
	Suspension concentration	< 10,000ppm and small air bubble concentration
Cable	Pipe Size	1" - 240"
	Pipe Material	All metals, most plastics, fiber glass, etc. Allow pipe liner.
	Pipe Straight Section Length	Better longer than 15D, where D is pipe diameter. If a pump is near, the straight pipe section following the pumps should be > 30D.
Environment	Shielded transducer cable. Standard length 15ft (5m). Can be extended to 1640ft (500m). Contact the manufacturer for longer cable requirement. Cable should not be laid in parallel with high-voltage power lines, neither should it be close to strong interference source such as power transformers.	
	Temperature	Main unit: 0°F - 176°F (-30°C - 80°C) Transducer: 0°C - 100°C (150 °C option)
	Humidity	Main unit: 85% RH Transducer: water-immersible, water depth less than 10' (3m)
Power	AC: 110V / 220V, or, DC: 8VDC-36VDC	
Weight	Approx.(2.5kg)	








*Note: This high accuracy is for pipe OD $\geq 2"$ and velocity > 0.6 ft/s. For smaller pipe or smaller flow velocity, the accuracy may vary.

Model Selection

ACCU	-	500W	-		-		-		-		-	

	Main Units
S-	Standard
T-	Energy Measurement
P-	Energy Measurement with PT 100 SENSOR
E-	Explosive proof
	Sensor Type
1-	Type S1 for size 1 " - 4"(DN25-DN100 mm)
2-	Type M1 for size 2 " - 28"(DN50-DN700 mm)
3-	Type L1 for size 11" - 240"(DN300-DN6000 mm)
4-	Type S1HT for size 1 " - 4"(DN15-DN100 mm) high temperature (up to 155 °C)
5	Type M1HT for size 2 " - 28"(DN50-DN700 mm) high temperature (up to 155 °C)
6-	Type L1HT for size 11 " - 240"(DN300-DN6000 mm) high temperature (up to 155 °C)
	Transducer cable length
A	Standard 10 M
Y	On request
	Power Supply
1	110 VAC
2	220 VAC
3	8-36 VDC

TRANSDUCER SELECTION

	<p>Type S1: Small size transducer (magnetic) for pipe size 1" – 4"</p>
	<p>Type M1: Medium size transducer (magnetic) for pipe size 2" – 28"</p>
	<p>Type L1: Large size transducer (magnetic) for pipe size 11" – 240"</p>
	<p>Type S1HT Small size transducer high temperature (up to 155°C) for pipe size 1" – 4" (DN25 – DN100mm)</p>
	<p>Type M1HT Medium size transducer high temperature (up to 155°C) for pipe size 2" – 28" (DN50 – DN700mm)</p>
	<p>Type L1HT Large size transducer high temperature (up to 155°C) for pipe size 11" – 240" (DN300 – DN6000mm)</p>
	<p>RTD interface: two temperature channels with two PT100 3-wire -40-200 deg.C</p>

REFERENCE



Chemical industry

- Non-invasive measurements of aggressive or toxic media
- Non-invasive measurement at high temperatures
- Operational measurements of non-conductive media
- Mobile flow controls at start-up and/or inspection of the installation
- Flow measurement of nitric acid in manufacturing plants for synthetic fertilisers
- Flow measurement of media containing fibres or solid particles
- Flow measurement of long-chained polymers
- Flow measurement of highly concentrated sulphuric acid
- Flow measurement of plastic pipes (PVC, PVDF, GFK,...) and hoses
- Flow measurement of heat transfer media such as water and thermal oils
- Measurement of liquid ammonium nitrate during fertiliser manufacture
- Flow measurement of preliminary products in the production of polyurethane



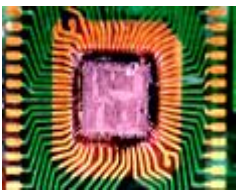
Petrochemical industry

- Flow measurement at high temperatures, for example tar, bitumen, quench liquids
- Monitoring the flow of heat transfer oil in distillation columns
- Measurement of basic materials as well as intermediate and final products



Oil exploration

- Measurement on high pressure systems
- Measurement of bitumen at high temperatures
- Measurement of injection media, e.g. methanol, when extracting oil offshore
- Measurement of injected water
- Measurement of the feeding process into sand separators for process management
- Flow measurement of monoethylamine and of triethylene glycol when drying natural gas
- Measuring of crude oil during sampling for quality analysis



Pharmaceutical and semiconductor industry

- Non-invasive measurement on clear or ultra pure liquids
- Flow measurement of consumption of super-clean water, acid and special chemicals in microprocessor manufacture
- Measurement of plastic or glass pipelines



Food and beverages industry

- Hygienic contact-free measurement of liquids
- Steam sterilisation
- CIP and SIP optimisation
- Heat quantity measurement in the energy supply of the central boiler of breweries and in washing machines
- Consumption optimisation



Power plants

- Flow measurements in the cooling water, boiler feed water, condensation and heating circuits
- short-term replacement of heat counters with medium contact in case of failures



Water supply and wastewater services

- Flow measurement of large pipes (up to DN 6000mm), e.g. down pipes in hydroelectric plants
- Flow measurement on pipes of ductile cast materials, including in water treatment plants
- Consumption and distribution measurements
- Leakage control
- Inspection of water meters
- Flow measurement in sewage treatment plants, e.g. on feed lines of denitrification tanks and on recirculation lines
- Fast water through-flow control under rough through-flow conditions
- Flow measurement at a pump station in the waterway network
- Monitoring of very small and very large flows
- Flow measurement of large pipes (up to DN 6500)



Power supply

- Short-term replacement of heat counters with medium contact in case of failures
- Optimisation of heating systems in large buildings (facility management)



Machine and plant construction

- Leakage detection on hydraulic systems
- Cooling lubricants
- Monitoring of cooling and heating circuits and pumps
- Flow measurement of hydraulic oil for testing valves
- Monitoring the heat transport in plate heat exchangers
- Flow measurement of heat transfer media such as water and thermal oils

Shipbuilding industry

- Monitoring of coolant and lubricant circuits
- Measurement of fuel consumption



Aeronautical industry

- Flow measurement when scavenging hydraulic fluid
- Monitoring hydraulic systems of aircraft
- Monitoring cooling lines of aircraft



Refrigeration systems, air conditioning and chillers

- Measurement of inlet and outlet flow for service work and maintenance
- Pump checks
- Energy efficiency optimisation