GE
Measurement & Control

AquaTrans™ AT600

Panametrics Ultrasonic Flow Meter for Liquids

Applications

The AquaTrans AT600 flowmeter is a complete ultrasonic system for the measurement of:

- Potable Water
- Wastewater
- Sewage
- Discharge water
- Treated water
- Cooling and heating water
- Irrigation water
- Other industrial fluids

Features and Benefits

- Economical non-intrusive flow measurement
- Extremely simple setup and installation
- Suitable for a wide range of pipe sizes and materials
- Suitable for lined pipes
- Velocity, volumetric, and totalized flow outputs
- Clamp-on installations
- Permanent solid couplant for clamp-on applications.

Liquid Flow Ultrasonic Transmitter

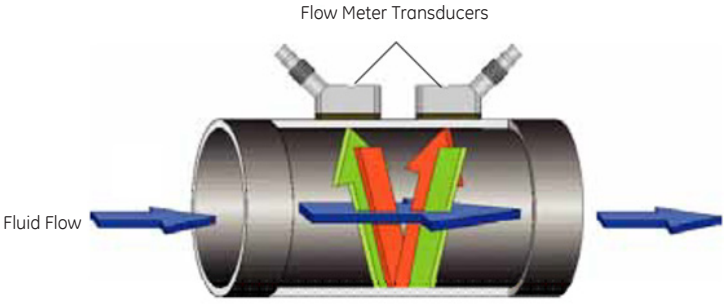
The AquaTrans AT600 liquid flow ultrasonic transmitter combines state-of-the-art flow measurement capability with a low-cost transmitter package that can be installed right at the process measurement point. It's designed specifically for water and wastewater applications in full pipes. The all-digital AquaTrans AT600 has no moving parts and requires minimal maintenance. An onboard microprocessor uses patented Correlation Transit-Time™ technology for long- term, drift-free operation. Automatic adjustment to changing fluid properties and dynamically configured operating software simplify programming.

Transit-Time Flow Measurement

In this method, two transducers serve as both ultrasonic signal generators and receivers. They are in acoustic communication with each other, meaning the second transducer can receive ultrasonic signals transmitted by the first transducer and vice versa.

In operation, each transducer functions as a transmitter, generating a certain number of acoustic pulses, and then as a receiver for an identical number of pulses. The time interval between transmission and reception of the ultrasonic signals is measured in both directions. When the liquid in the pipe is not flowing, the transit-time downstream equals the transit-time upstream. When the liquid is flowing, the transit- time downstream is less than the transit-time upstream.

The difference between the downstream and upstream transit times is proportional to the velocity of the flowing liquid, and its sign indicates the direction of flow.



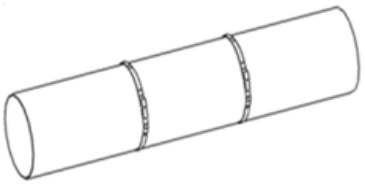
Transit-time Flow Measurement Technique

Clamp-On Transducers

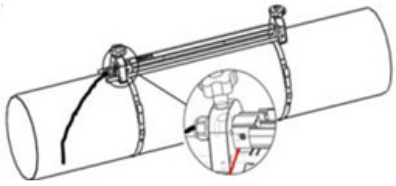
Clamp-on transducers offer maximum convenience, flexibility and a low installation cost compared to traditional flow metering technologies. With proper installation, clamp-on transducers provide better than 1% of reading accuracy in most applications.

Easy Four Step Installation

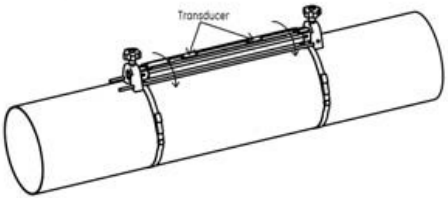
Step #1: Install straps onto pipe.



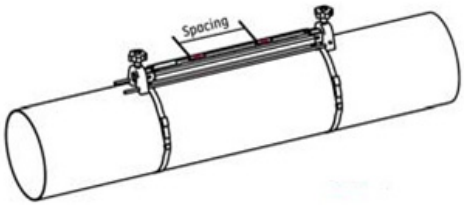
Step #2: Put clamp-on fixture on pipe and move straps onto sides of fixture.



Step #3: Open fixture to set spacing.



Step 4: Set spacing and lock fixture with transducers onto pipe.



Specifications

Overall Operation and Performance

Fluid Types
Liquids: acoustically conductive fluids, including most clean liquids, and many liquids with small amounts of entrained solids or gas bubbles

Flow Measurement
Patented Correlation Transit-Time™ model

Pipe Sizes
- 2 to 24in (50 to 600mm) standard
- Other sizes available upon request

Pipe Materials
All metals and most plastics. Consult GE for concrete, composite materials, and highly corroded or lined pipes.

Accuracy
- ±1% of reading in application
- ±0.5% in field calibration

Installation assumes a fully developed, symmetrical flow profile (typically 10 diameters upstream and 5 diameters downstream of straight pipe run). Final installation accuracy is a function of multiple factors including fluid, temperature range, pipe centricity, and other.

Calibration
All meters are water calibrated and delivered with a traceable calibration certificate.

Repeatability
±0.2% of reading

Range (Bidirectional)
-40 to 40 ft/s (-12.19 to 12.19 m/s)

Rangability (Overall)
400:1

Measurement Parameters
Velocity, Volumetric, and Totalized Flow

Electronics

Enclosure
Epoxy-coated aluminum weatherproof Type 4X/IP67

Dimensions
6.6 x 5.0 x 2.4in (168 x 128 x 61mm)
Weight: 3.5 lbs/1.5kg

Channels
One channel

Display
Graphic LCD (128 x 64 pixels)

Keypad
Six-button keypad, for full functionality operation

Error Display Indicator
- Green or red light

Power Supplies
- Standard: 85 to 265 VAC, 50/60 Hz
- Optional: 12 to 28 VDC, ± 5%

Power Consumption
10 Watts in rush
5 Watts normal operation

Operating Temperature
-4°F to 131°F (–20°C to 55°C)

Storage Temperature
–40°F to 158°F (–40°C to 70°C)

Outputs (Based on Configuration)
- 4-20mA (24VDC powered, 600Ω maximum load, 1500 VDC Isolation)
- Frequency, Pulse, Alarm (Passive output, 100VDC, 1A/1W maximum, 1500 VDC isolation)
- HART (FSK modulation, Category Flow, Protocol Version 7.5, Device Revision 2, MFG ID 157, Device Type Code 127, Number of device variables 34)
- Modbus/RS485 (Half-duplex, 1500 VDC Isolation)

Analog outputs Namur NE 43 compliant

Certification
CE, UL, CSA, MCert

Clamp-On Ultrasonic Flow Transducers

Temperature Ranges
- Standard: -40°F to 302°F (-40°C to 150°C)
- Optional: -328°F to 752°F (-200°C to 400°C)

See specific transducer for exact temperature range.

Mounting Fixture
Anodized aluminum with stainless steel strapping

Couplant
Solid couplant standard

Rating
Standard: General purpose (IP66 or IP68)
See transducer for exact rating

Additional Options

Vitality™ PC – Interface Software

The AquaTrans AT600 communicates with a PC via our Vitality interface program. Consult the manual for details on sites, logs, and other operations with a PC.

Ordering Information

A	-	B	-	C	-	D	E	-	F	-	G	H	I	J	K	-	Z
AT6																	**Model** Clamp-on liquid ultrasonic flowmeter consisting of an AT600, transducers, clamping fixture, transducer cable and couplant
		C1															**Clamp-on System** Single-channel clamp-on system
				CR05													**Transducer System** C-RS transducers, 0.5 MHz, IP66 (Typical 8 to 24 in/200 to 600 mm)
				CR10													C-RS transducers, 1 MHz, IP66 (Typical pipe sizes of 4 to 12 in/100 to 300 mm)
				AT20													C-AT transducers, 2 MHz, IP68 (Typical pipe sizes of 2 to 6 in/50 to 150 mm)
						<>											**Pipe Size** Nominal outer diameter
							IN										**Pipe Units** Inches
							MM										Millimeters
									1								**Cable Length** 10 feet (3 meters) of transducer cable
									2								25 feet (7.5 meters) of transducer cable
									3								50 feet (15 meters) of transducer cable
									4								100 feet (30 meters) of transducer cable
									7								300 feet (90 meters) of transducer cable
											1						**AT Power** 85 to 265 VAC
											2						12 to 28 VDC
												A					**Analog & Digital Output** 4-20 mA analog output only
												H					4-20 mA analog output with HART
												M					4-20 mA analog output and Modbus
													AA				**Discrete Output** Two Alarm Contacts
													AF				One Alarm Contact and one Frequency Output
													AT				One Alarm Contact and one Totalizer (Pulse) Output
													FF				Two Frequency Outputs
													FT				One Frequency Output and One Totalizer (Pulse) Output
													TT				Two Totalizer (Pulse) Outputs
														01			**Language** English
														02			German
														03			French
														04			italian
														05			Spanish
														06			Portuguese
														07			Russian
														08			Japanese
														09			Chinese
															M		**Default Units** Metric
															E		English
																O	**Special** No specials
																S	Special

ThermoFisher SCIENTIFIC

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Visit us online: www.thermofisher.com.au/IP

www.ge-mcs.com

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