

# AquaTrans™ AT600

Panometrics 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.

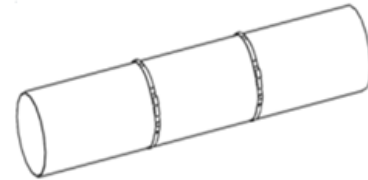
The difference between the downstream and upstream transit times is proportional to the velocity of the flowing liquid, and its sign indicates the direction of flow.

# Clamp-On Transducers

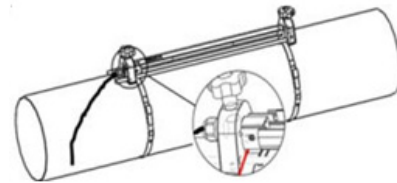
Clamp-on transducers offer maximum convenience, flexibility and a low installation cost compared to traditional flow metering technologies. With proper installation, clamp-on transducers provide better than 1% of reading accuracy in most applications.

## Easy Four Step Installation

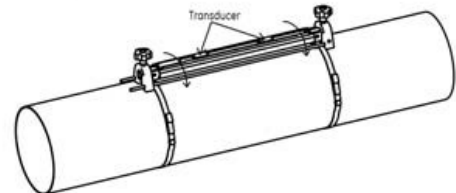
Step #1: Install straps onto pipe.



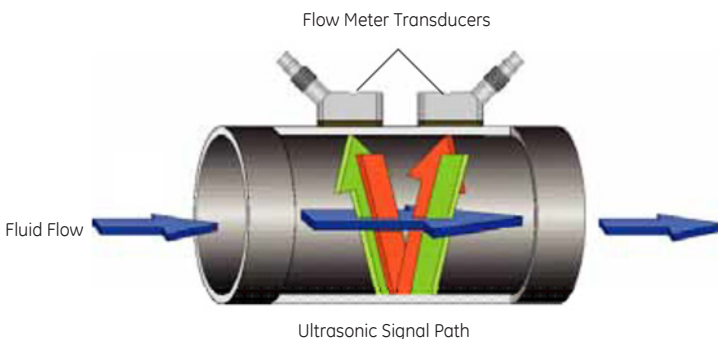
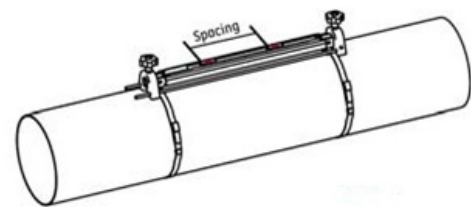
Step #2: Put clamp-on fixture on pipe and move straps onto sides of fixture.



Step #3: Open fixture to set spacing.



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



*Transit-time Flow Measurement Technique*

# 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																						<b>Model</b>	Clamp-on liquid ultrasonic flowmeter consisting of an AT600, transducers, clamping fixture, transducer cable and couplant
C1																						<b>Clamp-on System</b>	Single-channel clamp-on system
CR05 AT10 AT20																						<b>Transducer System</b>	C-RS transducers, 0.5 MHz, IP66 (Typical 8 to 24 in/200 to 600 mm) C-AT transducers, 1 MHz, IP68 (Typical pipe sizes of 4 to 12 in/100 to 300 mm) C-AT transducers, 2 MHz, IP68 (Typical pipe sizes of 2 to 6 in/50 to 150 mm)
<>																						<b>Pipe Size</b>	Nominal outer diameter
IN MM																						<b>Pipe Units</b>	Inches Millimeters
1 2 3 4 7																						<b>Cable Length</b>	10 feet (3 meters) of transducer cable 25 feet (7.5 meters) of transducer cable 50 feet (15 meters) of transducer cable 100 feet (30 meters) of transducer cable 300 feet (90 meters) of transducer cable
1 2																						<b>AT Power</b>	85 to 265 VAC 12 to 28 VDC
A H M																						<b>Analog &amp; Digital Output</b>	4-20 mA analog output only 4-20 mA analog output with HART 4-20 mA analog output and Modbus
AA AF AT FF FT TT																						<b>Discrete Output</b>	Two Alarm Contacts One Alarm Contact and one Frequency Output One Alarm Contact and one Totalizer (Pulse) Output Two Frequency Outputs One Frequency Output and One Totalizer (Pulse) Output Two Totalizer (Pulse) Outputs
01 02 03 04 05 06 07 08 09																						<b>Language</b>	English German French italian Spanish Portuguese Russian Japanese Chinese
M E																						<b>Default Units</b>	Metric English
O S																						<b>Special</b>	No specials Special



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