



Economical Ultrasonic Transit-Time Flow Meter



UA105

Uniarms UA105 ultrasonic flow meter offers highly accurate and repeatable flow measurement for liquids at an economical price. It is built with strong metal case. Coupled with the outstanding performance transducer with high industrial grade material. Ideal for pipes size from 1 inch (25mm) up to 48 inches (1200 mm) in diameter.

IP 68 sensors that are easy to install and require no pipe cutting, reducing installation and labor costs. A microprocessor uses correlation transit time technology for long-term, drift-free operation. User friendly interface makes it very convenient to operate.



Transit-Time Flow Measurement Technique

The transit-time technique uses a pair of transducers with each transducer sending and receiving coded ultrasonic signals through the fluid. When the fluid is flowing, signal transit-time in the downstream direction is shorter than in the upstream direction; the difference between these transit times is proportional to the flow velocity. Our ultrasonic flow meter measures this time difference and uses programmed pipe parameters to determine flow rate and direction.

Applications

- Water / Waste water
- Hot / Chilled Water
- Chemical Liquids and Solvents
- Water management in buildings, metropolitans.
- water / waste water treatment plants, irrigation systems, and more
- Flow monitoring and control in Desalination plants, steel plants, power plants, machining plants
- Liquid process control in chemical plants and industrial automation
- Oil / fuel / chemicals and other liquid transfer
- Retrofit capability, to upgrade or augment existing systems
- Automated batching and scheduling
- Efficiency monitoring and improvement of liquid-based
- Heating / cooling systems, including solar / geothermal systems
- Beverage, food and pharmaceutical processors where non-contact is essential
- Remote flow monitoring network and leakage detection

Features & Benefits

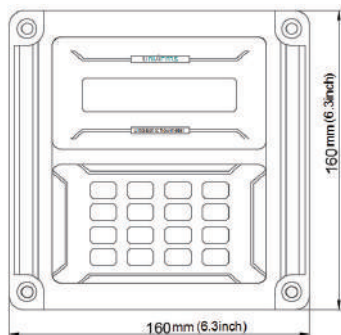
- Clamp on IP 68 sensor requires no pipe cutting, no pump shut down;
- Saving installation and labor cost;
- Accuracy: $\pm 1.0\%$ of reading from 1.6ft/s to 40 ft/s (0.5m/s to 12 m/s);
- Repeatability : $\pm 0.3\%$ of reading;
- Wide operating temperature range 0°C to 60°C
- Wide range of pipe size from 1 inch(25mm) up to 48 inches (1200 mm);

Specifications

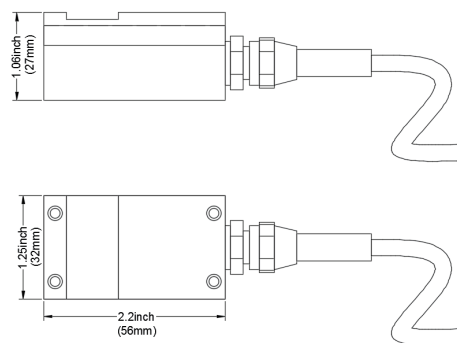
- Dedicated Digital Transit Time Flowmeter
- Installation method: wall mount
- Flow Range: $0 \sim \pm 16\text{ft/s}$ ($0 \sim \pm 5\text{m/s}$)
- Accuracy: $\pm 1.0\%$ ($\pm 1.6\text{ft/s} \sim \pm 16\text{ft/s}$) ($\pm 0.5\text{m/s} \sim \pm 5\text{m/s}$)
- Repeatability: 0.3%
- Pipe Size Range: 1" ~30" (25mm ~ 1200mm)
- Keyboard: 16 (4 \times 4) touch keys
- Display: 20 \times 2, alphanumeric, backlit LCD
- Power supply: 24VDC
- Transmitter enclosure: IP65, die-cast aluminum machined enclosure
- Output: OCT pulse output, Relay output, 4-20mA
- Communication: RS485, Modbus Protocol
- Temperature: 32°F to 140°F ($0^{\circ}\text{C} \sim 60^{\circ}\text{C}$)
- Cable length: Standard 33ft (10m)



Transmitter size



Transducer size



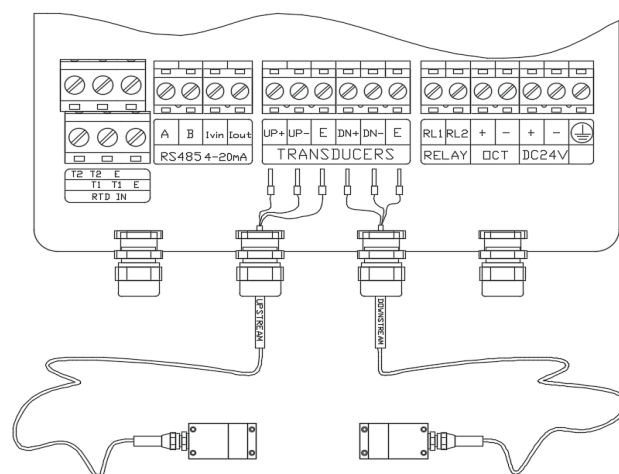
Wiring Connection

Once the electronics enclosure has been installed, the flowmeter wiring can be connected.

Power board wiring ports, from right to left, are as follows;

Connect to DC power (24V), OCT Output, Relay, Transducer wiring, 4-20mA Output, RS485 Output,RTD input.

For double-shielded transducer cable: "-" on the black wire, "+" on the red wire and "shield" on the shield.



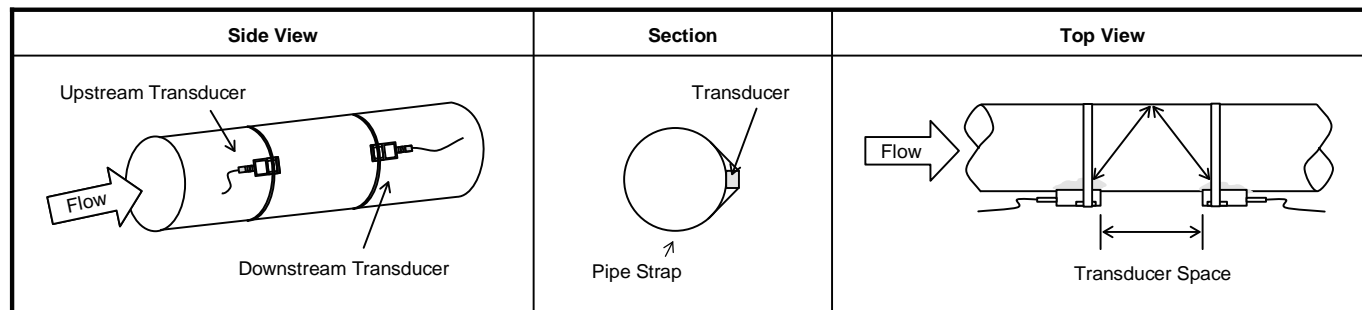
Measurement site selection

Name	Straight length of upstream piping	Straight length of downstream piping	Name	Straight length of upstream piping	Straight length of downstream piping
90° bend			Reduce		
Tee			Valve		
Diffuser			Pump		

Transducer Mounting Space Requirement

V Method Transducer Spacing

The V method is considered as the standard method. It usually gives a more accurate reading and is used on pipe diameters ranging from 25mm to 400mm (1~16") approximately.



Z Method Transducer Spacing

The Z method is able to measure on pipe diameters ranging from 100mm to 3000mm (4" ~120") approximately. Therefore, we recommend the Z method for pipe diameters over 300mm (12").

