

SonoPro® Water Series Transit Time Flowmeter

Model U43 Clamp-On/Insertion Ultrasonic



VorTek Instruments SonoPro® U43 is a wall-mount, clamp-on or insertion type ultrasonic flow meter using transit time technology to accurately meter water applications. Clamp-on type ultrasonic flow meters are easy to install and do not require shutting down or cutting the pipe, saving you trouble and cost. Insertion type ultrasonic flow meters allow measurement of pipes that are not compatible with the clamp-on type.

The SONOPRO® U43 uses our unique calculation software to ensure high accuracy and low velocity response.

U43 has the option of adding RTD temperature sensors to become an energy meter for the monitoring of energy use, helping you save energy and money.



The U43 ultrasonic flowmeter can be used in many measurement applications, including HVAC, water treatment, and irrigation.

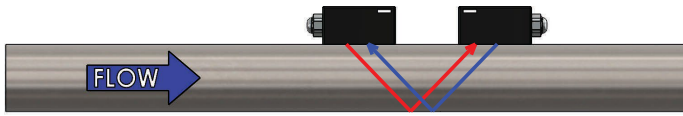


VorTek
INSTRUMENTS
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SonoPro® Principle of Operation

The SonoPro® U42 flowmeter operates on the transit time ultrasonic measurement principle. Transit time technology utilizes ultrasonic waves transmitted and received through moving liquid. The difference between upstream and downstream transit time can be used to calculate flow and velocity.



Performance Specifications

Velocity

English Units: ± 0.09 ft/s to ± 20 ft/s

SI Units: ± 0.03 m/s to ± 6 m/s

Accuracy

$\pm 1.5\%$ of reading (1.0% according to calibration)

Repeatability

0.2% of reading

Linearity

$\pm 1.0\%$

Operating Specifications

Use in water measurement only.

Pipe Sizes

1" (25mm) to 48" (1200mm)

Measurement Parameters

Volume Flow, Energy Units

Transmitter Temperature Range

Transmitter
-4°F to 140°F (-20°C to 60°C)

Transducer

CD01 -40°F to 140°F (-40°C to 60°C)
W1: -40°F to 266°F (-40°C to 130°C)

Humidity

Up to 99% RH, non-condensing

Power Requirements

10-36 VDC @ 1A

Display

Display – 240x128 back lit LCD digital display

Output Signals

Standard Outputs:

Analog: 4-20mA, 750Ω max. load

Pulse: 0-10 KHz, OCT – min/max frequency is adjustable

Relay Output

Modbus RTU (RD-232/RS-485)

Physical Specifications

Protection Rating

Transmitter – IP65

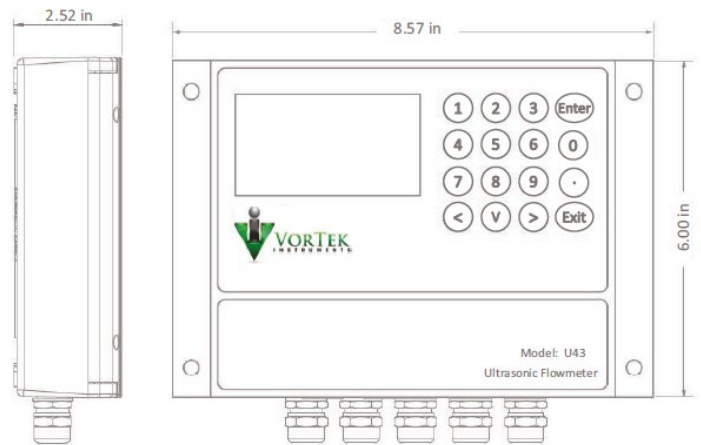
Transducers – IP68

Component Information

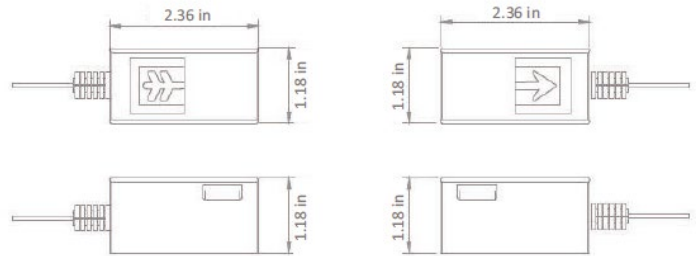
Transmitter – PC/ABS

Transducers – Encapsulated design, double-sided transducer cable, standard/maximum cable length (30ft/100ft, 9m/30m)

Transmitter Dimensions



Transducer Dimensions



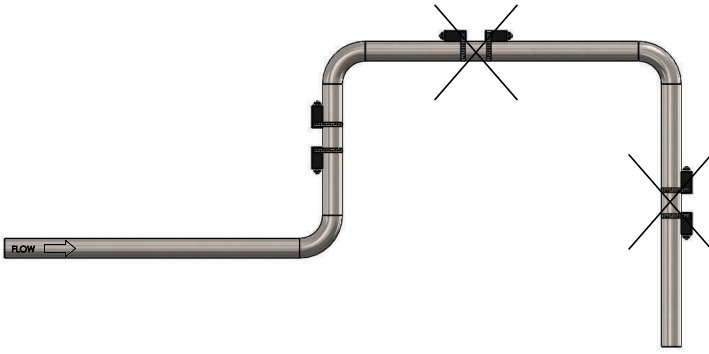
Sizing Considerations

We suggest avoiding valves, T-branch pipes, and elbows if the pipe conditions allow. When dealing with more than one interfering resource, please satisfy the largest position installation requirement.

Condition	Piping Conditions	
	Pipe Diameters, D	
	Upstream	Downstream
One 90° elbow before meter	10D	5D
Two 90° elbows before meter	15D	5D
Two 90° elbows before meter, out of plane	30D	10D
Reduction before meter	10D	5D
Expansion before meter	20D	5D
Partially open valve	30D	10D

The ultrasonic flow meter requires that the pipe is full of liquid, as bubbles will greatly impact the accuracy of measurement. Please avoid the following installation positions:

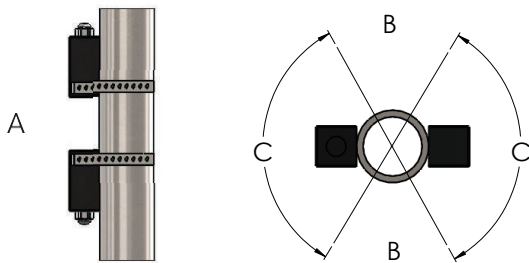




The suggested installation method is as follows:

A is for an upright pipeline. Please notice that the fluid is flowing upward.

B is for a horizontal pipeline. The transducers need to be installed inside the C area. The angle for area C has a maximum of 120°.



Product Disposal Information

To ensure environmental safety and compliance, please follow these disposal instructions for the product and its components:

Electronic Components:

This product contains electronics that must be recycled through approved e-waste recycling programs. Electronics can contain harmful materials and should be prevented from entering landfills. Do not place electronics in regular trash.

Metal Parts:

Any metal components can be separated and recycled through your local metal recycling facility.

Packaging Materials:

Recycle or reuse packaging materials such as cardboard or plastics, following local recycling guidelines.

For local disposal sites, refer to:

- Call2Recycle (USA, Canada)
- Earth911 (USA, Canada)
- SERI (International)

In the USA, for more information, visit:

- EPA's battery disposal guide
- EPA's electronics recycling page

By following these guidelines, you help reduce waste and support environmental sustainability.

Model Number Information - SonoPro® Water Series Ultrasonic Flowmeter

Parent Number Code

U43 SonoPro® Water Series Ultrasonic Flowmeter

Feature 1: Multivariable Options

- 1** OCT, Relay, RS-232/RS-485, 4-20mA (Volumetric Flow Metering)
- 2** OCT, Relay, RS-232/RS-485, 4-20mA, RTD Input (Energy Flow Metering)*

*Must select PT1000 or provide external temperature sensors

Feature 2: Transducer

- CD01** Clamp-On, IP68, Operating Temperature: -40°F to 140°F (-40°C to 60°C)
- W1** Insertion, IP68, Operating Temperature: -40°F to 266°F (-40°C to 130°C)

Feature 3: Transducer Cable Length

- 030** Standard Length: 30-Foot (9 m)
- XXX** Max. Length: 100-Foot (30 m)

Feature 4: Temperature Sensors

PT1000 PT1000 temperature sensors**

**Must select Code 2 for RTD input

Standard model: U43-1-CD01-030

Description: Standard clamp-on type ultrasonic flowmeter with open collector transistor (OCT), relay, RS-232/RS-485, 4-20 mA output, and 30 ft cable.

