



SONOPRO® SERIES U42
ULTRASONIC FLOWMETER

Introduction

U42 is a wall-mount, clamp-on or insertion type ultrasonic flow meter using transfer time technology. 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® U42 uses our unique calculation software to ensure high accuracy and low velocity response.



U42 has the option of adding an RTD temperature sensor to become an energy meter for the monitoring of energy use, helping you save energy and money.

Application

The U42 ultrasonic flow meter can be used in many measurement applications, including industrial water flow, municipal water, oil, chemical, and agricultural flow.





Specification

Performance

Flow Range	± 0.03 ft/s ~ ± 40 ft/s (± 0.01 m/s ~ ± 12 m/s)
Accuracy	$\pm 0.5\%$ of reading (for ± 1.5 ft/s ~ ± 40 ft/s)
Repeatability	0.15% of measured value
Linearity	$\pm 0.5\%$
Pipe Size	1" to 200" (25 mm to 5000 mm). Pipe size under 1" is an option

Function

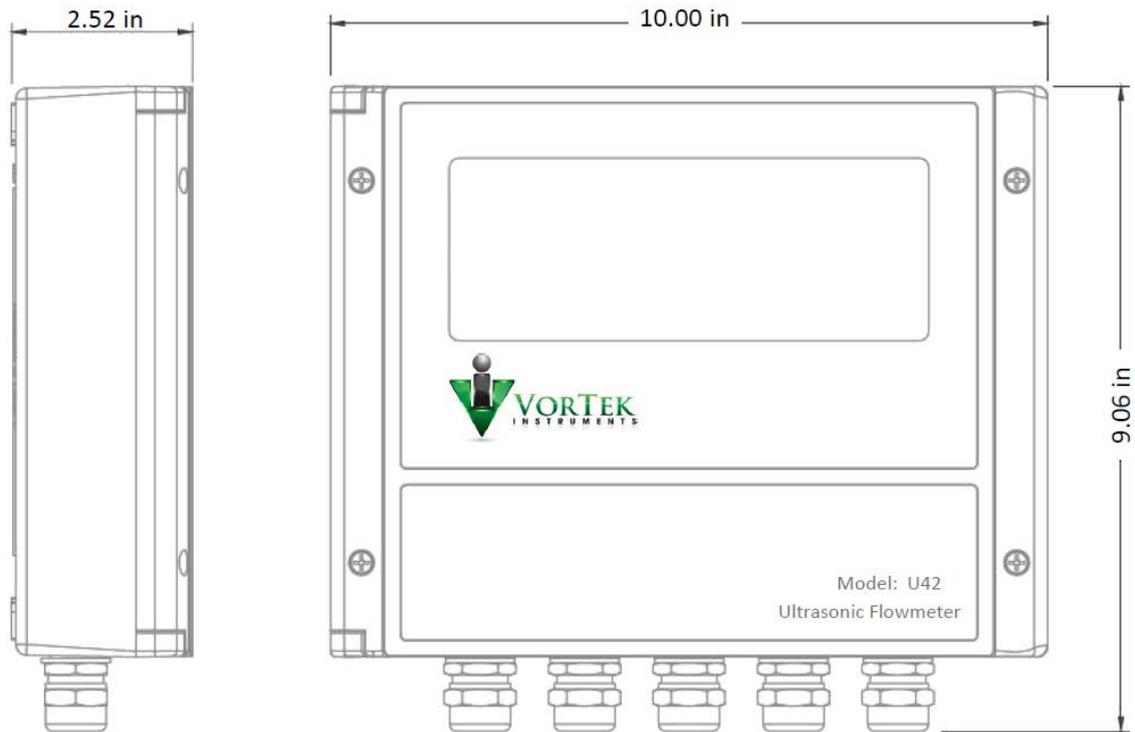
Outputs	Analog output: 4 ~ 20 mA, max load 750 Ω . Pulse output: 0 ~ 9999 Hz, OCT, (min. and max. frequency is adjustable) Relay output: SPST, max 1 Hz, (1 A @ 125 VAC or 2 A @ 30 VDC)
Communication	RS-232 & RS-485 Modbus
Memory	TF card (Max 4G)
Power Supply	90 to 245 VAC, 48 to 63 Hz, or 10 to 36 VDC
Display	240*128 back lit LCD
Temperature	Transmitter: -40 °F ~ 140 °F (-40 °C ~ 60 °C) Transducer: -40 °F ~ 176 °F (-40 °C ~ 80 °C, standard)
Humidity	Up to 99% RH, non-condensing

Physical

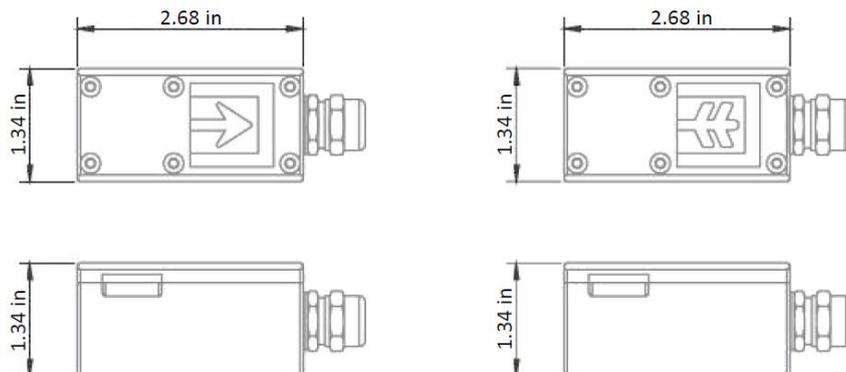
Transmitter	IP65
Transducer	IP68 Encapsulated design Double-shielded transducer cable Standard/maximum cable length: 30 ft / 900 ft (9 m / 274 m)

Product Size

Transmitter Size



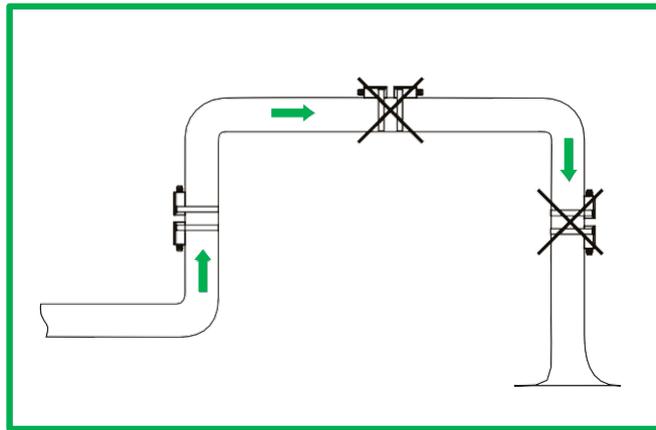
Transducer Size



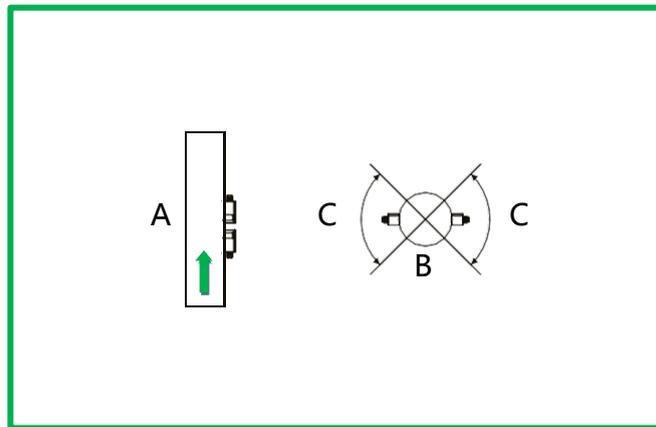


Installation Site Selection

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°.

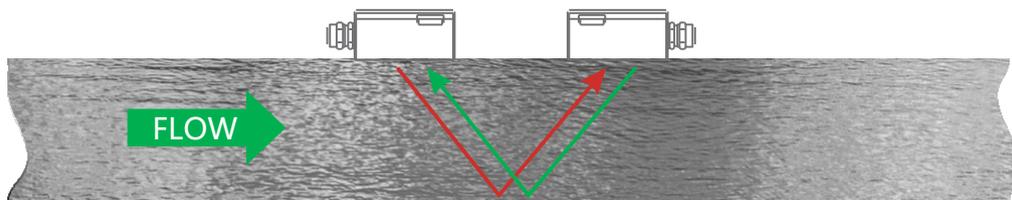
Straight Pipe Demand

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.

Piping Conditions		
Condition	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

Measuring Principle

Transfer 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.





Ordering Confirmation

Model	Transmitter
U42	Ultrasonic Flow Meter Wall Mount Flow Range: ± 0.03 ft/s ~ 40 ft/s (± 0.01 m/s ~ ± 12 m/s) Accuracy : $\pm 0.5\%$ of reading (for ± 1.5 ft/s ~ ± 40 ft/s) Repeatability: 0.15% of measure value Display: 240*128 backlit LCD Power Supply: 90-250 VAC, 48-63 Hz, or 10-36 VDC Output: 4-20 mA, OCT, Relay Communication: RS-232/RS-485, Modbus Protocol
Code	Output
1	OCT, Relay, RS-232/RS-485, 4-20 mA
2	OCT, Relay, RS-232/RS-485, 4-20 mA, RTD
Code	Transducer
C1	Clamp-on, IP68. Operating temperature: -40 °F ~ +176 °F (-40 °C ~ +80 °C)
C2	Clamp-on, IP68. Operating temperature: 32 °F ~ +356 °F (0 °C ~ +180 °C)
W1	Insertion, IP68. Operating temperature: -40 °F ~ +266 °F (-40 °C ~ +130 °C)
W2	Insertion, IP68. Operating temperature: 32 °F ~ +356 °F (0 °C ~ +180 °C)
XXX	Transducer Cable Length
030	Standard length 30 ft (9 m)
XXX	Max length to 900 ft (274 m)
Code	Temperature Sensor
PT1000	PT1000 temperature sensor

Standard model: U42-1-C1-030

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