



# Camano™ Ultrasonic Flowmeter

A flowmeter for  
long-term flow monitoring  
with a wall mount display

**Instruction Guide**

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**Camano** is a flowmeter for long-term flow monitoring with a wall mount touch screen and separate transducer set. It also connects to your SCADA/PLC systems. It's ideal when a local display is required or for submersible applications.

The Camano offers accurate and reliable flow measurement quickly in a wide variety of applications—with minimum setup time and maximum ease of use!

**Industries**

- Waterparks, Pools, and Aquariums
- Building Commissioning and Maintenance
- Agricultural Irrigation
- Building Water Management

# Fast to install, easy to use.

## SoundWater Advantages

### MEASUREMENTS YOU CAN TRUST

Our proprietary SoundWater Reciprocity Architecture™ prevents zero-flow drift and eliminates the need for calibration, resulting in long-term measurement stability and accuracy.

### INCREASES PRODUCTIVITY

Featuring compact lightweight construction and intuitive apps, our products reduce installation, training, and setup—saving you time and money.

### MADE IN USA

Locally owned and operated out of Wenatchee, Washington, our products are built with American quality and ingenuity.

### WORKS IN TOUGH APPLICATIONS

Our transducers auto-adjust ultrasonic power output depending upon pipe and fluid conditions—giving you more frequent measurements when things get tough (e.g., corroded pipe or murky fluid).

### LONG LIFE / LOW MAINTENANCE

SoundWater products are built to last using the highest quality materials, gasketed & double O-ring seals, and silicone gel to protect electronics.

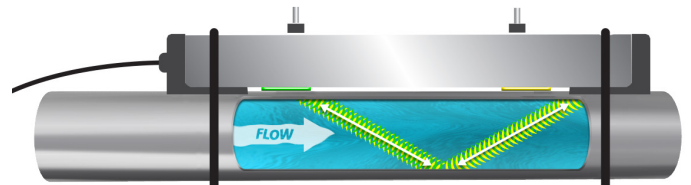
### SERVICE & ACCOUNTABILITY

We establish long-term customer relationships based on trust and service. We will respond to your needs and requests within 24 hours.

## Technology

The transit time flowmeter operates by alternately transmitting and receiving a burst of sound energy between the two transducers. The burst is first transmitted in the direction of fluid flow and then against fluid flow.

Since sound energy in a moving liquid is carried faster when it travels in the direction of fluid flow (downstream) than it does when it travels against fluid flow (upstream), a



difference in the travel times will occur. The sound's travel time is accurately measured in both directions and then used to compute the flow rate.

## Features



## Camano Control Unit and Camano App

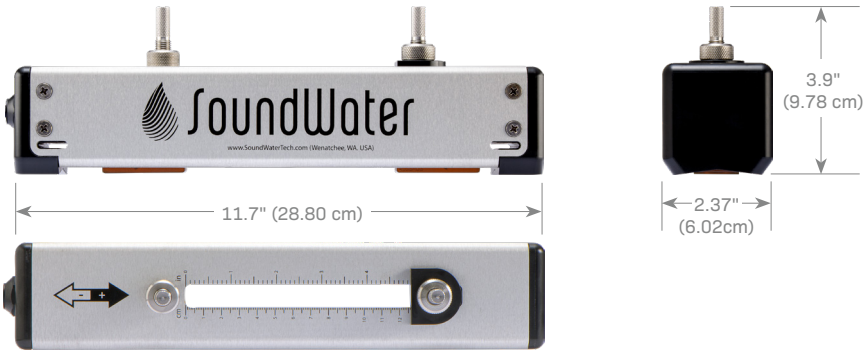


### App Features

- ✓ Android-based, interactive touchscreen
- ✓ Easy configuration for 4-20 mA, pulse, MODBUS RTU, and alarms
- ✓ Programmable alarms
- ✓ Select from a wide range of fluids and pipe types
- ✓ Flexible control unit mounting and connections
- ✓ Backlit for maximum visibility in darkness or sunlight
- ✓ English or metric units

# Dimensions

## Camano Txx-C5



## Camano Txx-C11



## Camano Txx-CM5



## Camano Txx-CM11



# Connecting to Power & Communications

## Control Box



## Getting Started

### Mount the Control Unit

Camano comes with an easy-mount wall bracket. The flexible brackets let you quickly and easily wall-mount the Camano control unit.

### Connect to a Power Source

Connect the supplied cable to 24V DC power, by attaching the red wire to the positive supply terminal, and the black wire to the 0V terminal.

For all wired connections, check the wire color code table, and pinout diagrams below for proper set up. Also, refer to wiring diagrams on the following pages for guidelines.

If not using the supplied cable for wiring power and communications, be sure to use a compatible part to Turk USA # RKSU 12T.

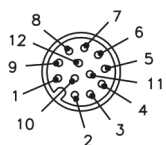
Once power and communications have been wired properly. Plug the power and communications cable into the flowmeter display at the mating circular connector.



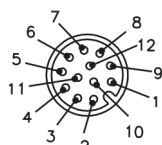
### WIRING COLOR DEFINITIONS

- 1 Power ground 0V
- 2 RS485 Data (+)
- 3 Pulse output, open drain
- 4 4-20mA output
- 5 RS485 Data (-)
- 6 MODBUS, isolated ground
- 7 Not connected
- 8 Power 20-26V DC
- 9 Alarm output, open drain
- 10 Not connected
- 11 Power ground 0V
- 12 Not connected

### Flowmeter Pinout



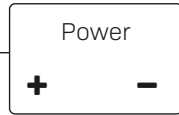
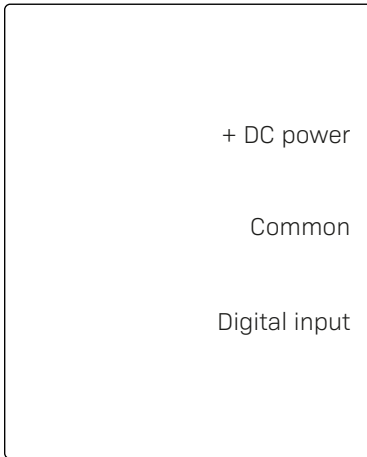
### Supplied Cable Pinout



## Wiring

### Alarm Output (sourcing input)

#### User Digital Input Device



#### SoundWater Flowmeter

Digital & Analog Gnd

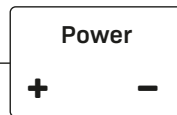
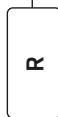
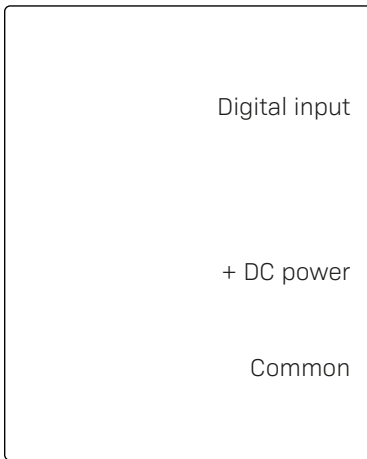
□ White wire, Pin 1

Alarm

■ Orange wire, Pin 9

### Alarm Output (sinking input)

#### User Digital Input Device



#### SoundWater Flowmeter

Digital & Analog Gnd

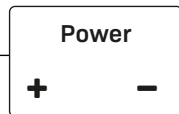
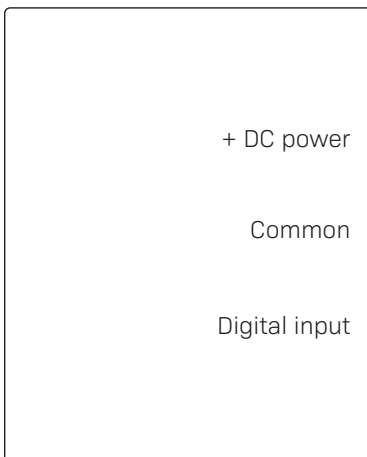
□ White wire, Pin 1

Alarm

■ Orange wire, Pin 9

### Pulse Output (sourcing input)

#### User Digital Counter



#### SoundWater Flowmeter

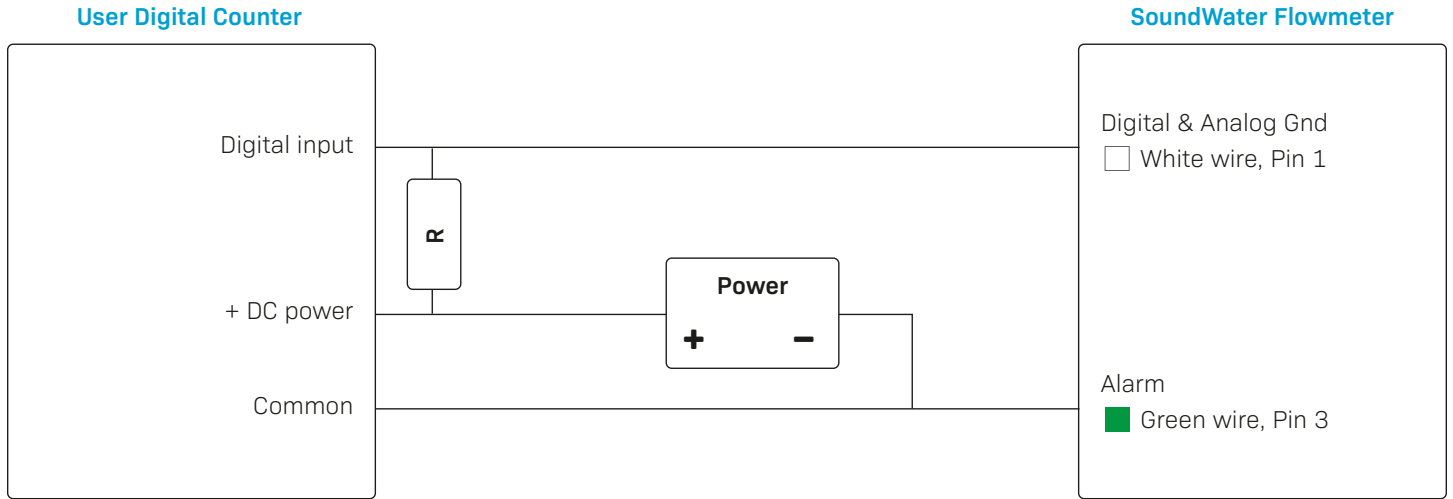
Digital & Analog Gnd

□ White wire, Pin 1

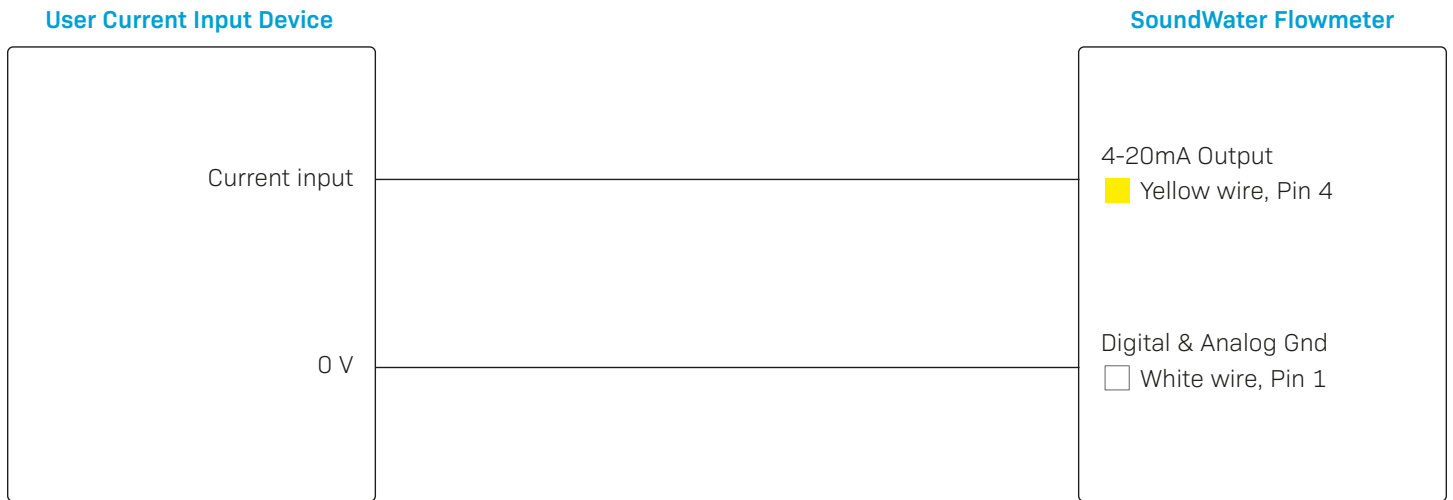
Alarm

■ Green wire, Pin 3

## Pulse Output (sinking input)



## 4-20mA Analog Output

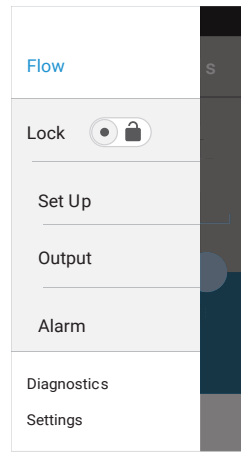
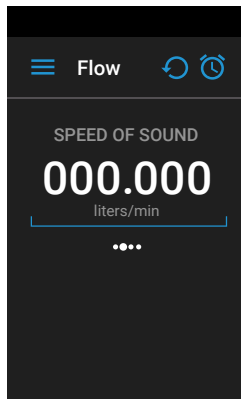
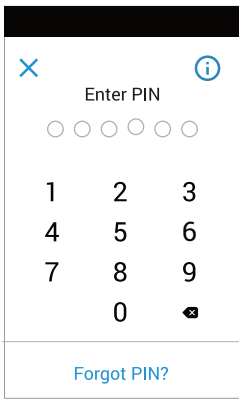




# App Setup

## Setting up the App

Once your Camano's display is powered, the system will boot and launch the flowmeter App. Follow the steps below to set up your flowmeter app and begin measuring flow.



### Selecting a PIN

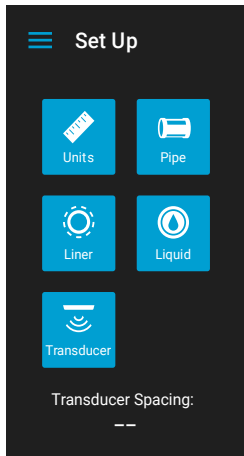
Choose and enter your own PIN (6-digit access code)—and remember it, as you'll need it going forward to access the app.

### Prepare for Setup

Use the Drawer Icon (☰) to access Camano's menu—then select 'Set Up' for parameter settings.

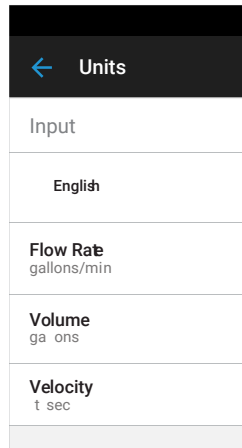
Parameter settings are protected behind a lock. To unlock, simply tap on the Lock icon (🔒) and enter your PIN.

## Parameter Setup



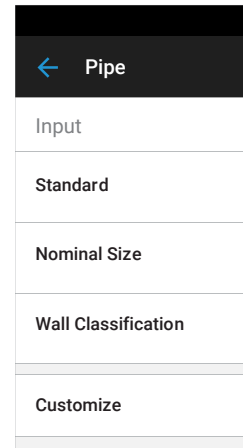
### The Set Up Screen

Use the handy parameter selection screens to set your units of measure and display preferences. Conveniently select pipe, liner, and liquid specifications from lists of pre-loaded values. After any menu is completely setup, an orange check mark will appear over that menu. Setup is completed when all the menus have an orange check mark.



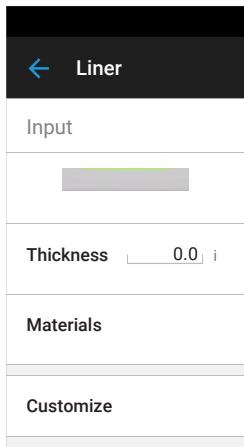
### Units

Toggle between **Imperial** and **Metric** units of measure. Select **Flow Rate**, **Volume**, and **Velocity** from Camano's pre-loaded values.



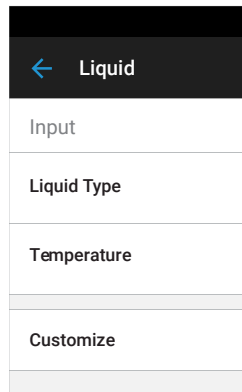
### Pipe

Select pipe **Type**, **Size**, and **Wall Classification** from our pre-loaded values. Don't see your exact pipe? Select a similar pipe type, size, and wall thickness from the menus, then hit Customize to directly change the specific dimensions to match your pipe.



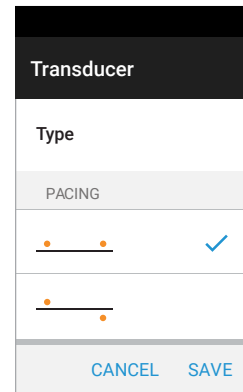
### Liner

Switch between liner and no liner. When selecting **Liner Enabled**, enter **Liner Thickness** and choose **Liner Material** from our pre-loaded list or add custom values. When adding a custom material, you must enter the speed of sound through that material.



### Liquid

Select **Liquid Type** and **Temperature** from our pre-loaded list of values or add a custom liquid type. When adding a custom liquid, you will need to enter the speed of sound through that liquid, the viscosity, and the density.



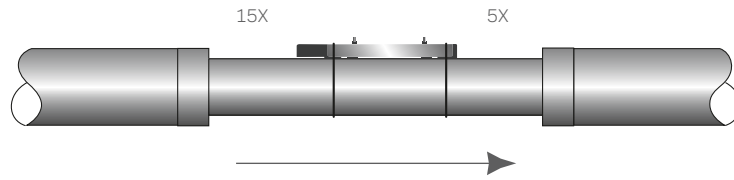
### Transducer

Select the **Transducer Type**. Don't see your exact pipe? Your transducer type is shown on the side of your flowmeter's transducer.

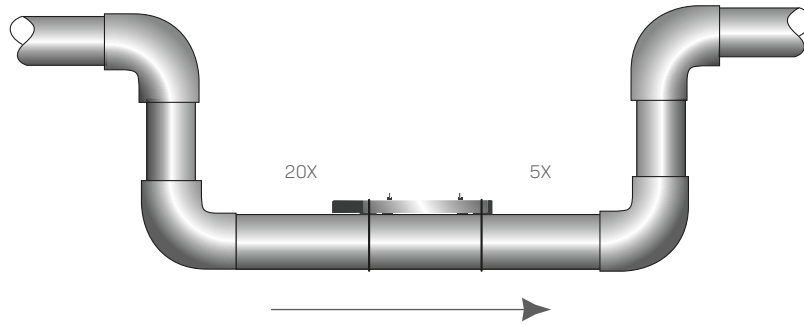
# Flowmeter Installation

## Straight Pipe Recommendations (X = diameter)

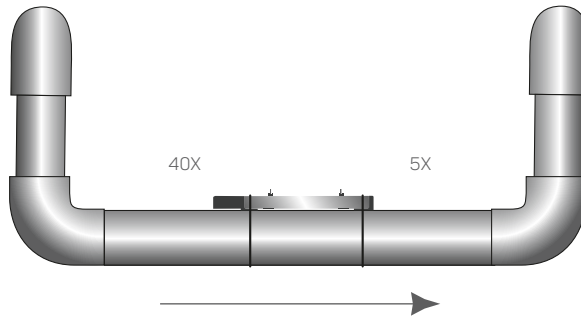
Reduced Pipe



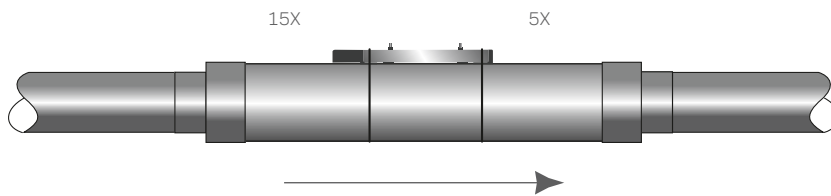
Two Elbows In Plane



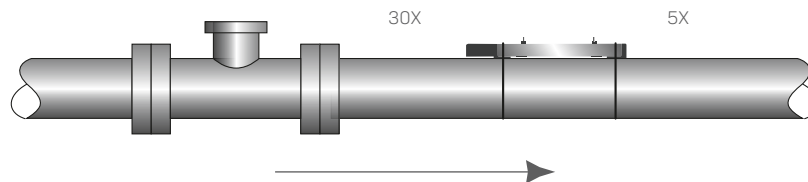
Two Elbows, Out Of Plane



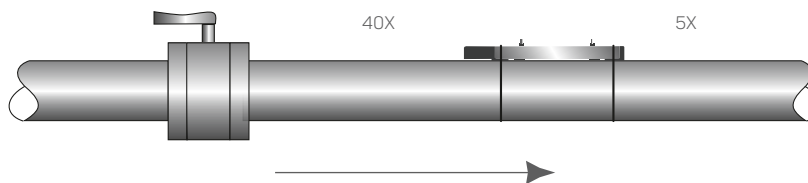
Expanded Pipe



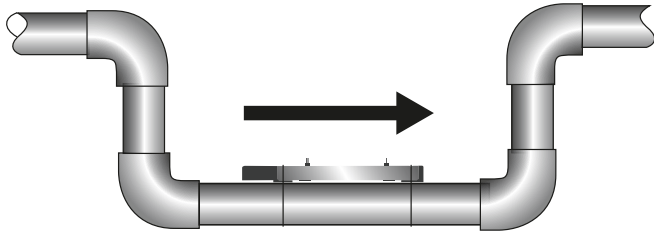
Swirling Flow:  
Propeller Meter



Swirling Flow:  
Partially Open  
Butterfly Valve

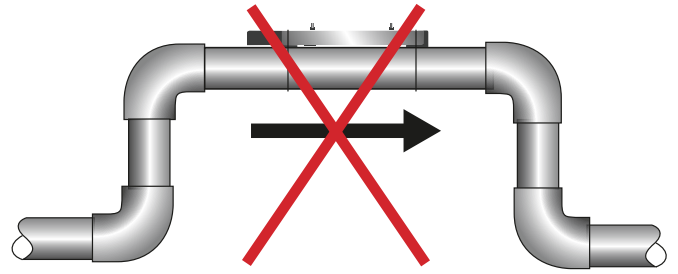


## Full Pipe Recommendations



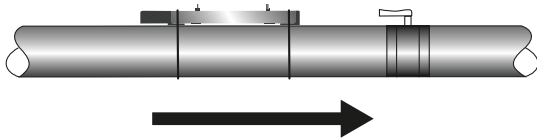
### RECOMMENDED:

Keeps pipe full at meter for accuracy



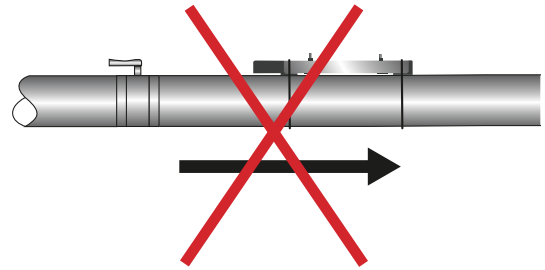
### NOT IDEAL:

Allows air pockets to form at meter



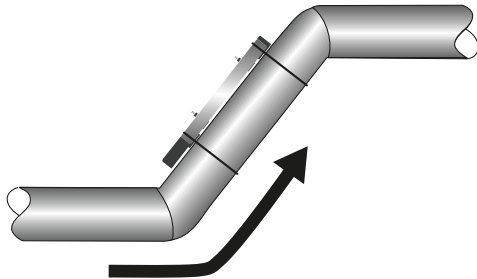
### RECOMMENDED:

Keeps pipe full at meter for accuracy



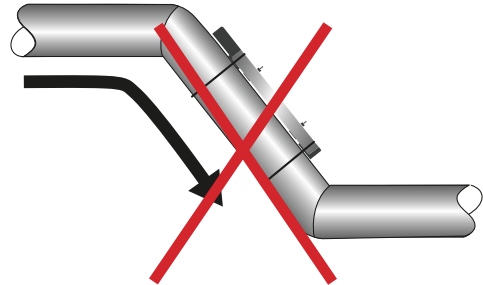
### NOT IDEAL:

Post-valve cavitation can create air pocket



### RECOMMENDED:

Allows air to bleed off



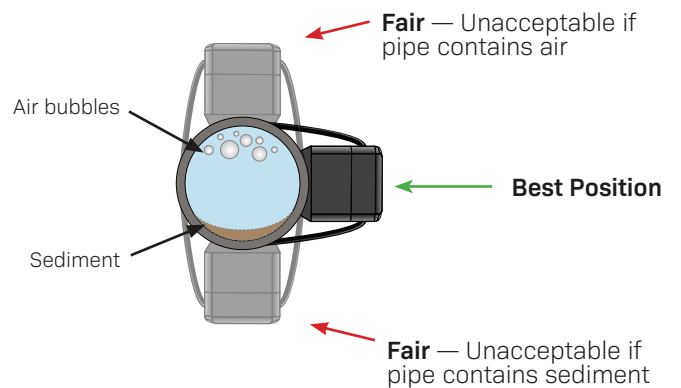
### NOT IDEAL:

Air can be trapped

## Flowmeter Orientation

This is a view looking directly into a horizontal pipe, with the meter in multiple possible positions on the side of the pipe.

Horizontal (3 o'clock or 9 o'clock position) is the preferred installation orientation, since it avoids problems with trapped air and sediment.

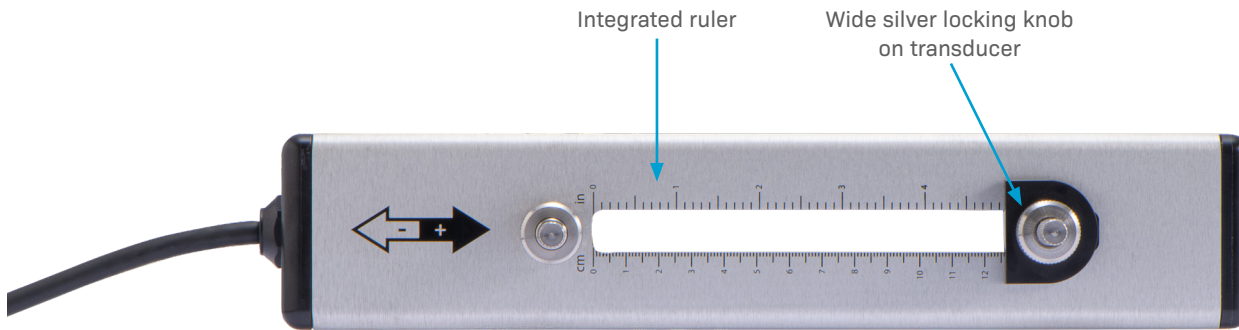
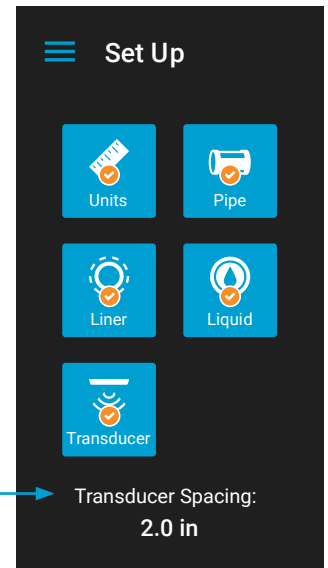


## Transducer Spacing

Once you entered your parameters in the previous section, the app automatically computed the proper transducer spacing. This is shown at the bottom of the main app screen.

The next step is to adjust the transducer spacing on the flowmeter as follows:

1. Rotate the wide silver knob to unlock the horizontal motion for each transducer
2. Move the transducers to the specified transducer spacing by sliding them along the integrated ruler.
3. Lock into place using the black knobs. This is important to prevent the transducer spacing from moving when mounting the flowmeter.



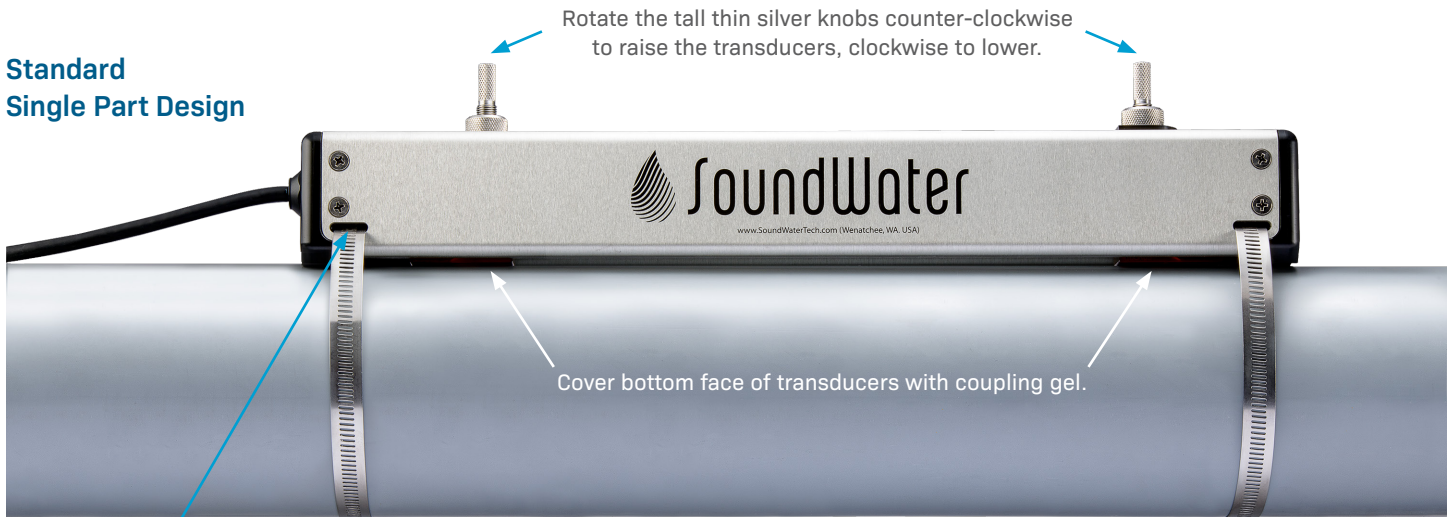
## Installing the Flowmeter

Once the transducer spacing has been set and locked in place, you are ready to install the flowmeter on your pipe.

1. Wall mount the display.
2. Rotate the tall thin silver knobs counter clockwise until they stop. This raises the transducers up above the meter footings.
3. Apply coupling gel liberally to the transducer faces, covering the entire bottom face of each transducer.

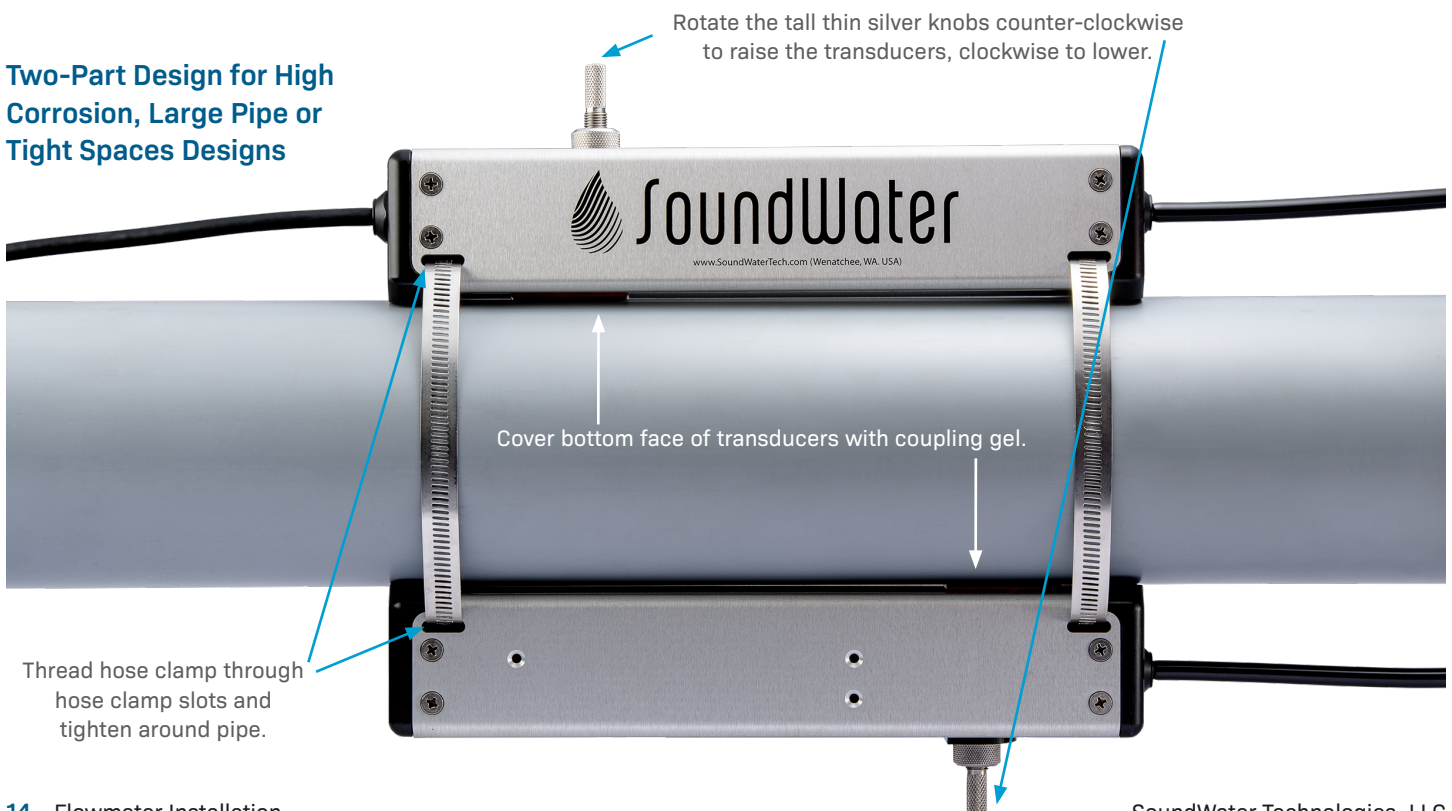
4. Place your flowmeter on the pipe, assuring that the footings are flush with the pipe and the meter is aligned with the axis of the pipe.
5. Secure the meter to pipe with hose clamps.
6. Rotate tall thin silver knobs clockwise to press transducers onto the pipe. Hand tighten only until seated firmly. **WARNING: Tightening too much can lift the meter away from the pipe, causing incorrect readings.**

### Standard Single Part Design



Thread hose clamp through hose clamp slots and tighten around pipe.

### Two-Part Design for High Corrosion, Large Pipe or Tight Spaces Designs



## Do's and Don'ts

- Do** disconnect cables from control box when wiring power or communications.
- Do** keep your Camano in its protective case when transporting to prevent damage.
- Do** gently clean the transducer pads regularly with isopropyl alcohol to prevent hardening and build up of used coupling gel.
- Do** periodically check that there is sufficient coupling gel.
- Don't** bang or drop the Camano on hard objects or surfaces.
- Don't** nick the transducer pads.
- Don't** mount display in direct sunlight.



**To prevent damage, you must use the recommended coupling gel.**

## Troubleshooting

Problem	Probable Causes	Things to try...
No signal	Incorrect setup	Confirm pipe settings
	Air in pipe	Rotate meter to 3 o'clock position
		Remove air
		Relocate meter to another location where there is no air
Corroded rusty pipe	Relocate meter to clean section of pipe. If no clean section is available, move meter to other locations until a signal is found—try to find a section of pipe with less corrosion or rust.  Older steel and ductile iron pipes may be heavily corroded, which can prevent ultrasound transfer and flow measurements. For these types of applications, SoundWater has a special transducer configuration that helps to penetrate corrosion—making flow measurement possible. Please contact us to discuss your application and how to select the best transducer.	



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