SoundWater
Fluid Flow Sensing, Redefined

SWT 3710 Camano™

Dedicated Ultrasonic Flow Meter

SoundWater Camano

Track fluid flow– from outside the pipe

Markets

Building Services, Chemical, Energy Management, Food, Petrochemical, Power Generation, Water, Irrigation

Flow metering designed for the digital age.

When you want accurate, reliable and dedicated flow measurement quickly–with minimum setup time and maximum ease of use, in a wide range of applications–here's your device.

Meet SoundWater Camano.

Ultrasonic. Outside the pipe. And as easy to use as a typical mobile app. This is flow metering for the digital age.

Contact your local supplier to order your Camano Dedicated Flow Metering solution.

Features

- Installed on outside of pipe –non-invasive, no break in piping
- Easily integrated into automated systems
- Cellular data collection & web interface –when used with Ayyeka's WaveletTM
- Android-based, color touchscreen display for unparalleled ease of use
- Quick, easy setup
- Measures wide range of fluids and pipe types, including challenging applications
- Flexible control unit mounting and connection options

The Camano dedicated ultrasonic flow metering solution.

What is Camano?

New from SoundWater, Camano is a powerful, dedicated ultrasonic flowmeter that's accurate, easy to use, and a snap to set up–and that's just for starters. Camano is engineered to accept ongoing enhancements as applications and capabilities evolve.

Quick to install. Flexible brackets let you quickly and easily wall-mount the Camano control unit. The Camano Sensor mounts quickly and easily–outside the pipe–using standard straps.

Connect with SCADA & PLC. Camano can deliver a range of outputs, including MODBUS RTU, 4–20 mA, and pulse to your automated systems. You can also set digital alarms for high/low flow, open circuit, and low signal events.

Works with cellular data. Simply combine Camano with the Ayyeka Wavelet ™ to seamlessly transmits flow data from your Camano using mobile networks–and you access your data through any web browser.

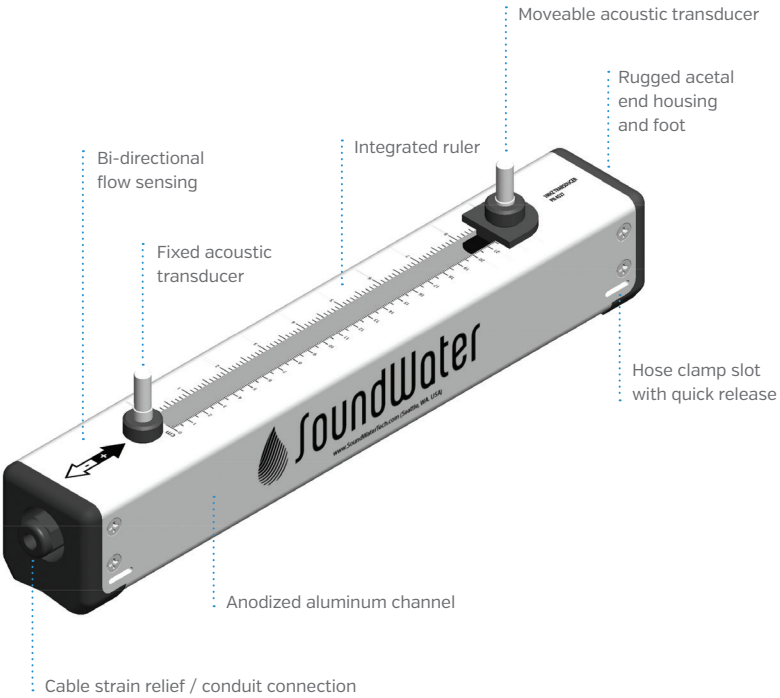
Easy to use. The built-in, touchscreen is your access to the Camano app, with its familiar Android-app user experience. Swipe, tap, scroll, and (if needed) use an on-screen keyboard to specify application parameters.

Pre-set menus, plain-language dialogs, and intuitive navigation let you easily choose from pre-loaded pipe and fluid data (or enter your own)–no more complex codes or cumbersome instructions. In seconds, Camano displays optimal transducer spacing and flow measurements.

Next, quickly install the Camano Sensor on the pipe, secure power and data output wiring, and you're ready to monitor, and output to data collection systems. Start viewing flow directly on the built-in touch screen and instantly toggle between flow volume and rate with a simple swipe.

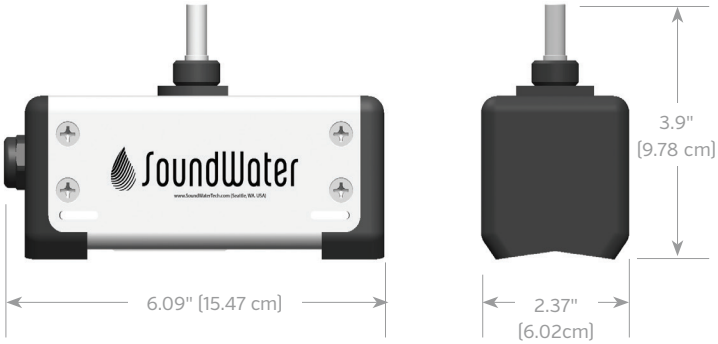
Along with fast, easy installation and set up–and no need to break pipe–Camano works with a wide range of applications. With Camano's ultrasonic technology, you (and your automated systems) can get started tracking flow quickly and easily.

Meter Features



Dimensions

For 8" to 24" pipe (requires two)



For 1" to 4.5" pipe

For 2" to 12" pipe

Control Box

Control Box, bottom view

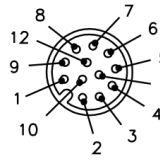
Connecting Power & Communications

Connect 12-24V DC or AC power using the supplied cable. 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.

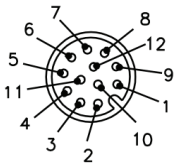
Wiring Color Definitions:

	1	Analog & digital isolated ground 0V
	2	RS485 Tx Data (A) -
	3	Pulse output, open drain
	4	4-20mA output
	5	RS485 Tx Data (B) +
	6	MODBUS, isolated ground
	7	Not connected
	8	Power 12-18V DC or AC
	9	Alarm output, open drain
	10	RS485 Rx Data (A) -
	11	Power ground 0V
	12	RS485 Rx Data (B) +

Flowmeter Pinout:



Supplied Cable Pinout:



The 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

Camano Features

Complete monitoring and data

Output flow data–in a range of analog or digital formats–plus alarms/alerts can be automatically transferred to your automated systems.

Cellular Data & IoT Web Interface

For remote applications (or where hard-wired communication is impractical), make Camano an IoT device by adding the Ayyeka Wavelet. Wavelet seamlessly transmits flow data from your Camano using mobile networks–and you access your data through any web browser.

Ongoing enhancement

Upgrade your Camano with ease–just download the latest software and load it to the control unit with a thumb drive. You'll always have the latest, most capable version.

Easy to Mount

Camano comes with an easy-mount wall bracket that puts your control unit right where you need it, yet out of the way–in just a few minutes.

Easy to Connect

Use the included cable to connect the control unit to the Camano Sensor (transducers). Power connections are just as easy–cable is included–and linking to your automated systems is both fast and flexible.

Easy to Set up

The full-color Camano App and extensive, built-in parameter libraries help you easily specify pipe, fluid and other values–then shows you how to space transducers.

Camano Specifications*

* Specifications subject to change.

Installation	15 pipe diameters upstream, 5 diameters downstream for optimal performance (typical)
Flow Detection	Bi-directional; 0.1 ft/s to 20 ft/s (0.03 m/s to 6 m/s)
Pipe Size	1" to 24" (nominal)

Performance

PIPE SIZE	ACCURACY	OPERATING RANGE	REPEATABILITY
3” to 24”	±1.0% to 2.0% typical	-20 to 20 ft/s (-6 to 6 m/s)	0.5%
1” to 2”	±2.0% to 3.0% typical	-20 to 20 ft/s (-6 to 6 m/s)	0.5%

*Under standard conditions, assuming fully developed and symmetrical flow profile (typically taken on a straight run of 15 diameters upstream and 5 diameters downstream; flow rate above 3 ft/s or 1m/s; non-aerated liquids).
If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Turndown	200:1
Environmental	IP65 splash proof; weather and corrosion resistant

Materials

CONTROL BOX
Polycarbonate enclosure, glass touch screen, stainless steel circular connector, nickel plated brass USB connector, nickel plated brass transducer connector, EPDM rubber

BACKPLATE
Stainless steel

TRANSDUCER ASSEMBLY
Anodized aluminum housing, acetal footings, aluminum transducer strain relief, PVC strain relief, EPDM O-rings, EPDM strain relief gasket, stainless steel fasteners, epoxy silk screen, PVC coaxial cable, nickel plated brass coaxial cable connectors

MOUNTING STRAPS
Stainless steel

Temperature	Ambient & Fluid: -20˚ to 150˚ F (-29˚ to 65˚ C)

Outputs

NOTE: The isolation for all outputs is as a group; that is, all of the outputs share a common reference.

CURRENT (4-20 MA)
Isolated 4-20 mA, directly proportional to flow–4 mA/zero flow (fixed),
20 mA/user programmable flow. Accuracy (linearity): 16-bit (15 ppm);

PULSE
Isolated, NFET (NPN type) open drain output with a frequency directly proportional to flow
Maximum frequency: 10 kHz; mark: space ratio = 50.0: 50.0 (accurate to < 1 ppm)

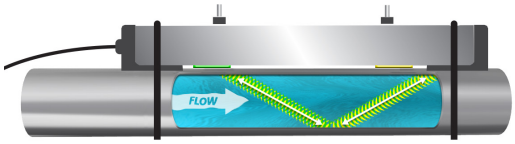
DIGITAL ALARM
Isolated, NFET (NPN type) open drain output, configured to change state at any user-selected combination of:
(1) high flow, (2) low flow, (3) poor acoustic signal (e.g., empty pipe, disconnected transducers, etc.);
(4) open 4-20 mA circuit

MODBUS RTU
Isolated, RS485 full or half duplex.

Display	Android-based touchscreen user interface; backlit; 20+ year lifetime with power save mode 3+ year lifetime minimum, with full-power, continuous use Metric and English units
Power	12-24 V DC or AC, external power; 400mA typical@20 V, 1 A inrush Recommended external AC-DC converter part #PLUS ML30.241
Software	Android OS/Android-based app; easy software updates via USB thumb drive
Security	6-digit passcode protects configuration/setup, and volume reset
Manufacture	United States

Transit Time 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 differential 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.

Sound waves can bounce in many directions as they travel through various materials. The more the sound waves scatter, the fewer actually reach the second transducer. The Camano uses sophisticated methods to maximize transducer efficiency, thus allowing the unit to run on very low power. Focusing of the sound wave is also important to ensure it reaches the second transducer without degrading. This is accomplished by accurately spacing the transducers to allow for optimum sound transit between transducers. The Camano app computes this spacing based on the pipe size, pipe material, and type of liquid.

Transit time technology works best in clean or mildly dirty water or fluids with minimal turbulence or flow distortion.

Benefits

- Long term installation
- Touch display, with intuitive App.
- Non-invasive
- Low-installation cost
- Accurate
- Flow Verification
- Installs outside the pipe
- No shutdown during installation
- Uses Reciprocity for ultra-stable measurements
- Stable zero - works without calibration
- Made In USA

Applications

- Cooling Water
- Condenser Water
- Water/Glycol solutions
- Municipal Water
- Process Water
- Potable Water
- Diesel & Fuel Oils
- Ground Water
- Semiconductor
- Pump Verification
- Petroleum products
- Water Treatment
- Food & Beverage
- Ultrapure Water Measurement
- Clean in place evaluation
- Fire System testing
- Hydraulic System Testing

Ordering Camano Dedicated Ultrasonic Flowmeter Kits, Parts, & Accessories

Contact your local supplier to order your Camano Dedicated Ultrasonic Flow Metering solution.

Flowmeter Kits

Our Camano Dedicated Ultrasonic Flowmeter kits include:

- Control box
- Wall mount plate
- Connection cables
- 4 oz. coupling gel
- Mounting straps

PART NUMBER	DESCRIPTION
2607	Dedicated Ultrasonic Flowmeter Kit: 1"– 4.5" pipe diameters
3724	Dedicated Ultrasonic Flowmeter Kit: 2"– 12" pipe diameters
7783	Dedicated Ultrasonic Flowmeter Kit: 8"– 24" pipe diameters (not compatible with copper or brass)

Parts & Accessories

PART NUMBER	DESCRIPTION
3710	Flow Converter & Display (Touch Screen; Android 5"; Wall Mounted)
2013	Transducer Sensor & Cable Assembly: 1"– 4.5" pipe diameters
6692	Transducer Sensor & Cable Assembly: 2"– 12" pipe diameters
6691	Transducer Sensor & Cable Assembly: 8"– 24" pipe diameters (not compatible with copper or brass)
4000	Quick Release Hose Clamp: 2" max. pipe diameter, stainless steel, 2 each
7661	Quick Release Hose Clamp: 6" max. pipe diameter, stainless steel, 2 each
9406	Quick Release Hose Clamp: 12" max. pipe diameter, stainless steel, 2 each
3254	Quick Release Hose Clamp: 21" max. pipe diameter, stainless steel, 2 each
5227	Coupling Gel: 5.3 oz.
6245	Cord set: 5m

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