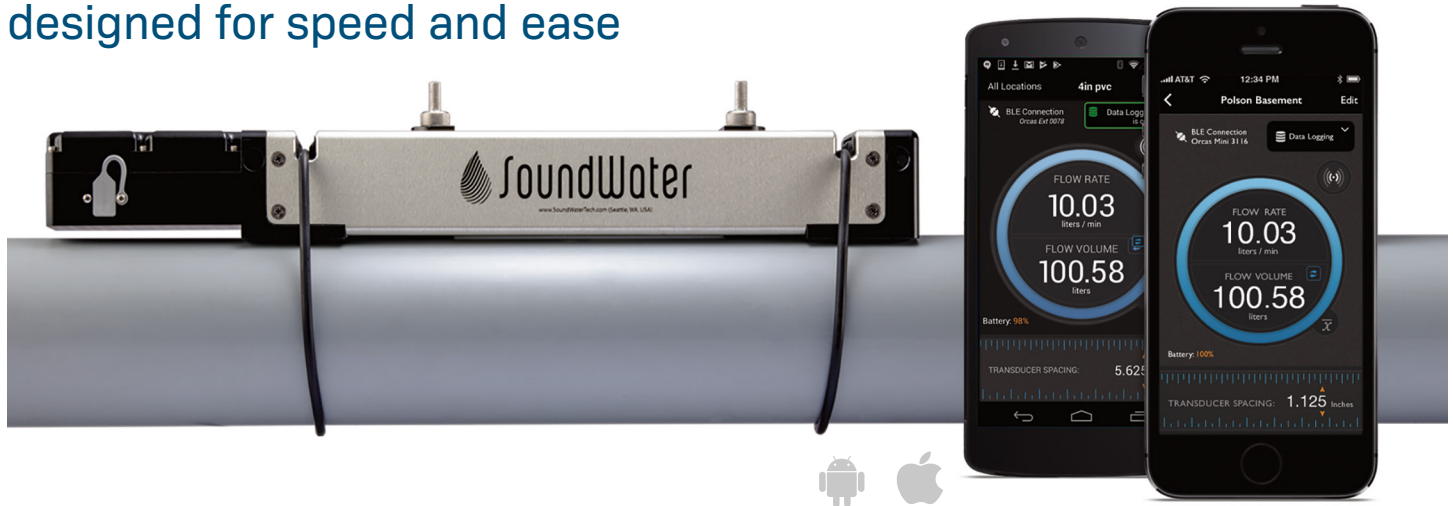# SoundWater
Only Excellence

Orcas™ Ultrasonic Flowmeter

A portable flowmeter designed for speed and ease

Orcas is a portable ultrasonic flowmeter designed for speed and ease of use. With the Orcas, you can capture accurate and reliable flow measurements in under one minute—saving you time and money.

There are no wires and no bulky electronics to haul around. Your mobile device connects wirelessly to display measurements. And, the ultrasonic flowmeter installs on the outside of your pipe. With Orcas Flowmeter and the Orcas App, you'll get your job done more quickly every time.

Industries

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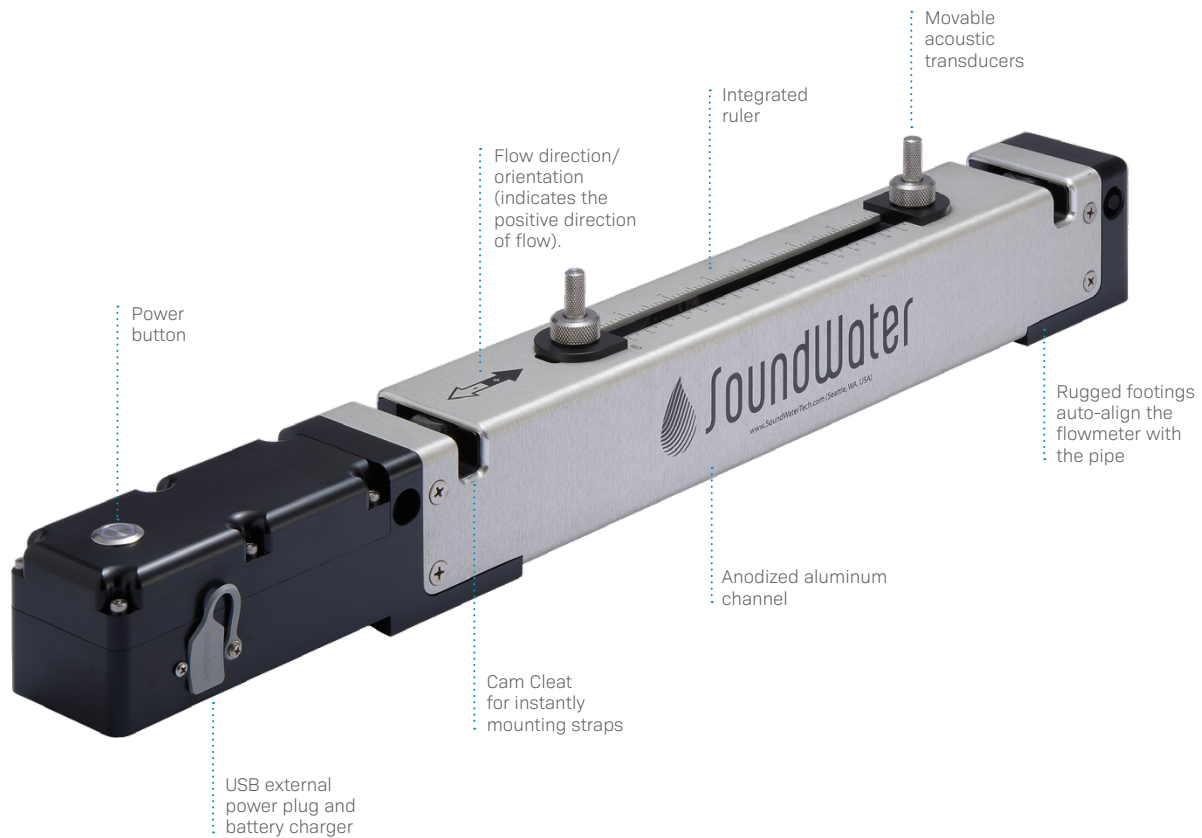- **Building Water Management**

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 streamline 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 ultra-sonic 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.

SoundWater Technologies, LLC :: 1-509-899-7838 :: soundwatertech.com

Advantages & Features

- Measure flow in under one minute
- SoundWater Reciprocity Architecture
- Long battery life, lasting up to 24 hours
- Auto-Adjusting Ultrasonic Power
- Mobile App for fast, intuitive setup and use
- One-piece construction; no assembly

- Integrated cam-cleats that instantly snap on/off the pipe
- Wireless design
- Compact size for carry-on/travel
- Gel-free transducers (optional)
- Battery powered & portable

Movable acoustic transducers

Integrated ruler

Flow direction/ orientation (indicates the positive direction of flow).

Power button

Rugged footings auto-align the flowmeter with the pipe

Anodized aluminum channel

Cam Cleat for instantly mounting straps

USB external power plug and battery charger

Orcas App Features

Interactive smartphone/tablet control app — iOS or Android.

- **Save location information**
- **Handy built-in pipe specifications —or add your own**
- **Drag and drop output selection**

- **English or metric units**
- **Languages: English, Spanish, Portuguese**
- **Easy-to-use data logging**
- **Select liner and liquid types —or define your own**

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Dimensions

Orcas Txxx-C5

17.94" (45.56 cm)

3.88" (9.65 cm)

2.4" (6.1 cm)

2.4" (6.1 cm)

Orcas Txxx-C7

22.2" (56.39 cm)

2.4" (6.1 cm)

Orcas Txxx-C11

28.44" (72.1 cm)

23.5" (59.7 cm)

2.4" (6.1 cm)
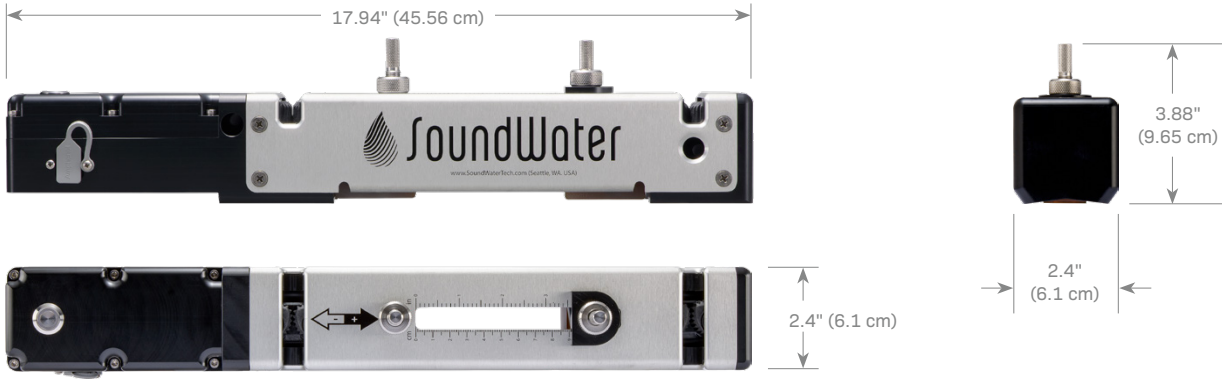
2-Part (Orcas CM) Placement on Pipe

ORCAS-Txxx-CM LENGTH

Longest part (top) is 12.5"

Total installed length depends upon part spacing, determined by pipe size. Overall length based on various pipe sizes is listed below:

PIPE DIAMETER	INSTALLED LENGTH
<12"	14"
16"	15"
24"	18"
72"	30"

Transducer Selection

Pipe size ≤ 2" → NO → Pipe material must include copper / brass → NO → Pipe size ≥ 24" or fluid is highly particulated → NO → -T310

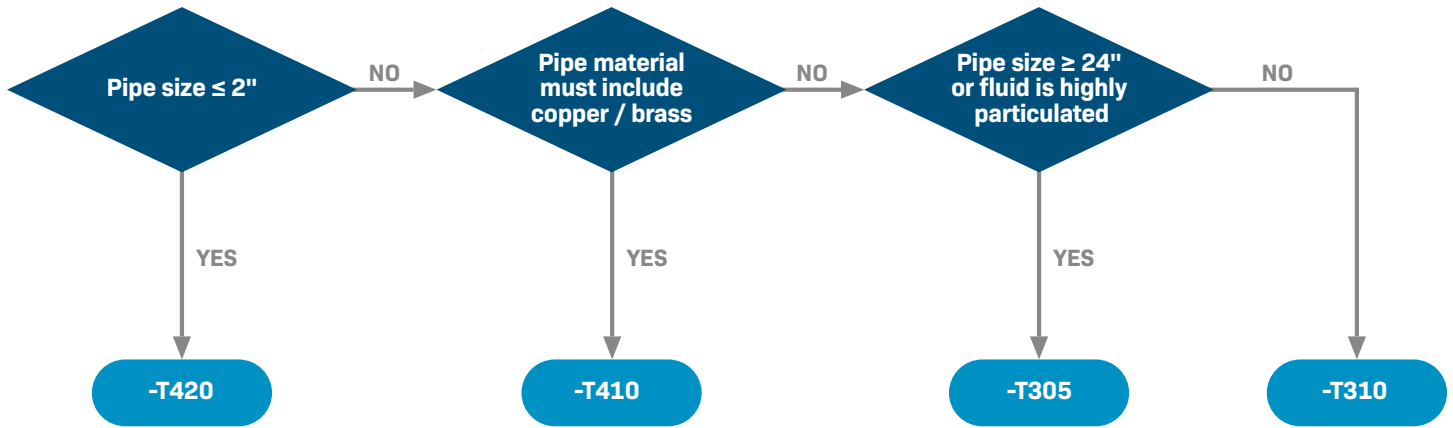Pipe size ≤ 2" → YES → -T420

Pipe material must include copper / brass → YES → -T410

Pipe size ≥ 24" or fluid is highly particulated → YES → -T305

Transducer Selection Table

Transducer Options

Legend: ▢ Possible ▮ Recommended

Transducer	Pipe Diameter
– T305*	Possible 3–6, Recommended 6–72, Possible 72–96
– T310*	Possible 1.5–2, Recommended 2–24, Possible 24–48
– T410	Possible 1.5–2, Recommended 2–18, Possible 18–24
– T420	Possible ½–¾, Recommended ¾–4, Possible 4–6

(in)	.5	.75	1.5	2	3	4	6	12	18	24	48	72	96
(mm)	13	19	38	51	76	102	152	305	457	610	1143	1829	2438
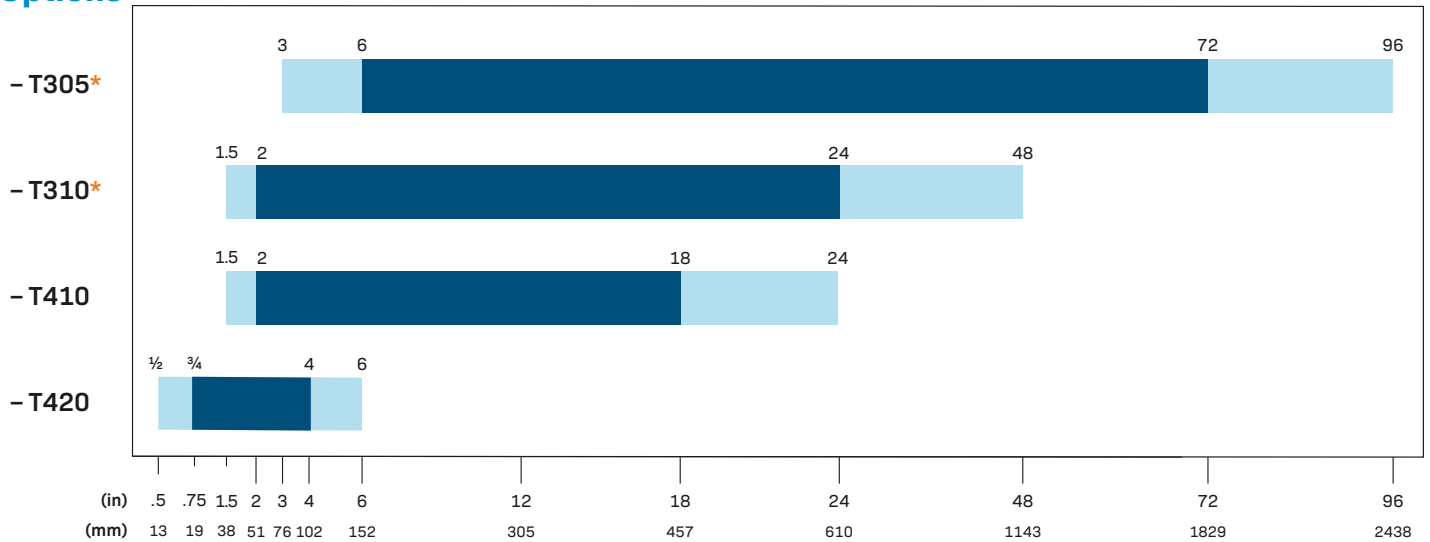
Pipe Diameter

* Not compatible with copper or brass

Orcas Specifications*

Installation	Installs on pipe from 0.75" to 72" nominal diameter depending on hardware selection 15 pipe diameters upstream, 5 diameters downstream for optimal performance (typical)
Pipe Materials	Metal: Steel, Stainless Steel, Copper, Brass, Aluminum, Iron Plastic: PVC, CPVC, HDPE, LDPE, PE, PIP, FRP. PEX **NOTE:** Pipe material compatibility depends upon transducer selection. See Hardware options below for details.
Flow Range	Bi-directional; 0.1 ft/s to 60 ft/s (0.03 m/s to 20 m/s)

Performance

PIPE SIZE RANGE	ACCURACY	REPEATABILITY
1.5" to 72"	±1.0% to 2.0% typical	0.5%
1" to 1.5"	±2.0% to 3.0% typical	0.5%
0.75" to 1"	±3.0% to 4.0% typical	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.

Display	Flow measurements display on SoundWater Orcas™ App (iOS or Android) Mobile devices connect wirelessly to Orcas with Bluetooth 4.0 (BT LE) Metric and English units; Rate, Total, Velocity, Sound Speed
Data Logger	Store up to 365 days, 10,000 measurements, 50,000 datapoints
Software	Save and recall setup information Mobile device app for iPhone, iPad, iPod Touch and Android devices **LANGUAGES:** English, Spanish, Portuguese (app only)

Hardware

MODEL	PIPE SIZE RANGE	LENGTH	PIPE MATERIALS
Orcas T420-C2	0.75" to 3"	12"	Plastics, Steel, Stainless Steel, Aluminum, Copper/Brass
Orcas T420-C5	1" to 5"	18"	Plastics, Steel, Stainless Steel, Aluminum, Copper/Brass
Orcas T410-C5	2" to 5"	18"	Plastics, Steel, Stainless Steel, Aluminum, Copper/Brass
Orcas T410-C7	2" to 10"	22"	Plastics, Steel, Stainless Steel, Aluminum, Copper/Brass
Orcas T410-C11	2" to 14"	27"	Plastics, Steel, Aluminum, Copper/Brass
Orcas T310-C5	2" to 6"	18"	Plastics, Steel, Aluminum
Orcas T310-C7	2" to 12"	22"	Plastics, Steel, Aluminum
Orcas T310-C11	2" to 18"	27"	Plastics, Steel, Aluminum

TWO-PART MODELS FOR DIRECT MOUNT

MODEL	PIPE SIZE RANGE	LENGTH	PIPE MATERIALS
Orcas T305-CM	6" to 72"	*	Plastics, Steel, Aluminum, Iron
Orcas T310-CM	4" to 30"	*	Plastics, Steel, Aluminum, Iron
Orcas T410-CM	4" to 24"	*	Plastics, Steel, Stainless Steel, Aluminum, Iron, Copper/Brass

* Length depends on transducer spacing

Power	Rechargeable lithium-ion battery* (24+ hours), or USB-powered continuous operation (5 volts) 0.5W Max (100 mAmp max current; when discharging); 9W Max (1.5 Amp max current, when charging)

*Use only the charger provided with the flowmeter. Battery holds charge for 5 months when not in use. Charger compatible with 110/220VAC 50/60 Hz.
All domestic and international shipments containing lithium-ion batters are subject to transport regulation on hazardous goods according to ADR RID, ADN, IMDG, ICAO/IATA Regulations. This product is classified as UN3841. It is your responsibility to observe these regulations.

Power Adapter	For recharging battery — must use the 12W USB power adapter supplied with the Orcas
Environmental	Liquid/pipe temperature -40˚ to 212 F (-40˚ to 100˚ C); Ambient temperature -40˚ to 140˚ F (-40˚ to 60˚ C) IP65 splash proof; weather resistant
Materials	**BODY:** Anodized aluminum channel, acetal electronics housing and footings **MOUNTING STRAPS:** EPDM **HARDWARE:** Stainlesss steel, acetal **FASTENERS:** Stainless steel
Flowmeter Kit	Flowmeter, carrying case, 4 oz. coupling gel, mounting straps, USB power adapter
Manufacture	SoundWater Technologies, Wenatchee WA, USA
Zero Stability	Reciprocity based hardware for measurement stability and low flow performance.
Auto-Ranging	Auto-adjusting ultrasonic transducer power, and auto-adjusting transducer receiver gain. Maximizes usable signal and measurement quality.
Technology	Transit Time Ultrasonic

This device complies with Part 15 of FCC Rules and Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. Contains FCC ID: XDULE40-S2, Contains IC: 8456A-LE4S2. CAN ICES-1/NMB-1; CAN ICES-3 (B)/NMB-3(B)

MODEL: SWT ORCAS-01

Regulatory Certification   FC   0008-160188   CE