

U500w Ultrasonic Meter

Cold Water Stainless Steel Meter, 5/8 inch
 NSF/ANSI Standard 61 Certified, Annex G

DESCRIPTION

The U500w Ultrasonic meter uses solid-state technology in a compact, totally encapsulated, weatherproof, and UV-resistant housing, suitable for building and property management submetering applications. Electronic metering provides information—such as rate of flow and reverse flow indication—and data not typically available through traditional, mechanical meters and registers. Electronic metering eliminates measurement errors due to sand, suspended particles and pressure fluctuations.

The U500w meter features:

- Minimum extended low-flow rate lower than typical positive displacement meters.
- Simplified one-piece electronic meter and register that are integral to the meter body and virtually maintenance free.
- Sealed, non-removable, tamper-protected meter and register.
- Easy-to-read, 9-digit LCD display presents consumption, rate of flow, reverse-flow indication, and alarms.
- Battery powered—eliminates wiring.
- Compatible with AquaCUE® Flow Measurement Manager.

The U500w meter is available with an inline connector for easy connection and installation to AquaCUE connectors.

APPLICATIONS

Use the U500w meter for measuring potable cold water in building/property management and industrial applications. The meter is also ideal for non-potable, reclaimed irrigation water applications or less than optimum water conditions where small particles exist.

The U500w meter complies with applicable portions of ANSI/AWWA Standard C700 and NSF/ANSI Standard 61, Annex G. There is currently no AWWA standard that specifically addresses ultrasonic meters for residential applications.

OPERATION & PERFORMANCE

As water flows into the measuring tube, ultrasonic signals are sent consecutively in forward and reverse directions of flow. Velocity is then determined by measuring the time difference between the measurement in the forward and reverse directions. Total volume is calculated from the measured flow velocity using water temperature and pipe diameter. The LCD display shows total volume and alarm conditions and can toggle to display rate of flow.



In the measured-fluid temperature range of 34...140° F (1°...60° C), the U500w “new meter” consumption measurement is accurate to:

- $\pm 1.5\%$ over the normal flow range
- $\pm 3.0\%$ from the extended low flow range to the minimum flow value

CONSTRUCTION

The U500w meters feature a stainless steel, lead-free meter housing, an engineered polymer and stainless steel metering insert, a meter-control circuit board with associated wiring, LCD, and battery. Wetted elements are limited to the pressure vessel, polymer/stainless steel metering insert and the transducers. The electronic components are housed and fully potted within a molded, engineered polymer enclosure, which is permanently attached to the meter housing. The transducers extend through the stainless steel housing and are sealed by O-rings.

The metering insert holds the stainless steel ultrasonic reflectors in the center of the flow area, enabling turbulence-free water flow through the tube and around the ultrasonic signal reflectors. The metering insert's patented design virtually eliminates chemical buildup on the reflectors, ensuring long-term metering accuracy.

METER INSTALLATION

The meter is completely submersible and can be installed using horizontal or vertical piping, with flow in the up direction. The meter will not measure flow when an “empty pipe” condition is experienced. An empty pipe is defined as a condition that occurs when the pipe is partially full.

SPECIFICATIONS

U500w Ultrasonic Meter Size	5/8 in. (16 mm)
Operating Range	0.1...25 gpm (0.4...95 lpm)
Extended Low-Flow Rate	0.05 gpm (0.2 lpm)
Maximum Continuous Operation	25 gpm (95 lpm)
Pressure Loss	4.3 psi at 15 gpm (0.3 bar @ 57 lpm)
Reverse Flow - Maximum Rate	4.0 gpm (15 lpm)
Operating Performance	In the normal temperature range of 45...85° F (7...29° C), new meter consumption measurement is accurate to: <ul style="list-style-type: none"> • $\pm 1.5\%$ over the normal flow range • $\pm 3.0\%$ from the extended low flow range to the minimum flow value
Storage Temperature	- 40...140° F (- 40...60° C)
Maximum Ambient Storage (Storage for One Hour)	150° F (66° C)
Measured-Fluid Temperature Range	34...140° F (1°...60° C)
Humidity	0...100% condensing; meter is capable of operating in fully submerged environments
Maximum Operating Pressure of Meter Housing	175 psi (12 bar)
Register Type	Straight reading, permanently sealed electronic LCD; digits are 0.28 in. (7 mm) high
Register Display	<ul style="list-style-type: none"> • Consumption (up to nine digits) • Rate of flow (US gallons per minute or cubic meters per hour) • Alarms • Unit of measure factory programmed for gallons, cubic feet and cubic meters
Register Capacity	<ul style="list-style-type: none"> • 10,000,000 gallons • 1,000,000 cubic feet • 100,000 cubic meters
Totalization Display Resolution	<ul style="list-style-type: none"> • Gallons: 0.XX • Cubic feet: 0.XXX • Cubic meters: 0.XXXX
Battery	3.6-volt lithium thionyl chloride; battery is fully encapsulated within the register housing and is not replaceable; 20-year battery life

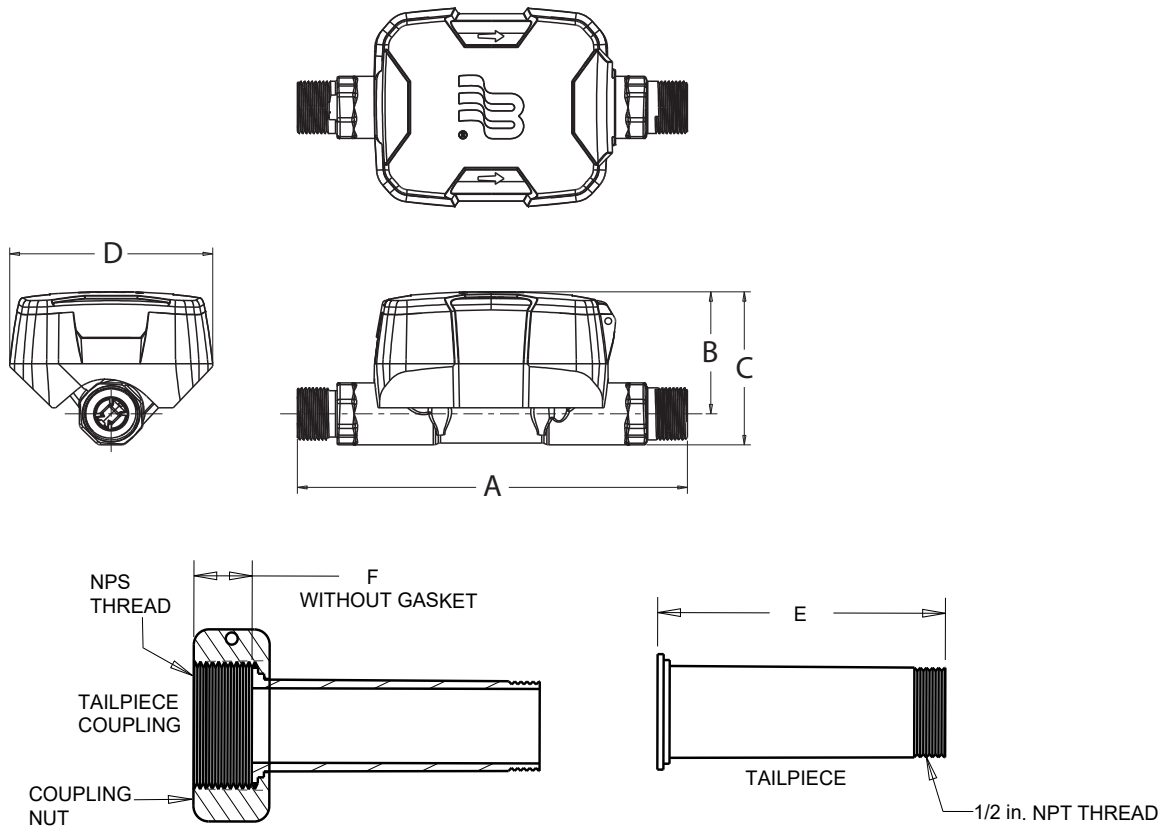
MATERIALS

Meter Housing	316 stainless steel
Measuring Element	Pair of ultrasonic sensors located in the flow tube
Register Housing & Lid	Engineered polymer
Metering Insert	Engineered polymer & stainless steel
Transducers	Piezo-ceramic device with wetted surface of stainless CrNiMo

PHYSICAL DIMENSIONS

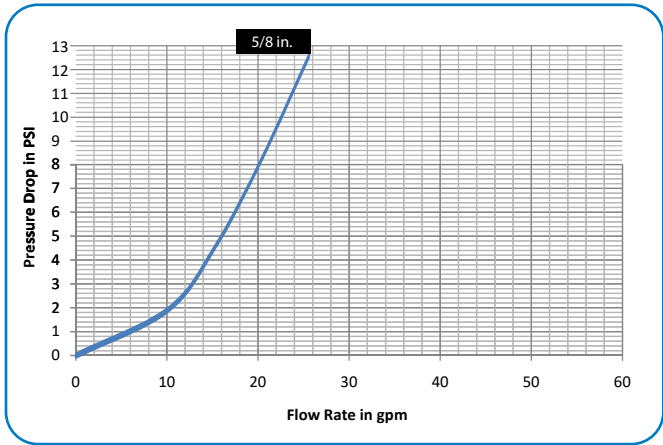
U500w Ultrasonic Meter Size	5/8 in. (16 mm)
Size Designation X Lay Length	5/8 × 7-1/2 in. (16 × 191 mm)
Weight (without AquaCUE connector)	2.2 lb (1 kg)
See illustrations below for Measurement Designations.	
Length (A)	7.5 in.(190 mm)
Height (B)	2.404 in. (61 mm)
Height (C)	3.014 in. (76 mm)
Width (D)	3.898 in. (99 mm)
Bore Size	5/8 in. (16 mm)
Meter Thread	3/4 in. × 14 NPSM
Tailpiece Length (E)	2.38 in.
Tailpiece Coupling (F)	0.51 in.
Tailpiece Pipe Adapter Thread (NPT)	1/2 in. (13 mm)

Measurement Designations



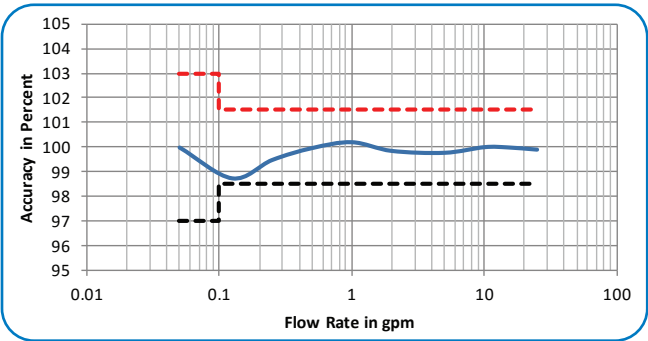
PRESSURE LOSS CHART

Rate of Flow in gallons per minute (gpm)



ACCURACY CHART 5/8 INCH METER

Rate of Flow in gallons per minute (gpm)



PART NUMBERS

Meter 5/8 inch

Dynasonics	UB	EAA		X	E5	CA	1		A1	Y2	XX	TF	XX	B0A
U500w Ultrasonic Meters														
PRODUCT TYPE														
Stainless Steel Meter	UB													
METER TYPE		EAA												
5/8 in. (1/2 x 7-1/2 in.)														
WATER APPLICATION														
Potable Water														
Reclaimed Water (Stainless Steel Meter Only)														
CONNECTIONS / GASKETS														
NPT Straight Adapter - Thick Washers														
NPSM - Thick Washers														
ACCESSORIES														
None														
REGISTRATION														
Encoder														
TECHNOLOGY														
Meter with Cable (No Endpoint)														
REGISTRATION FACE														
Standard														
UNIT OF MEASURE / DIAL RESOLUTION OUTPUT / VISUAL BILLING UNITS														
9 Dial - 0.01 Gallon, GPM, 1000														
9 Dial - 0.001 ft3, GPM, 100														
9 Dial - 0.0001 M3, GPM, 10														
TESTING														
BADGER STD (TS-419)														
SERIALIZATION														
Year of Mfg 9 Digit S/N														
APPLICATION (See Note)														
None														
WIRING METHOD (See Note)														
Twist Tight - 5 ft (MTR, ASSY)														
ENDPOINT SHIPMENT MODE														
N/A														
RESERVED														
Standard														

NOTE: For connectivity to AquaCUE, contact your Sales Representative.