

### DESCRIPTION

The next generation E-Series G2® Ultrasonic meter uses solid-state technology in a compact, tamper protected, weatherproof and | UV-resistant housing, suitable for residential applications. Electronic metering provides information—such as rate of flow and status and alarm indication—and data not typically available through traditional, mechanical meters and registers. Electronic metering minimizes measurement errors due to sand, suspended particles and pressure fluctuations.

### Ultrasonic Meter Features

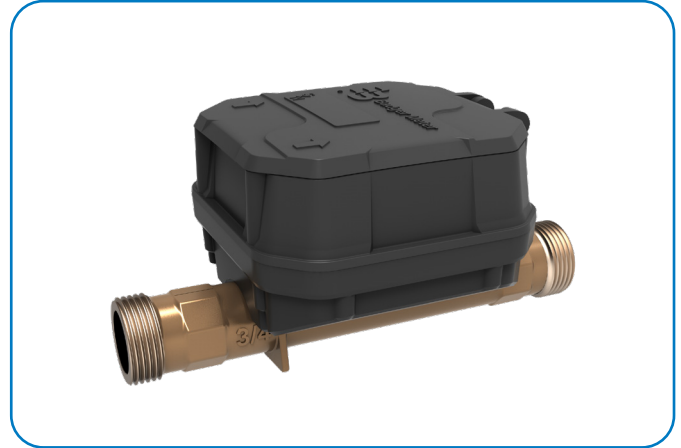
- Open flow tube design prevents obstruction of flow, and provides greater turn-down ratio for extended flow ranges and increased revenue
- No moving parts for increased performance and maximized revenue
- Easy-to-read, 9-digit LCD display for consumption, rate of flow, unit of measure, pressure, temperature, alarm conditions and firmware version
- Meter alarms for better utility visibility and management
- Pressure\* and temperature data and alarms reported at meter and through ORION® Cellular LTE-M/LTE endpoints and BEACON® AMA
- Field programmable registration and reporting features
- Designed with replaceable electronics for increased efficiency and savings
- Maximum flow reporting analytics available to improve meter right sizing and monitor irrigation events
- Single and dual outputs include encoder, scaled/unscaled and 4-20 mA

### OPERATION AND 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 screen toggles to total volume, unit of measure, rate of flow, pressure\*, temperature, firmware and alarm conditions (reverse-flow, no usage, empty pipe, exceeding max flow, suspected leak, pressure\*, temperature, end of life and measurement error).

\*available with optional integrated pressure sensor



When connected to ORION Cellular LTE-M or LTE endpoints, both the pressure and temperature information are communicated to and presented in BEACON AMA, helping utilities understand and proactively manage their water systems faster and more efficiently.

In the normal temperature range of 45...122° F (7...50° C), the “new meter” consumption measurement is accurate to:

- ±1.5% over the normal flow range
- ±3.0% from the extended low flow range to the minimum flow value

### APPLICATIONS

Use the E-Series Ultrasonic meter for measuring potable cold water in residential applications. The meter is also ideal for non-potable, reclaimed irrigation water applications, or less than optimum water conditions where small particles exist.

E-Series Ultrasonic meters meet and exceed ANSI/AWWA C715 Standards. The lead-free bronze alloy meters comply with the lead-free provisions of the Safe Drinking Water Act and NSF/ANSI Standards 61 and 372.

## CONSTRUCTION

The E-Series Ultrasonic meter features lead-free bronze alloy meter housing, ultrasonic transducers, a meter-control circuit board with associated wiring, LCD, and battery. Wetted elements are limited to the pressure vessel and transducers. The electronic components are housed and fully potted within a molded, engineered polymer enclosure, which is attached to the meter housing. The transducers extend through the housing and are sealed by O-rings, enabling turbulence-free water flow through the tube. The open flow tube design prevents obstruction of flow to reduce pressure loss and provide long-term accuracy.

## METER INSTALLATION

For long-term performance the meter is weatherproof, UV-resistant, fully submersible and can be installed using horizontal or vertical piping. The registration electronics and battery are encapsulated to withstand harsh environments and protect the electronics in flooded or submerged pit applications. The meter will not measure flow when an “empty pipe” condition is experienced.

**NOTE:** An empty pipe is defined as a condition that occurs when the flow sensors are not fully submerged.

The meter is available with an in-line connector for easy installation and connection to ORION endpoints. It is also available with a flying lead for field splice connection.

## SPECIFICATIONS

E-Series G2 Ultrasonic Meter Size	5/8 x 3/4 in.
<b>Normal Test Flow Limits</b>	0.08...30 gpm (0.02...6.8 m <sup>3</sup> /hr)
<b>Minimum Test Flow Limits</b>	0.04 gpm (0.01 m <sup>3</sup> /hr)
<b>Safe Maximum Operating Condition (SMOC)</b>	30 gpm (6.8 m <sup>3</sup> /hr)
<b>Typical Pressure Loss</b>	2.6 psi @ 15 gpm (0.18 bar @ 3.4 m <sup>3</sup> /hr)
<b>Operating Performance</b>	In the normal temperature range of 45...122 °F (7...50 °C), new meter consumption measurement is accurate to: <ul style="list-style-type: none"> <li>• 100% ±1.5% over the normal test flow limits</li> <li>• 100% ±3.0% for the minimum test flow limits</li> </ul>
<b>Storage Temperature</b>	-40...140° F (-40...60° C)
<b>Maximum Ambient Storage (Storage for One Hour)</b>	150° F (66° C)
<b>Measured Fluid Temperature Range</b>	34...140° F (1...60° C)
<b>Humidity</b>	0...100% condensing; meter is capable of operating in fully submerged environments
<b>Maximum Working Pressure of Meter Housing</b>	175 psi (12 bar)
<b>Maximum Operating Pressure of Pressure Sensor</b>	150 psi (10 bar)
<b>Pressure Sensor Accuracy</b>	±2% of full scale pressure, up to 150 psi (10 bar)
<b>Register Type</b>	Straight reading, permanently sealed electronic LCD; digits are 0.28 in. (7 mm) high
<b>Register Display</b>	<ul style="list-style-type: none"> <li>• Total consumption (nine digits)</li> <li>• Unit of measure (factory programmed for gallons, cubic feet and cubic meters)</li> <li>• Rate of flow</li> <li>• Pressure (<i>Optional: for meters ordered with integrated pressure sensor</i>)</li> <li>• Temperature</li> <li>• Alarm and operating mode</li> <li>• Firmware version</li> <li>• Alarm indicators</li> </ul>
<b>Totalization Display Resolution</b>	<ul style="list-style-type: none"> <li>• Gallons: 0.01</li> <li>• Cubic feet: 0.001</li> <li>• Cubic meters: 0.0001</li> </ul>
<b>Battery</b>	3.6-volt lithium thionyl chloride; battery is fully encapsulated within the register housing and is not replaceable; 20-year battery life

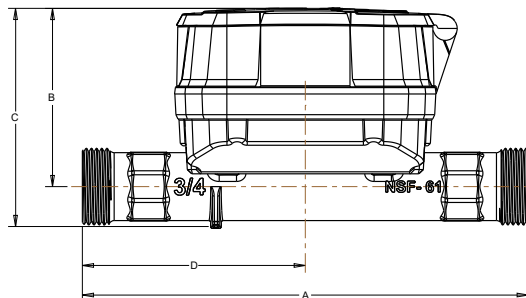
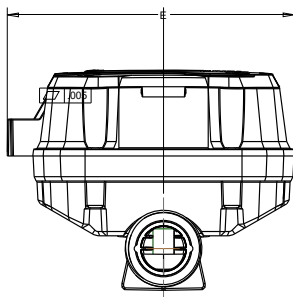
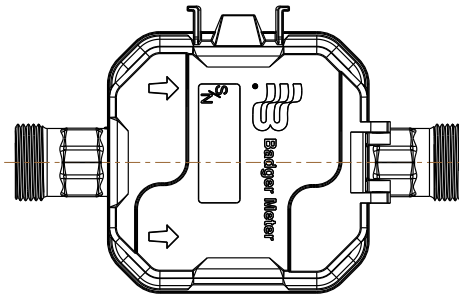
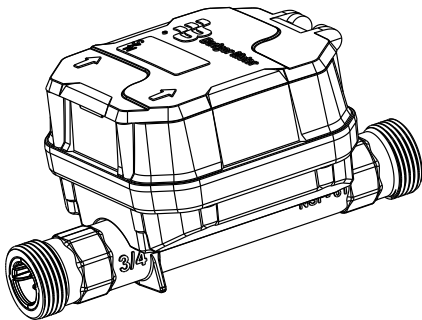
## MATERIALS

<b>Meter Housing</b>	Lead-free bronze alloy
<b>Measuring Section</b>	Ultrasonic sensors located in the flow tube
<b>Register Housing and Lid</b>	Engineered polymer

## PHYSICAL DIMENSIONS

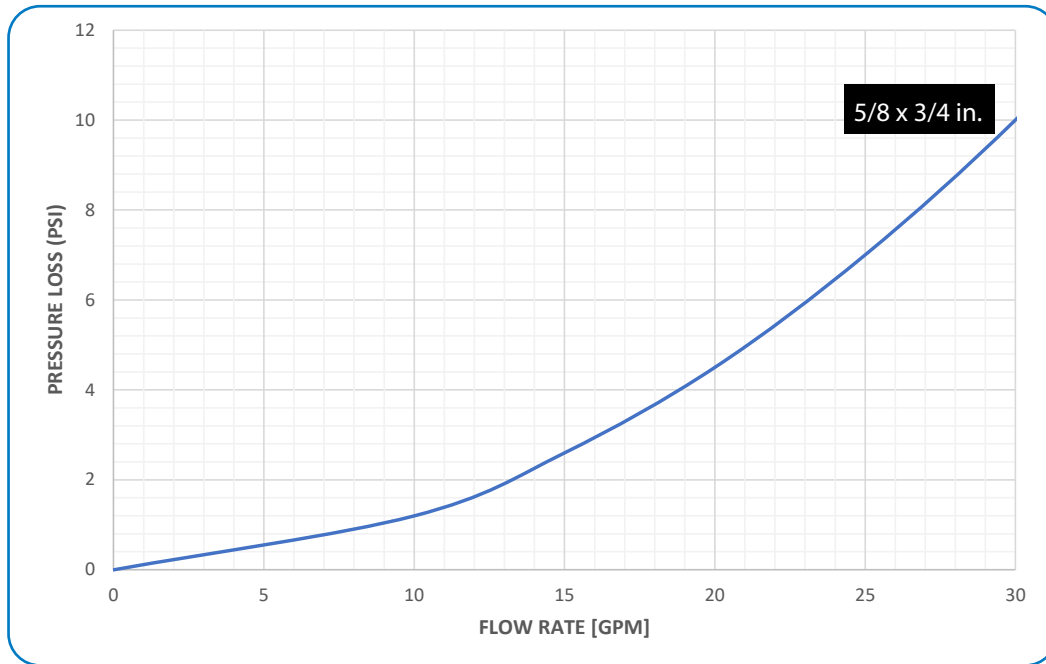
<b>E-Series G2 Ultrasonic Meter Size</b>	<b>5/8 x 3/4 in.</b>
<b>Size Designation X Lay Length</b>	5/8 x 3/4 x 7-1/2 in. (16 x 19 x 191 mm)
<b>Bore Size</b>	3/4 in. (19 mm)
<b>Coupling Nut &amp; Spud Thread (NPT)</b>	1 in. (25 mm) x 11-1/2 NPSM
<b>Service Pipe Thread</b>	3/4 in. (19 mm)
<b>Weight (without AMR)</b>	2.7 lb (1.23 kg)
See illustration below for Measurement Designations	
<b>Length (A)</b>	7.49 in. (190 mm)
<b>Height (B)</b>	2.99 in. (76 mm)
<b>Height (C)</b>	3.66 in. (93 mm)
<b>Length (D)</b>	3.74 in. (95 mm)
<b>Width (E)</b>	4.82 in. (122 mm)

## Measurement Designations



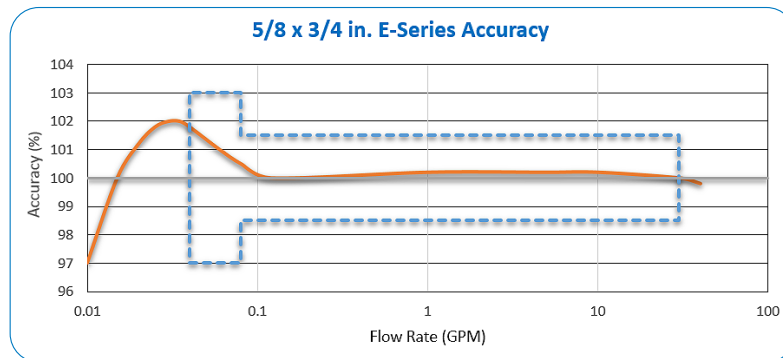
## PRESSURE LOSS CHART

Chart represents typical meter performance. Rate of flow in gallons per minute (gpm).



## ACCURACY CHART

Charts represent typical meter performance. Rate of flow in gallons per minute (gpm).



## SMART WATER IS BADGER METER

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