



City of Biggs

Agenda Item Staff Report For the Regular City Council Meeting: January 14, 2014

TO: Honorable Mayor and Members of the City Council
FROM: City Administrator
SUBJECT: Water Meter Purchase Authorization and Budget modification

Council is asked to consider authorizing the City Administrator to purchase (20) water meters, and to make corresponding budget modifications.

Background:

CHIP (Community Housing Improvement Program) is moving forward with the North Biggs Estates Project. CHIP has applied for permits for 19 units.

The City expects to receive payment of development impact fees in the coming days, and CHIP has requested that the City proceed with ordering water meters suitable for use with residential water sprinkler systems. In response and without warranty the city supplied CHIP with the attached manufacturer product data of a meter that the city found to be acceptable to a previous contractor. CHIP and their contractor have requested that the City proceed with the order of the water meters.

In accordance with the project CHIP will be paying a water system development impact fee of \$3,810 per unit, for a total \$72,390.00. A portion of that impact relates to the cost of the meter.

Recommendation:

Authorize the City Administrator to purchase (20) 1" Badger E-Series water meters at a cost not to exceed \$7000.00

Authorize a budget modification to Fund 040-3180-3000 (water development impact) to reflect a revenue of \$72,390.00 and an expense budget of \$7,000.00

Mark Sorensen, City Administrator



Badger Meter

E-Series® Ultrasonic Meter
Cold Water Stainless Steel Meter, 3/4" and 1"
UL Certified for Fire Service Applications
NSF/ANSI Standard 61 Certified, Annex G

DESCRIPTION

The E-Series® Ultrasonic meter uses solid-state technology in a compact, totally encapsulated, weatherproof, and UV-resistant housing, suitable for residential and commercial 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.

Offered in two sizes, the Ultrasonic meter features:

- UL Listing under UL Subject 327B for residential fire service applications.
- 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.
- Digital or industry standard encoder protocol.

The Ultrasonic meter is available with a wired lead, 308 in-line connector or fully prewired to ORION® and GALAXY® AMR/AMI endpoints. It is also offered with the Itron® in-line connector, in-line connector with pit endpoint, or prewired to an Itron remote endpoint.

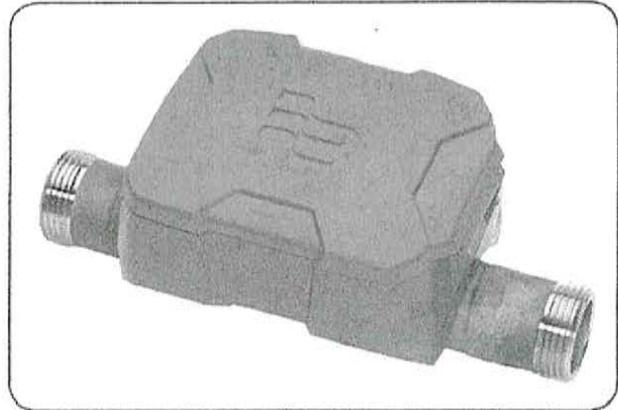
APPLICATIONS

This Ultrasonic meter is UL Listed under UL Subject 327B, inferential type water meters used in residential fire service applications. These applications are regulated by local codes and requirements established by the Authority Having Jurisdiction (AHJ). Additional application information is provided in NFPA 13D, one- and two-family residences.

The Ultrasonic meter complies with applicable portions of NSF/ANSI Standard 61, Annex G. There is currently no AWWA standard that specifically addresses ultrasonic meters for residential fire service 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 normal temperature range of 45...85° F (7...29° C), the Ultrasonic "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

CONSTRUCTION

E-Series Ultrasonic 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, the 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 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 when the flow sensors are not fully submerged.



E-Series® Ultrasonic Meter for Fire Service Applications

SPECIFICATIONS

E-Series Ultrasonic Residential Fire Service Certified under UL 327B Residential Fire Service Meters - File No. 15653, Control No. 4DP3	3/4" (20 mm)	1" (25 mm)
Operating Range (per UL Listing, at $\pm 1.5\%$ accuracy)	2...30 gpm	2...50 gpm
Operating Range	0.1...32 gpm	0.4...55 gpm
Extended Low-Flow Rate	0.05 gpm	0.25 gpm
Maximum Continuous Operation	32 gpm	55 gpm
Pressure Loss	2.0 psi at 15 gpm	1.8 psi at 25 gpm
Reverse Flow - Maximum Rate	4.0 gpm	9.0 gpm
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 (72° C)	
Measured-Fluid Temperature Range	34...140° F (1...60° C)	
Humidity	0...100% condensing	
Maximum Operating Pressure of Meter Housing	175 psi (12 bar)	
Register Type	Straight reading, permanently sealed electronic LCD; digits are 0.28" (7 mm) high	
Register Display	<ul style="list-style-type: none"> • Consumption (up to nine digits) • Rate of flow • 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	

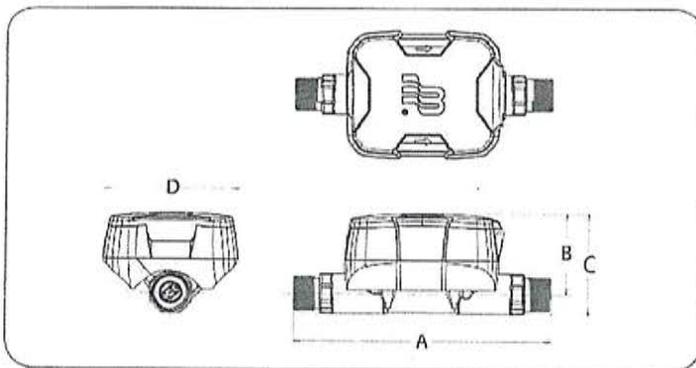
MATERIALS

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

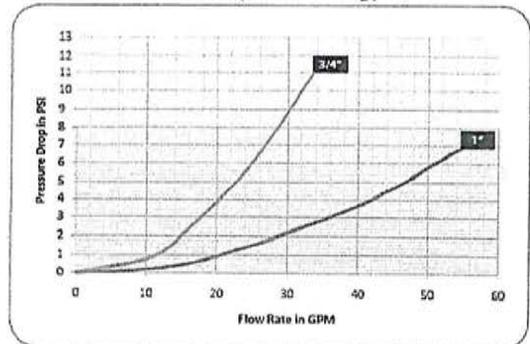
E-Series Ultrasonic Residential Fire Service Certified under UL 327B Residential Fire Service Meters - File No. 15653, Control No. 4DP3	3/4" (20 mm)	1" (25 mm)
Size Designation X Lay Length	3/4" x 7-1/2" or 3/4" x 9"	1" x 10-3/4"
Weight (without AMR)	3/4" x 7-1/2": 2.1 lb 3/4" x 9": 2.4 lb	3.1 lb
See illustration below for Measurement Designations.		
Length (A)	7.5" or 8.98"	10.745"
Height (B)	2.404"	2.529"
Height (C)	3.094"	3.359"
Width (D)	3.898"	3.898"
Bore Size	3/4"	1"
Coupling Nut & Spud Thread	1" x 11-1/2 NPSM	1-1/4" x 11-1/2 NPSM
Tailpiece Pipe Thread (NPT)	3/4"	1"
Service Pipe Thread (NPT)	3/4"	1"

Measurement Designations



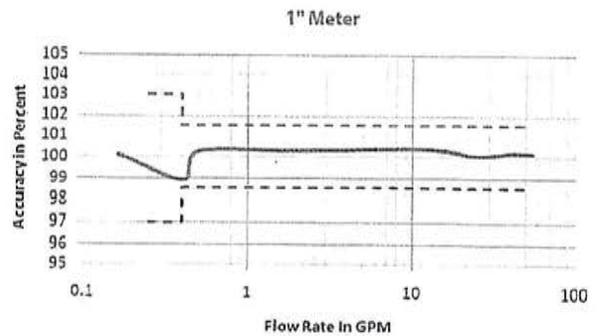
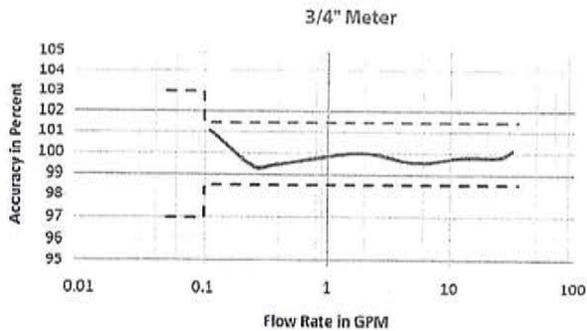
PRESSURE LOSS CHART

Rate of Flow in Gallons per Minute (gpm)



ACCURACY CHARTS

Rate of Flow in Gallons per Minute (gpm)



E-Series GALAXY and ORION are registered trademarks of Badger Meter, Inc. Other trademarks appearing in this document are the property of their respective entities. Due to continuous research, product improvements and enhancements, Badger Meter reserves the right to change product or system specifications without notice, except to the extent an outstanding contractual obligation exists. © 2013 Badger Meter, Inc. All rights reserved.

www.badgermeter.com

The Americas | Badger Meter | 4545 West Brown Deer Rd | PO Box 245036 | Milwaukee, WI 53224-9536 | 800-876-3834 | 414-355-0100
México | Badger Meter de las Americas, S.A. de C.V. | Pedro Luis Ogazón N°32 | Esq. Angelina N°24 | Colonia Guadalupe Inn | CP 01050 | México, Df | México | +52-55-5662-0892
Europe, Middle East and Africa | Badger Meter Europa GmbH | Nurlinger Str 76 | 72619 Neulien | Germany | +49-7025-9203-0
Czech Republic | Badger Meter Czech Republic s.r.o. | Matkova 2082/26 | 621 00 Brno, Czech Republic | +420-5-41420411
Slovakia | Badger Meter Slovakia s.r.o. | Ilavská 1020/3 | 031 02 Bratislava, Slovakia | +421-7-44618301
Asia Pacific | Badger Meter | 80 Marine Parade Rd | 21-04 Parkway Parade | Singapore 449269 | +65-63464836
China | Badger Meter | Rm 501, N° 11 Longyue Apartment | N° 180 Longjin Rd, Jiujing Songjiang District | Shanghai, China | 201615 | +86-21-5763 5412