

# Q500 ULTRASONIC WATER METER

Size 5/8" x 3/4"

Preliminary Specification

The Q500 water meter utilizes an innovative application of ultrasonic measurement technology to accurately capture and report all water flow events across the diverse operating ranges of modern residential and small commercial applications. Today's water efficient appliances use short bursts of water, that can be misinterpreted if the flow events fall between the flow sampling intervals, which can be typically up to 4 seconds apart. Effective, near-continuous flow sampling therefore becomes vital to the accurate capture of all real-life flow events as well as during any performance verification processes. The Q500 has been designed to be fully compliant with all known technical standards and regulatory requirements in place or being developed using an industry leading sampling process.

Building on Honeywell's global experience in developing water meters with reliable long-term accuracy, the Q500 flow sensing configuration will maximize measurement certainty and mitigate accuracy and flow range deterioration over time through direct measurement in the path of the water flow providing a class leading long term meter performance.

## Q500 FEATURES

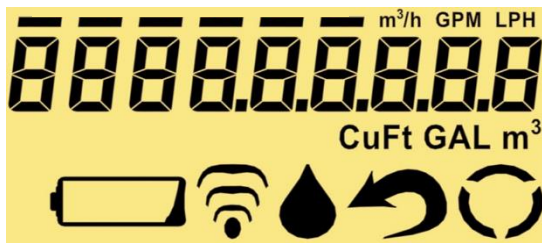
- In-line flow measurement without Industry leading near-continuous flow sampling
- Sustained accuracy
- In-pipe measurement limits effect of entrapped air
- Long battery life
- Integral wired communications
- Optional extended data set with extensive event and status feature set
- Local communication through NFC
  - Dynamically re-assignable logging facilities
  - Last time read with date and time



SIZE		5/8" x 3/4"	(DN 20mm)
97%-103% Accuracy	GPM (m3/h)	0.05	(0.0114)
98.5%-101.5% Accuracy	GPM (m3/h)	0.1-25	(.02-5.7)
Start Flow	GPM (m3/h)	0.025	(0.0057)
Maximum Flow	GPM (m3/h)	25	(5.7)
Head Loss at 20 GPM	psi (kPa)	3.4	(23.4)
Operating Pressure	psi (kPa)	232	(1600)
Operating Temperature	°F (°C)	120	(50)
Battery life	Years	20	
Continuous sample rate	Hz	4	

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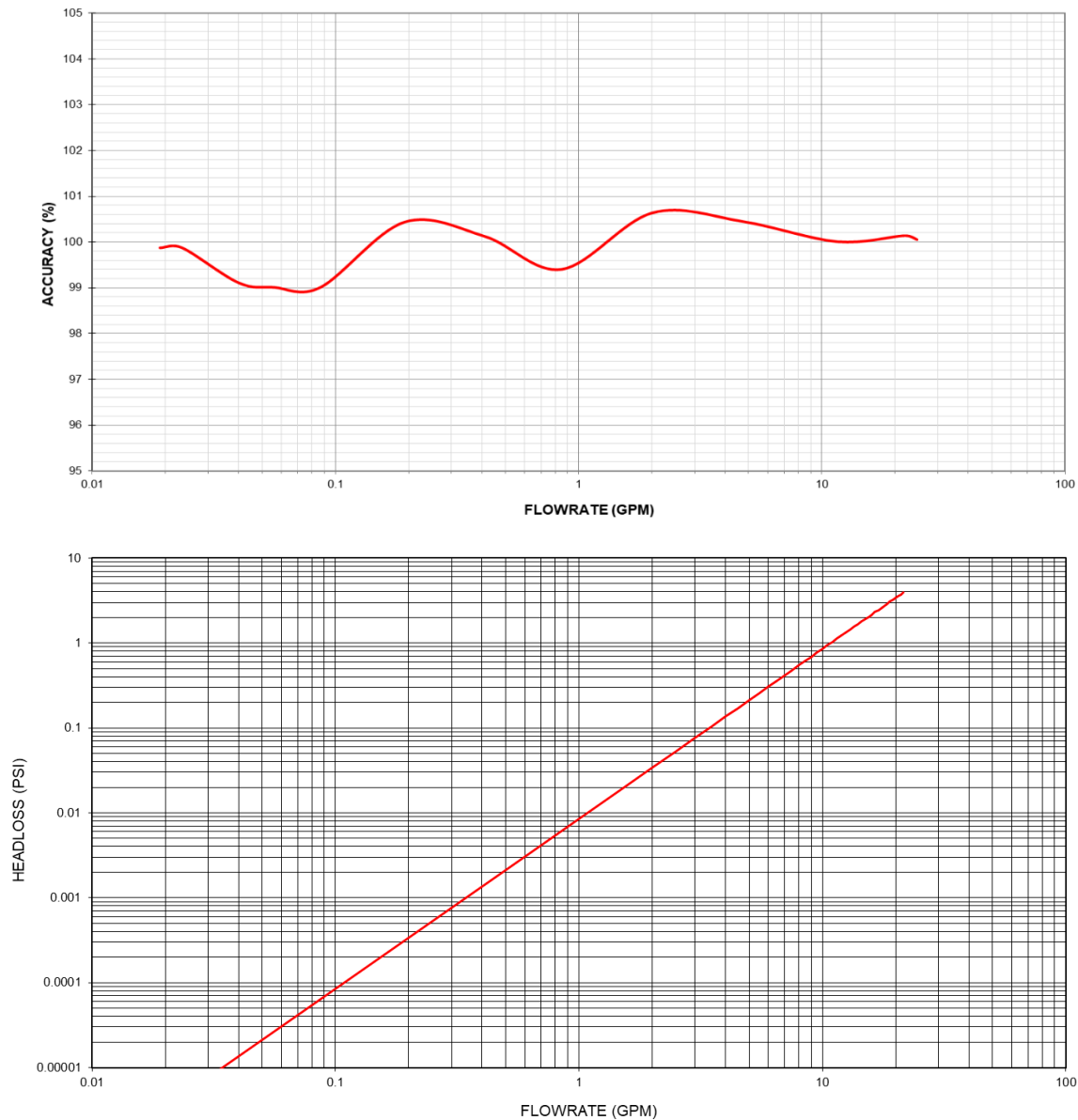
## REGISTER DIAL FACE



- 9-digit display
- Volume and Flow rate units
- Billing unit indication
- Battery low indicator
- Directional flow tell tale
- Communication
- Reversed meter
- Leak and Burst indicator

UNITS	CAPACITY OF REGISTERS (MILLIONS)	TEST RESOLUTION
US Gallons	10	0.01
Cubic Feet	1	0.001
Cubic Metres	0.1	0.0001

## TYPICAL ACCURACY AND PRESSURE LOSS



## OPERATION

The Q500 is an ultrasonic type, no moving part, water meter. Ultrasonic sensors located within the flow of the water send and receive ultrasonic sound waves along flowing water avoiding the need for reflectors in the flow path. Measurements are made of the time of flight of the sound waves both with the flow and against the flow through the meter and this is used to determine the volume passed between each measurement sample. By sampling at a rate of 4 times per second, the Q500 can capture varying flow through typical changes in demand.

## COMPLIANCE TO STANDARDS

The Q500 complies with American Water Works Association Standard C715, latest revision. The model Q500 water meters are NSF-61 certified (including Annex G) and complies with California Proposition 65.

## INSTALLATION

The meter must be installed in a clean pipeline, free from any foreign materials. Install the meter with direction of flow as indicated by the arrow cast in the meter case. The meter may be installed in horizontal, vertical or inclined lines. Refer to instruction sheet. Q500 Installation and Operation Manual mm/2021.

## APPLICATION

The meter is for use only with potable cold water up to 120°F (50°C) and working pressures up to 232 psi. The meter will register between 98.5% and 101.5% from throughout the AWWA C715 flow rates and between 97% and 103% at an extended flow of 0.05 gpm. Accuracy tests are made before shipment, so no adjustments need to be made before installation.

## CONSTRUCTION

The meter consists of a straight through-flow tube with no moving parts. Two sensor mounting inserts are fitted within the flow tube to hold ultrasonic sensors in line with the water flow. Between the sensors there is a slight restriction in diameter of the flow tube to aid the flow passing directly between the two sensors. The sensors

are isolated from the main tube to reduce the potential of vibration interfering with the flow measurement. The main flow tube is molded with metal thread inserts to ensure a robust installation without the risk for crossed or stripped threads

A totally encapsulated, weatherproof, electronic register assembly is mounted on the top of the flow tube assembly. The register assembly includes a sealed battery and a hardened glass lens for providing clear viewing of the LCD display. A UV-resistant protective shroud is fitted around the register and flow tube to secure the meter from potential tampering. The meter shroud is permanently marked with characters designating model, size and direction of flow.

## READING OPTIONS

The Q500 meter encoder output uses industry standard ASCII protocols for communication with AMR/AMI endpoints. For ease of installation in the field, the Q500 meter is available with factory potted connections where standard options include a 12ft cable, a 5ft Itron inline connector, a 5ft Nicor connector, or a touch coupler / touch reading connection. An extended data packet can be provided through the same interface for passing additional meter data and alarms to AMR/AMI endpoints.

## CONNECTIONS

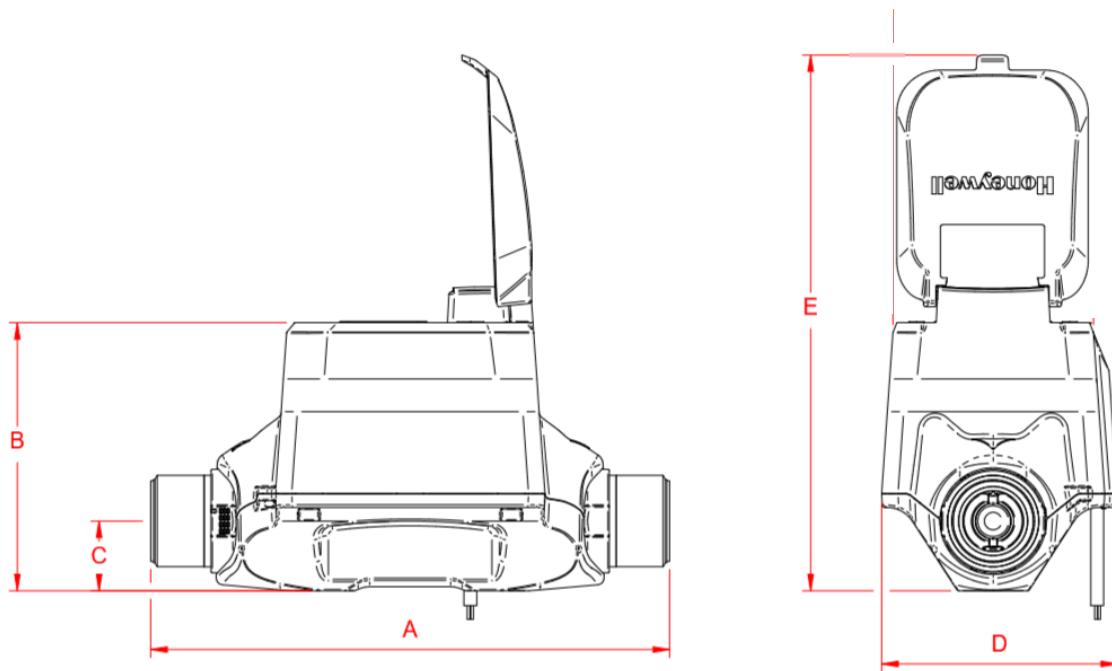
Meter casing spuds have external straight metal threads conforming to ANSI B.1.20 that are an integral part of the meter body, avoiding the issues associated with plastic threads such as being crossed or stripped. Low-lead bronze coupling nuts and tailpieces are available. Tailpieces have external taper pipe threads conforming to ANSI B.1.20.1. Their lengths and thread sizes are as specified by AWWA Standards.

## MAINTENANCE

The Q500 is an electronic meter with no user maintainable parts. Prior to test, ensure that there are no foreign objects contained within the meter flow tube.

## REGISTER

The Q500 electronic register is a totally sealed unit that designed to operate in meter pit environments and is fully potted to avoid possible water ingress that could damage the meter electronics or battery. To ensure that the display remainse clearly visible, a glass lens is integrated into the register enclosure. The register includes a Near Field Communications (NFC) port to allow for advanced flow profile and datalog data to be accessed by the utility to enhance customer service. The NFC port provides the ability to access a final reading after the battery has drained through normal operation without the need to physically access the meter electronics at end of life.



## DIMENSIONS AND NET WEIGHT

DIMENSIONS											WEIGHT	
Meter	A		B		C		D		E			
Size	in	(mm)	in	(mm)	in	(mm)	in	(mm)	in	(mm)	lbs.	(kg.)
5/8x 3/4	7 1/2	(190.5)	4 1/2	(115)	1 1/4	(32)	5 1/4	(133)	7 7/8	(200)	1 1/2	(0.75)

### Find Out More

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