

# Q700 Electronic Water Meter

**Size 5/8" x 3/4"**



Performance	5/8" x 3/4"	(DN 20mm)
95%-101.5% Accuracy GPM (m3/h)	1/16	(0.015)
97%-101.5% Accuracy GPM (m3/h)	1/4	(0.05)
98.5%-101.5% Accuracy GPM (m3/h)	1-20	(0.2-4.5)
Maximum flow GPM (m3/h)	20	(4.5)
Operating pressure psi (kPa)	150	(1050)
Operating temperature °F (°C)	120	(50)

Minimum Register Display Indication	
US gallons	0.01
Cubic feet	0.001
Cubic metres	0.00001

Capacity of Registers (millions)	
US gallons	10
Cubic feet	1
Cubic metres	0.01

### Register Type

Permanently sealed direct reading

## Materials

Main case	PPS
Thread inserts	Copper alloy
Measuring chamber	PPS
Sensor electrodes	Hastelloy
Conditioning plate	Acetal
Register	Acetal
Register lens	Polycarbonate
Lockshroud and lid	Acetal
Battery	Lithium Thionyl Chloride

## Operation

The Q700 is a fluidic oscillator type, cold water meter. Water enters the fluidic oscillator through a nozzle that creates a jet. When the jet enters the flow chamber, it will initially be drawn to one of the two diffuser walls and will travel along the wall through the principle of the Coandă effect and then exit the flow chamber. Due to the local pressure being lower by the opposite diffuser wall, the jet will move towards the other wall and therefore starts to oscillate between one diffuser wall and the other. Carefully optimized features within the flow chamber such as a splitter post and feedback channels provide oscillation across a greater flow range.

This oscillation between the diffuser walls continues while flow is present where each oscillation represents a specific volume that has passed through the meter. The oscillation is monitored by electrodes placed next to each diffuser wall, in which an electrical current is induced in the jet by a pair of powerful permanent magnets. Sensing electronics capture when the oscillations occur and totalize the volume passed displaying the registered volume on an liquid crystal display.

## Application

The meter is for use only with potable cold water up to 120°F (50°C) and working pressures up to 150 psi. The meter will register between 98.5% and 101.5% accurate throughout the normal operating range and between 97% and 101.5% at the low flow as stated within American Water Works Association Standard C713, latest version. Accuracy tests are made before shipment, so no adjustments need to be made before installation.

## Construction

The construction of the Q700 meters complies with the performance requirements of the AWWA Standard C713, latest revision, and is certified to NSF-61 (including Annex G). The meter consists of an integrated main case and no moving parts fluidic oscillator measuring chamber that features innovative insert molded metal threads that eliminate crossed or stripped threads. A fully encapsulated and secure electronic register



assembly enclosed by an advanced engineered polymer housing is mounted directly onto the main case. The main case is molded from first grade PPS and has raised characters designating model, size and direction of flow permanently marked onto the outside of the main case. The fluidic oscillator measuring chamber uses patented magnet sensing with insert molded sensor electrodes to monitor flow. The register assembly includes a sealed battery compartment and a clear lens for viewing of the LCD display. The register is secured from tamper with a register cover assembly and a wire security seal.

### 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.

### Register

The register is contained within an advanced engineered polymer casing which is completely potted to eliminate air and any potential condensation. To assure easy reading, the totalizer

LCD digits are large and the dial face is color coded to identify billing units and verification units. The applicable size, mode, registration are printed on the dial face. The LCD includes a low-flow indicator that provides visual indication of plumbing leaks. The register contains a removable Lithium Thionyl Chloride battery pack that has a 20 year battery life.

### Reading options

Q700 meters are available with an Absolute Encoder output (with factory programmable options for output resolution) to provide water usage output to the entire spectrum of meter

reading systems, giving flexibility to utilities implementing or upgrading reading technologies.

### AMR/AMI Connectivity

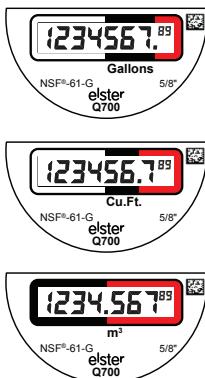
The Q700 meter encoder output uses standard ASCII protocols for communication with AMR/AMI endpoints. For ease of installation in the field, the Q700 meter is available with factory potted connections where standard options include a 12ft cable, a 5ft Itron in-line connector, or a 5ft Nicor connector.

### Connections

Meter casing spuds have external straight threads conforming to ANSI B.1.20.1 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.

### Battery Pack

The Q700 battery pack contains Lithium cells that must be disposed of correctly, removal of the battery pack allows for the most economic method of disposal of the battery pack separate to the rest of the meter at the end of its service life.



### Dimensions and Net Weight

Meter Size	A		B		C		D		E		Weight
	in	(mm)	in	(mm)	in	(mm)	in	(mm)	in	(mm)	
5/8" x 3/4"	7 1/2	(190.5)	4.2	(107.9)	1	(26.5)	4.3	(109.0)	4.3	(109.0)	3 (1.12)

