

# SM700 Electronic Water Meter

Size 1"

## Operation

The SM700 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.

## 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 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 SM700 meters, is of the modified double case design as described by the AWWA Standard C713, latest revision, and is certified to NSF-61 (including Annex G). The meter consists of a straight through-flow main case, a single piece fluidic oscillator measuring chamber with no moving parts, and an electronic register assembly that is mounted onto the measuring chamber. The main case is cast from a high copper content alloy 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.



*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 a liquid crystal display.*

## AMR/AMI Connectivity

The SM700 meter encoder output uses standard ASCII protocols for communication with AMR/AMI endpoints. For ease of installation in the field, the SM700 meter is available with factory potted connections where standard options include a 12ft cable, a 5ft Itron in-line connector, a 5 ft Nicor connector, or touch coupler / touch reading connection.

## 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.

## 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.

**Register Type:** Permanently sealed direct reading

## Materials

**Main case:** Copper alloy

**Bottom plate options:** Copper alloy

**Bottom plate o-rings:** Neoprene

**Bottom plate gasket:** EPDM

**Measuring chamber:** PPS

**Sensor electrodes:** Hastelloy

**Connection liner:** Glass reinforced nylon

**Liner o-ring:** Nitrile

**Conditioning plate:** Acetal

**Register:** Acetal

**Register lens:** Polycarbonate

**Lockshroud and lid:** Acetal

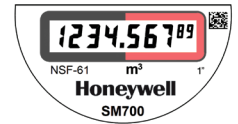
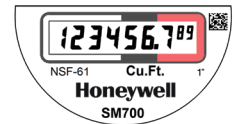
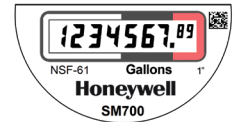
**Battery:** Lithium Thionyl Chloride

## Reading options

SM700 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.

## Battery Pack

The SM700 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.



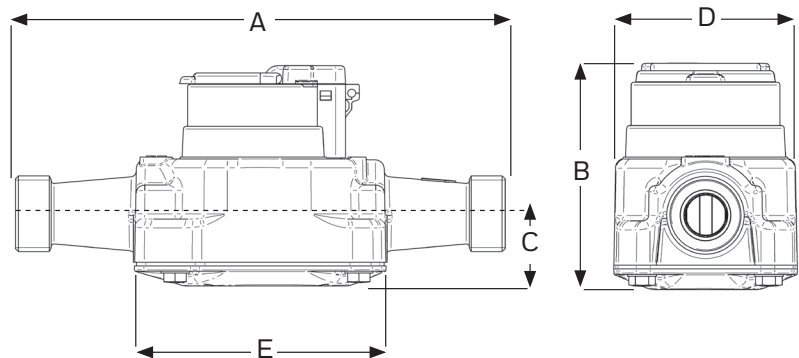
| Size                               | 1"   | (DN 25mm)  |
|------------------------------------|------|------------|
| 95% - 101.5% Accuracy GPM (m³/h)   | 3/8  | (0.08)     |
| 97% - 101.5% Accuracy GPM (m³/h)   | 3/4  | (0.17)     |
| 98.5% - 101.5% Accuracy GPM (m³/h) | 3-50 | (0.7-11.4) |
| Continuous flow GPM (m³/h)         | 25   | (5.7)      |
| Maximum flow GPM (m³/h)            | 50   | (11.4)     |
| 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                        | 0.0001 |

| Capacity of Registers (millions) |     |
|----------------------------------|-----|
| US gallons                       | 10  |
| Cubic feet                       | 1   |
| Cubic metres                     | 0.1 |

## Dimensions and Net weight

| Meter Size | A      |         | B  |         | C      |        | D       |        | E      |         | Weight |        |
|------------|--------|---------|----|---------|--------|--------|---------|--------|--------|---------|--------|--------|
|            | in     | (mm)    | in | (mm)    | in     | (mm)   | in      | (mm)   | in     | (mm)    | lbs.   | (kg.)  |
| 1"         | 10 3/4 | (273.1) | 5  | (127.6) | 1 9/16 | (40.2) | 3 15/16 | (99.9) | 5 9/16 | (141.6) | 5 1/2  | (2.52) |



## Find Out More

WaterMeters@honeywell.com  
www.elsteramcowater.com

## Honeywell Smart Energy

10 SW 49th Avenue, Bldg. 100  
Ocala, FL 34474  
T +1 800 874 0890  
F +1 352 368 1950

1100 Walker's Line, Suite 302  
Burlington, Ontario L7N 2G3  
T 866 703 7582  
F 905 634 6705  
www.HoneywellSmartEnergy.com

SEW-DS-NAEN-SM700TOI | 05/2018  
Supercedes SM700OI/05-13  
© 2018 Honeywell International Inc.

**Honeywell**