

ULTRA Egg

Ultrasonic Vortex Flowmeter

Technical Specifications

DESCRIPTION

The unique sensor body and transmitter design makes ULTRA Egg a simple and clean way to measure flow rates of ultrapure water, solvents and chemicals where process contamination is not allowed due to any voids. The injection molded Teflon design provides a smooth surface for cleanliness and better chemical compatibility.

STANDARD FEATURES

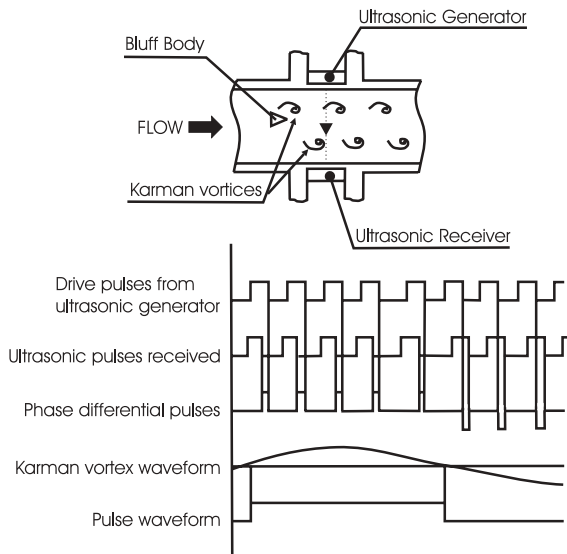
- 3/4" size with injection molded high purity Teflon (PFA) resin case, which allows exceptional chemical resistance.
- Single piece injection molded bluff and meter body without any voids to avoid process contamination.
- Piezoelectric sensors are completely isolated from the process fluid.
- Instantaneous flow rate indicator/totalizer.
- NEMA-4X enclosure.
- 4-20mA or pulse output with external power.
- Each meter has built in **EEPROM** which stores meter parameters and totalizer reading.
- **Two separate totalizers with one reset switch** keeps the count of individual readings. Indicators display the flow rates in GPM and GPH as required.
- Final lock or tube end connections to ease installation in the field.
- Immune to mechanical noise from pipe oscillation.

OPERATING PRINCIPLE OF ULTRA EGG

The stationary trapezoidal object (bluff body) sheds vortices downstream at a frequency proportional to the flow velocity of the flowing media.

Two piezoelectric sensors located on each side of the bluff body transmit and receive the ultrasonic pulse train. The vortices generated cause a phase shift of the ultrasonic pulse train which are then integrated to obtain a Karman vortex waveform.

The Karman vortex waveform is then amplified and processed to provide either an analog or pulse output.



APPLICATIONS

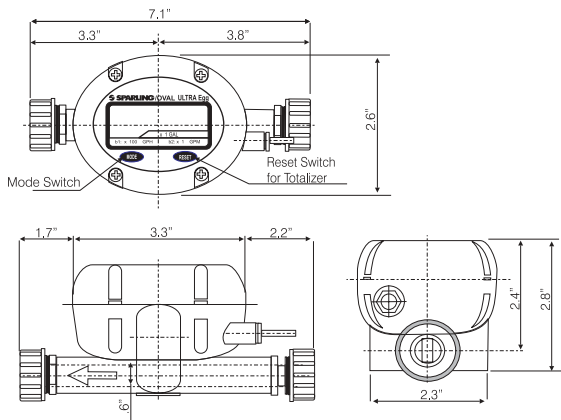
The simple unique construction without any moving parts enables ULTRA Egg to measure liquid flow measurements with very little head loss. Common applications include: chemicals, corrosive fluid, ultra-pure water and solvents.

GENERAL SPECIFICATIONS

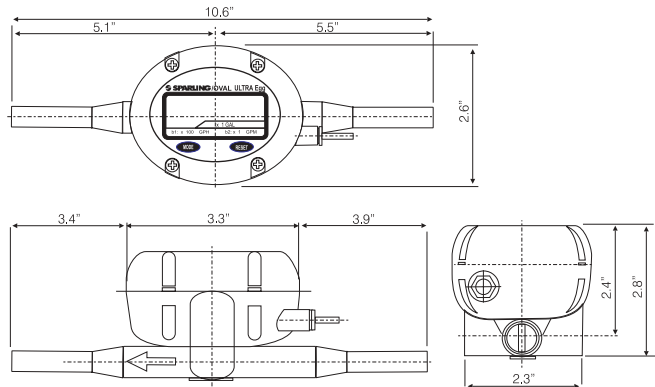
- Material:** High-purity PFA (Teflon)
- Accuracy:** $\pm 3\%$ full scale, $\pm 1\%$ (optional)
- Repeatability:** $\pm .5\%$ full scale
- Process Fluid:** -4°F to $+212^{\circ}\text{F}$
- Ambient Temp:** -4°F to $+140^{\circ}\text{F}$
- Max. Operating Pressure:** 100 psi (varies with temperature)
- Flow Ranges:**
- Min Flow(4mA)** .8 GPM
 - Max Flow(20mA)** 18 GPM
- Pressure Loss (mm):** (Water) See Pressure Loss Chart
- Display:**
- 8 digit cumulative totalizer (gallons)
 - 7 digit resetable totalizer (gallons)
 - 4 digit indicator showing flow rate per hour (GPH) and minute (GPM)
- Outputs:**
- (1) 4-20mADC output (analog) • Response time 3 sec. (time const.) See Range of Load Resistance Chart
 - (2) Open collector scaled pulse • Pulse width = 1.4 ms, Max. voltage: 30VDC, allowable current: 50mA
- Cable:** 4 cored shielded cable
- External power supply:** See Range of Load Resistance Chart
- Enclosure rating:** NEMA 4X
- Process connection:** Final lock (standard) or tube (optional)
3/4" OD x .62" ID

DIMENSION DRAWINGS

FINAL-LOCK COUPLING

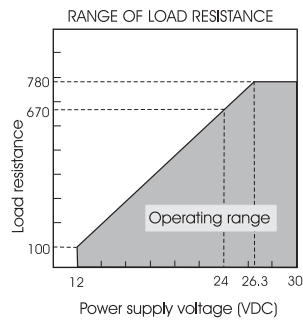
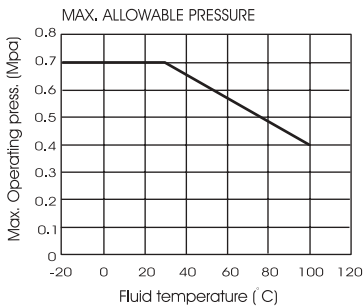
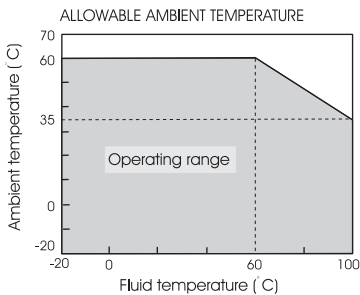


TUBE CONNECTION

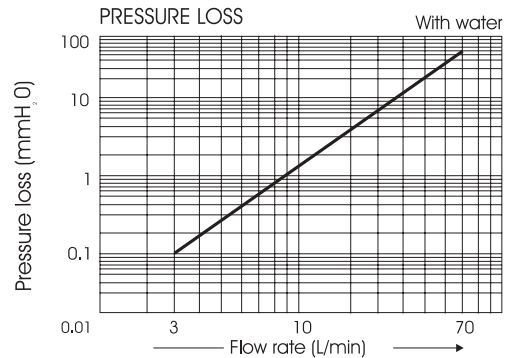
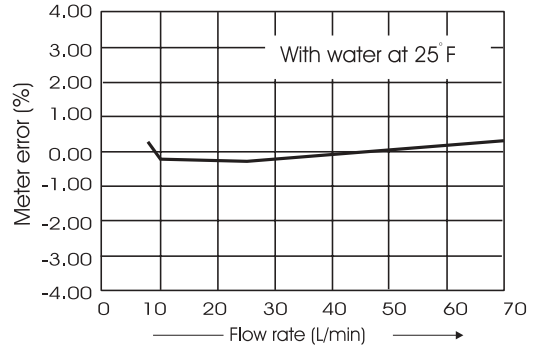


NOTES:

- (1) Display orientation is not changeable (fixed)
- (2) Mode switch & reset switch both operate with magnet provided



METER ERROR



HOW TO ORDER ULTRA EGG

Base Model Number	
FLS ULTRA Egg	
Application	
1 Standard	
Size	
15 3/4" (15mm)	
Material	
P PFA - Teflon	
Process Connection	
1 Final-lock coupling 2 Tube connection	
Application fluid	
L Liquid	
Display	
1 LCD display	
Rate	
9 b1:X 1 gph, b2:X .01 gpm Totalizer unit:X 0.1 gallons	
Output Signal	
1 Scaled pulse output 2 Analog output 3 Analog & scaled pulse	

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