

# Ultrasonic Flowmeter

## 5UF Sonic Series



*Futurestar's 5UF Sonic Series Ultrasonic Flowmeter provides accurate and repeatable liquid measurement of critical process flows. This flowmeter has no moving parts and offers analog output, alarms and LED display of the flow rate. Ideal for chemical, slurry and DI H<sub>2</sub>O metering applications.*

### ***Accurate and Reliable Performance***

- Ultrasonic technology for liquid flow measurement
- DSP Technology for improved performance in applications with bubbles
- No moving parts
- Patented technology provides low cost flow measurement with digital display
- Analog output:
  - 4-20 mA
  - 1-5 Vdc
  - 2-10 Vdc
  - 0-20 mA
  - 0-5 Vdc
  - 0-10 Vdc
- RS485 Communications
- Alarm output, end user configurable
- Zero reset, end user configurable

## Operation

Combines patented ultra-sonic sensing and DSP technologies with analog outputs and serial communications.

Liquid flow is measured with no moving parts; to eliminate or limit potential entrapment and particle generation. Opposing sound wave transit times are compared to determine the velocity of the liquid flow through the sensor. The remote converter offers field accessible, RS485 communications, Zero Reset and sensor address setting options.

The 5UF sensor should be mounted vertically, with the outlet towards the top, allowing any bubbles in the liquid to pass through. Flowmeter performance is significantly improved through the use of DSP technology and allows for the use in applications where bubbles may be present. Be aware that size, uniformity and quantity of bubbles may impact meter performance. Consult Futurestar for more information regarding applications with excessive bubbles.

## Specifications

### MATERIALS

- Wetted parts: Sensor - PFA
- Non-wetted parts: Sensor - PVC, Converter - ABS

### OPERATING

- Accuracy:
  - Flow velocity >1 m/s:  $\pm 1\%$  Reading
  - Flow velocity <1 m/s:  $\pm 5\%$  Reading\*\*Consult factory for improved accuracy for flow velocity below 1 m/s.
- Repeatability:  $\pm 0.5\%$
- Maximum pressure: 72 psi (0.5 Mpa)
- Temperature, Sensor:
  - Fluid: 10-60°C\*\* (50-140°F)
  - Ambient: 0-50°C (32-122°F)
- Temperature, Converter:
  - Ambient: 0-60°C (32-140°F)\*\*Consult Factory for special applications with temperatures between 60° and 90°.
- Viscosity: 0.3 to 40 cST
- Process Connection: 1/4" tube Consult Factory for special applications.

### ELECTRICAL

- Connection Cable: Coaxial Cable
  - Cable termination: SMB Connector
  - Enclosure:
    - Sensor - IP65
    - Converter - IP20
  - Power Supply: 24 VDC  $\pm 10\%$ , Max. current spike approx. 1.7 A/2 ms
- Converter:**
- Power Supply Termination: Screw Thread Terminals
  - Output Signals: 4-20 mA, 1-5 Vdc, 2-10 Vdc, 0-20mA, 0-5 Vdc and 0-10 Vdc
  - Alarms(2): Hi, Low
  - Communications: RS485/MODBUS
  - Installation: DIN rail mount

## Ordering Information

### To order,

1. Select the Model and flow range from the following tables. (Note availability of connection options for each flow range.)
2. Select Flow range with Connection size, Configuration, Output Signal, Converter, and Cable length.
3. **Example: 5UF-010U-A1A**
4. Consult factory for availability of options and additional flow ranges.

Series	
5UF	Ultrasonic Flowmeter

Flow	Flow range (ml/min)	Connection Tube Size
002	0-200	1/4"
005	0-500	1/4"
010	0-1000	1/4"
020	0-2000	1/4"
030	0-3000	1/4"
040	0-4000	3/8"
050	0-5000	3/8"
060	0-6000	3/8"
080	0-8000	3/8"

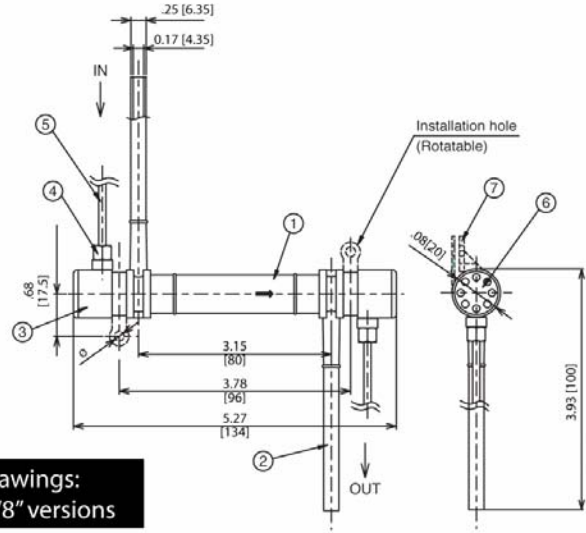
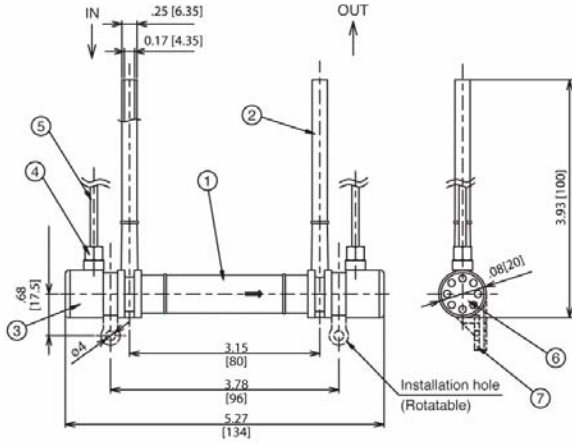
Configuration of Sensor	
U	'U' shape
Z	'Z' Shape

Output Signal	
A	4-20 mA
B	1-5 Vdc
C	2-10 Vdc
D	0-20 mA
E	0-5 Vdc
F	0-10 Vdc

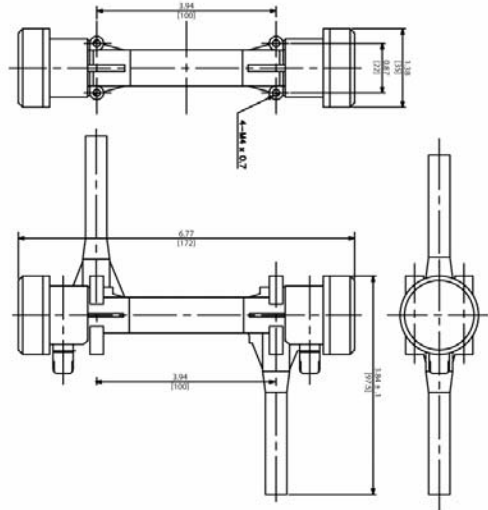
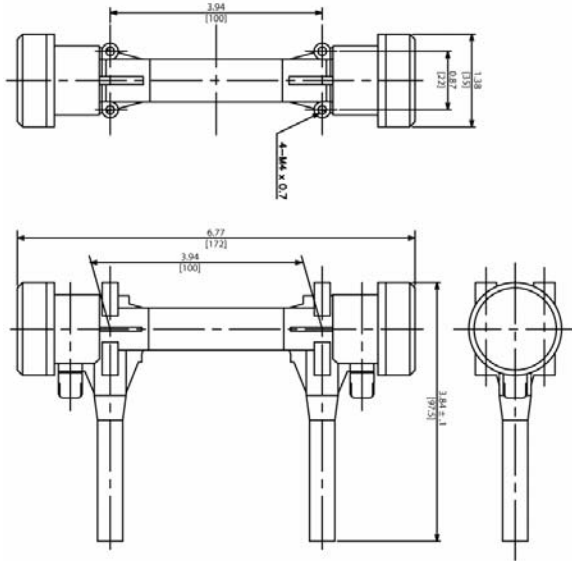
Converter	
1	Din rail mounting

Cable Length (meters) & Termination	
A	5 meters with tinned leads

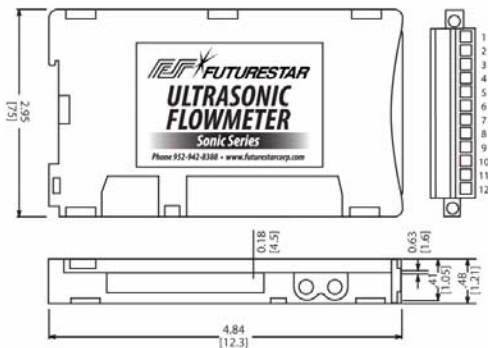
**Installation drawings:  
0-3000, 1/4" versions**



**Installation drawings:  
0-8000 ml/min, 3/8" versions**



**Converter dimensions**



No.	Function	No.	Function
1	24Vdc+	7	Alarm 2
2	24Cdc-	8	Alarm com
3	FG	9	Pulse, fault+
4	FLOW OUT+	10	Pulse, fault-
5	FLOW OUT-	11	RS485+
6	Alarm 1	12	RS485-

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952 942 8388 • 952 942 8661 fax • www.futurestarcorp.com • U.S. Patents: 5565631, 5549277, 5381826, 5078004 • Others pending

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