USFM 600F – LC
ULTRASONIC FLOW METER

ACORN CONTROLS PVT. LTD.
Flow Meters, Gas Monitors, Custom Products

- Very competitively priced
- High accuracy, better than ±1%
- Insertion Transducers can be fitted on line by Hot-Tapping
- Insertion transducer option: for better accuracy.
- Wide measurement range (0.2~32m/s)
- Pipe size range: up to DN1000
- Highly efficient ultrasonic transmission and high sensitive ultrasonic receiving.
- Positive, negative totalizers.
- 4 to 20mA output
- RS485 interface for networking, Support MODBUS and Extended Water Meter protocols.
- Rugged enclosure : IP 65
- Low power consumption, less than 1.2W

Insertion Sensor

Mounting arrangement of Insertion Sensor

PREFACE

- This versatile ultrasonic flow meter is the latest innovation employing cutting-edge technology in ultrasonic transit-time measurement, digital signal processing and surface mounting electronics. It provides abundant capabilities for accurate liquid flow measurement from outside of a pipe. The signal, strength, quality tracking and self-adapting techniques allow the system to optimally adapt to different pipe materials automatically.
- The ultrasonic flow meter is equipped with an LCD display /key board module. The users can either use the RS-485 interface or the display /keyboard interface to program the flow meter for easy connectivity to PLC's and SCADA.
- The **Insertion sensors**, can be fitted on line by Hot-Tapping.
- **Its unique features,** moderate cost, very high performance and compact size, makes it an ideal choice for industrial automation, processing control, water source management, flow meter networking, Hygienic liquid Flow metering and OEM applications.

APPLICATIONS

- Water including raw water, city water, sea water, Ultra-Pure water etc.

SPECIFICATIONS:

Flow Medium	Types Virtually all commonly used liquids (full pipe)
Liquid Temp	Ambient temp.
Liquid Suspensions	<20.000ppm, or <2%, particle size smaller than 100um & air bubbles
Pipe Size	Up to DN1000mm
Pipe Material	-----
Accuracy	±1% for velocity above 0.5 m/s , Typically better than ±2%
Repeatability	Better than 0.2%
Response Time	Programmable from 0.5 sec to 99 sec
Velocity	0-12m/s
Display /Keyboard	LCD with backlight. 2 line ×16 character 16 key Interface
Displays:	Instantaneous flow rate, accumulated flow (positive, negative and net totalizers)
Signal Output Current output	4-20mA.Impedance 0-1k ohms, Accuracy 0.1%
OCT output	Can be programmed as pulse signal for accumulated flow (positive, negative and net); ON/OFF signal for relay drive in batch control or alarm drive;
Communication Interface (Optional)	Isolated RS-485 with MODBUS protocol(RTU or ASCII) (Not available, if GSM based data logger is used)
Power	12V dc to 30Vdc or 230Vac +/- 10% ;< 2VA with display Can be supplied with Battery backup, Solar or Mains battery charger.
Dimension	230(W) x 200 (H) X 110 mm / Die Cast Aluminum. Weather proof IP65 enclosure
Weight	2.5 kg (Aluminum) (without sensors & Pipe spool, Cable)

Notes:

1) Straight Pipe Section requirement :> 5D, where D is pipe diameter.
 If a pump is near, the straight pipe section following the pump should be >10D
2) Sensor to Display Cable: Shielded transducer cable. Standard length 5m (15'), Can be extended to 35m (115'). Contact the manufacturer for longer cable requirement.

Measurement Principle:

The flow meter is based on **transit-time measurement principle**, as shown in the figure. A typical transit-time flow measurement system utilizes.
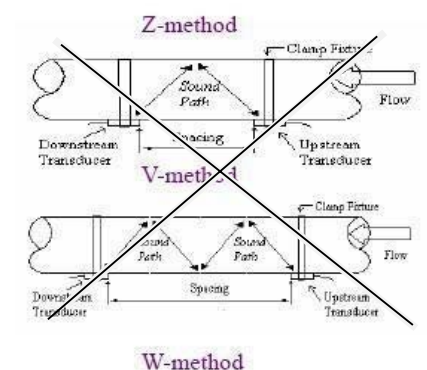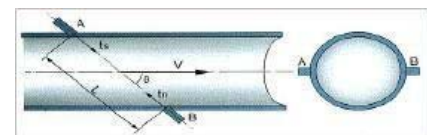Two transducers (A and B) that function as both ultrasonic transmitter & receiver.

Pre Calibrated In-line flow meter:

Flow meter with pre-installed insertion transducers as shown in picture above (with MS flanges of desired standard) can be supplied.
Customer will have to cut his pipe install matching flanges and insert the Flow meter Spool in line.
MuSonic Indicator shall be wall mounted.

Cable from Transducers to Wall mounted indicator shall be supplied as per desired length from 3 to 35 meter
In house calibration certificate shall be provided. Third party calibration certificate can be arranged at extra cost
Please ask for charges as per Pipe size.

Specifications subject to change due to continuous development please confirm before ordering.