

# FLO-SONIC™ FPFM

## Full Pipe Ultrasonic Transit-Time Flow Meter



### FLO-SONIC™

The FLO-SONIC™ FPFM uses the very latest electronic technology combined with highly efficient digital signal processing (D.S.P.), technique which maximizes the system performance giving the user significant benefits.

FLO-SONIC™ FPFM gives outstanding measurement capability including the ability to adapt its operation to suit the most challenging site conditions.

The system consists of a hand held control unit and two probes with support and cables.

## Technical Specifications

### Features

- Non-invasive external probes clamped on the pipe
- Easy and quick installation
- User friendly operation, set up by keypad or PC software using built-in RS232 serial port
- Automatic control of ultrasonic signal using the ESC mode (Echo Shape Control)
- Automatic zero flow adjustment with "anti-air bubble" signal processing
- Robust, splashproof IP65 control unit enclosure
- Very light weight: less than 3 kg
- Power Supply: 10-36VDC / 100-250 VAC
- Very high accuracy and sensitivity: 0,001 m/s up to 99 m/s
- Probes available from -100°C to +200°C (pipe temperature)

### Specifications

- 2 lines LCD display – 16 characters – programmable backlight.
- Ergonomic keypad and menu configuration – access code if needed.
- Analog output (x2), relays (x2) and (or 485).
- High resolution time measurement < 0,1 ns.
- Dynamic Gain up to 89 dB.
- Echo analyzer with automatic control (ESC mode)
- Multiparameter: Flow, speed, gain, signal quality ratio,...

### Electrical specifications

- 12 VDC or 24 VDC or 115-230 VAC supply
- Isolated output current 4-20 mA - 250 Ohm
- Static relay 100 V – 100 mA (x2)

### Optional accessories include

- Extra cable length for probes (l = 5 m)
- GPRS Data Logger with Internet compatibility

### ESC mode and automatic zero flow

To achieve accurate flow readings, proper probes selection and installation are required. The E.S.C mode acts as an 'Auto focus' for the ultrasonic signals in order to optimize the acoustic signal. Zero offset adjustment at no flow conditions is not necessary, nevertheless auto zero function can still be used.

### Accuracy

- DN ≤ 100 mm : ±2 % of working and ±zero stability ±0,005 m/s
- DN > 100 mm : ±1 % of working and ±zero stability ±0,003 m/s
- Built in correction for multiproduct.
- Bi-directional measurement
- Volume metering. Choice of units from 0,001 to 100 m<sup>3</sup>
- Choice of probes installation: / . V. N and W mode



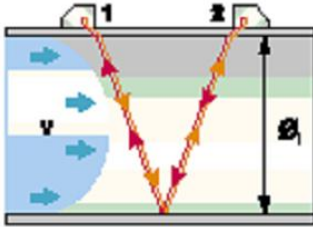
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The FLO-SONIC™ calculates the (V) speed and the (Q) flow of the fluid by the measurement of the (t) difference of the transit times of ultrasonic waves (t21+t12):



$$Q = f (\pi \cdot t_1 \cdot t_2 \cdot V)$$

$$\Delta t = t_2 - t_1 = K \cdot V$$

with K : proportion coefficient

The fluid and pipe material should allow for the propagation of ultrasounds.

## Technical Specifications

### Probes and supports

Flow-Tronic offers a large range of conventional technology and microstructure technology probes with supports designed for easy and secure installation.

Wetted insertion probes (through 2" nipple) are available for pipe materials like as best cement or concrete where clamp-on sensors do not work.

### Enclosure

Material: ABS Plastic, NEMA 4  
 Dimensions: 259 x 236 x 96 (W x H x D)  
 Protection rate: IP65  
 Weight: 2,5 kg

### Typical applications\*

- Flows in all water applications: Network (potable water, raw water, sewage) – pumping – metering.
- Flow of various oil products – refined – crude oil – multiproduct pipelines.
- Petrochemical and food industries Process – Metering, control.
- Climate and hydraulic engineering – Network balancing – Performance

\* With exception for two phase or high viscosity liquids



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Specifications are subject to change without notice  
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