EUROMAG INTERNATIONAL

Ultrasonic flowmeters

NEW

Ultrasonic Flowmeter
Eurosonic 2000

DS210-0-ENG

EUROSONIC 2000 | FIXED INSTALLATION TRANSIT TIME ULTRASONIC FLOW METER

The Eurosonic 2000 flow meter is a fixed installation unit to be used in every industrial application.

The Eurosonic 2000 flow meter is based on clamp-on transit-time flow measurement principle. It measures the flow rate of liquid in a pipe from outside of the pipe by using a pair of ultrasonic transducers. In general, the liquid should be full in the pipe, and should contain very little particles or bubbles. Examples of applicable liquids are: water (hot water, chill water, city water, sea water, etc.); sewage; oil (crude oil, lubricating oil, diesel oil, fuel oil, etc.); chemicals (alcohol, acids, etc.); waste; beverage and liquid food, solvents and other liquids.

Due to the nature of clamp-on technique, the transducer installation is simple and no special skills or tools are required. Besides, there is no pressure drop, no moving parts, no leaks and no contamination. The system is inherently non intrusive so that hazardous liquids may be measured without the need of adding further leakage paths to the piping.

The Eurosonic 2000 flow meter utilizes our proprietary technologies such as advanced signal processing, low-voltage transmitting, small signal receiving with self-adapting. It also incorporates the latest surface-mounting semiconductors and mini PCB design techniques. The Eurosonic 2000 flow meter has also a built-in data-logger, which allows storage of 2,000 lines of data. The stored information can be downloaded to a PC through its RS232 connection port. The Eurosonic 2000 flow meter also provides digital output such as frequency output or pulsed totalizer output, analogue output and alarm digital output.

EUROMAG INTERNATIONAL EUROSONIC 2000 is the state of the art fixed installation Transit Time Ultrasonic Flowmeter. It comes with a complete kit of parts that allow the operator to carry out accurate flow measurements in every possible condition in a very short time.

1. Transit Time flow measurement

The transit time technique uses a pair of transducers each of them sending and receiving a ultrasonic signal through the fluid.

When the fluid is flowing, signal transit time in downstream direction is shorter than in upstream direction; the difference between these transit times is proportional to the fluid velocity. EUROSONIC 2000 measures accurately this value and correlates it to the flow rate through the inner pipe diameter.

2. Transducers

EUROSONIC 2000 uses non wetted clamp on transducers for ease of installation and removal.

Clamp on transducers are magnetically or mechanically installed on the outer surface of the pipe where the flow has to be measured.

3. Applications

The EUROSONIC 2000 is a complete stand alone metering system for measurement of the following liquids.
• Potable water,
• Sewage (with limited particle content);
• Seawater;
• Wastewater;
• Discharge water;

Other liquids used in the following industrial applications:
• Power plants;
• Heat energy metering;
• Metallurgy and mines;
• Petroleum and chemicals;
• Food and Pharmaceutical
• Marine Operations;
• Pulp and paper;

The meter is designed to meet all the needs related to flow metering as well as energy metering.
Flow medium shall be clean or very lightly contaminated by particles or bubbles (less than 10000 ppm and particle size les than 80 µm).

4. Features

• Economic, non intrusive, flow measurement.
• Easy set up and installation;
• Wide range of pipe sizes and materials;
• Suitable for lined pipes;
• Velocity, volumetric and totalized flow;
• Key pad for easy operation;
• Data logger;
• Digital output configurable;
• Analogue output;

Specifications

Measurement

Accuracy	±1 to 3%
Linearity	0.5%
Repeatability	0.2%
Response time	1 to 999 s (User configurable)
Velocity (Bidirectional)	0~30 m/s (0~98 ft/s)
Rangeability	500:1
Measurement Parameters	Instantaneous flow rate
	Totalized flow (4 totalizers)
	Velocity

table 1

Fluid Types

Acoustically conductive fluids, clean and free from gas bubbles.	1. Sea Water
	2. Kerosene
	3. Gasoline
	4. Fuel Oil
	5. Crude Oil
	6. Propane (-45C)
	7. Butane (0C)
	8. Other
	9. Diesel Oil
	10. Castor Oil
	11. Peanut Oil
	12. Gasoline #90
	13. Gasoline #93
	14. Alcohol
	15. Water (125C)

table 2

Pipes

PIPE SIZES	
EST-S1 Transducers:	15mm to 100mm (1/2" to 4")
EST-M1 Transducers:	50mm to 700mm (2" to 28")
EST-L1 Transducers:	300mm to 6000mm (12" to 240")
PIPE WALL THICKNESS	Up to 76mm (3")
PIPE MATERIALS	0. Carbon Steel
	1. Stainless Steel
	2. Cast Iron
	3. Ductile Iron
	4. Copper
	5. PVC
	6. Aluminum
	7. Asbestos
	8. FiberGlass-Epoxy
	9. Other
LINERS	1. Tar Epoxy
	2. Rubber
	3. Mortar
	4. Polypropylene
	5. Polystryol
	6. Polystyrene
	7. Polyester
	8. Polyethylene
	9. Ebonite
	10. Teflon

table 3

Electronics (Close Up)

Electronics

Converter	Transit Time
Enclosure	Converter: IP 65
	Transducers: IP 67
Dimensions	Converter 270x190x93 mm (10.6x7.48x3.66 in)
Weight	3 kg (6.6 lb)
Display	2 lines of 20 characters
	Back lit LCD display
Keypad	16 button keypad
Power supply	110-240 V AC (HV)
	24 V DC (LV)
Power Consumption	2 W
Operating temperature	Transducers: -40 to 110°C (-40 to 230 °F)
	Converter: -10 to 55 °C (14 to 131 °F)
Storage temperature	-40 to 70 °C (-40 to 158 °F)
Input	2 Transducer plugs
	2 Analogue channels 4-20 mA (0.1% accuracy)
	3 Analogue channels additional are optional.
Output	1 Analogue 4-20 mA (0-20 mA) configurable
	1 Isolated frequency output (Max 10 kHz)
	Relay output 0.5A@240VAC or 2A@30VDC
	For ON/OFF control, alarm driver, totaliser output, etc
	RS 232 75 to 115,200 bps
Data Logger	2000 lines of data
European Compliance	EMC Directive 89/336/EEC, 73/23/EEC LVD
	(Installation Category II, Pollution Degree 2)
Transducer mounting	Magnetic or chain or strap
Transducer Cables	5 m (16.4 ft) standard
	Optional length up to 500 m (1640 ft)

table 4

The data shown in this catalogue are subject to modification without prior notice.