EUROMAG INTERNATIONAL

Ultrasonic flowmeters

NEW

Ultrasonic Flowmeter
Eurosonic 2000 PB

DS220-0-ENG

EUROSONIC 2000 PB | PORTABLE TRANSIT TIME ULTRASONIC FLOW METER

The portable flow meter is a battery-powered ultrasonic flow meter with the capability of a full-size flow meter. It is carefully designed for portability and ease of use.
The portable 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 portable 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 built-in rechargeable Ni-H battery can work continuously for more than 10 hours without recharge.
The portable 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 portable flow meter also provides digital output such as frequency output or pulsed totalizer output.
The portable flow meter is equipped with a line printer capable of operating at programmed time interval providing monitoring of flow rates over long period of time in unmanned conditions.
EUROMAG INTERNATIONAL EUROSONIC 2000 PB is the state of the art portable Transit Time Ultrasonic Flow meter. It comes with a complete kit of parts that allow the operator to carry out accurate flow measurements in every possible conditions.

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 PB measures accurately this value and correlates it to the flow rate through the inner pipe diameter.

2. Transducers

EUROSONIC 2000 PB 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.

Handset, Transducers and Suitcase

3. Applications

The EUROSONIC 2000 PB is a complete portable metering system for measurement of the following liquids complete of line printer and data logger.

- 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.

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 ease of operation;
- Lightweight and long operating time;
- Local print out of data;
- Integrated data logger;
- Serial communication port for ease of data download and analysis.

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

Portable Unit inside its suitcase (Close Up)

Electronics

Converter	Transit Time
Enclosure	Handset: IP 67
	Transducers: IP 67
Dimensions	Portable Unit 210x200x100 mm (8.27 x7.87x3.94 in)
Weight	3.5 kg (7.7 lb)
Display	2 lines of 22 characters
	Back lit LCD display
Keypad	18 button keypad
Printer	36 characters per line
Power supply	NiH rechargeable batteries
	(10 hours operation at full charge)
	Battery charger 100-240 V AC 200 mA Max.
Power Consumption	6 W
Operating temperature	Transducers: -40 to 110°C (-40 to 230 °F)
	Portable Unit: -10 to 55 °C (14 to 131 °F)
Storage temperature	-40 to 70 °C (-40 to 158 °F)
Input	2 Transducer plugs
Output	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	3 m (9.8 ft)

table 4

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

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