

## Ultrasonic flowmeters



# Ultrasonic Flowmeter Eurosonic 2000 HH

DS200-0-ENG 

# EUROSONIC 2000 HH | HAND HELD TRANSIT TIME ULTRASONIC FLOW METER

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The hand held 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 hand held 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 hand held 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 hand held 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.

EUROMAG INTERNATIONAL EUROSONIC 2000 HH is the state of the art palm 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 conditions.

## 1. Transit Time flow measurement

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The transit time technique uses a pair of transducers each of them sending and receiving an 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 HH measures accurately this value and correlates it to the flow rate through the inner pipe diameter.

## 2. Transducers

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EUROSONIC 2000 HH 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 HH is a complete hand held 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;

### 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.

#### 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. Polystyrol
	6. Polystyrene
	7. Polyester
	8. Polyethylene
	9. Ebonite
	10. Teflon

table 3



Handset inside its suitcase (Close Up)

## Electronics

Converter	Transit Time
Enclosure	Handset: IP 67
	Transducers: IP 67
Dimensions	Handset 100x66x20 mm (3.94x2.6x0.78 in)
Weight	0.5 kg (1.2 lb)
Display	4 lines of 16 characters
	Back lit LCD display
Keypad	18 button keypad
Power supply	3 AAA NiH rechargeable batteries (10 hours operation at full charge)
	Battery charger 110-240 V AC maMax
Power Consumption	4 W
Operating temperature	Transducers: -40 to 110°C (-40 to 230 °F)
	Handset: -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.