

Flow measurement principle

The HM-2000H ultrasonic flow meter is designed to measure the fluid velocity of liquid within a closed conduit. The transducers are a non-contacting, clamp-on type, which will provide benefits of non-fouling operation and easy installation.

The HM-2000H transit time flow meter utilizes two transducers that function as both ultrasonic transmitters and receivers. The transducers are clamped on the outside of a closed pipe at a specific distance from each other. The transducers can be mounted in V-method where the sound transverses the pipe twice, or W-method where the sound transverses the pipe four times, or in Z-method where the transducers are mounted on opposite sides of the pipe and the sound crosses the pipe once. This selection of the mounting method depends on pipe and liquid characteristics. The flow meter operates by alternately transmitting and receiving a frequency modulated burst of sound energy between the two transducers and measuring the transit time that it takes for sound to travel between the two transducers. The difference in the transit time measured is directly and exactly related to the velocity of the liquid in the pipe, show as follows:

Main Features

- * Small and light
- * Non-contacting measuring
- * Large-screen LCD
- * Built-in data-logger
- * High accuracy measuring
- * Small and light
- * Built-in rechargeable battery
- * RS-232 serial interface



Identification

Each set of the HM-2000H has a unique product identification or ESN written into the software that can only be modified with a special tool by the manufacturer. In case of any hardware failure, please provide this number which is located on menu window number M61 when contacting the anufacture.

Specifications

◆ Basic Technical Data

Linearity	: 0.5%
Repeatability	: 0.2%
Accuracy	: $\pm 1\%$ of reading at rates > 0.2 mps
Response Time	: 0-999 seconds, user-configurable
Velocity	: ± 32 m/s
Pipe Size	: 15mm-6000mm
Totalizer	: 7-digit totals for net, positive and negative flow respectively
Liquid Types	: Virtually all liquids
Security	: Setup values Modification Lockout. Access code needs unlocking
Display	: 4x8 Chinese characters or 4x16 English letters Communication Interface RS-232, baud-rate: from 75 to 57600. Protocol made by the manufacturer and compatible with that of the FUJI ultrasonic flow meter. User protocols can be made by user requirements
Transducer Cord Length	: Standard 5m x 2, optional 10m x 2
Power Supply	: 3 AAA built-in Ni-H batteries. When fully recharged it will last over 12 hours of operation. 100V-240VAC for the charger
Data Logger	: Built-in data logger can store over 2000 lines of data
Manual Totalizer	: 7-digit press-key-to-go totalizer for calibration
Housing Material	: ABS
Case Size	: 210x90x30mm
Main unit Weight	: 500g with batteries

◆ Pipe

Material	: Steel, stainless steel, cast iron, cement pipe, copper, PVC, aluminum, FRP etc. Liner is allowed
Size	: 15-6000mm

◆ **Liquid**

Types : Water, sea water, industrial sewage, acid & alkali liquid, alcohol, beer, all kinds of oils which can transmit ultrasonic single uniform liquid

Temperature: Standard : -30°C - 90°C · High-temperature : -30°C - 160°C

Turbidity : Less than 10000ppm, with a little bubble

Optional Transducer

Standard Transducer



TS-1(Small Size) Measuring Range : DN15-100mm (1/2"-4")

Liquid Temperature : -30°C ~ 90°C

TM-1(Medium Size) Measuring Range : DN50-1000mm (2"-40")

Liquid Temperature : -30°C ~ 90°C

TL-1(Large Size) Measuring Range : DN300-6000mm (12"-240")

Liquid Temperature : -30°C ~ 90°C

High-temperature Transducer



THS-1(Small Size) Measuring Range : DN15-100mm (1/2"-4")

Liquid Temperature : -30°C ~ 160°C

THM-1(Medium Size) Measuring Range : DN300-1000mm (12"-40")

Liquid Temperature : -30°C ~ 160°C

Standard configuration:



Carrying case



Ultrasonic signal Cable



Power Cord



Stretcher

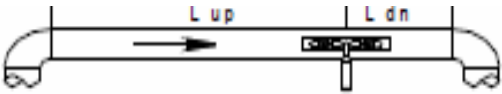
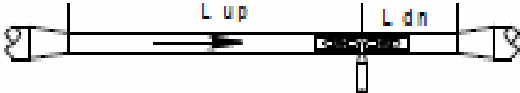
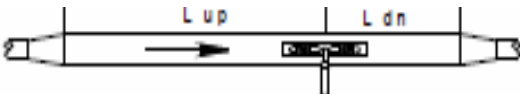
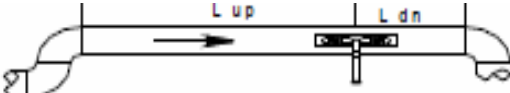
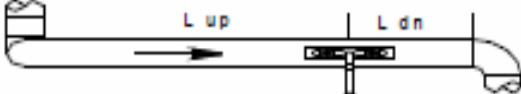




Tape ruler



Data line

Transducers Mounting Allocation

Piping Configuration and Transducer Position	Upstream Dimension	Downstream Dimension
	10 D	5 D
	10 D	5 D
	10 D	5 D
	12 D	5 D
	20 D	5 D
	20 D	5 D
	30 D	5 D

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