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PORTABLE ULTRASONIC FLOWMETER (CE-100H)

Advanced Clamp-on Transit-time Technology for Accurate Flow Measurement

Features and Benefits:

- Wide flow measurement range, from 0.01m/s to 32m/s
- Bi-directional measurement
- Totaliser for net, positive and negative flow.
- High accuracy, better than $\pm 1\%$ of velocity.
- Wide pipe size range, from DN15 to DN6000mm.
- Suitable for all commonly used pipe materials.
- Rechargeable battery with 10 hours of operation.
- Built-in data logger. .
- Self-explanatory user interface.
- Windows PC software for data download and real-time data display.
- Signal quality tracking and self-adjusting capabilities that automatically match transducer to pipe material.
- Compact light weight enclosure @ 538g for the handset.
- Can also be deployed as a remote RTU for long-term flow monitoring application
- Easy and economical installation.
- Non-invasive. No pipe disturbance. No moving parts. No pressure drop.
- Ideal for both clean and opaque liquid flows.



The CE -100H Handheld Clamp-on designed so that it is very compact and Ultrasonic Flowmeter is one of the easy to use. A user can use one hand most powerful flowmeters available to hold as well as operate the for liquid measurement. flowmeter main unit. The user- Utilisation of our proprietary interface is self explanatory and very Ultrasonic Transit-Time easy to follow. Besides, the unique measurement and signal quality clamp-on fixture design makes the tracking technologies allow accurate installation very simple and no special flow measurement of the liquid flow rate skills or tools required. Due to the from outside of a pipe. non-intrusive nature of the clamp-on Technique, there is no pressure drop, no moving parts, no leaks and no The CE -100 flow meters carefully contamination.

Applications:

The CE -100H flowmeter is ideal for flow surveys and closed-pipe applications where non-invasive measurement of liquids is required. Benefited from our advanced digital signal processing technology, the handheld flow meter works reliably in both clean and opaque liquid flow. Examples of applications include:

- Water, including hot water, chilled water, city water, sea water, etc.
- Sewage and drainage water with small particle quantity.
- Oil, including crude oil, lubricating oil, diesel oil, fuel oil, etc.
- Chemicals, including alcohol, acids, etc.
- Solvents.
- Beverage and food processes.
- HVAC hot and cool water, water/glycol solutions.
- Water and waste treatment.
- Power plants (nuclear power plants, thermal & hydropower plants), heat energy boiler feed water
- Energy consumption supervision and water conservation management
- Metallurgy and mining applications (e.g., acid recovery)
- Marine operation and maintenance
- Pulp and paper
- Pipeline leak detection, inspection, tracking and collection
- Energy measurement and balancing
- Network monitoring

Specifications:

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Linearity:	Better than 1%
Repeatability:	0.2%
Accuracy:	Normally better than ±1% for velocity above 0.2m/s.
Response Time:	0-999 seconds, user-configurable
Velocity:	±0.01 ~ ±32 m/s, bi-directional
Pipe Range:	DN20mm~DN6000mm
Pipe Material:	All metals, most plastics, concrete, lined pipe
Units:	English metric
Totaliser:	7-digit totals for net, positive and negative flow respectively
Liquid Types:	Virtually all liquids (full pipe)
Liquid Temp:	0°C ~ 100°C (If over 80 C,pls choose high temp.sensor)
Security:	Set-up Modification Lockout. Access code needed for unlocking
Display:	4x16 letters
Digital Interface:	RS-232C. User protocol can be made on enquiry.
Transducers:	Model M1 for standard, other 3 models for optional
Transducer Cable:	Standard 2x5m. Contact the factory for longer cable
Power Supply:	3xAAA Ni-H, built-in batteries. When fully recharged, it will last over 10 hours of operation. 100VAC-240VAC
Data Logger:	Built-in data logger can store over 2,000 lines of data
Housing Material:	Aluminum alloy protective case. Suitable for normal and harsh environment
Case Size:	200mmx92mmx32mm
Handset Weight:	538g with batteries

How does the ultrasonic flow meters work?

The flow meter is based on the transit time measurement principle, as shown in the following diagram's.

A typical transit-time flow measurement system utilises two transducers (A and B) that function as ultrasonic transmitter and receiver. The transducers are clamped on the outside of a closed pipe at a specific distance from each other. The flow sensors operate by alternately transmitting and receiving a coded burst of sound energy and measuring the transit time that it takes for sound to travel between them. The difference in the transit time measured is directly proportional to the velocity of the liquid in the pipe.

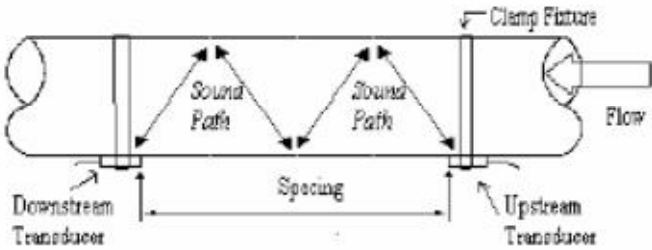
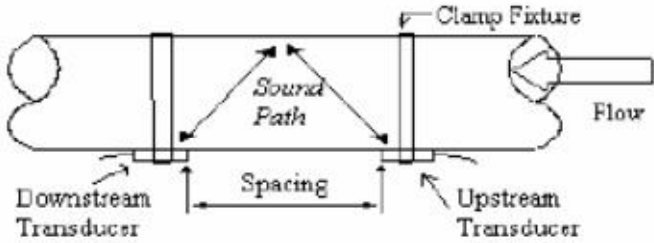
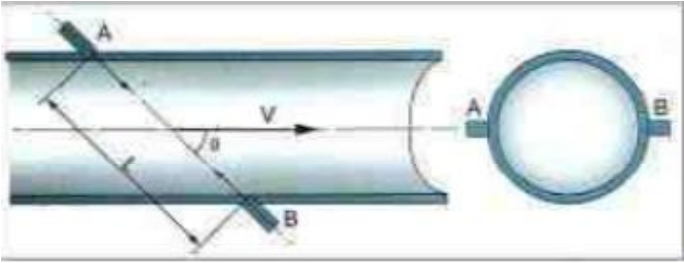
The transducers can be mounted in three modes, Diagonal mode, Reflex mode and double reflex mode, depending on pipe size. Diagonal mode is used for larger pipes and the two Transducers are installed on opposite sides of the pipe. Reflex mode is used for medium size pipes and the two Transducers are mounted on the same side of the pipe, thus, the sound transverses the flow twice. Double reflex mode is usually used for small pipe and the ultrasound transverses across the flow four times.

(If over 80 C,pls choose high temp.sensor)

Optional transducers:

Type S1

Small size transducer (magnetic with clamp-on fixture)
Dimension: 45mm×30mm×30mm
Temp.: 0 °C - 70 °C
Weight: 75g
Protection class: IP65
For pipe size: DN15-DN100mm
Installation: V-method (N, W)



Type M1

Medium size transducer (magnetic with clamp-on fixture)

Dimension: 60mm×45mm×45mm

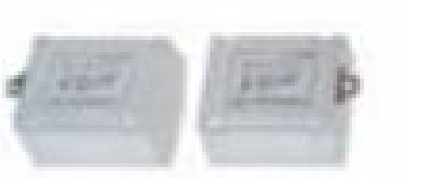
Temp.: 0 °C - 70 °C

Weight: 250g

Protection class: IP65

For pipe size: DN50-DN700mm

Installation: V-method and Z-method



Type L1

Large size transducer (magnetic with clamp-on fixture)

Dimension: 80mm×70mm×55mm

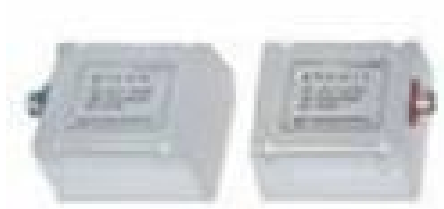
Temp.: 0 °C - 70 °C

Weight: 650g

Protection class: IP65

For pipe size: DN300-DN6000mm

Installation: Z-method



Type S1H

Small size high temp. transducer (with clamp-on fixture)

Dimension: 90mm×85mm×24mm

Temp.: 0 °C - 160 °C

Weight: 94g

Protection class: IP65

For pipe size: DN15-DN100mm

Installation: V-method (N, W)



Type M1H

Medium size high temp. transducer (with clamp-on fixture)

Dimension: 90mm×82mm×29mm

Temp.: 0 °C - 160 °C

Weight: 150g

Protection class: IP65

For pipe size: DN50-DN700mm

Installation: V-method and Z-method



Special and standard transducers for handheld type:

Type S1Z

Small size rack type transducer (magnetic with clamp-on fixture)

Dimension: 200mm×25mm×25mm

Temp.: 0 °C - 70 °C

Weight: 250g

Protection class: IP65

For pipe size: DN15-DN100mm

Installation: V-method (N, W)



Type M1Z

Medium size rack type transducer (magnetic with clamp-on fixture)

Dimension: 280mm×40mm×40mm

Temp.: 0 °C - 70 °C

Weight: 1080g

Protection class: IP65

For pipe size: DN50-DN700mm

Installation: V-method and Z-method

