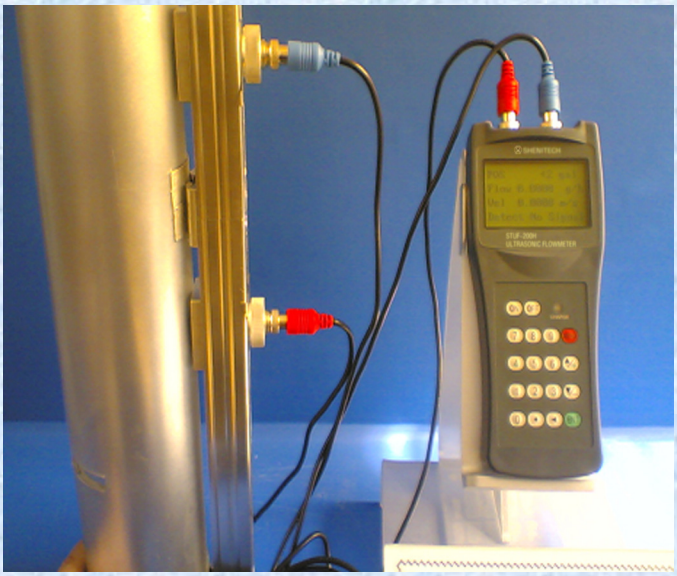
STUF-200H

HANDHELD ULTRASONIC FLOWMETER

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

Features and Benefits:



- High accuracy, ±1% of velocity
- NIST Standard
- Non-intrusive, clamp-on installation, easy and fast. No pipe disturbance, no pressure drop, no moving parts
- Light weight (1.2lbs/538g for the handset). Compact design
- Bi-directional, wide range, -52ft/s ~ 52ft/s (-16m/s ~ 16m/s)
- Wide pipe size range, 3/4" ~ 240" (DN20 ~ DN6,000mm)
- Suitable for all commonly used pipe materials and liquids.
- Rechargeable battery for 10 hours of operation.
- Built-in data logger.
- Totalizer for net, positive and negative flow
- Self-explanatory user interface. Very easy to operate.
- Optional StufManager™ PC software for data download and real-time data display.
- Signal quality tracking and self-adjusting capabilities automatically match transducer to pipe material
- Can also be deployed as a remote RTU for long-term flow monitoring application
- Ideal for flow survey, HVAC, flowmeter verification and all other applications where both accuracy and portability are essential.

The STUF-200H Handheld Ultrasonic Flowmeter is one of the most powerful flowmeters available for liquid measurement. The utilization of our proprietary ultrasonic signal processing, transit-time measurement and signal quality tracking technologies allows the flowmeter to measure liquid flow rate from outside of a pipe reliably and accurately.

The STUF-200H flowmeter is carefully designed so that it is very compact and easy to use. A user can use one hand to hold as well as to operate the flowmeter main unit. The user-interface is self-explanatory and very easy to follow. Besides, the unique clamp-on fixture design makes the installation very simple and no special skills or tools required. Due to the non-intrusive nature of the clamp-on technique, there is no pressure drop, no moving parts, no leaks and no contamination.

Applications:

The STUF-200H 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 flowmeter 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 processors.
- 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
- Water distribution network monitoring

Specifications:

Linearity	Better than 1%
Repeatability	0.5%
Accuracy	±1% of velocity reading or ±10mm/s, whichever is bigger For small pipe (≤1”), the accuracy may vary
Response Time	0-999 seconds, user-configurable
Velocity	-52ft/s ~ +52ft/s (-16m/s ~ +16m/s), bi-directional
Pipe Size	3/4" ~ 240" (DN20mm ~ DN6,000mm)
Pipe Material	All metals, most plastics, lined pipe
Units	English (U.S.) or metric
Totalizer	Three 7-digit totalizers for totalizing net, positive and negative flows
Liquid Types	Virtually all liquids (full pipe)
Liquid Temp	32˚ F ~ 212˚ F (0˚C ~ 100˚C) or 32˚ F ~ 312˚ F (0˚C ~ 155˚C), depending on transducer type
Security	Setup Modification Lockout. Access code needed for unlocking

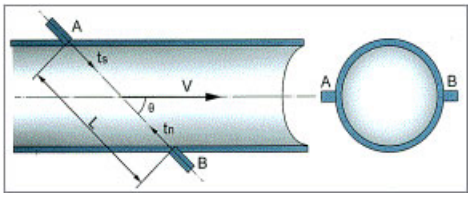
Display	4x16 letters
Digital Interface	OCT digital output, can be configured as frequency or pulse output RS-232C: serial communication port with simplified flowmeter protocol StufManager™ (optional): Windows PC software for data download and real-time data acquisition
Transducers	Model M1 for standard, other 3 models for optional Refer to Optional Transducers section for more details
Transducer Cord	Standard 2x15' (2x5m). Extension cable available upon request
Power Supply	3 AAA Ni-H built-in batteries. When fully recharged, it will last over 10 hours of operation 100V-240VAC for the charger
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	7.9"x3.6"x1.3" (200mmx92mmx32mm)
Handset Weight	1.2 lbs (538g) with batteries

How does the STUF-200H flowmeter work?

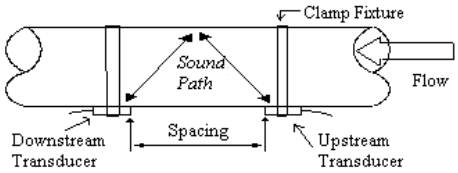
The STUF-200H flowmeter is based on transit-time measurement principle, as shown in the following figure.

A typical transit-time flow measurement system utilizes two transducers (A and B) that function as both ultrasonic transmitter and receiver. The transducers are clamped on the outside of a closed pipe at a specific distance from each other. The flow meter operates by alternately transmitting and receiving a coded 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.

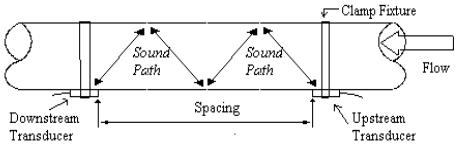
The transducers can be mounted in three methods, Z-method, V-method and W-method, depending on pipe size. Z-method is used for large pipe. The two transducers are installed on opposite sides of the pipe. V-method is used for medium size pipe. The two transducers are on the same side, thus, the sound transverses the flow twice. W-method is usually used for small pipe. The sound transverses across the flow four times.



Z-method

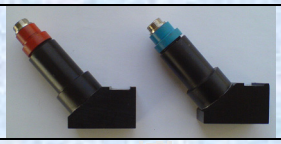
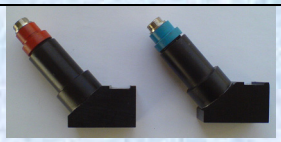


V-method



W-method

Optional Transducers:

	**Type HS** Handheld small size transducer (magnetic with mounting rack and handle) Dim 7.9"x1"x1" (200x25x25mm3), handle length 3.9" (100mm) For pipe size: 3/4" ~ 4" (DN20 ~ DN100mm) Temperature: 32˚ F ~ 212˚ F (0˚C ~ 100˚C)
	**Type S1HT** Small size, high temperature transducer Pipe size: 1" ~ 4" (DN25 ~ DN100mm) Temperature: 32˚ F ~ 312˚ F (0˚C ~ 155˚C)
	**Type HM** Medium size transducer (magnetic with mounting rack) Dim 11"x1.6" x1.6" (280x40x40mm3) for each Pipe size: 2" ~ 28" (DN50 ~ DN700mm) Temperature: 32˚ F ~ 212˚ F (0˚C ~ 100˚C)
	**Type M1** Standard medium size transducer (magnetic with clamp-on fixture) Dim 2.4"x1.8" x1.8" (60x45x45mm3) Pipe size: 2" ~ 28" (DN50 ~ DN700mm) Temperature: 32˚ F ~ 212˚ F (0˚C ~ 100˚C)
	**Type M1HT** Medium size, high temperature transducer Pipe size: 2" ~ 28" (DN50 ~ DN700mm) Temperature: 32˚ F ~ 312˚ F (0˚C ~ 155˚C)
	**Type L1** Large size transducer (magnetic with clamp-on fixture) Dim 3.1"x2.7" x2.2" (80x70x55mm3) Pipe size: 11" ~ 240" (DN300 ~ DN6,000mm) Temperature: 32˚ F ~ 212˚ F (0˚C ~ 100˚C)

Model Selection:

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HS – Handheld type for pipe 3/4" ~ 4"
S1HT – High-temp type for pipe 1" ~ 4"
HM – Mounting-rail type for pipe 2" – 28"
M1 – Standard type for pipe 2" – 28"
M1HT – High-temp type for pipe 2" ~ 28"
L1 – Standard type for pipe 11" – 240"

PC Software
0 – No
1 – Yes

Y-Cable
0 – No
1 – Yes

Example:

STUF-200H-M1-1: handheld ultrasonic flowmeter with standard M1 type transducer plus PC software.

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