

# SGM-200H

## Portable Time Transit Ultrasonic Flow Meter



### Features

- Portable Flow measurement kit
- IP68 Clamp-on transducers
- Simultaneous display of flow rate and cumulative volume data
- Colour Display
- Built in Data logging

The SGM-200H portable time transit ultrasonic flow meter comprises a digital converter and two clamp-on or insertion ultrasonic transducers. The system is designed to measure the fluid velocity of a liquid inside a closed pipe. The transducers are a non-contacting, clamp-on type, which provide the benefits of non-fouling operation and easy installation.

The SGM-200H utilizes two transducers which work as ultrasonic transmitters and receivers. They are clamped on the outside of a closed pipe at a specific distance from each other and can be mounted in V position where the sound crosses the pipe twice. This is the most common measurement method for pipes with inner diameters ranging from 20 to 300mm. They can also be used in the W position where the sound crosses the pipe 4 times for plastic pipes with a diameter from 10 to 100mm. Alternatively they can be used in the Z position with the transducers mounted on opposite sides of the pipe and the sound crosses the pipe once and the pipe diameter is between 300 and 500 millimetres. The selection of the mounting position depends on the characteristics of the pipe and liquids being measured.

The SGM-200H instrument can operate from internal Ni-mH rechargeable battery which will last over 24 hours when fully charged or from an external 100-230vAC power supply. Battery life can be checked on the display by selecting the correct option in the menu through the front keypad while there are Green and Red LED's to indicate the charging state.

The SGM-200H has a built in data logger with data being stored on the SD card as well as being able to view the data on the display. The SGM-200H system is suitable for many flow measurement applications on pipe diameters from 20 to 3000mm and different liquids including: ultrapure water, potable water, cooling water, river water, sewage, chemicals and effluent.

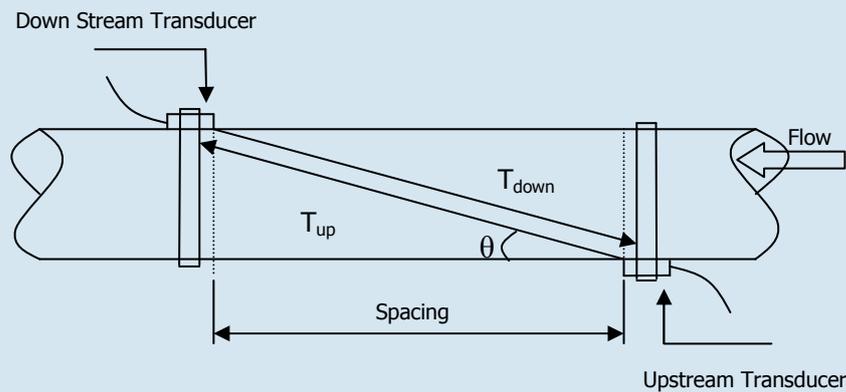
## Specification:

Display:	3.5" 320 x 240 Pixel Colour LCD
Keypad:	8 push Buttons
Displayed data:	Instantaneous flow rate, flow totalizer
Housing:	ABS
Accuracy:	± 1% of reading
Repeatability:	± 0.2 %
Linearity:	± 0.5%
Communication Interface:	USB
Working temperature:	-20 to + 60°C
Battery charger:	100-250vAC
Battery:	Built in Ni-mH battery pack, approximately 24 hours life when fully charged
Case Dimensions:	218 x 103 x 35 mm
Instrument Weight:	0.4Kg
Transducers:	Clamp on, 5 Metres of cable.

The SGM-200H utilizes two transducers which work as ultrasonic transmitters and receivers. They are clamped on the outside of a closed pipe at a specific distance from each other. They can be mounted in V position (the sound crosses the pipe twice), in W position (the sound crosses the pipe 4 times) or in Z position (mounted on opposite sides of the pipe - the sound crosses the pipe once). The selection of the mounting position depends on pipe and on liquid characteristics.

The SGM-200H operates by alternately transmitting and receiving a frequency modulated burst of sound energy between the two transducers, and measuring the transit time that takes the sound to travel between them. The difference in measured transit time is directly and exactly related to the velocity of the liquid inside the pipe (fig.1).

figure 1.



$$V = \frac{M \cdot D}{\sin 2\theta} \times \frac{\Delta T}{T}$$

Where:

$\theta$  = include angle for the flow direction

M = transit time of the ultrasonic signal

D = Internal pipe diameter

$T_{up}$  = Transit time in the forward direction

$T_{down}$  = Transit time in the reverse direction

$\Delta T = T_{up} - T_{down}$

**Order Codes**

Type No	Part No	Description
SGM-200H	3502	Weekly hire of SGM-200HM1FA Portable Time transit flowmeter. DN50-DN700 supplied with M1F transducers mounted on Metric frame.
SGM-200H	3503	Portable Time Transit Ultrasonic flow meter for use with clamp on transducers, Simultaneous display of flow rate and cumulative volume data. Data logger storage on SDHC Card, 512Mb to 32GB. Battery Life 24 Hours. Supplied with type M1F Transducers suitable for pipe sizes DN50 to DN700. SGM-200HMIFA
SGM-200H	3504	Portable Time Transit Ultrasonic flow meter for use with clamp on transducers, Simultaneous display of flow rate and cumulative volume data. Data logger storage on SDHC Card, 512Mb to 32GB. Suitable for pipe sizes DN15 to DN4000. Battery Life 24 Hours.
S1	3505	Clamp on transducers for pipe sizes DN20-DN100. 0-70°C
M1	3506	Clamp on transducers for pipe sizes DN50-DN700. 0-70°C
M1F	3508	Clamp on transducers mounted on Metric frame for pipe sizes DN50-DN700. 0-70°C
S1F	3509	Clamp on transducers mounted on Metric frame for pipe sizes DN20-DN100. 0-70°C



These products comply with current European Directives

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