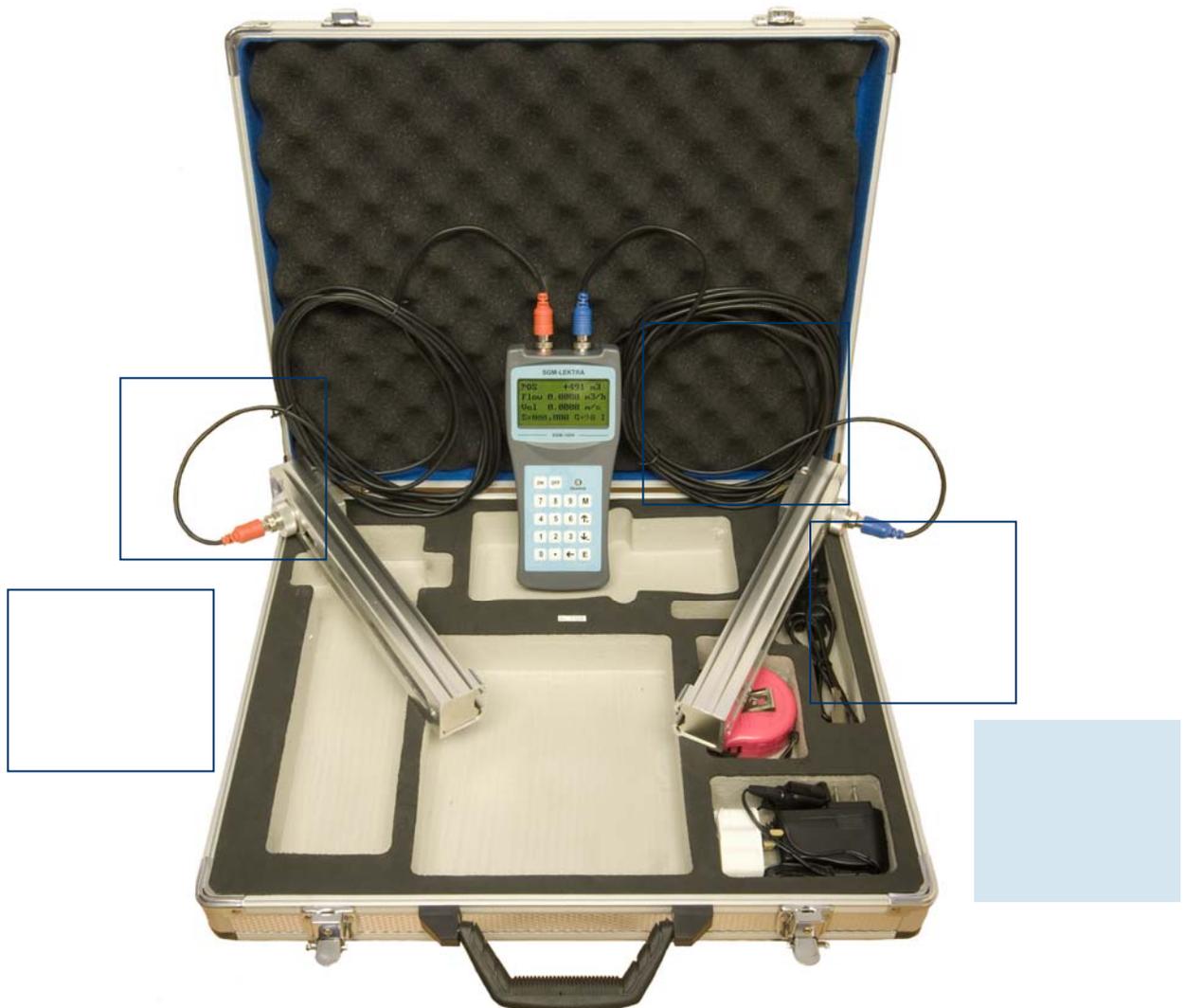


SGM-100H

Portable Time Transit Ultrasonic Flow Meter



Features

- Portable Flow measurement kit
- IP68 Clamp-on transducers
- Simultaneous display of flow rate and cumulative volume data

The SGM-100H 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-100H 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-100H instrument can operate from internal NI-mH rechargeable battery which will last over 10 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 instrument has approximately 100 different menu windows numbered from M00 to M99 simplifying the selection and configuration of parameters and options. The SGM-100H has a built in data logger which can store up to 2000 records or lines of data or the data can be downloaded through the RS232C interface without being stored in the logger buffer.

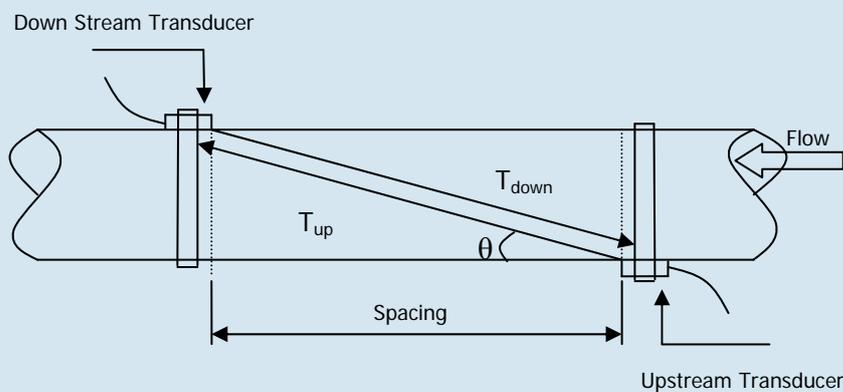
The SGM-100H system is suitable for many flow measurement applications on pipe diameters from 20 to 6000mm and different liquids including: ultrapure water, potable water, cooling water, river water, sewage, chemicals and effluent.

Specification:

| | |
|-----------------------------|---|
| Display: | 4x16 digit alphanumeric, backlit LCD |
| Keypad: | 16 + 2 push Buttons |
| Displayed data: | Instantaneous flow rate, flow totalizer |
| Housing: | ABS |
| Accuracy: | ± 1% of reading > 0.2m/s |
| Repeatability: | 0.2 % |
| Linearity: | 0.5% |
| Communication Interface: | RS 232C Protocol available on request |
| Working temperature: | -30 to 80°C |
| Instrument humidity: | 85% RH (40°C) |
| Sensor process temperature: | Maximum 0-150°C |
| Ambient temperature: | -10 to + 50°C, Humidity -non condensing 98% RH (40°C) |
| Battery charger: | 100-250vAC |
| Battery: | Built in Ni-mH battery pack, approximately 10 hours life when fully charged |
| Case Dimensions: | 460(L) x 400(W) x 110 (H) mm |
| Kit Weight: | 4.5Kg |
| Transducers: | Clamp on, 5 Metres of cable. |

The SGM-100H 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-100H 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:

- θ = 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. | Description |
|----------|--|
| SGM 100H | Portable Time Transit Ultrasonic flow meter with clamp on transducers. Simultaneous display of flow rate & cumulative volume data. Built in Data logger, up to 2000 readings. Suitable for pipe sizes DN20 to DN4000. Battery Life of 10 Hours. Transducers have 5 metre cables. |
| S1 | Clamp on type, for pipe sizes DN20-DN100, 0-70°C |
| M1 | Clamp on type, for pipe sizes DN50-DN700, 0-70°C |
| L1 | Clamp on type, for pipe sizes DN300-DN4000, 0-70°C |
| S1F | Clamp on type mounted on Metric frame, for pipe sizes DN20-DN100, 0-70°C |
| M1F | Clamp on type mounted on Metric frame, for pipe sizes DN50-DN700, 0-70°C |
| S1H | High temperature clamp on type, for pipe sizes DN20-DN100, 0-150°C |
| M1H | High temperature clamp on type, for pipe sizes DN50-DN700, 0-150°C |



These products comply with current European Directives

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