LTH Electronics

www.lth.co.uk

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 milli-meters. 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.

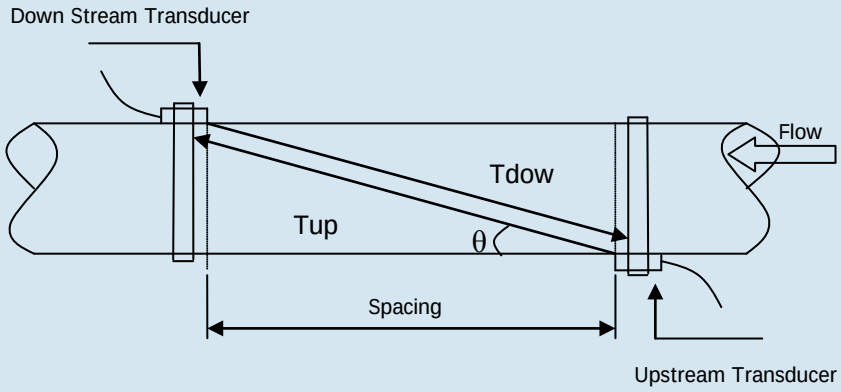
The instrument has approximately 100 different menu windows numbered from M00 to M99 simplifying the selection and configuration of parameters and options. The SGM-100H has a built in data logger which can store up to 2000 records or lines of data or the data can be downloaded through the RS232C interface 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, aproximately10 hours life when fully charged
Case Dimensions:	460(L) x 400(W) x110 (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.



$$V = \frac{M \cdot D}{sin2\theta} \times \frac{\Delta T}{T_{up} \cdot T_{down}}$$

Where:

θ = include angle for the flow direction
M = transit time of the ultrasonic signal
D= Internal pipe diameter
Tp= Transit time in the forward direction
Tdown= Transit time in the reverse direction
ΔT= Tup -Tdown

LTH Electronics Ltd, Chaul End Lane, Luton, Bedfordshire. LU4 8EZ England
Telephone: +44 (0)1582 593693 Fax: +44 (0)1582 598036
email: sales@lth.co.uk web: www.lth.co.uk

LTH Electronics
www.lth.co.uk

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

Issue No. 0109

FM 13843