

S-HAND SMART LINE Series

Ultrasonic portable flowmeter



Applications

- Water distribution
- Heating systems, building energy
- Chemical and petrochemical industry
- Metallurgical industry, power plants

Features and Benefits

- Noninvasive measurements and simple installation, without interrupting the flow (without loss of load)
- Clamp-on transducer
- Accuracy better than 1%
- Wide measuring range, from DN15 to DN6000
- NiMH rechargeable batteries (> 10 hours)
- 32Kb data storage memory
- LC display for instantaneous and total flow rate, flow velocity and for operating conditions



S-HAND

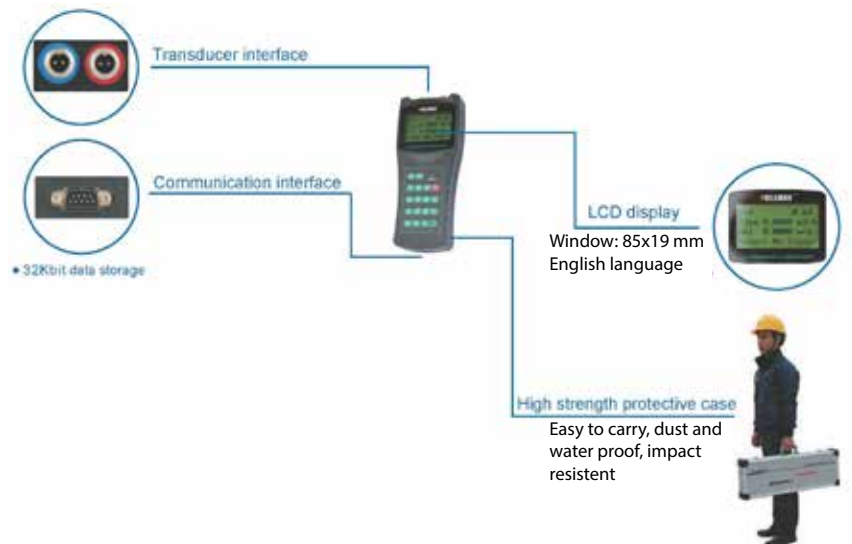
EXTREMELY CONVENIENT FLOW MEASURE FOR PROCESS AND SERVICE APPLICATIONS

This ultrasonic flowmeter was developed to work with clamp-on transducers and to allow an accurate measurement of the flow rate of a liquid media into a closed pipe.

The measurement is performed without having to insert any mechanical part into the pipe wall.

Using ultrasonic transit time techniques, the flow meter is controlled by a microprocessor system which already includes a wide range of useful pipe data, with an outer diameter ranging from 15 to 6000 mm (depending on the model) and it is made in almost any material.

The instrument is also able operate over a wide range of flow rates and fluid temperatures.



TECHNICAL DATA

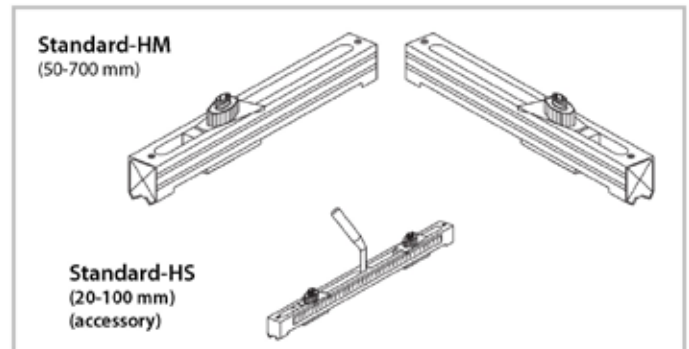
Transmitter	Principle	Ultrasonic transit-time principle, four-byte IEEE754 floating-point
	Accuracy	Flow: better than $\pm 1\%$
	Display	LCD display with English language
	Output	1x OCT pulse output (pulse width 6-1000 ms, default 200 ms)
	Interface	RS232 communication interface, can upgrade flowmeter through PC
Pipeline	Material	Steel, stainless steel, cast iron, copper, PVC, aluminium, FRP etc. (liner allowed)
	Diameter	15~6000 mm
	Installation	Upstream 10D, downstream 5D, 30D away from the pump outlet (D for diameter)
Medium	Fluid	Water, sea water, acids, beer, alcohol and any medium that can spread ultrasonics
	Temperature	-30...160 °C
	Turbidity	10000 ppm and with little bubbles
	Velocity	0... ± 32 m/s
Operating environment	Temperature	Transmitter: -20~60 °C; transducer: -30~160 °C
	Humidity	Transmitter: 85% RH; transmitter protection grade: IP67
Power supply	3 internal 1.2V, 2000mAH rechargeable Ni-MH batteries. Can work 12 hours fully charged. Can achieve continuous measures with 100-240 VAC power adapter	
Consumption	1.5 W	
Case material	Flame retardant ABS	
Weight	Transmitter 514 g	

COMPONENTS

HAND-HELD TERMINAL



TRANSDUCERS



TRANSDUCER DIMENSIONS

Type	Picture	Size	Model	Measuring range	Temperature	Dimension
Standard Clamp on Type		Small	S2	DN15~DN100	-30~90°C	45×25×32mm
		Medium	M2	DN50~DN700	-30~90°C	64×39×44mm
		Large	L2	DN300~DN6000	-30~90°C	97×54×53mm
High Temperature Clamp on Type		Small	S2H	DN15~DN100	-30~160°C	45×25×32mm
		Medium	M2H	DN50~DN700	-30~160°C	64×39×44mm
		Large	L2H	DN300~DN6000	-30~160°C	97×54×53mm
Standard Bracket Type		Small	S2B	DN15~DN100	-30~90°C	318×59×85mm
		Medium	M2B	DN100~DN300	-30~90°C	568×59×85mm
		Large	L2B	DN300~DN700	-30~90°C	188×59×49mm
High Temperature Bracket Type		Small	S2BH	DN15~DN100	-30~160°C	318×59×110mm
		Medium	M2BH	DN100~DN300	-30~160°C	568×59×110mm
		Large	L2BH	DN300~DN700	-30~160°C	188×59×49mm

INSTALLATION

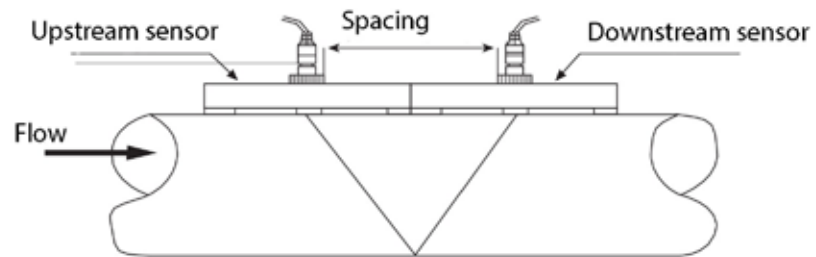
The difference between the forward and return time of the ultrasonic signal is very small and, consequently, the distance and alignment of the sensors are critical factors for the accuracy of the measurements and the performance of the system.

We recommend:

- to find an optimal position on a sufficiently long straight section, free from dirt and rust
- to clean the surface of the pipe, if possible, with a sander
- to apply a suitable amount of coupling paste to the sensor installation points and leave no gap between the pipe surface and the sensors
- to avoid gas bubbles at the top of the tube, install the sensors horizontally on the sides of the tube

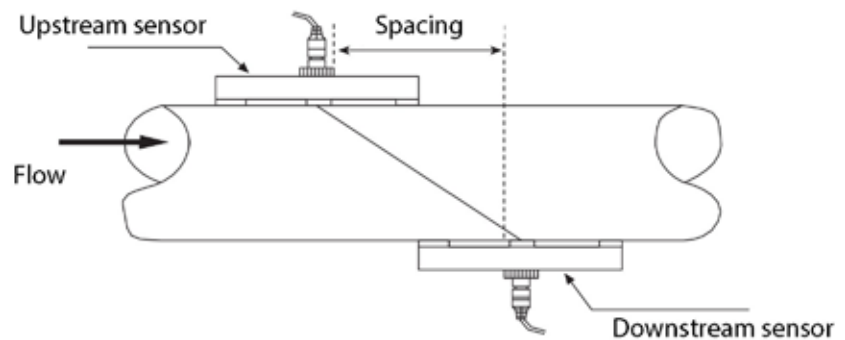
V-method intallation

The most widely used for daily measurements, with pipe inner diameter ranging from 20 to 300 mm



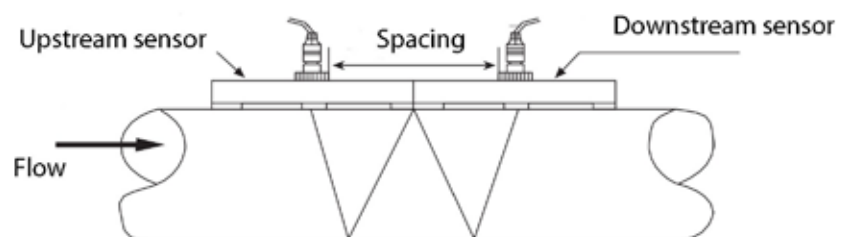
Z-method intallation

Commonly used with pipe inner diameter ranging from 300 to 500 mm



W-method intallation

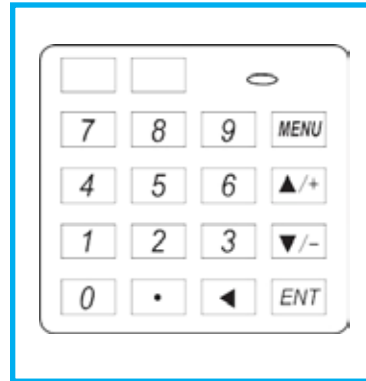
Used on plastic pipes, with inner diameter ranging from 10 to 100 mm



OPERATION

The device works either with the built-in rechargeable battery, which allows over 10 hours of continuous operation when fully charged or can receive external AC power through the charger.

The keyboard for controlling the meter has 16 + 2 keys.



SELECTION GUIDE

The order code consists of the root of the product (S-HAND-) followed by the position based on the selected options.

1	MODEL		
	S-HAND		
2	COUPLE OF SENSORS (ordered with the communicator HANDHENDLE)		
	S2	SMALL, -20 + 90°C, without bracket	DN 15 - DN -100
	M2	MEDIUM, -20 + 90°C, without bracket	DN 50 - DN 700
	L2	LARGE, -20 + 90°C, without bracket	DN 300 - DN 6000
	S2H	SMALL, -20 + 160°C, without bracket	DN 15 - DN -100
	M2H	MEDIUM, -20 + 160°C, without bracket	DN 50 - DN 700
	L2H	LARGE, -20 + 160°C, without bracket	DN 300 - DN 6000
	S2B	SMALL, -20 + 90°C, without bracket	DN 15 - DN -100
	M2B	MEDIUM, -20 + 90°C, with bracket	DN 100 - DN 300
	L2B	LARGE, -20 + 90°C, with bracket	DN 300 - DN 700
	S2BH	SMALL, -20 + 160°C, with bracket	DN 15 - DN -100
	M2BH	MEDIUM, -20 + 160°C, with bracket	DN 100 - DN 300
	L2BH	LARGE, -20 + 160°C, with bracket	DN 300 - DN 700
Optional: Couple of spare sensors, without bracket (all types, separated order without handheld terminal, without bracket)			

We are a company with more than 50 years of experience in the field of industrial measurement and control instrumentation.

Specifically, we look at the internalization of some measuring systems that, due to shipping speed, performance, and low costs, can be offered in multiple industrial branches, from food to petrochemicals, from pharmaceuticals to energy production, from naval to water treatment.

Each process has specific requirements, which depend on the characteristics of the system, the environment, and the fluid to be treated.

SMERI International offers tailor-made instrumentation for liquids and gases, from the most common to the most critical ones.

We have the luck and the merit to benefit from a young and highly dynamic team of experts, who can recommend ad-hoc solutions for each application to optimize customers' processes in terms of economic efficiency and safety.

The motto is *Finding solutions together* and summarizes the spirit of SMERI: **a close collaboration with the customer and according to an ethical behavior of respect, fairness, and confidentiality.**

In the European market, SMERI is represented and distributed by companies well-known in the industrial world for their seriousness and experience.

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