Solenvis SL20 / Portable Ultrasonic flow meter

The SL20 Doppler ultrasonic flow meter is designed to measure volumetric flow of within a closed conduit, the pipe line must be full of liquid, and there must be a certain amount of air bubbles or suspended solids in the liquid.

The Doppler ultrasonic flow meter can display flow rate and flow totalizer, etc., and is configured with 4-20mA, Relays for Totalizer and Alarm outputs.

Features：

- The system can be field configured to pipe sizes ranging from 40 to 4000mm.
- For dirty liquids, a certain amount of air bubbles or suspended solids contain
- Excellent low flow rate measurement ability, low to 0.05 m/s
- A wide range of flow measurement, high flow rate can reach 12m/s
- High-temperature transducer is suitable to liquids of -40℃ ~ 250℃
- Do not need to shut down the pipe flow when installing the transducers.
- User-friendly configuration
- 4-20mA, Relays totalizer and alarm outputs
- Accuracy: 2.0% Calibrated span
- weight about 7 Kgs
- Built-in lithium battery, can work for up to 40 hours

Applications：

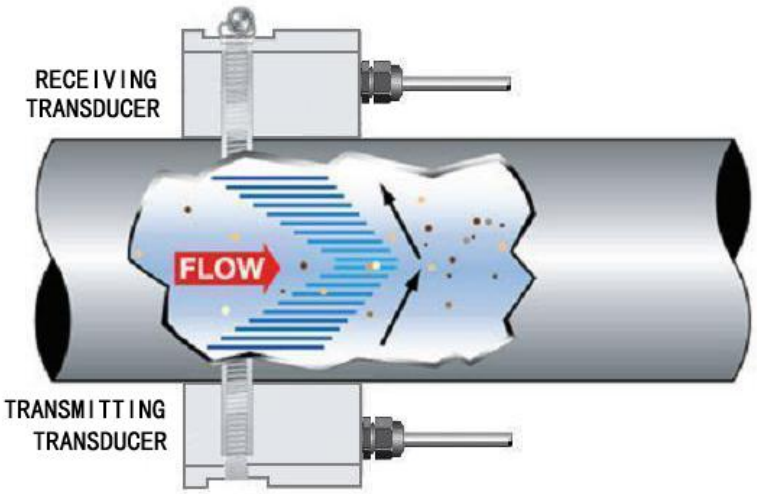
- Raw sewage
- Activated sludge
- Ground water
- Pulp and paper slurries
- Chemical slurries
- Drainage
- Mining recirculation

Principle of Measurement

The Doppler ultrasonic flow meter is designed to measure volumetric flow of liquid within a closed conduit, the pipe line must be full of liquid, and there must be a certain amount of air bubbles or suspended solids in liquid.

Transducers are clamp-on or hot-tapped insertion types, the user does not need to shut down the pipe flow when they install transducers.

The flow meter operates by transmitting an ultrasonic sound from its transmitting transducer, the sound will be reflected by useful sonic reflectors suspended within the liquid and recorded by the receiving transducer. If the sonic reflectors are moving within the sound transmission path, sound waves will be reflected at a frequency shifted (Doppler frequency) from the transmitted frequency. The shift in frequency will be directly related to the speed of the moving particle or bubble. This shift in frequency is interpreted by the instrument and converted to various user defined measuring units.



There must be some particles large enough to cause longitudinal reflection – particles larger than 100 micron.
When install the transducers, the installation location must have enough straight pipe length upstream and downstream. Commonly, the upstream needs 10D and downstream needs 5D straight pipe length, where D is pipe diameter.

Technical Parameters：

 Transmitter	Accuracy	0.5%～2.0%F.S.	
	Flow Velocity Range	0.05m/s～12m/s	
	Liquid Types	Liquids containing 100ppm of reflectors and at least 20% of the reflectors are larger than 100 micron.	
	Transmitter		
 Standard Transducer	Enclosure	NEMA 4X [IP65], ABS 358L×250W×150H(mm) 14.1L×9.8W×5.9H(inch)	
	Power Supply	rechargeable lithium battery, 12VDC, 12Ah Over 40 hours working time on a full-charge Charger: 110/220VAC, 50/60 Hz ±5%, 5VA Max	
 High Temp Transducer	Display	2 line × 8 characters LCD 8-digit rate or 8-digit total (resettable)	
	Response Time	User selectable: 0-99 seconds	
	Outputs	4-20mA, Relays for Totalizer and alarm outputs	
	Temperature	-40 to +70℃	
 S-S Transducer	**Transducer**		
	Measuring Range	0.05m/s ～12m/s	
	Type	Clamp-on	
 Couplant	Liquid Temperature	Standard: -40 to +121℃ Optional: -40 to +250℃	
	Cable Length	Standard Lengths: 6m [20Feet] Optional Lengths: to 300m [990 Feet]	
	Housing Material	Standard Transducer: Aluminum High Temp Transducer: Engineering plastic Stainless Steel Transducer: Stainless Steel	
 S-S Strap	Protection Class	Standard	IP65
		Optional	IP68, can work under water

Model Selection Table of DMDFP Flow Meter

MODEL DMDFP -X -X -DP-X -X -X -X -X

Charging

A—110VAC

B—220VAC

Output Selection

N-None

1-4-20mA

2-Relay for Totalizer

3-Relay for Alarm

(Can select the three outputs at the same time)

Transducer Type

1-Standard Clamp-on (40～4000mm)

Transducer Material

N- Standard material

S- Stainless Steel (Only for Standard Clamp-on and Small Size Clamp-on transducer)

Liquid Temperature

N- -40～121℃

H- -40～250℃ (-40～150℃ for S-S transducer)

Mounting Type

N- Common (Only for Temperature Type: H)

M- Magnetic (Only for Temperature Type: N)

Transducer Cable

8m - 8 meters straight cable (STD.)

Xm - Common cable, Max 300m

XmH - High temp. cable Max 300m

Selection example:

DMDFP-A-123-DP-1-N-N-M-8m

Description: DMDFP Doppler ultrasonic flow meter; 110VAC power supply; 4-20mA, Relays for Totalizer and Alarm outputs; Standard Clamp-on Transducer; Material: Aluminum; Liquid Temperature: -40 to 121℃; Magnetic mounting type; Transducer cable length is 8m.