

Application

The system monitor for nearly all liquids from petrol chemical, metallurgy, electric power plant, irrigation, city water company, energy monitor fields, realize the functions of measuring and checking of flow velocity, flow rate, accumulation and heat quantity of different liquids, and flow rate on/off, liquids distinguish.



Principle of Measurement

When the ultrasonic beam is transmitted through the fluid flow, there will be a difference between the upstream and downstream of transit time (travel time or time of flight), which is proportional to flow velocity, As fluid flow, counterflow transit time is more than direct flow transit time. The formula as below.

$$V = \frac{MD}{\sin 2\theta} \times \frac{\Delta T}{T_{up} \cdot T_{down}}$$

Remarks:

θ The angle between the ultrasonic beam and the flow

M Transit times of the ultrasonic beam

D The internal diameter of the pipe

T_{up} Transit time in the forward direction

T_{down} Transit time in the reverse direction

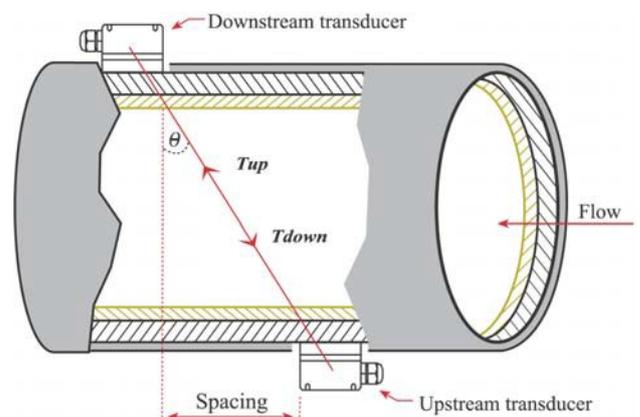
$\Delta T = T_{up} - T_{down}$

$$F = 900 \times \pi \times D^2 \times V$$

F is instant flow rate(unit:m³/hour)

D is inside pipe diameter(unit:m)

V is flow velocity(unit:m/s)



Wall Mounted Fixed Style Ultrasonic Flowmeter F8.06



Technology Features:

1. Operating power :AC 85—264V or isolation DC 8-36VDC
2. Repeatability: better than 0.2%. accuracy: better than 1%
3. Velocity : $\pm 0.01 \sim \pm 32$ m/s, bi-directional
4. Signal output: one channel standard isolation RS485 output. One channel isolation 4-20mA or 0-20mA active output. One channel OCT output(programmed between the pulse width(6-1000ms), default setting (200ms)). One channel isolation relay output, with positive and negative, net accumulation pulses and different alarm signals.
5. Signal input: Two channel three wire system PT100 platinum resistor input loop, to make heat meter has the function of displaying heat quantity. Three channel 4-20mA input optional, accuracy 0.1%, has the ability to input the signals of pressure, liquid level, temperature and so on.
6. Display:2*20 backlit LCD(Chinese and English optional)
7. Operating:4*4 tactile keypad
8. Other functions: automatic memory the positive, negative, net totalizer, flow rate and heat quantity of the last 512 days,128 months,10 years. Automatic memory the time of power on/off and flow rate of the last 30 times, realize to replenish by hand or automatically, read the datas through Modbus communication protocol.
9. Protection level:mainframe:IP65, transducer:IP:68

Optional accessory:

Strap(applied with installation of transducers on cast iron, GRP, PVC, etc. that can not be welded directly).

Model Selection

Type of Instrument	F8.06	
Sensor type	1	S1 DN 15 ~ DN 100
	2	M1 DN 50 ~ DN 700
	3	L1 DN 300 ~ DN 6000
	N	Nor. <60°C
	H	High temperature 0~160°C
Output Signal and Communication	S	4~20 mA
	R	RS 485
	P	Pulse
	O	Oct
	F	Frequency
Input signal	P	PT 100*2
	A	4~20 mA*3
	S	Standard pulse
Cable(m)	xx	Total STD length 10 m(5 m on each side), Others, Specity
Power Supply	A	AC 85~ 264 V
	B	DC 24V/8~36V
BTU	N	None
	R	Yes
Mounting Type	W	Wall mount
	P	Panel mount
	S	Module with plastic or metal enclosure
Special Remark	X	Specify

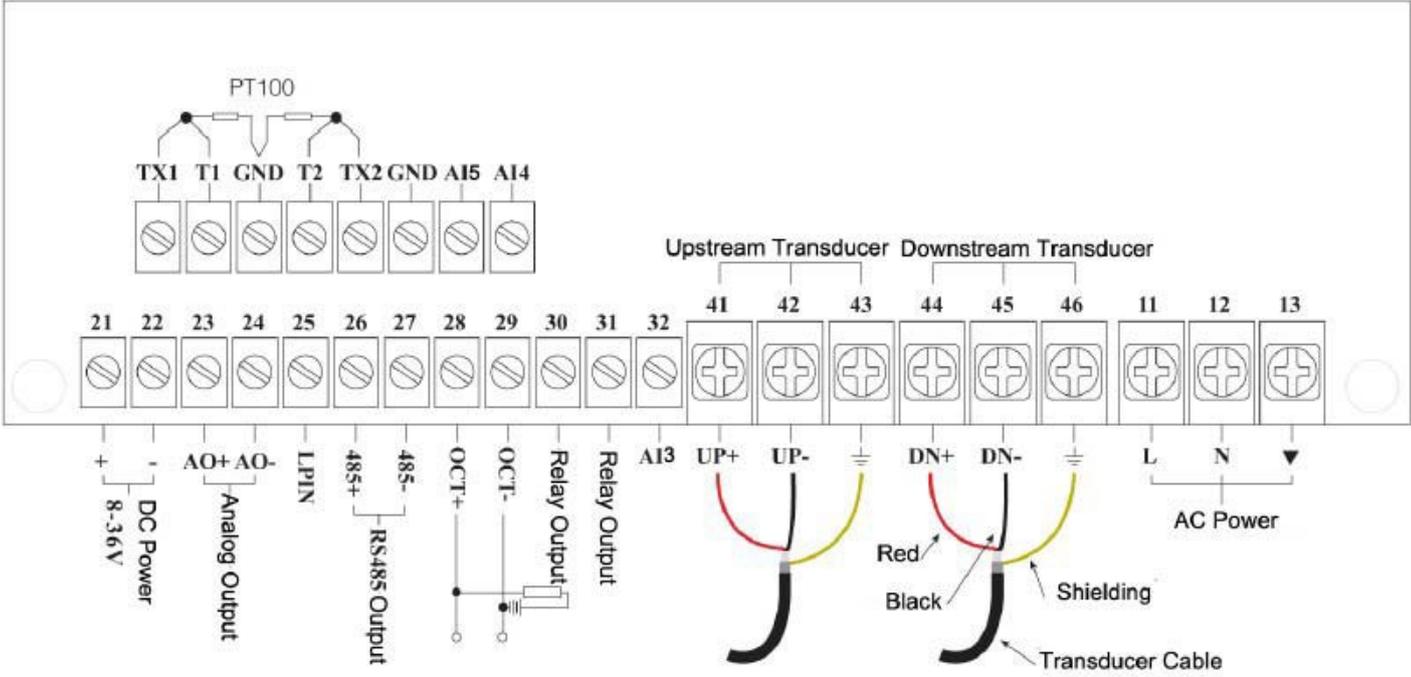
Transducer Parameters



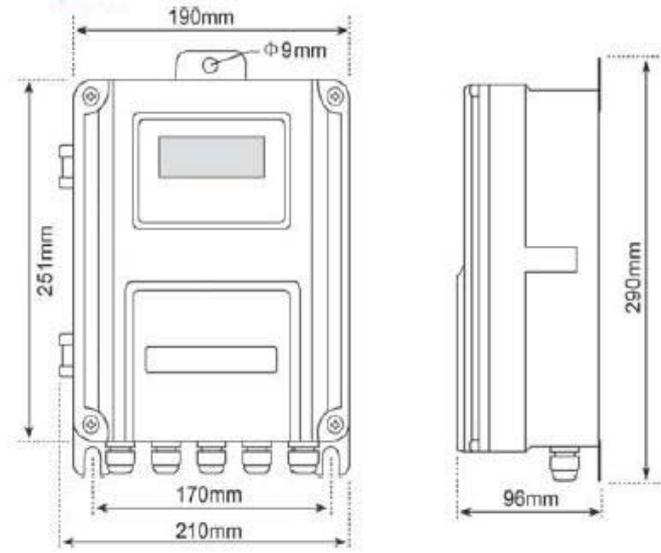
Technical parameters	S1-type	M1-type	L1-type
Pipe size (mm)	DN15~100	DN50~700	DN300~6000
Pipe size (inch)	(1/2~4")	(2~28")	(12~240")
Material	Plastic alloy		
Frequency	1 MHZ		
Installation method	V(N/W)	V(N/W)	Z
Calibration	Calibrate with main unit		
Magnetism	Magnetic(Others upon on request)		
Temperature	0°C~60°C / 32F~320F(0°C~160°C)		
Protection class	IP 68		
Dimension (mm)	45×30×30	71×37×40	91×52×44
Weight (g)	75	259	535
Liquid types	water、 sea water、 waste water, chemical liquids, oil, crude oil, alcohol, beer, etc.		
Suspension concentration	< 10,000ppm and particle size less than 80um. May contain very small amount of air		
Pipe material	carbon steel、 stainless steel、 cast iron、 copper、 PVC、 aluminum、 fiberglass-epoxy, ect. Allow pipe liner		
Cable	Shielded transducer cable. Standard length 5m×2. Can be extended to 10m×2 or 15m×2. Others upon on request		

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Wiring Diagram



Wall mount



Panel mount

