

F3CL/F3RO Clip-On Ultrasonic Flowmeter



RS485



OCT Pulse & Relay



4~20mA



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Product Overview



Gentos quick measure ultrasonic flow meter F3CL\F3RO adopts the ultrasonic transit time measurement principle, combined with Gentos patented flow algorithm technology, it realizes accurate measurement of the fluid flow in the pipe. The product is all-in-one and clip-on structure design, which is simple and convenient to install. Only four steps are needed all along. The installation process requires no contact with fluid media and no need to shut down.

The standard configuration of the product is the RS485 communication interface commonly used in industrial occasions. With MODBUS protocol, it can realize remote monitoring and data transmission of instruments.

Product Features and Functions

Features

- Easy to install, no damaging pipe
- No adjustment, plug and play
- LCD color display
- Screen display in 4 direction rotation

Functions

- Flow Controlling and Monitoring Totalizer
- Water distribution
- Leak monitoring

Application and Industry

HVAC, washing machine, tap water, modern agricultural irrigation, garden irrigation, water in production process, industrial circulating water, reclaimed water, pure water/ultra pure water, bathing industry, swimming pool, laundry industry, aquaculture, fish farm.....



Principle of ultrasonic flowmeter

The ultrasonic flowmeter adopts the Transit Time measurement principle. It uses an ultrasonic signal from the transducer to travel in a flowing fluid, the velocity of sound wave increases parallel to the flow direction and decreases opposite to the flow direction. The transmission times are different at the same propagation distance, the flow rate of the fluid is measured according to the relationship between the difference of the transit time and the flow rate of the measured fluid.

The flow velocity of the fluid is different at different locations within the pipe, the flow rate in the center of the tube is faster than that near the wall of the pipe. The flow velocity distribution of a fluid in a pipe can be expressed in terms of flow velocity section distribution diagrams.

By setting the flowmeter and considering the influence of cross-sectional distribution of flow velocity, the average flow velocity can be calculated and the volume flow of the fluid is derived from the cross-sectional area of the pipe.

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

Note

V: Fluid Velocity

M: Times of ultrasonic reflections

D: Pipe diameter

θ : The angle between the ultrasonic signal and the fluid

T_{up} : Time of the upstream transducer transmitting a signal upstream

T_{down} : Time of the downstream transducer transmitting a signal downstream

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



F3 Series Comparison Table

Model Type	Output Configurations	
F3CL	RS485	4~20mA
F3RO	RS485	OCT Pulse+Relay

Note: According to customer's requirements, there are three kinds of Outputs: RS485+OCT Pulse, RS485+Relay and OCT Pulse+Relay.

Installation Method

All in one design, easy to install

No need to damage pipe or shut down, Simple setting

Plug and play



Product Model

Format of Selection Model: F3CL/F3RO; Format: A-B-C

Model	Description of Transmitter
F3CL	Model Name:F3CL/F3RO Clip-on Ultrasonic Flowmeter
	Pipe Material:Carbon steel, Stainless steel,Copper,PVC
F3RO	Velocity range:0.03~5m/s
	Accuracy:±2%,(0.3~5m/s)
	Temp. of Transmitter Installation Environment:-10°C~50°C
	Repeatability:0.2%
	Temp. Of Measured Medium:0°C~60°C
	Keyboard:4 keys
Display: 1.44"LCD color screen; Resolution:128*128	Humidity:0~99%RH,Non-condensing
Installation Method: Clamp-on with screw tightening	Communication:RS485(standard)
Protection Level:IP54	Output:4-20mA(applicable for F3CL) OCT&Relay(applicable for F3RO)

Specifications	Output Selection
A	F3CL, RS485+4~20mA
1	F3RO, RS485+OCT
2	F3RO, RS485+Relay
3	F3RO, OCT+Relay
4	
B	
Pipe OD Range	Pipe Size
	Unit:mm Pipe material (PVC, Carbon Steel, Stainless Steel)
	DN20(21~29),DN25(28~36),DN32(35~43),DN40(46~54),DN50(59~67),DN65(72~80),DN80(83~91)
	Unit:mm Pipe material (Copper)
	DN20(21~29),DN25(21~29),DN32(28~36),DN40(35~43),DN50(46~54),DN65(59~67),DN80(72~80)
C	Pipe Material(optional)
1	Carbon Steel
2	Stainless Steel
3	Copper
4	PVC

Selection Example: Model: F3CL; Specification: 1-DN20-2

Description: {Model: F3CL; Specification: F3CL, RS485+4~20mA, DN20, Stainless Steel}

Product Series

Accuracy Rate 0.2

D118 High Dynamic response
D348D Plus Multipath

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Accuracy Rate 0.5

D118i Insertion
D118i Portable
D118 Insertion/Clamp on
D348D Plus multipath

...

Accuracy Rate 1.0

D116 Insertion/Clamp on

...

For HAVC

F5 wall mounted meter
F8 wall mounted meter
E5 wall mounted energy meter
E8 wall mounted energy meter

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Clip-on Series

E3 Clip-on energy meter
F2 Clip-on flow meter
F3E Clip-on flow meter
F3CL/F3RO Clip-on ultrasonic flowmeter

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