distrame
instruments de mesures électroniques

pFlow

F3 Series Flowmeters Catalog

F3E | F3P | F3W | F3CL/RO

F3 Series Products Introduction

F3 Series ultrasonic flowmeters adopts the measurement principle of ultrasonic time difference method. Combined with the ultrasonic flow algorithm, fluidflow in the pipeline can be accurately measured. It is simple and convenient to install. The installation process requires no contact with fluid and no need to shut down.

F3E Clip on Ultrasonic Flowmeter

F3E adopts POE power supply and Ethernet communication to realize cloud data storage. Users can access cloud data through mobile terminals and PC terminals anytime and anywhere to manage, analyze and query measurement data information.

F3P Panel Mount Ultrasonic Flowmeter

F3P adopts POE power supply and Ethernet communication to realize cloud data storage. Users can access cloud data through mobile terminals and PC terminals anytime and anywhere to manage, analyze and query measurement data information.

F3W Clip on Ultrasonic Flowmeter

F3W adopts Wifi communication to realize cloud data storage. Users can access cloud data through mobile terminals and PC terminals anytime and anywhere to manage, analyze and query measurement data information.

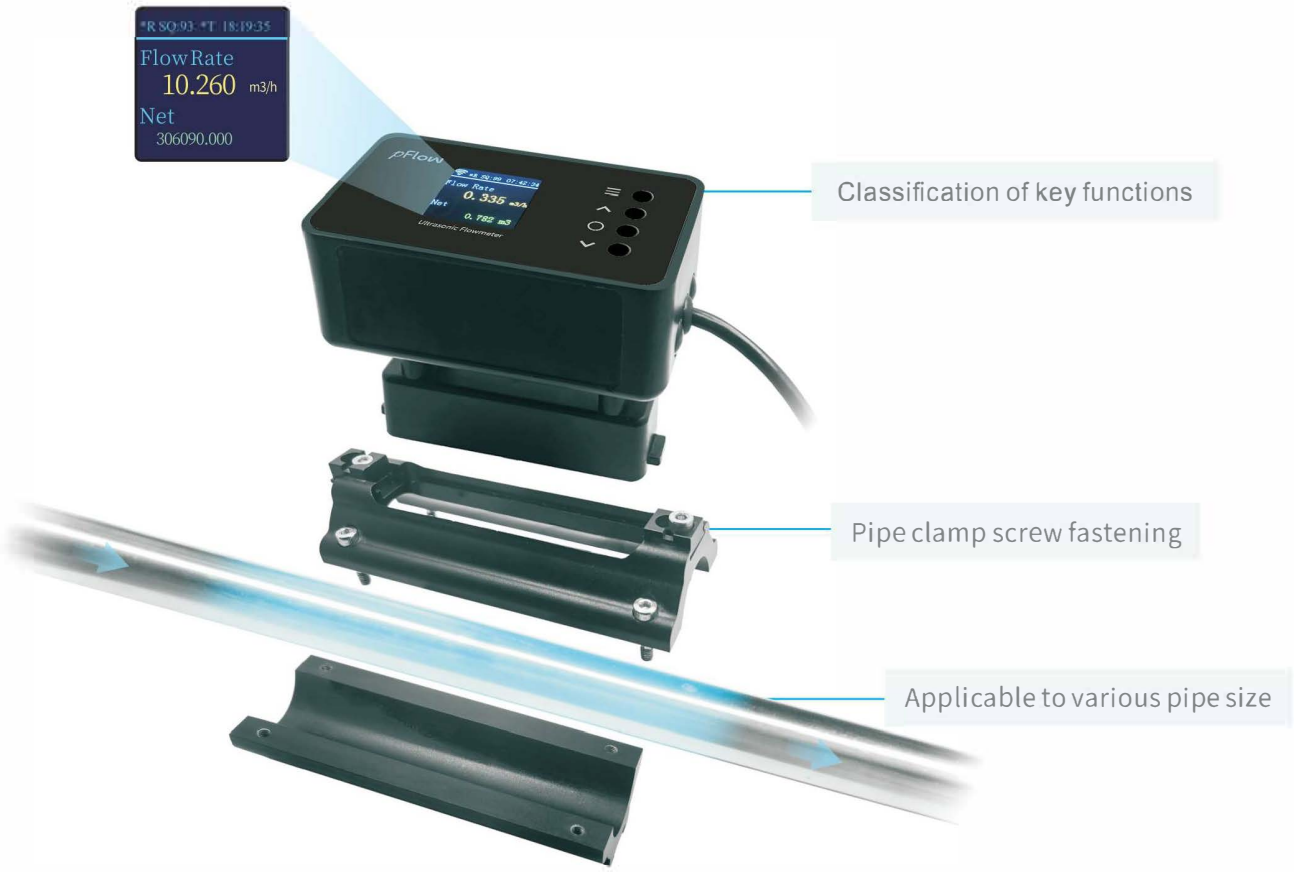
F3CL / F3RO Clip on Ultrasonic Flowmeter

F3CL&F3RO adopts the ultrasonic transit time measurement principle, combined with the flow algorithm technology, it realizes accurate measurement of the fluid flow in the pipe.The standard configuration of the product is the RS485 communication interface commonly used in industrial occasions. With MODBUS protocol and FUJI protocol, it can realize remote monitoring and data transmission of instruments.

Install directly without breaking the pipe

• Stable measurement • Durable Clip-On to measure • No need to break the pipe • No need to stop production

1.44" LCD colorful screen display
Four direction rotation adjustment



All in one F3E、F3W、F3CL/RO

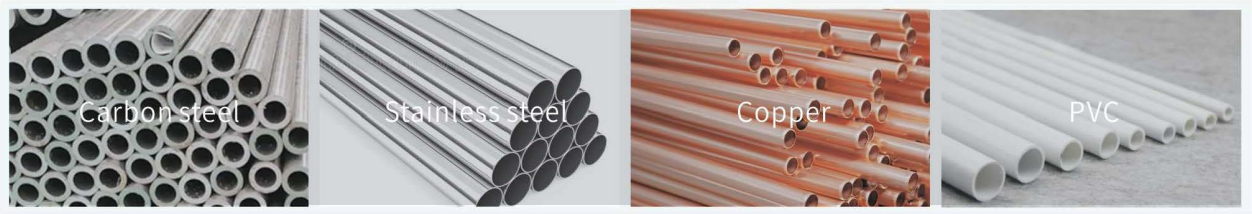
Panel mount & Split F3P

Suitable for various pipe size

Pipe size: DN20, DN25... DN80

DN20 DN25 DN80

Pipe material: Carbon steel, Stainless steel, Copper, PVC



The principle of ultrasonic measurement

The ultrasonic flowmeter adopts the measurement principle of the time difference method. It uses the ultrasonic signal sent by the transducer to propagate in the flowing fluid, and the sound wave propagates in the direction of flow.

The transmission speed will increase, and the reverse flow direction will decrease. There will be different transmission times at the same transmission distance. According to the relationship between the difference of transmission time and the flow velocity of the measured fluid.

The system measures the flow rate of the fluid.

The flow velocity of the fluid is different at different positions in the tube, and the flow velocity in the center of the tube is faster than that close to the tube wall. The flow velocity distribution of the fluid in the pipeline can be calculated by the flowVelocity profile distribution diagram representation. By setting the flowmeter and considering the influence of the cross-sectional distribution of the flow velocity, the average flow velocity can be calculated, and then according to the cut-off of the pipeline.

The area yields the volumetric flow rate of the fluid.

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

Notes:

V: Fluid velocity

M: Ultrasonic reflection times

D: Pipe diameter

θ: The angle between the ultrasonic signal and the fluid

T up: The time from the downstream sensor to transmit the signal to the upstream

T dowm: Time from upstream sensor to transmit signal to downstream

ΔT = T down - T up

F3E

Clip on Ultrasonic Flowmeter

Power and communication over Ethernet cable

Power over Ethernet

Clip on to measure

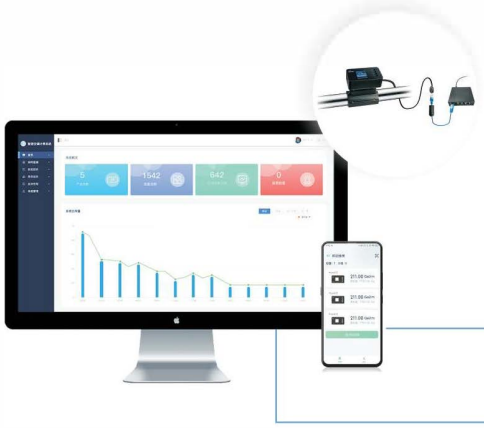
Installation without break the pipe

Application and Industry

Air conditioners, cleaning machines, tap water, modern agricultural irrigation, garden irrigation, production process water, industrial circulating water,Reclaimed water, pure water/ultrapure water, bath industry, swimming pool, laundry industry...



Product Features



- Power over communication over Ethernet cable safe and convenient
- Network cable plug in and measure quickly
- Support online update and upgrade
- Support mobile APP to view real-time data
- Support WEB side to view real-time data

Product Model

Format of choosing Model: F3E; Format: A-B

MODEL	Transmitter Description	
F3E	Model Name: F3E Clip-on Ultrasonic Flowmeter	Pipe material: carbon steel, stainless steel, copper, PVC
	Velocity range: 0.03~5m/s	Transmitter installation temperature: -10℃~50℃
	Accuracy: ±2%(0.3~5.0m/s)	Transducer measurement medium: 0℃~60℃
	Repeatability: 0.2%	Humidity: 0~99% RH, non-condensing
	Keyboard: 4 touch keys	Cable: POE waterproof pigtail, standard length: 0.8m
	Display: 1.44" LCD colorful screen	Power supply: Power over Ethernet
	Installation method: clip on, screw fastening	Communication: Ethernet
	Power consumption: 5W(depending on function)	
SPECIFICATION		
A	Pipe range	
Pipe size	DN20, DN25, DN32, DN40, DN50, DN65, DN80	
B	Pipe material	
1	Carbon Steel	
2	Stainless Steel	
3	Copper	
4	PVC	

Selection example: Model: F3E; Specification: DN20-1

For example: (Model: F3E Clip-on ultrasonic flowmeter: DN20, Carbon Steel)

*POE switch is not included

Installation Method

① Take out the product

② Clip on the pipe

③ Tighten the screws

④ Connect the network cable to the POE switch

F3P

Panel Mount Ultrasonic Flowmeter with clip type transducer

Power and Communication Over Ethernet

Power over Ethernet

Mobile APP

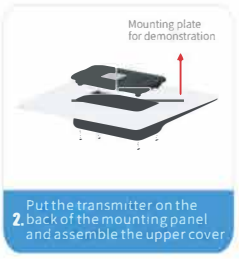
Clip on design with separate transducer

Installation require no pipe rework or damage

Installation Method

1. Installation of Transmitter

1. Unscrew the 4 screws, disassemblethe host chassis and the upper cove



2. Put the transmitter on the back of the mounting panel and assemble the upper cover

3. Tighten the 4 screws to compete the installation

4. Effect after installation

2. Installation of Transducers

1. Install the upper pipe clamp assembly and the lowerr pipe clamp th the pipe and tighten the screws

2. Effect after installation

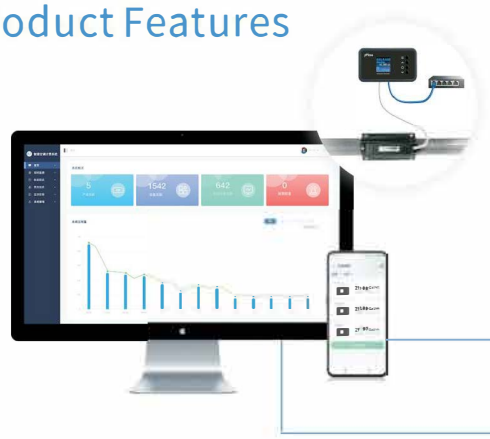
3.Wiring Diagram

1. Image ofthe front

2. Image of theback

Notice: The mounting panel for demonstration refers to the position where the user needs to install the flowmeter, such as the panel of the pawer distribution cabinet, which is not an accessory of this product. The thickness of the mounting panel surface ranges from 1 to 4 mm.

Product Features



- Power over communication overEthernet cable
- Connect a network cable and use directly
- Support online update and upgrade
- Support mobile APP to view real-time data
- Support WEB client to view real-time data

Product Model

Format of choosing Model: F3P; Format: A-B

MODEL	Transmitter Description	
F3P	Model Name: F3P Clip-on Ultrasonic Flowmeter	Pipe material: carbon steel, stainless steel, copper, PVC
	Velocity range:0.03~5m/s	Transmitter installation temperature: -10℃~50℃
	Accuracy: ±2%(0.3~5.0m/s)	Transducer measurement medium: 0℃~60℃
	Repeatability:0.2%	Humidity: 0~99% RH, non-condensing
	Keyboard:4 touch keys	Cable: Transducer cable, standard length: 9m
	Display: 1.44" LCD colorful screen resolution 128*128	Power supply: Power over Ethernet, standard length 2m
	Installation method: clamp-on, screw fastening	Communication: Ethernet
	Power consumption: 5W(depending on function)	
SPECIFICATION		
A	Pipe range	
Pipe size	DN20, DN25, DN32, DN40, DN50, DN65, DN80	
B	Pipe material	
1	Carbon Steel	
2	Stainless Steel	
3	Copper	
4	PVC	

Selection example: Model: F3P; Specification: DN20-1

For example: (Model: F3P Clip-on ultrasonic flowmeter; DN20, Carbon Steel)

*POE switch is not included

Application and Industry

Reclaimed water, pure water/ultra pure water.....

F3W

Clip on Ultrasonic Flowmeter

Wifi communication, cloud data storage, Mobile APP

Wifi communication

Mobile APP

Online update and upgrade

Installation require no pipe rework or damage

Application and Industry

Air conditioner, washing machine, tap water, modern agricultural irrigation, garden irrigation, water for production process, industrial circulating water, reclaimed water, pure water/ultra pure water, bathing industry, swimming pool, laundry industry...

Product Features

- Use wifi communication
- Use the app to configure the network
- Support online update and upgrade
- Support mobile APP to view real-time data
- Support WEB client to view real-time data

Product Model

Format of Choosing Model: F3W; Format: A-Bof C

MODEL	Transmitter Description	
F3W	Model Name: F3W Clip-on Ultrasonic Flowmeter	Pipe Material:carbon steel, stainless steel, copper, PVC
	Velocity range: 0.03~5m/s	Transmitter Installation Temperature: -10°C~50°C
	Accuracy: ±2%, (0.3~5m/s)	Transducer Measurement Medium: 0°C~60°C
	Repeatability: 0.2%	Humidity: 0~99% RH, Non-condensing
	Keyboard: 4 touch keys	Communication: RS485 (standard)
	Display: 1.44"LCD colorful screen; Resolution: 128*128	Protection Rate: IP54
	Installation Method: Clip-on with screw tightening	WIFI: Available

SPECIFICATION	
A	Pipe range
Pipe size	DN20, DN25, DN32, DN40, DN50, DN65, DN80
B	Pipe material
1	Carbon Steel
2	Stainless Steel
3	Copper
4	PVC

Selection Example: Model: F3W; Specification: DN20-1
For example: (Model: F3W Clip-on ultrasonic flowmeter: DN20, Carbon Steel)

Installation method


① Take out the product


② Clip on the pipe


● Tighten the screws


④ Connect to Power Supply and Start measurement

F3CL/RO

Clip On Ultrasonic Flow meter

RS485 Communication interface

RS485 Communication

Flow Control and Monitoring

Total Flow Calculation

Installation require no pipe rework or damage

Application and Industry

Air conditioning, washing machine, 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...

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.

Product Model

Format of choosing Model : F3CL/F3RO Format: A-B-C

MODEL	Transmitter Description	
F3CL F3RO	Model Name: F3CL/F3RO Clip-on ultrasonic flow mete	Pipe Material: Carbon steel, Stainless steel, Copper, PVC
	Velocity range: 0.03~5m/s	Transmitter Installation Temperature: -10~ 50
	Accuracy: ±2% (0.3~5.0m/s)	Transducer Measurement Medium: 0~60
	Keyboard: 4 touch keys	Humidity: 0~99% RH, Non-condensing
	Display: 1.44’’ LCD colorful screen,	Communication: RS485(stamdard)
	Resolution:128*128	Output: 4-20 mA (applicable for F3CL)
	Installation Method: Clamp-on with screw tightening	OCT & Relay (applicable for F3RO)
	Protection Level: IP54	
SPECIFICATION		
A	Output Selection	
1	F3CL, RS485 + 4~20mA	
2	F3RO, RS485 + OCT	
3	F3RO, RS485 + Relay	
4	F3RO, OCT + Relay	
B	Pipe Size	
Pipe OD Range	DN20, DN25, DN32, DN40, DN50, DN65, DN80	
	Pipe Material	
1	Carbon Steel	
2	Stainless Steel	
3	Copper	
4	PVC	

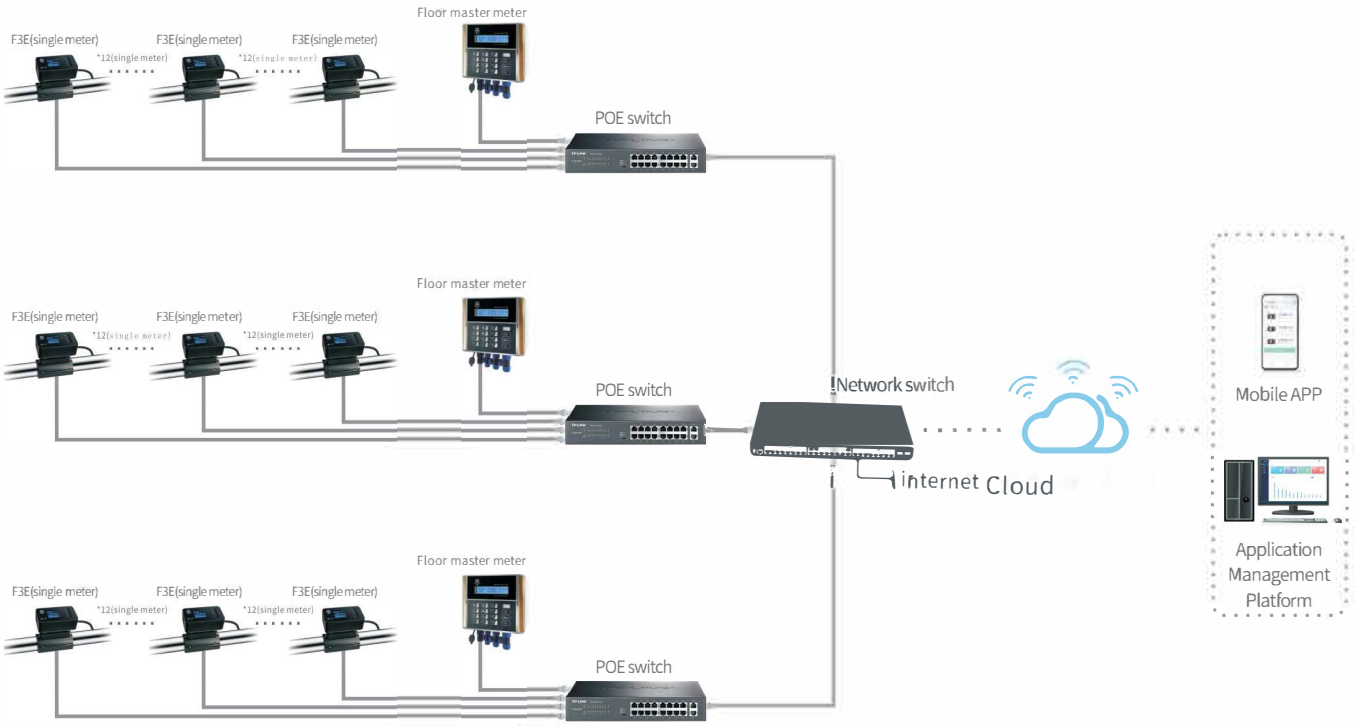
Selection Example: Model : F3CL Specification :1-DN20-2
For example：(Model：F3CL Clip-on ultrasonic flowmeter：RS485+4-20mA，DN20,Stainless Steel)

Installation method

Application topology

The instrument is connected to the POE switch through the network cable, then the router connected to the POE switch is connected to the Internet. The instrument flow data is uploaded to the cloud server through the Internet.Users can access the cloud data and operate through the APP and PC-side meter management platform access cloud data and perform operations.Connect the instrument to an RJ45 (POE) interface of the POE switch that has been connected to the network through a network cable, at this time, the instrument should be in the power-on working state. The user uses an Android phone to scan the QR code of the dial APP, follow the prompts to install the dial software.

Tips: Scan the QR code to add the MeterTube APP, the new version of the MeterTube APP will support the renewal reminder function



Notice: 16-port POE switch (Connect the POE switch to a nearest network port.)

Applications

Aquaculture measurement monitoring

Building application flow monitoring

Equipment supply chain monitoring

Building air conditioning cooling capacity monitoring

Central air-conditioning billing monitoring

Building air conditioning flow measuring

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