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Excellence in Calibration

pFlow

Ultrasonic Flowmeter P118i

View video demo



<https://youtu.be/pOBFiaU8sIU>



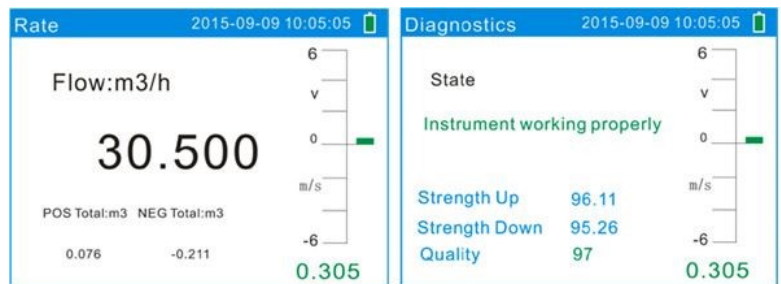
About P118i

P118i Portable Ultrasonic Flowmeter features state of the art advanced non-invasive technology which enables the user to do flow measurement checks at many points in a flow process without the need for a permanent installation.

It is clamped to the outside of the pipe without the need to cut into or stop the process. The P118i utilizes unique PICOFLY transit time measurement technology, this technology offers high response, high accuracy, high resolution and a wider measuring range.

While is primarily designed for clean liquids, this flow meter can reliably measure liquids containing small amounts of suspended solids or aeration. This flow meter's compact size, light weight ergonomic handheld design and intuitive interface via a clear large 3.5" colour backlit digital display significantly simplifies setup. The unique clamp-on fixture design makes the installation very simple, requiring no special skills or tools.

This flow meter is designed for short term flow measurement surveys on full-pipe liquid systems and includes onboard data logging which could be used for applications like leak detection over time, to find intermittent faults in a flow process, or flow measurement surveys. This flow meter offers high precision, reliability, and capability at an economical price point.



Key features

- Unique PICOFLY technology (high response, high accuracy, high resolution and a wider measuring range.)
- Inbuilt rechargeable battery (up to 10 hours run time)
- 3.5" colour backlit digital display
- Data logging - Large capacity memory and data download function.
- Due to the non-invasive nature of clamp-on transducers, there is no pressure drops, no moving parts, no leaks, and no risk of contamination.
- Lightweight and easily transportable in rugged carry case
- For measurement of clean liquids (not clear, so even oils can be measured)

Principle of measurement

Transit time flow meter utilizes two transducers that function as both ultrasonic transmitters and receivers. The transducers are clamped on the outside of a closed pipe at a specific distance from each other. The two transducers transmit and receive ultrasonic signals which travels firstly downstream and then upstream. Because the sound wave travels faster downstream than upstream, there will be a time difference. When the flow is still, the time difference is zero. Therefore, if the transit time of both downstream and upstream is known, the flow meter can work out the time difference, then the flow velocity and flow volume via a formula which the flow meter self calculates in real time.

Specifications

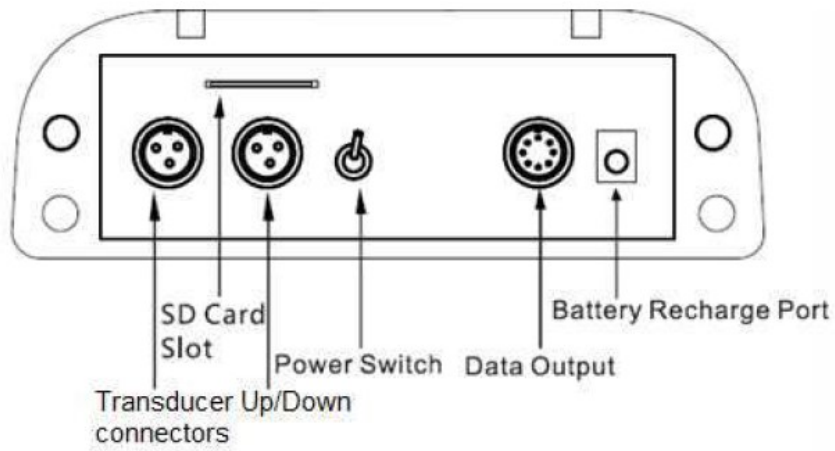
Performance Specifications	
Flow range	±0.01~ ±12 m/s (±0.03 ~ ±40 ft/s)
Accuracy	±0.5% of measured value
Repeatability	0.15%.
Linearity	±0.5%.
Pipe Size	25mm~6000mm (1" ~ 240" inch)
Function Specifications	
Outputs	Analog output: 4~20mA, Max 750 Ω.
SD card	Storage: 8GB; Max: 512 files; Interval: 1 ~ 60 seconds.
Power supply	Rechargeable Lithium Battery Power (continuous operation of main battery 10 hours).
Keypad	Capacitive touch keypad
Display	3.5 inch colour screen(320 × 240), backlight LCD.
Temperature	Transmitter: 10°C ~ 50°C (14°F ~ 122°F) Transducer: -40°C ~ 80°C (40°F ~ 176°F) High temperature version of transducers are available on special request allowing temperatures up to 150°C, please contact us for more info.
Humidity	0 to 99% RH, non-condensing
Physical Specifications	
Transmitter	NEMA13 (IP54)
Transducer	Encapsulated design, IP68; Standard cable length: 5m
Weight	Transmitter: approximately 1.0kg, full case ~5.5kg

Applications

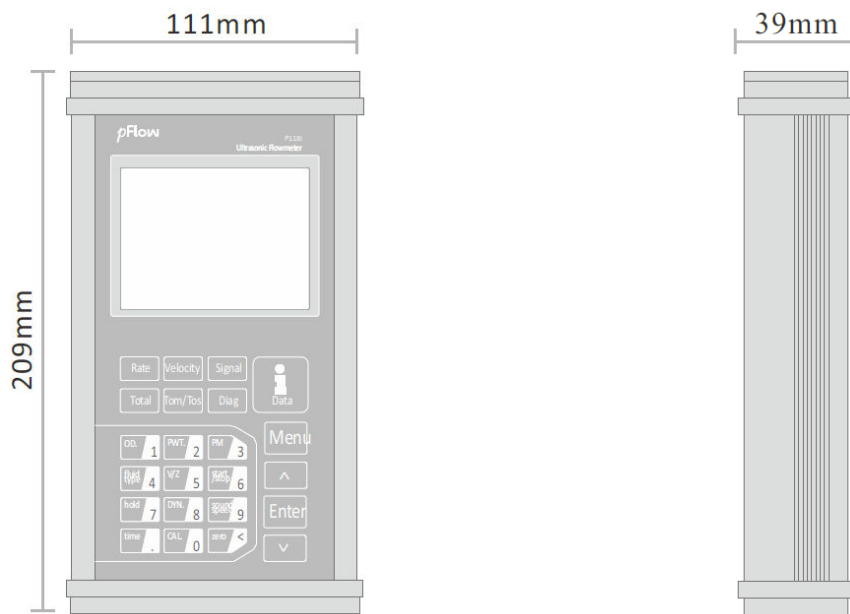
- Water (Hot water, cooling water, potable water, sea water etc...)
- Petroleum products
- Chemicals, including alcohol, acids, etc..
- Beverage, food and pharmaceutical processors
- Secondary sewage, waste treatment, etc...
- Mining industry, power plants for various processes
- Fire suppression system testing
- Pipeline leak detection and inspections
- Flow measurement surveys



Top port diagram



Transmitter dimensions

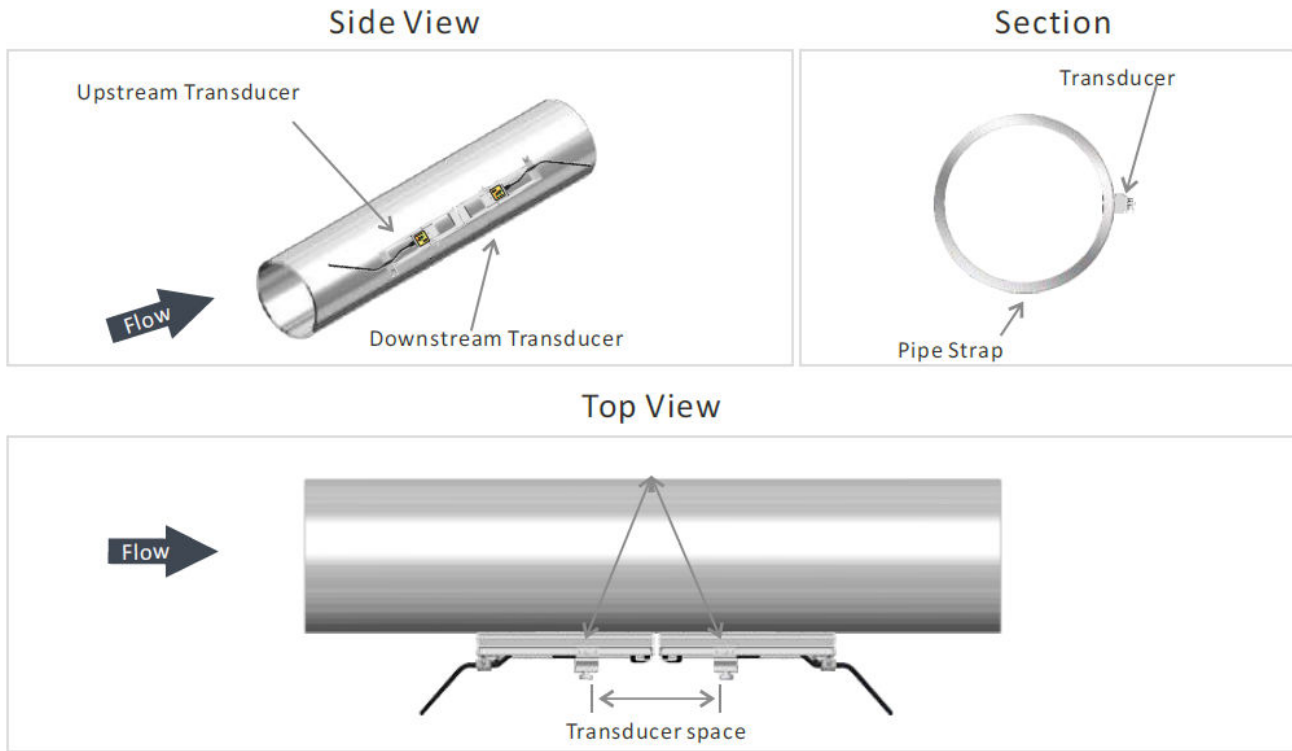


Transducer (standard type)

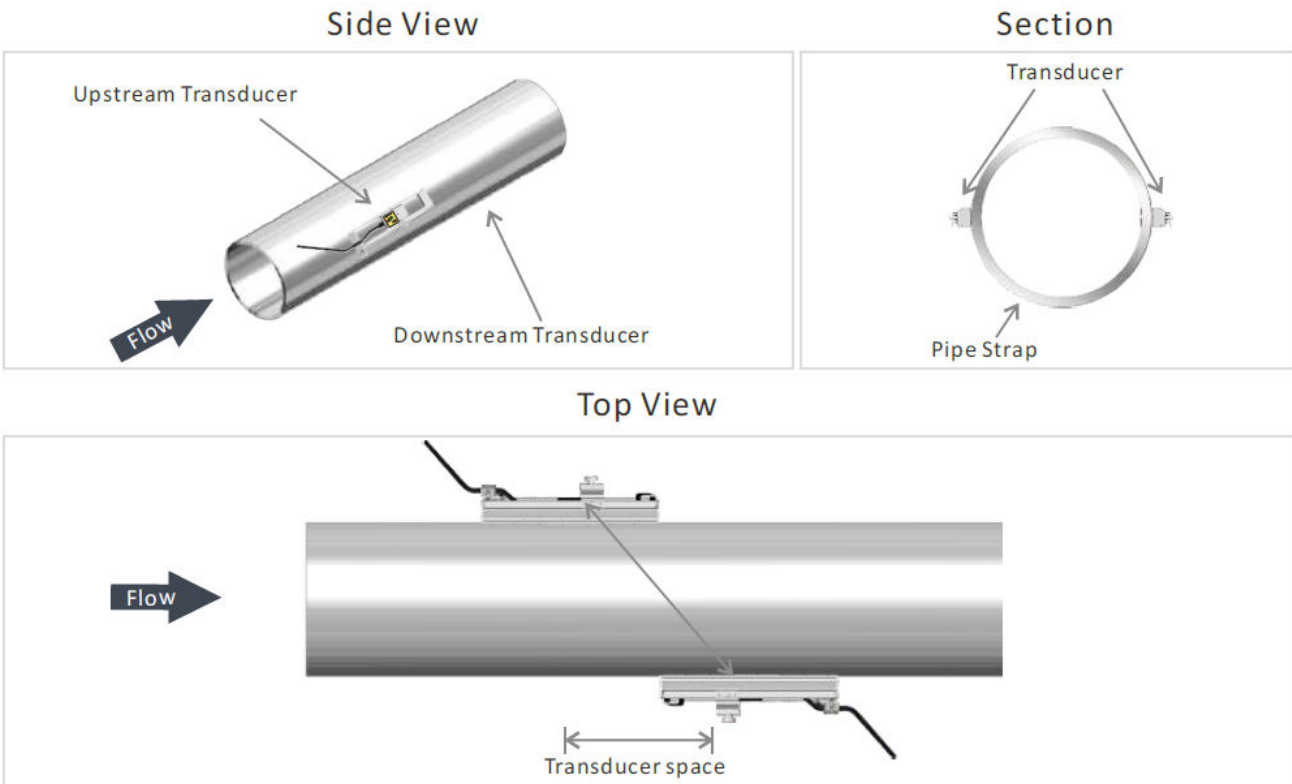


P118i transducer installation methods

V method measuring: Considered the standard method for most applications



Z method measuring: For large pipes



P118i Installation site selection

When selecting a measurement site, it is important to select an area where the fluid flow profile is fully developed to guarantee a highly accurate measurement. Use the following guidelines to select a proper installation site:

Choose a section of pipe that is always full of liquid, such as a vertical pipe with flow in the upward direction or a full horizontal pipe.

Ensure enough straight pipe length at least equal to the figure shown below for the upstream and downstream transducers installation.

Ensure that the pipe surface temperature at the measuring point is within the transducer temperature limits.

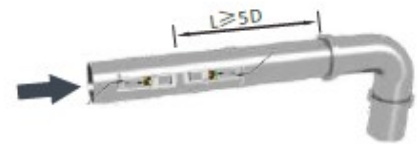
Consider the inside condition of the pipe, flow measurement may not be possible on a heavily pitted pipe or pipework with a liner that is not properly attached to the pipe wall.

If possible, select a section of pipe where the inside is free of excessive corrosion or scaling.

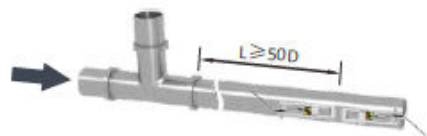
STRAIGHT LENGTH OF UPSTREAM PIPING

STRAIGHT LENGTH OF DOWNSTREAM PIPING

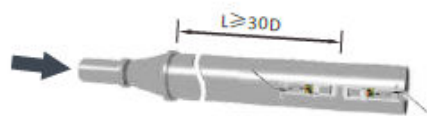
90° Bend



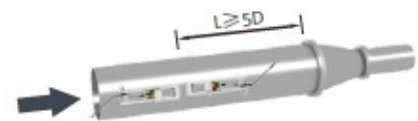
Tee



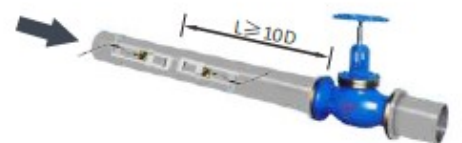
Diffuser



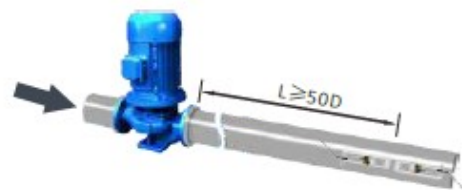
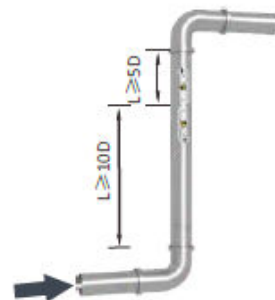
Reduce



Valve



Vertical



P118i Ordering information

Description	
P118i	Handheld ultrasonic flow meter Installation Method: Handheld 8GB SD card high memory data logging Flow range: $\pm 0.01 \sim \pm 12$ m/s ($\pm 0.03 \sim \pm 40$ ft/s) Accuracy: $\pm 0.5\%$ of measured value Repeatability: $\pm 0.15\%$ Output: 4-20mA Internal lithium battery: ~ 10 hour run time Pipe size range: 25-6000mm (1" -240") Transducer: IP54, CP magnet portable transducer, 5m cable
Type of transducers	
P010	P type magnet portable transducer Operating temperature: $-40^{\circ}\text{C} \sim 80^{\circ}\text{C}$ ($40^{\circ}\text{F} \sim 176^{\circ}\text{F}$)
Transducer cable length	
016	P type of cable standard 16ft (5m)
xx	Maximum length: 30m Custom length can be ordered in intervals of 5m
Standard model: P118i-P010-016	

STANDARD INCLUSIONS:

- Hard carry case
- Transmitter (includes internal battery)
- 1 pair of transducers
- 1 pair of transducer mounting frames
- 1 pair of transducer cables
- 1 set of pipe straps
- AC power supply
- Coupling compound
- SD card & SD card reader (USB adapter)
- Output junction box
- Software and manual disk
- Hard copy manual and quick start guide
- Calibration certificate

