

pFlow

Portable Ultrasonic Flowmeter P117

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Excellence in Calibration



View video demonstration:
https://youtu.be/U_2GLB1gMPY

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ABOUT P117

FEATURES AND CASES



P117 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 P117 utilizes TVT transit time technology, which 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" TFT 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.

FEATURES:

1. Inbuilt rechargeable battery (up to 10 hours run time)
2. 3.5" TFT backlit digital display
3. Data logging - Large capacity memory and data download function.
4. 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.
5. Lightweight and easily transportable in rugged carry case
6. For measurement of clean liquids (not clear, so even oils can be measured)

PICTURE OF FULL STANDARD SET



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

ABOUT P117 SPECIFICATION

PERFORMANCE SPECIFICATIONS

Flow range	$\pm 0.03 \sim \pm 20$ ft/s ($\pm 0.01 \sim \pm 6$ m/s)
Accuracy	$\pm 1\%$.
Repeatability	0.3%.
Linearity	$\pm 1\%$.
Pipe Size	Clamp-on: 1"~ 48" in(25mm~1200mm)

FUNCTION SPECIFICATIONS

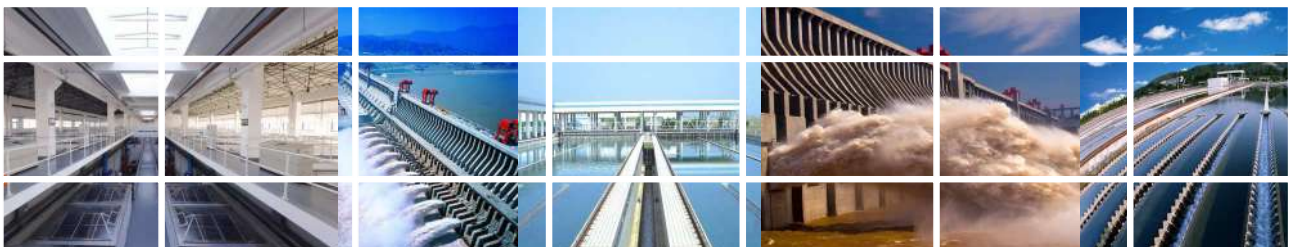
Outputs	Analog output: 4~20mA, Max 750 Ω .
SD card logging	Storage: 8GB; Max: 512 files; Interval: 1 ~ 60 seconds.
Power supply	rechargeable Lithium Battery Power (continuous operation of main battery up to 10 hours).
Keypad	Capacitive keypad
Display	3.5 inch TFT screen(320 × 240), backlit LCD.
Temperature	Transmitter: $-10^{\circ}\text{C} \sim 50^{\circ}\text{C}$ Transducer: $-40^{\circ}\text{C} \sim 80^{\circ}\text{C}$
Humidity	0 to 99% RH, non-condensing

PHYSICAL SPECIFICATIONS

Transmitter	NEMA13 (IP54).
Transducer	Encapsulated design, IP68; Standard cable length: 5m
Weight	Transmitter: $\sim 1.0\text{kg}$ - Full case: $\sim 5.5\text{kg}$

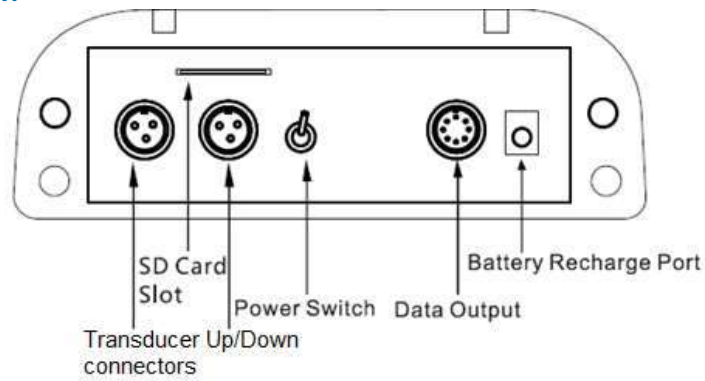
PRINCIPLE OF MEASUREMENT:

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.

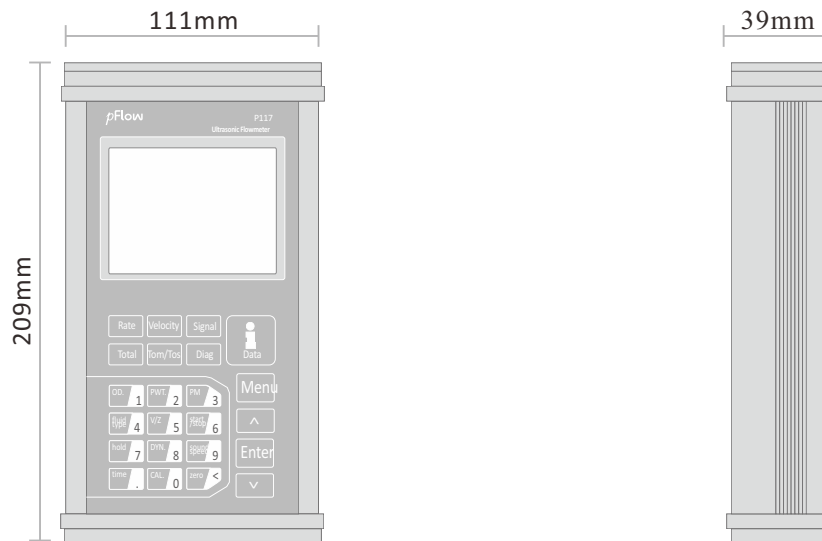


ABOUT P117 INTERFACE AND SIZE

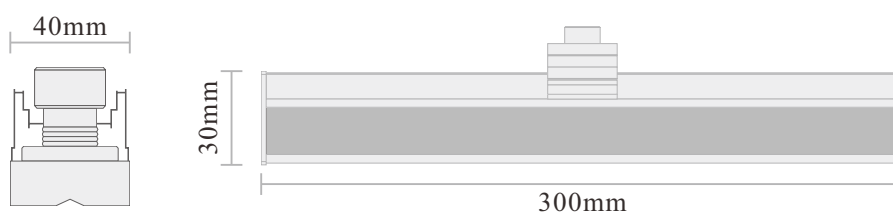
WIRING DIAGRAM



TRANSMITTER DIMENSIONS

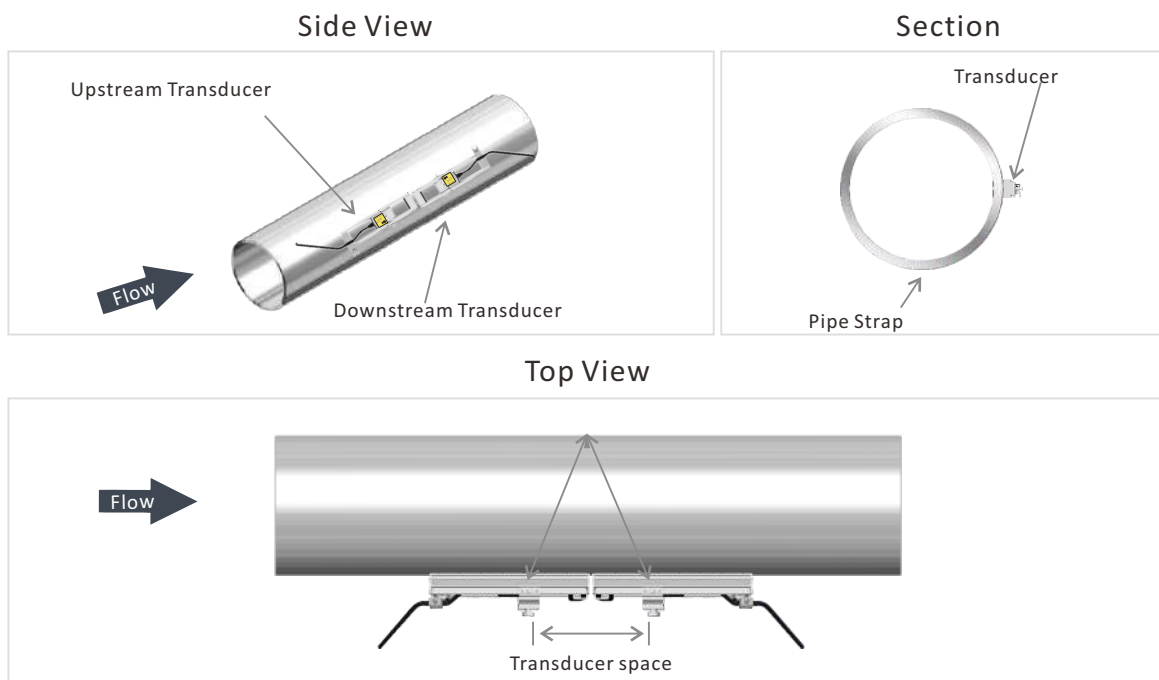


TRANSDUCER

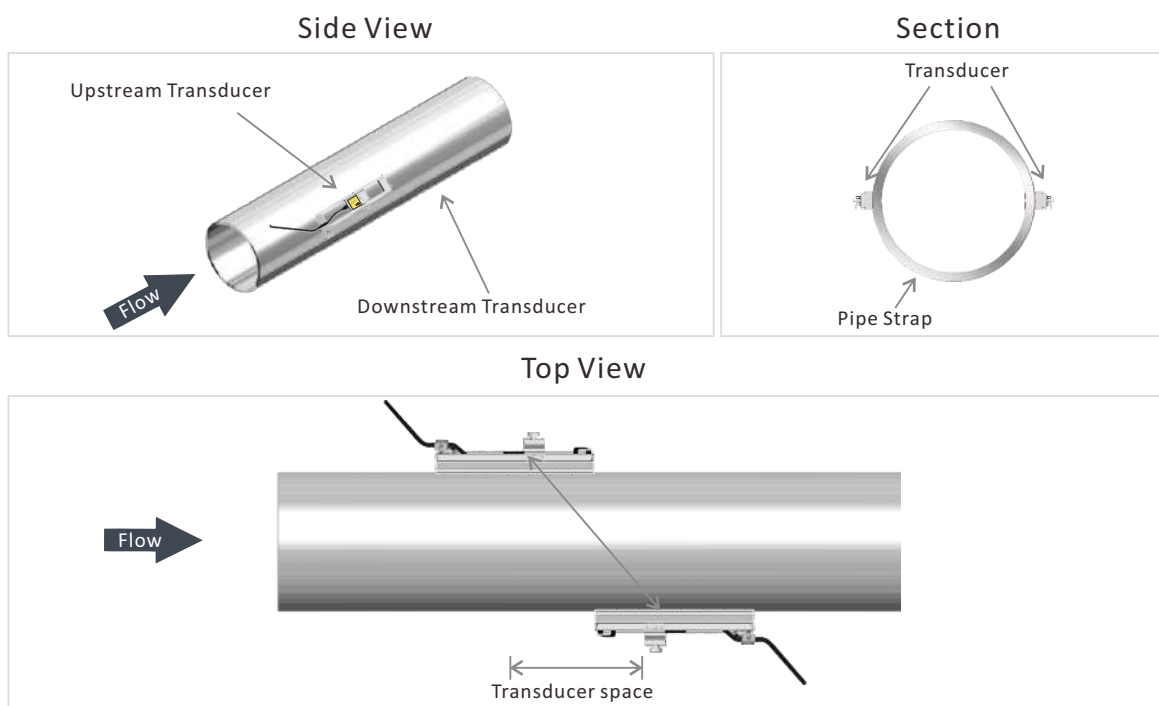


ABOUT P117 TRANSDUCER INSTALLATION METHODS

V method measuring: Considered the standard method for most applications



Z method measuring: For large pipes



ABOUT P117 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.

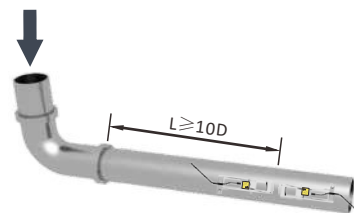
Ensure enough straight pipe length at least equal to the figure shown below for the upstream and downstream transducers installation.

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

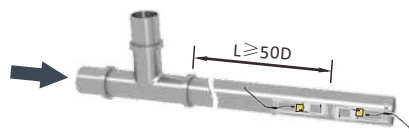
Consider the inside condition of the pipe carefully. If possible, select a section of pipe where the inside is free of excessive corrosion or scaling.

STRAIGHT LENGTH OF UPSTREAM PIPING

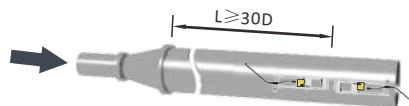
90° Bend



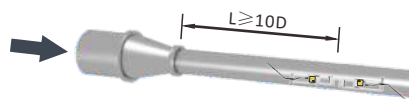
Tee



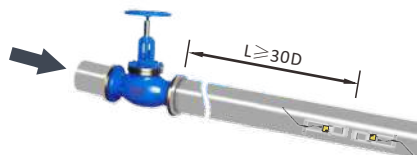
Diffuser



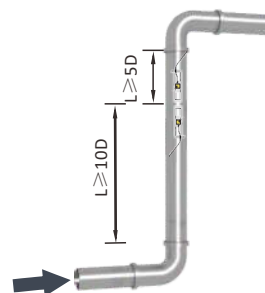
Reduce



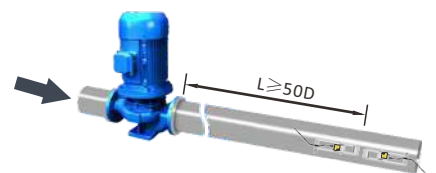
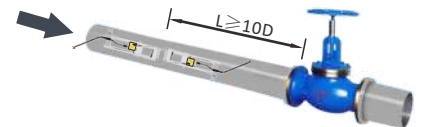
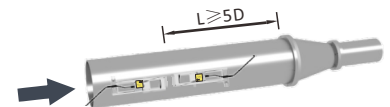
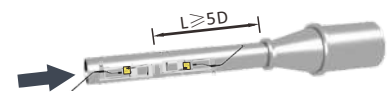
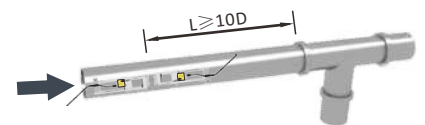
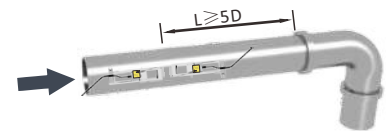
Valve



Vertical



STRAIGHT LENGTH OF DOWNSTREAM PIPING



ABOUT P117

ORDERING INFORMATION

MODEL

DESCRIPTION

P117	<p>Portable Ultrasonic Flowmeter Installation method: Handheld & clamp on transducers 8G SD card high memory data logging maximum memory: 512 days of data. Flow Range: ± 0.03 ft/s \sim ± 20 ft/s (± 0.01 m/s \sim ± 6 m/s) Accuracy: $\pm 1\%$ Repeatability: 0.3% Output: 4-20mA Internal lithium power supply: up to 10 hours on battery power Pipe size range: 1"~48" (25mm~1200mm) Transducer: IP54, CP magnet portable transducer, 5m cable</p>
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CODE

TYPE OF TRANSDUCERS

P011	<p>P type magnet portable transducer Operating temperature: $-40^{\circ}\text{C} \sim 80^{\circ}\text{C}$</p>
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CODE

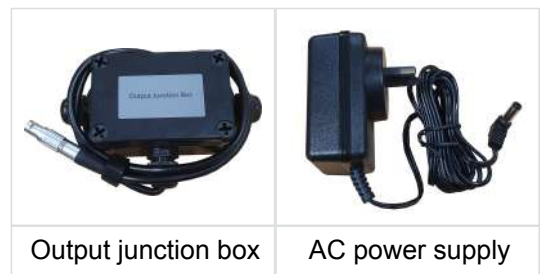
TRANSDUCER CABLE LENGTH

016	P type of cable Standard 16ft (5m)
xx	Maximum lengthen to 305m, available in increments of 5m

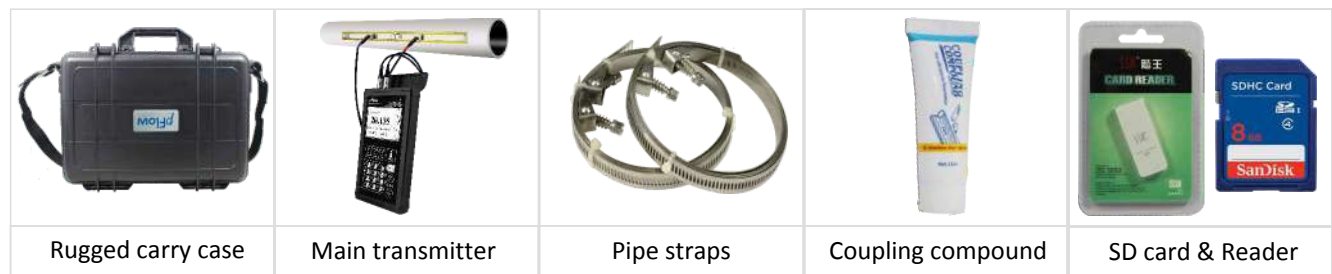
Standard Model: P117-P011-016

STANDARD INCLUSIONS:

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



PICTURES:



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