

# Klinger PS116

## Portable Ultrasonic Flowmeter

Klinger PS116 is a portable ultrasonic flow meter for mounting on the outside of the measuring tube. The meter uses the transit time principle and can be used for all clean liquids.

### Principle

The principle is based on the simultaneous transmission of one ultrasonic signal downstream and one countercurrent.

Since the countercurrent signal will be longer along the way, the difference in travel times will be an expression of the liquid velocity, which can be calculated purely electronically, as it turns out that measurement of the flow velocity, based on ultrasound, is:

- Independent of media density
- Independent of the viscosity of the media
- Independent of the speed of sound in the current media

These are 3 very important conclusions, as in practice this means that an ultrasonic flow meter e.g. can be calibrated with water - and then applied to other liquids without having to recalibrate!

### Limitations

The transit time principle is primarily used for clean liquids / gases, as the ultrasonic signal must be able to run unhindered between the sensors.

Air bubbles / moisture and particles can dampen the sound signal, in some cases it can even give false reflections. It is not possible to state exact values for how "dirty" the medium can be, it depends on what material the source of pollution is made of, but as a rule of thumb applies:

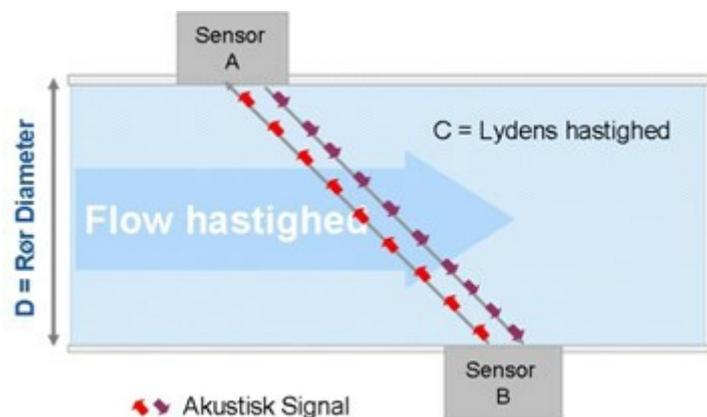
- Gas / air bubbles in liquid <1% vol
- Solid particles in the medium <5% vol

Although the principle is independent of the viscosity of the medium, there is an upper limit of 100cP / m, where the sound waves can no longer be compressed (transport the signal)

### Application

Klinger PS116 can be mounted on all pipes made of steel, stainless steel or PVC - in dimensions from DN 25mm to DN 1,200mm.

The correct location of the sensors is determined by the pipe type and dimension and is calculated by the transmitter during commissioning.



### Klinger PS116 for Liquid flow:

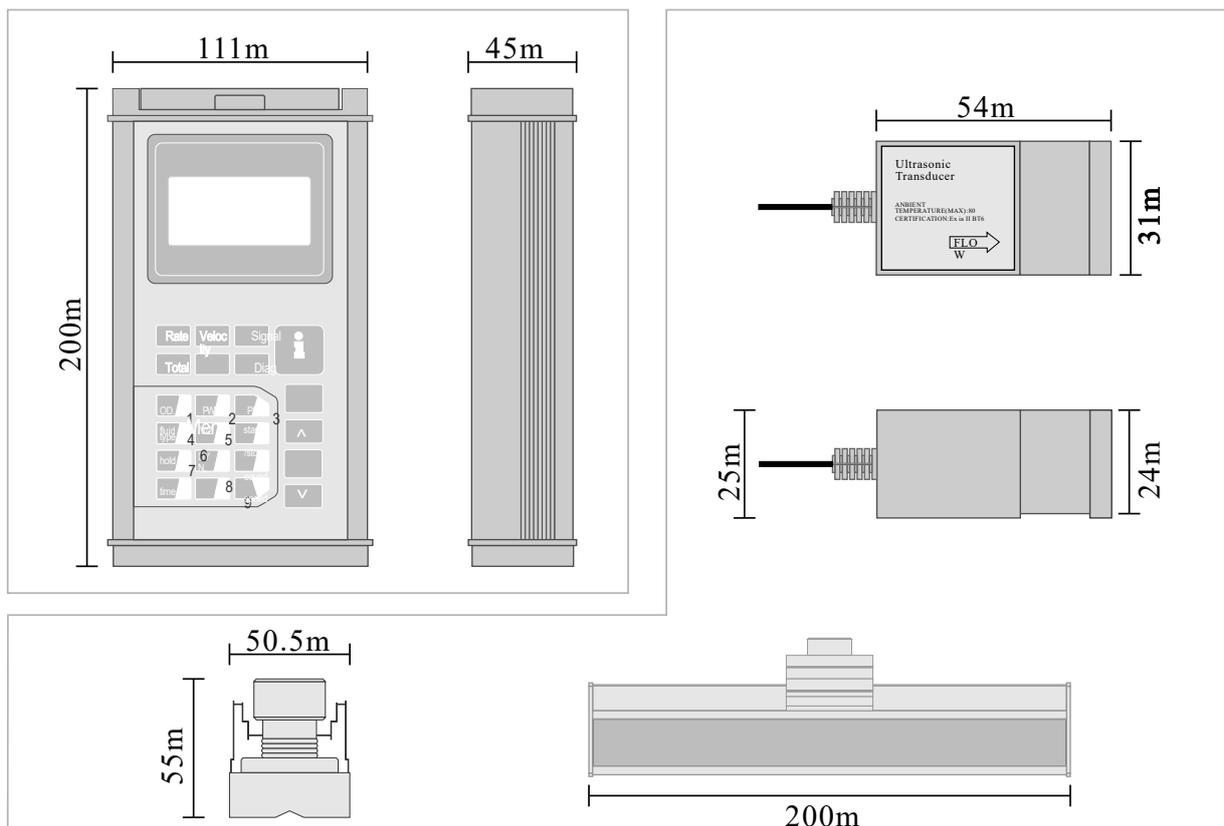
- Can be used for all clean liquids
- Pipe dimensions from DN 25 to DN 1,200mm
- Installed on the outside of the measuring tube
- For pipes made of steel, stainless steel and PVC
- Controlled setup with help menu

# Specifications

Specifications	
Range	0.01m/s ~ 12m/s
Accuracy	±1.0% of measured value
Pipe size	Clamp-on: DN 25mm til DN 1.200mm
Reference media	Water
Pipe materials	Steel, Stainless steel or PVC.
Electrical	
Output	Analogue output: 4~20mA, max belast 750Ω.
Datalogger	1 Gb SD card / max. 512 files (dage) Interval 5...60 seconds
Power supply	1 Battery / rechargeable
Keyboard	Membrane keys
Display	64×128 alfanumeric LCD / backlite
Temperature	Transmitter: -10to +50grC Transducer: 0 to +80 grC
Humidity	Max. 99% RH, not condensing
Physical specifications	
Transmitter	NEMA 4 / IP54
Transducer	IP68.
Transducer Cable	Standard length: 16ft (5m)
Weight	Transmitter: ca. 1,0kg; Transducer: ca. 0.4kg



# Dimensions



# Installation

The sensor mounting depends on the pipe dimension, so it is recommended:

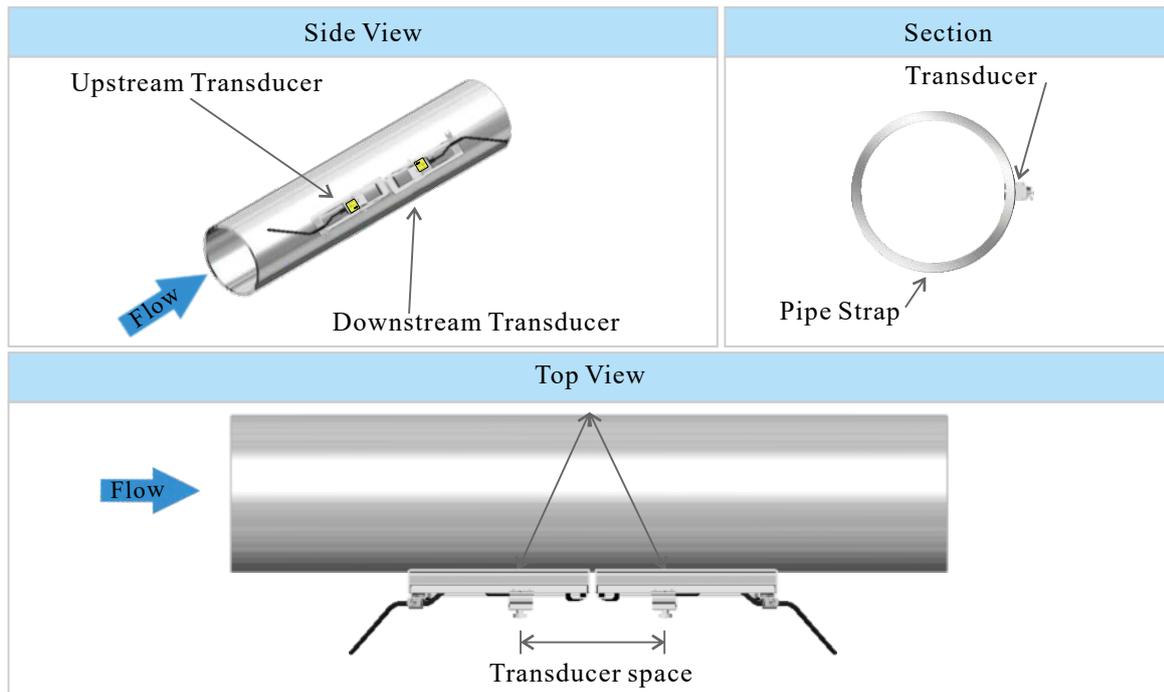
The V method for smaller pipe dimensions, where several traverses give the sound wave longer travel time.

The Z method for larger pipe dimensions

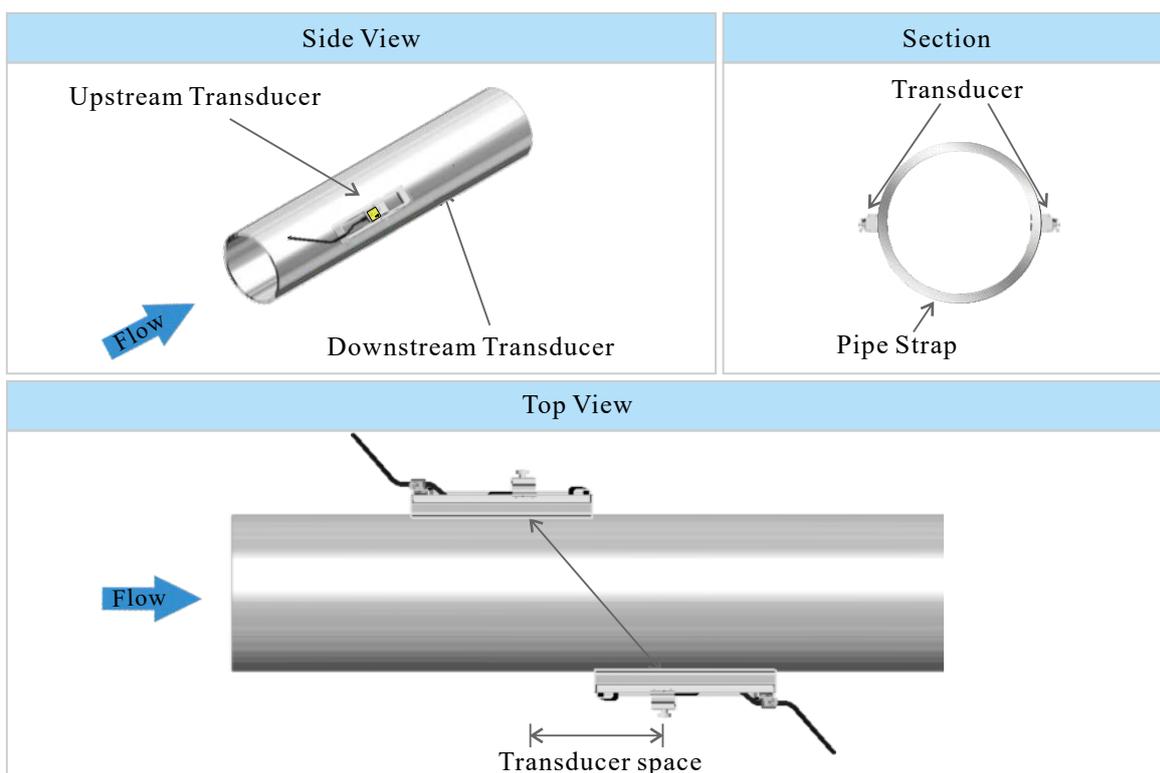
In both cases, mounting on the side of the pipe is recommended to avoid the influence of air / dirt in the top / bottom of the pipe.

If the tube is painted, this must be cleaned, and it is recommended to use an ultrasonic paste for the best possible contact between the transducer and the measuring point.

V-method for pipe size DN 25mm to 400mm



Z-method for pipe size DN 100mm til 1.200mm



## Order Code

Model	Description
PS116	Handheld Ultrasonic Flowmeter Installation method: Handheld 1G SD card high memory data logging, maximum memorize 512 days data. Flow Range: $\pm 0.03$ ft/s ~ $\pm 40$ ft/s ( $\pm 0.01$ m/s ~ $\pm 12$ m/s) Accuracy: $\pm 1\%$ of measured value Repeatability: 0.3% Output: 4-20mA Internal lithium power supply: 16hours Pipe size range: 1"~48"(25mm~1200mm) Transducer: IP68, CP magnet portable transducer, 5m cable
Code	Type of transducers
CP036	CP type magnet portable transducer Operating temperature: 32 ~ +122 (0 ~ +50 )
Code	Transducer Cable Length
016	CP type of cable Standard 16ft (5m)
xx	Maximum lengthen to 30m, per 5m is a lengthen unit.
Standard Model: PS116-CP036-016 Description: Handheld Ultrasonic Flowmeter with portable transducers, 5m cable	



- ① Carrying Case
- ② Transmitter
- ③ Transducer with scaled rack
- ④ Pipe strips
- ⑤ Grease Coupling Compound
- ⑥ Battery charger

## Other Principles

Magnetic Inductive Flowmeters



VA meters



Vortex flowmeters

