USER MANUAL

CLAMP-ON ULTRASONIC FLOW METER

PCE-UFM SERIES

ENGLISH

User manuals in various languages (français, italiano, español, português, nederlands, türk, polski) can be found via our product search on: www.pce-instruments.com

What types of Fluid do you utilize in your progresses?	Where is the meter applied?	How about the pipe diamter?
Water	Water Treatment	DN4 - DN15
Sea	Aquaculture	DN20 - DN80
Oil	HVAC/BMS	DN100 - DN200

What our Clamp on flow meter could provide?

» Monitor flow directly on unit

» Check dosage of the liquid

» Send signal to PLC

» Track operation to improve efficiency

For monitoring water supply and consumption without cutting pipe.

COMPOSITION

1. Display
2. Upper Bracket
3. Base Bracket

INSTALLATION

Clean the pipe

No dirt and oil contamination outside the pipe.

Install the bracket

Align flow meter to the pipe position, install screw on top part of the bracket, and then the bottom part of the bracket will automatically connect with the top part. Fasten the four M4 screws.

Install the sensor part

Remove the protection film outside the sensor, put the sensor part into the bracket, and fasten the two M4 screws.

Cable connection

Take out the cable, and fasten it on the socket

Operation

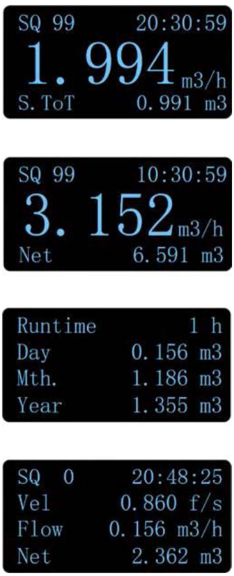
Power on and see if the SQ is more than 50. If yes, this indicates that the measurement has been stable.

SETUP

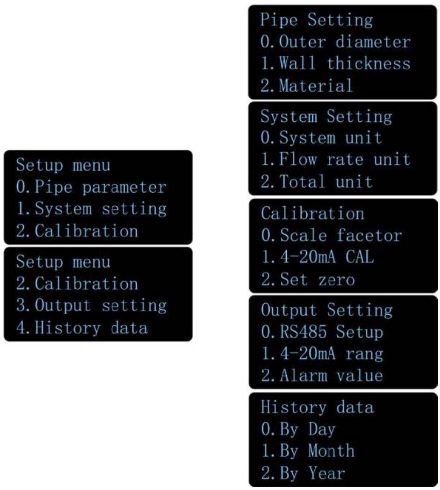
For different pipe diameters and pipe designs, the factory defaults have defaulted to the specified standard settings. there is no need to reset.

MENU

Displaying Menu



Setting Menu

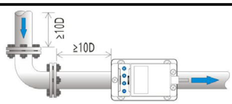
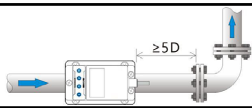
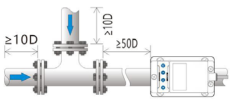
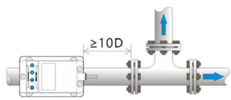
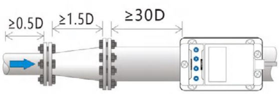
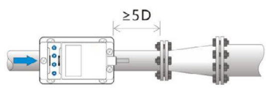
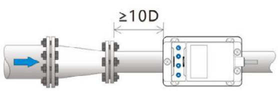
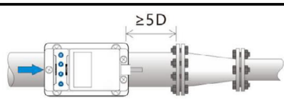
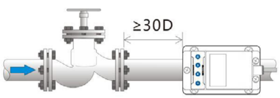
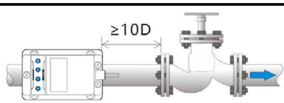
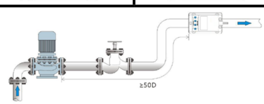


WORKING PRINCIPLE

Products developed by adopting the ultrasonic principle of transit-time difference method (also called the speed difference method) send and receive ultrasonic signals through the sensor. The downstream propagation time is fast and the counter-flow propagation time is slow. We can get transit-time difference, thereby converting the flow velocity and multiplying it by the cross-sectional area of the pipe. flow can be calculated.
For first-time using, kindly refer to the following operation:

POINT SELECTION (INSTALLATION POSITION)

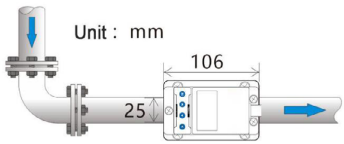
The transit-time difference ultrasonic flowmeter can only be well measured when the flow rate is stable, the medium (liquid) in the pipeline is free of impurities and bubbles, and there is a certain pressure (about 0.4MPa)—— This is a necessary basic condition for flowmeter with velocity difference method.
In order to ensure the above conditions, the flowmeter must be installed on the horizontal pipeline or vertical pipeline (the flow direction is from bottom to top to avoid empty pipes or bubbles)
The pipe is filled with liquid, and the temperature is within the specified range. It should be installed on the side of the pipe (at 3:00 or 9:00), as shown in the following diagram:

Installation Point	**Straight pipe section in the front of installation point**	**Straight pipe section in the back of installation point**
Elbow		
Three-way Pipe		
Expansion Pipe		
Swaged Pipe		
Valve		
Bump		

Note: D refers to the diameter of the pipe, such as: the pipe is DN25, 10D is 254mm

PIPELINE TREATMENT

Ultrasonic signals are greatly attenuated in the air, and paint or potholes on the surface of the pipeline will affect the propagation of ultrasonic waves, and surface treatment of the pipeline is required.
The surface of the paint pipe is free from stains, flat and bright. In particular, the surface of the metal pipe should be polished with a grinder, and then scrubbed with clean water.
Refer to the figure below for the grinding area:



SPECIFICATION

Speed m/s	
Measuring range	0,1 ... 5 m/s
Resolution	0,001 m/s
Accuracy	2 %
Pipe size	DN4, DN8, DN10, DN15, DN20 oder DN25 (depending on model)
General technical data	
Display type	OLED
Analogue output	4 ... 20mA
Data interface	RS485
Power supply	9 ... 36 V DC
Materials	PVC, steel, stainless steel, copper, PVDF (polyvinylidene fluoride), PFA (perfluoroalkoxy polymers), PTFE (polytetrafluoroethylene), PU (polyurethane), aluminium
Measuring medium	Water, sea water, oil, custom (manual entry of the sound velocity of the medium)
Menu language	English
Protection class	IP54
Weight	515 g
Device weight with scope of delivery	652 g
Device weight with scope of delivery and outer packaging	892 g
Dimensions (L x W x H)	110 x 58 x 67 mm
Dimensions including outer packaging (L x W x H)	210 x 153 x 104 mm

Operating conditions	0 ... 50 °C
Operating conditions r.H.	< 95 %
Storage conditions	0 ... 50 °C
Storage conditions r.H.	< 95 %

DEFAULT PARAMETER

Velocity Range	0,01m/s ... ±5 m/s (0,328ft/s~±16ft/s)
Accuracy	±2,0 %
Repeatability	0,8 %
Display	OLED 128*64
Keyboard	Four light touch buttons
Protection Rate	IP54 Housing
Enclosure	Aluminum alloy
Power supply	9 ... 36 V DC
Transducer (Flow senor)	Clamp-on type
Operating Temperature	0 ... 50 °C
Liquid	Water,Sea water,Oil, Alcohol ...
Cable	2 m (7ft) Length

DISPOSAL

For the disposal of batteries in the EU, the (EU) 2023/1542 directive of the European Parliament applies. Due to the contained pollutants, batteries must not be disposed of as household waste. They must be given to collection points designed for that purpose. In order to comply with the EU directive 2012/19/EU we take our devices back. We either re-use them or give them to a recycling company which disposes of the devices in line with law. For countries outside the EU, batteries and devices should be disposed of in accordance with your local waste regulations. If you have any questions, please contact PCE Instruments.

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