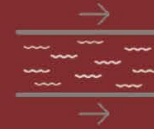# PORTASONIC® 2.FLO

Portable, Clamp-on, Ultrasonic Transit Time Flow Meter

PORTASONIC® 2.FLO

Portable, clamp-on ultrasonic transit time flow meter

PN: 2618949-PSO

Non-invasive for measuring the flow rates of most clean liquids in pipes with gas/solid content less than 10% of volume, built-in thickness gauge and ability to incorporate heat quantity measurements

MULTIPLE METRICS

Measure wall thickness (includes A-scan functionality), volumetric flow rate, mass flow rate, energy (heat quantity) flow rate all from one instrument

TOTAL FLOW

All measured values can be totalised giving you the total flow rate that has been measured during a particular measurement session

INTUITIVE

Unique Human Machine Interface (HMI) driven menu that emphasises intuitiveness and user-friendliness

APPLICATIONS

Commonly used for fire sprinkler systems, waste water, fuel monitoring, foam proportioner testing

PORTASONIC® 2.FLO

VERSATILE

Capable of working on pipes DN15 – DN 2500, across multiple different pipes/pipe sections. Large internal database of pipe, fluid and lining materials (19+ for fluids, 23+ for pipe and lining materials)

CLAMP ON

Clamp-on therefore no installation costs such as drilling into pipes and no downtime to the pipe network is present

RELIABLE

Measures flow velocities between 0.01 m/s – 25m/s.

DIAGNOSTICS

It has a built-in signal oscilloscope for sensor positioning and diagnostics to achieve maximum accuracy with the measurement while providing visibility of the potential issues with the installation for troubleshooting purposes.

NON CONTACT

The fluid cannot damage the flowmeter, which could contribute to a longer lifespan and lower maintenance cost compared to inline flowmeters which are in contact with the fluid and risk being damaged by the pressurised flowing fluid

ACCURATE

Accurate to +/- 0.5% under ideal conditions. Resolution of 0.25mm/s. Repeatability of 0.15% of measured value.

NO RISK

As there is no contact with the fluid being measured, there is no risk of pressure loss throughout your pipe network

LONG-LIFE

IP65 main unit enclosure. Battery life up to 12 hours' continuous use, standard 9V PP3 battery

ROBUST

Sensors temperature range -20°C to +150°C. Sensors rated IP66

HOW TO TEST

Portasonic® 2.FL0 is used to measure the flow rates of most clean liquids with gas/solid content less than 10% of volume in pipes.

The equipment comes with clamp on transducers for non-invasive measurement.

The unit uses two sensors, one that acts as ultrasonic transmitter and the other as a receiver.

The software calculates the time it takes for the ultrasonic pulse to pass from the transmitter to the receiver, which is dependent on the flow rate.

There are three methods of operation; V-method (2 passes), W-method (4 passes) or Z-method (1 pass) which refers to transducer positioning. Our recommendation is to choose the the number of passes which will result in a pass length in the fluid of 100mm or greater.
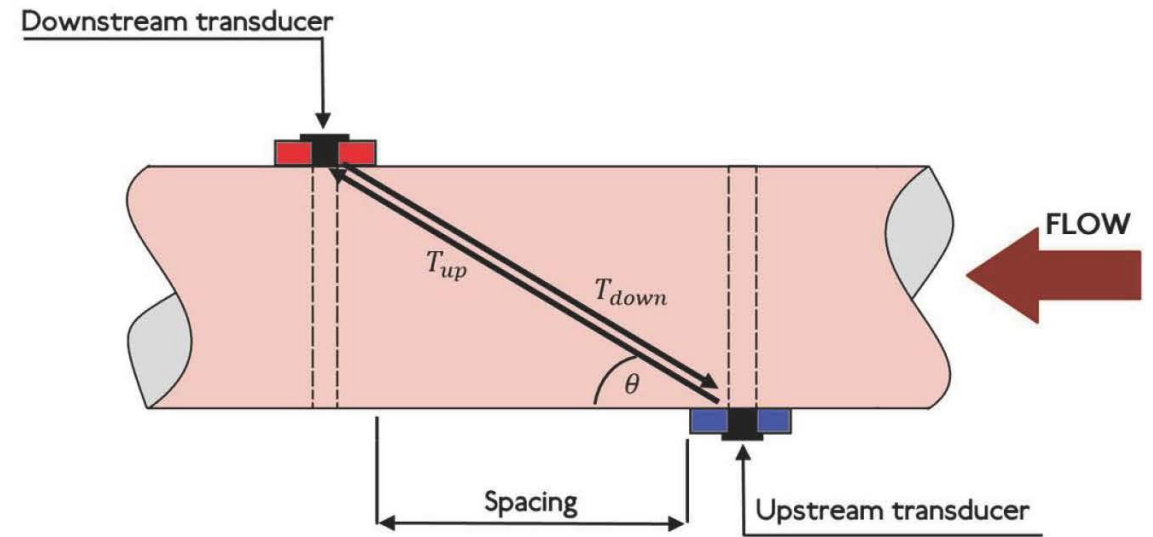
$$V = \frac{Dt}{\sin 2\theta} \frac{\Delta T}{T_{up}\, T_{down}}$$

θ = the include angle to the flow direction
t = the travel times of the ultrasonic beam
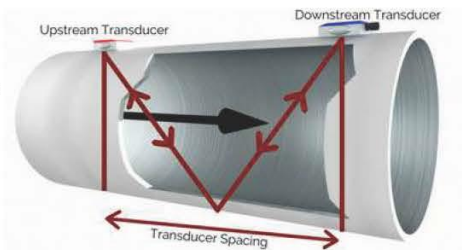D = the pipe diameter
T_{up} = the time taken for the beam from the upstream transducer to reach the downstream transducer
T_{down} = the time taken for the beam from the downstream transducer to reach the upstream transducer
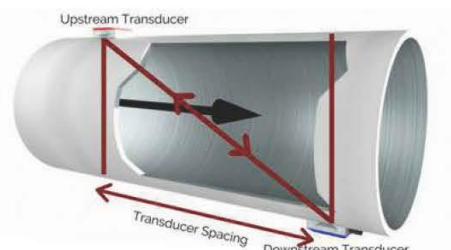$\Delta T = T_{up} - T_{down}$

V Method
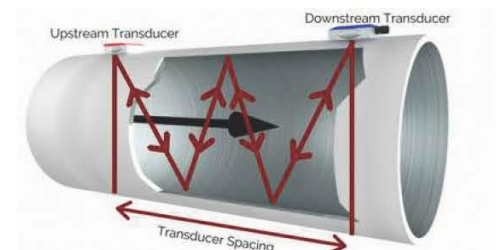The most commonly used method. Simplest to set up. (2 passes)

Z Method
Common for large diameter pipes. (1 pass)

W Method
Common for smallest diameter pipes. (4 passes)

TECHNICAL SPECIFICATIONS

DIMENSIONS	220mm (L) x 85mm (W) x 33mm (D)
WEIGHT	434 grams
PIPE DIAMETER RANGE	DN15 – DN 2500 (1/2 inch – 98 inches), please enquire for larger pipes
LIQUID TYPES	Most clean liquids with gas/solids less than 10% volume
ACCURACY	+/- 0.5% of measured value under ideal conditions
FLOW VELOCITY	0.01m/s – 25 m/s
RESOLUTION	0.25 mm/s
REPEATABILITY	0.15% of measured value
TURN DOWN RATIO	1/100
MEASUREMENT RATE	1 Hz as standard
MEASUREMENT UNITS	Flow Velocity, Volumetric Flow Rate, Mass Flow Rate, Energy Flow Rate (Heat Quantity), Volume, Mass, Energy

DISPLAY	Full 128 x 68 pixel graphics with backlight
ADDITIONAL FEATURES	• Integrated thickness gauge, measures 2mm – 20mm range • Signal oscilloscope for sensor positioning and diagnostics
POWER SUPPLY	9V PP3 battery, up to 12 hours continuous use
OPERATING TEMPERATURE	Main Unit: -10°C to +65°C Sensors: -20°C to +150° C
IP RATING	Main Unit: IP 65 enclosure Sensors: IP 66
SENSOR DIMENSIONS	• Standard Model No. DM10: 40mm (L) x 20mm (W) x 25mm (D) • Large Model No. DS10: 60mm (L) x 30mm (W) x 35mm (D)
SENSOR MATERIAL	Housing: Stainless SteelFront Face: PEEK (Polyetheretherketone)
CABLE LENGTH	1.5m as standard (additional lengths available upon request)

PACKAGE

Portasonic® 2.FLO is delivered in a package with everything required to carry out testing:

1 x Portasonic® 2.FL0 Main Unit
1 x Pair of Standard Transducers for pipes DN15 – DN700 (set of 2)
1 x Pair of Beaded Chain Clamps (set of 2)
1 x 10mm width Ultrasonic Thickness Gauge Probe (measures 2mm – 20mm)
1 x Measuring Tape
1 x Ultrasonic Couplant
1 x User Manual
1 x Installation Manual
1 x Robust Carrying Case