

TUF339

Transit  Time

Portable Ultrasonic
Flowmeter



iSOLV

INNOVATIVE SOLUTIONS

analytical

bulk flow

distance

FLOW

level

pressure

temperature

industrial
communication

FLOTECH

PROCESS CONTROL & INSTRUMENTATION

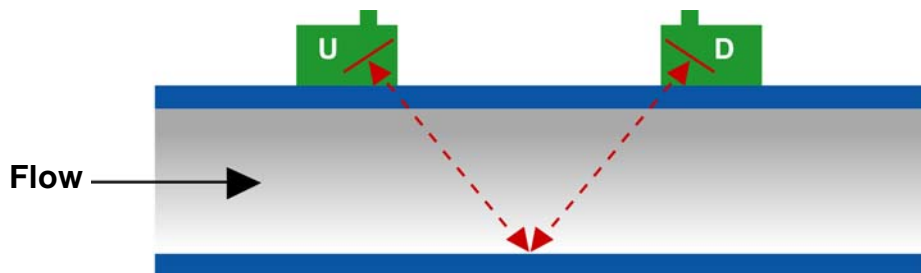


TUF339 PORTABLE ULTRASONIC CLAMP-ON FLOWMETER

Accurate, Reliable and Stable Flow
Measurement.

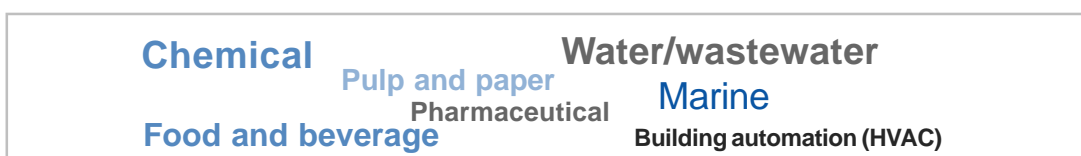
Measuring Principle

The measuring principle of ultrasonic flow meter is based on ultrasound transmission through a liquid. Transit time measuring technique utilizes two transducers, which function as both ultrasonic transmitters and receivers. The ultrasound waves traveling in the direction of the flow of the liquid require less time than when traveling in the opposite direction, therefore the difference in time taken by the ultrasonic waves to travel over the same distance but in opposite directions is an indication of the flow rate of the liquid.



Applications

- iSOLV Ultrasonic Clamp On Flow meter TUF339 can measure almost all light homogeneous fluids (<5% solids). The basic requirement is that the fluid can conduct ultrasound and have an acceptable axis-symmetrical flow
- Non invasive measurement, no interruption to process and no risk of contamination.
- Advance datalogger function which can download easily to PC using RS232/USB interface.
- With capabilities of measuring bi-directional flow and pipe diameter range from 13 to 2000mm.
- iSOLV TUF339 has many applications across many industries environment. They can be used for application like emergency stand-by monitoring, leak detection, survey work, flow meter verification and many more.





Portable Kit

Specification

Transducer

Measuring Range	Two transducer for different pipe diameter 'A' transducers - 13mm - 115mm - Optional 'B' transducers – 50mm – 2000mm - Standard
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Flow Accuracy	<ul style="list-style-type: none"> • Pipe ID >75mm - $\pm 0.5\%$ to $\pm 2\%$ of flow reading for flow rate >0.2m/s • Pipe ID in range 13mm - 75mm - $\pm 3\%$ of flow reading for flow rate >0.2m/s and $\pm 6\%$ of flow reading for flow rate < 0.2m/s • Flow velocity corrected for Reynolds number over entire velocity range
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Repeatability	$\pm 0.5\%$ of measured value or $\pm 0.02\text{m/s}$ whichever is the greater
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Selectable Flow Units	litres, gal, USgals, Barrel, m ³ Total volume – 12 Digits - forward and reverse
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Flow range	0.1 to 20m/sec (bi directional)
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Transducer Temperature Range	-20°C to +135°C
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Pipe material	Constructed of any sonic conducting medium such as:
	• Carbon Steel
	• Stainless Steel
	• Copper
	• UPVC/PVDF
	• Concrete
	• Galvanised Steel
	• Mild Steel
	• Glass
	• Brass
	Permitted pipe linings include:
	• Rubber
• Glass	
• Concrete	
• Epoxy	
• Steel	

Electronic

Enclosure	Protection Class: IP67
	Material: Flame retardant injection moulded ABS
	Dimensions: 264mm x 168mm x 50mm
	Weight : 1.1 kg (including battery)
	Number of Keys: 16
	Display: 240 x 64 pixel graphic display, high contrast black-on-white, with backlight
	Operating temperature: -20°C to +50°C
	Storage temperature: -25°C to +65°C
Operating humidity: 90% RH MAX at +50°C	

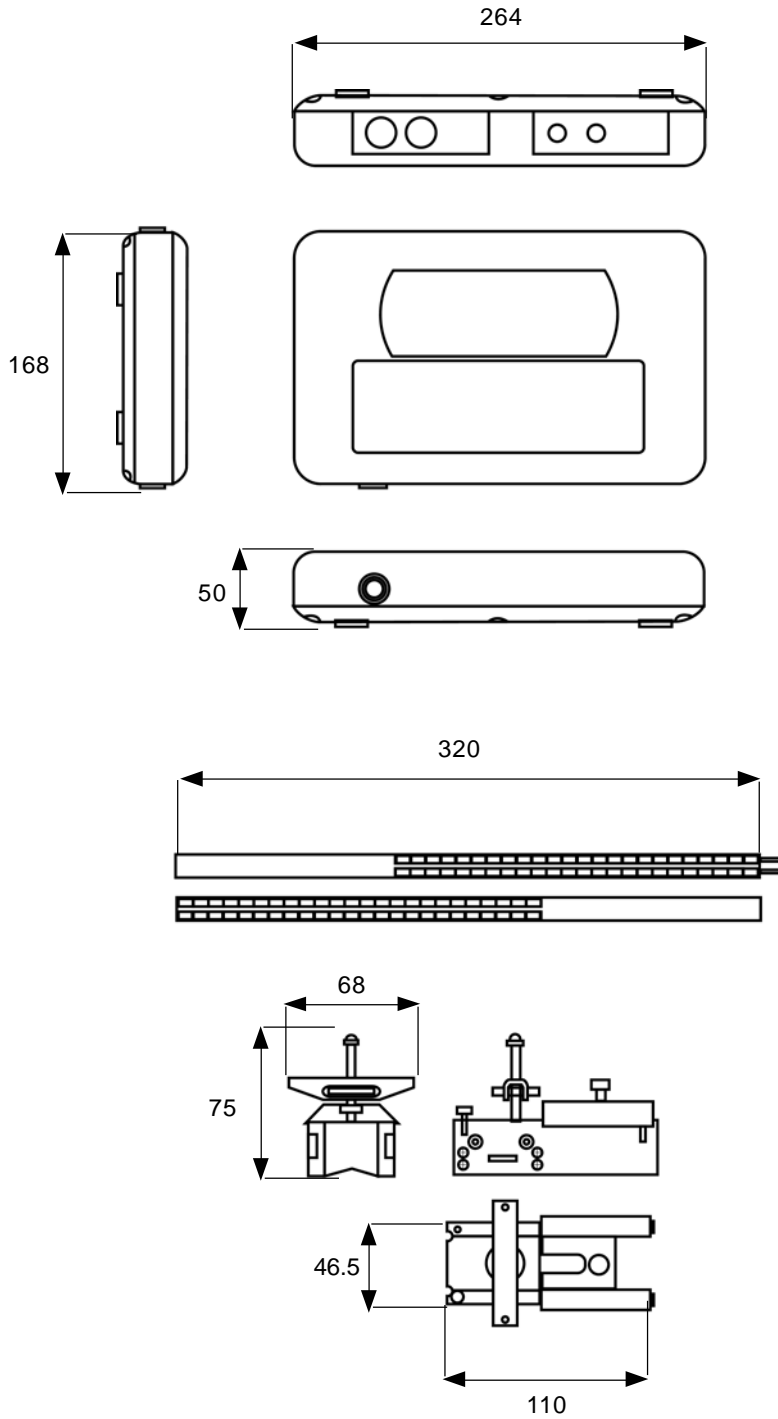
Output	<p>Analogue Output: Range: 4–20mA, 0–20mA, 0–16mA Resolution: 0.1% of full scale Alarm current: Adjustable between 0–26mA Isolation: 1500V Opto-isolated Maximum load: 620 Ohms</p> <p>Pulse Output: Output type: One open collector opto-isolated digital output Pulse repetition: Up to 500 pulses/sec (depending on pulse width) Pulse width: 500ms for 1pulse/s5ms for 100 pulses/s Max current: 150mA</p>
Datalogger	<p>Logged data: Time-stamped flow rate. Units may be changed at time of download by selecting the corresponding unit on the keypad (e.g l, gals, USgals, m³).</p> <p>Number of data points: 98,000 (98k) logged events distributed across up to 20 sites. All free memory is allocated by demand.</p> <p>Programmable logging interval: 5s to 1hr. The screen updates to show the end time of memory remaining as sample units are selected.</p> <p>Manual/Auto control: Logging can be started and stopped manually or set for automatic (timer) operation.</p> <p>Memory overflow: User selectable to either overwrite old data or stop logging.</p> <p>Download log: Logged data can be downloaded to PC using RS232/USB interface. Data can be downloaded directly to facilitate 'live' logging, or recalled from memory to download at any time.</p>
RS232/USB Interface	<p>TUF339 has a single RS232/USB output facility that can be used to download logged data to a PC or printer.</p> <p>2m interface cables are supplied with the equipment.</p> <p>RS232 cable is terminated with a standard 9-pin D-type connector suitable for connecting to the serial port of a PC/printer.</p> <p>USB cable is terminated with a standard USB connector. In each case these cables connect to an 8 pin LEMO connector on the top of the TUF339</p>
Supply Voltage:	<p>Input voltage range: 9–24Vdc Power consumption: 10.5W Battery charger: Manufacturer: Model ECO-181WP12 Input voltage range: 90–264Vac</p>
Battery Pack:	<p>Technology: 5-cell NiMH Capacity: 3.8Ahr Operating time: Typically 20 hours continuous with backlight and 4-20mA output OFF Recharge time: 6.5 Hours Service life: >500 charge/discharge cycles</p>



Standard Equipment

- TUF339 instrument with backlit graphic display.
- Power supply - with UK, US, European adapters 110/240VAC
- Transducer cables (x2) 2 metres long
- Transducer set 1 set
- Set of guide rails for use with 'A' or 'B' transducers
- Ruled separation bar (2-piece)
- 4-20mA/Pulse output cable
- USB cable and RS232-C cable
- 2 lengths of chain each at 3.3 metres long
- Test block
- Ultrasonic couplant and syringe applicator
- Manual (on CD)

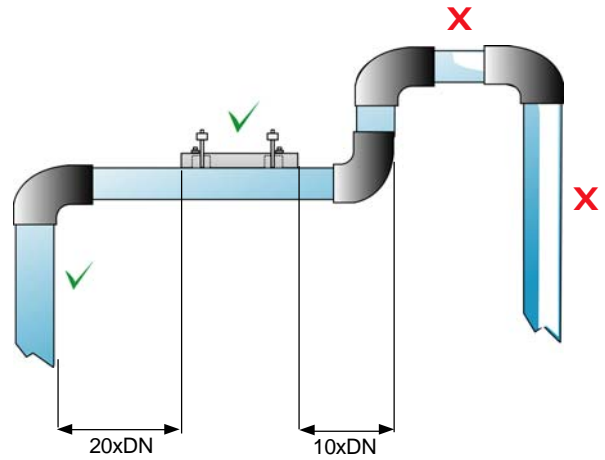
Dimension (In mm)



Installation - Mounting

1) Mounting & location

- At minimum 20D of straight-length pipe must exist upstream of the measurement point and 10D downstream. Ideally, these distances should be as large as possible to ensure accurate reading.
- Transducer should be mounted far away from upstream disturbances such as bends, tees, valves, pumps... etc, to avoid any cause of distortion of flow profile.
- Transducer must be mounted at location whereby pipe is always full filled.
- The pipe wall exterior should be free from dirt, paint or corrosion. For optimum accuracy the interior wall should also be free from deposits or corrosion.



2) Liquid Medium

It is essential that the type of fluid is known. Also that there are no air bubbles and that the solid content does not exceed 5%.

Ordering Information

(Example)

TUF339

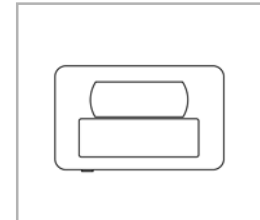
B

Model

TUF339 - Portable Clamp On

Sensor Type (Pipe Range)

- A - Sensor 'A' - 13 to 115 mm
- B - Sensor 'B' - 50 to 2000 mm
- A+B - Sensor 'A' + 'B' - 13 to 115mm & 50 to 2000mm
- D - Sensor 'D' - 1000mm to 5000mm



Ordering Code: (Example)

TUF339

B

FLOTECH

PROCESS CONTROL & INSTRUMENTATION

REGIONAL NETWORK

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Certificate SG13/04547

