

## U3000/U4000 Ultraflo Clamp-on Flow Meter

### The new permanent/ fixed clamp-on flow meters from Micronics, for simple, accurate flow measurement from outside the pipe!

The Ultraflo brings simplicity to the non-invasive measurement of liquid flow, offering the user quick and accurate flow measurement with its easy to follow menu and simple set up. A cost-effective alternative to traditional in-line meter installation, plus dry servicing, providing minimum downtime and maximum availability!

Compact, rugged and reliable, the Ultraflow has been designed to provide sustained performance in industrial environments.



- DSP measurement technique
- Reynolds number correction
- Easy to install
- Simple to follow programming menu
- Clamp-on sensors



# Ultraflo U3000/U4000

## INDUSTRIES:

- n Building Services
- n Energy Management
- n Water
- n Power Generation
- n Chemical
- n Pharmaceutical
- n Petrochemical
- n Food

## RECOMMENDED FOR:

- n Hot water
- n Chilled water
- n Potable water
- n Demineralised water
- n River Water
- n Hydraulic oil
- n Diesel and fuel oils
- n Chemicals
- n Petroleum products

## APPLICATION/USE:

- n Hot water metering and flow measurement
- n Flow measurement for Heat Metering
- n Chilled water metering and flow measurement
- n Flow measurement for chilled water energy metering
- n Potable water metering and flow measurement
- n Process metering and flow measurement
- n Ultrapure water measurement
- n Heavy fuel oil metering
- n Condensate measurement

U3000 - Permanent Ultrasonic Liquid Flow Meter



## U3000/U4000 Specification

**Enclosure:** – The U3000/U4000 enclosure is IP65 rated.

**'A' Transducers:** – 13mm DN to 115mm DN pipes.

**'B' Transducers:** – 50mm DN to 2000mm DN pipes.

**Optional Transducers:** – For pipes 1500mm up to 5000mm contact Micronics.

**Transducer Operating Temp:** – 'A' & 'B' -20°C to +135°C.

**Optional Hi-Temp:** – 20°C to +200°C.

**Outputs:** – Opto Isolated 0/4 –20mA; RS 232/USB (U4000 ONLY);  
Pulse Output – Programmable Pulse Width from 2ms - 500ms or frequency pulse.  
Two programmable Alarms-High/Low flow, Volume or error.

**Data Logger (U4000 ONLY):** – Built in data logger with 200,000 data points which can be configured to log flow rate and/or total flow. Real time or stored data can be displayed locally in text or graph format, and downloaded via RS232 or USB port to Windows based PC.

**Portagraph Software (U4000 ONLY)**



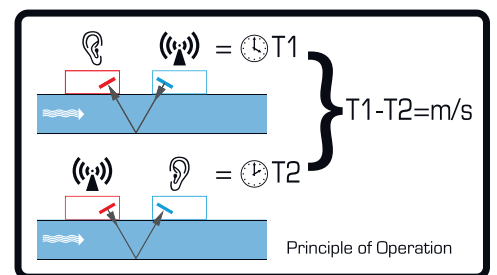
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## HOW DOES IT WORK?

The Ultraflo is a transit time ultrasonic flow meter designed to work with clamp-on transducers, to provide accurate measurement of liquid flowing within a closed pipe, without the need for any mechanical parts to be inserted through the pipe wall or to protrude into the flow system. It takes just a few minutes to install and there is no need to shut down flow or drain the system!

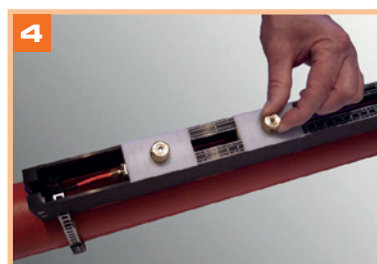
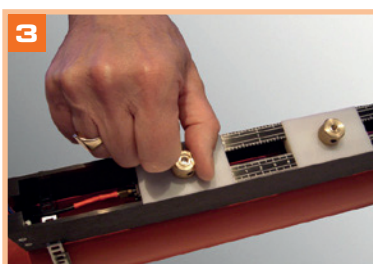
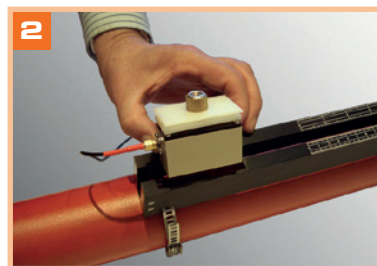
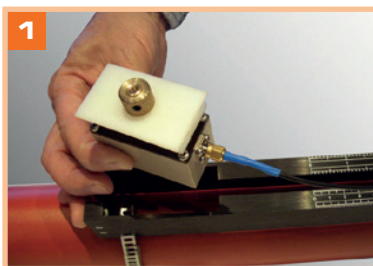


When ultrasound is transmitted between the transducers, the speed at which the sound travels through the liquid is accelerated slightly by the velocity of the liquid through the pipe. When ultrasound is transmitted in the opposite direction, the flow of the liquid causes the transmitted sound to decelerate. The subsequent time difference is directly proportional to the flow velocity in the pipe. Having measured the flow velocity and knowing the pipe cross-sectional area, the volumetric flow can be easily calculated.

## U3000/U4000 Product Features

- n Flow Range – 0.1m/sec to 20m/sec bi-directional.
- n Display – 64 x 240 pixels graphic display.
- n Programming is password protected via 15 key control panel.
- n Power – 86V to 264V AC. Optional 24V a.c./d.c. 1A max.
- n 9 user selectable languages including English, German, French, Spanish and Russian!
- n Accuracy +/- 0.5% to +/- 3% depending on pipe size for flow rate > 0.2m/s.
- n CE approved

## Simple steps for locating sensors on pipe



## Hardware & Operation

The Ultraflo electronics are housed in a specifically designed IP65 enclosure, which incorporates the graphic display, keypad, sensor and output facility connections. Programming the unit is carried out by selecting the options displayed in the main menu and by following the simple instructions in any of the user selectable languages. Signal strength, time and date, as well as flow information are all continuously displayed, keeping the user fully aware of the measurement process.

## Flow Transducers

The Ultraflo is able to work with different transducer sets depending on the unit purchased and the application. Sensors are mounted in a guide rail provided with each instrument, to ensure correct mounting and reliable operation on any size pipe, in either diagonal or reflex mode.

## Data Logger (U4000 only)

The built in data logger in the U4000 allows site details and flow data to be recorded with a memory, that is able to log 200,000 separate readings. Data can be stored in 5 second to 1 hour intervals. The data for each site is stored in the memory until it has been cleared. The stored data can be displayed on the instrument in text or graph format. The instrument is also capable of downloading the stored data via the USB or RS232 output port.

## Enclosure and guide rail dimensions:

