



TECHNOLOG



Accuflow™ - Sluice Valve Flowmeter

The Accuflow provides an indication of the flow rate passing through sluice valves. This provides quantification of leaks and allows leak repair schedules to be prioritised. Accuflow also facilitates new ways to improve system knowledge, check commercial meter accuracy and identify illegal water usage.

- Up to 33% of all leaks repaired have no effect on reducing reported leakage levels
- Accuflow™ enables more effective deployment of leakage repair budgets through better identification and quantification of leaks
- Accuflow™ can reduce repair costs by up to 30%

Measuring flow rates using Accuflow™

Overall accuracy levels of +/- 10% are obtainable at flow rates ranging from 0.3 litres/sec to 3 litres/sec.

The total operation takes less than ten minutes from a 100mm sluice valve.

Accuflow™ measures flow rates lower than that of a conventional type meter. For example, the minimum flow specified for a 100mm helical vane meter is 0.5 litres/sec.

Accuflow™ consists of:

- A display unit which provides visual and audible signals to the operation at each stage of the flow monitoring process
- A keypad to facilitate input of key data
- A microprocessor which records and processes the input and sensor-derived data to provide an estimation of flow

The device provides the operator with step-by-step instructions on how to close the valve. This action is fundamentally important because it provides the information needed to analyse the current flow rate when the valve is fully open. The valve needs to remain closed for only a few seconds before being reopened. The estimated flow rate is displayed on the Accuflow™ LCD panel immediately after valve closure. With Accuflow™ every sluice is a potential metering point.

Accuflow™ can:

- Provide immediate indication of the flow passing through the fully open valve
- Enable better identification and quantification of leaks
- Allow leak repair schedules to be prioritised
- Facilitate new ways to improve system knowledge
- Check commercial meter accuracy
- Identify illegal water use



Accuflow™ turns sluice valves into meter points

Conventional step-testing:

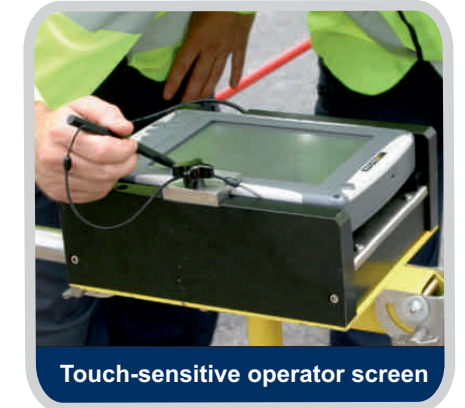
- Provides flow information but requires expensive installations for each metering point. Work has to be undertaken at night which can cause disruption to customers' supplies
- It is not always possible to get good results due to intermittent night use within the area being monitored
- Can identify leaks but often provides a poor indication of the leak size
- Overcomes these problems. It is used on any distribution sluice valves and requires no excavation or modification to the valves
- With Accuflow™, measurement of the flow simply requires a controlled closing of the valve. The valve is immediately reopened resulting in little or no disruption to the supply. Daytime flow monitoring becomes possible, whereas step-testing normally requires night working with all the associated extra costs

Accuflow™ quantifies leaks:

- Quantitative local information on levels of rate flow is easily obtained
- Metering points can be close to the area being monitored thus reducing the effect of customer usage on the measurements
- The controlled nature of the valve operation reduces the likelihood of causing small bursts on weak mains or discolouring the supply
- Follow-up monitoring to assess the effect of leak repairs is possible
- No susceptibility to external noise as is the case with acoustic logging
- No fixed installation required thus reducing costs
- Can be used to detect illegal use of water on fire mains
- Can be used to control and monitor valve operations and speed of closing sluice valves

Accuflow™ requires:

- A sluice valve with leak-proof closure and no gland leakage
- A clean valve head to provide a good contact with the acoustic sensor
- The ability to completely close the valve for a short period although this is only normally required for approximately 10 seconds
- A sluice valve that can be operated from fully open to fully closed without removing the Accuflow™ from the valve head



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Technical Specifications



- Tablet PC** Rugged tablet PC with shock protection with high contrast touch screen display
Full windows operating system and standard interfaces (USB, Bluetooth, RJ)
- Accelerometer** Hermetically sealed high sensitivity Wilcoxon leak-detection accelerometer
316 stainless steel construction
Sensitivity of 12 V/g at +/- 3dB
Acceleration range, nominal 0.10g peak
Frequency response 10Hz-4kHz
- Compass** Resolution of 0.1°
Tilt compensation to 60°
Accuracy of 3 degrees RMS with tilt of 0 to +/- 30°
Accuracy of 4 degrees RMS with tilt of +/- 30° to +/- 60°
- Software** Graphical user interface with real-time angle + signal data display
Over 10GB of storage for historical site data including operator information
Automatic valve sizing and custom valve support including direction and sizing
Variable noise sample rates and flow unit conversion support
- Microprocessor** Robust TI MSP430 microprocessor
Low power 16-bit RISC architecture
Bespoke sampling algorithms including auto-gain functions
- Supply** Dual lithium ion extended life T8S-E battery pack for the tablet PC
USB powered electronics from the tablet PC
- Audio** Standard 3.5mm stereo jack (mono operation)
Direct drive stereo headphone driver (MAX4410)
80mW per channel into a 16 Ohm load
- Dimensions** 1500mm x 240mm x 426mm (handles up)
1500mm x 240mm x 830mm (handles down)

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