Flow.watch

Street Level Sensing

Flow.Watch is a unique solution that combines advanced temperature analysis with our versatile telemetry technology to create an economical method to monitor the flow through a water mains network.

Temperature-focussed street level analysis enables the detection and accurate localisation of leaks or other flow anomalies in the distribution network, without dependence on leak noise transmission.

Flow.Watch continually searches for leaks in the network, helping to reduce the time from break-out to location, saving money and water.

Flow.Watch is a patented product as awarded by the IPO.

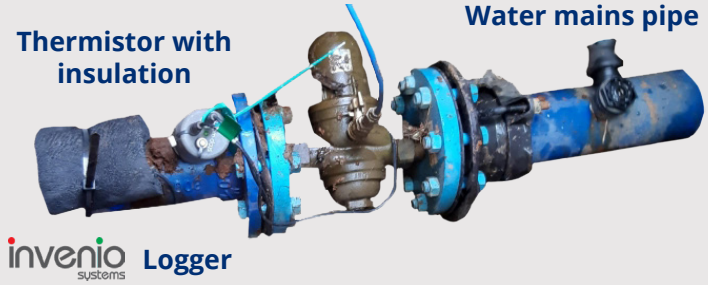
Key Features and Benefits

- **Reliable flow detection:** capable of detecting almost any flow through a network main
- **Fixed network monitoring:** continually analyses for leakage and/or changes to flow events (e.g. valve operation)
- **Economical:** significant cost savings through better understanding of the leak pattern and location
- **Easy installation:** simple, cable tied attachment and remote set up via GPRS
- **Telemetry:** integral SMS/GPRS/4G/NBIoT/LTE-M (Cat-1) cellular options
- **Material independent:** equally effective on metallic and plastic pipe networks, making it complementary to acoustic logging
- **Remote viewing:** viewing via server hosted software
- **Enhanced customer service:** enables rapid resolution of network-side losses
- **Versatile application:** effective in rural tree and branched networks and compact interconnected networks
- **Network sub-division:** can be used to sub-divide a network into smaller areas than available with valves, enabling more accurate leak localisation
- **Risk reduction:** provides the benefits of step testing without the safety risks of night work or the associated water quality risk
- **Automated alarms:** for sudden changes in flow rate

Case Study Flow.watch

Trials of street level sensing on five DMA's across three water companies have shown the ability to both detect and locate anomalous flows (from both test flows and real leaks) to a small area of the DMA. Detecting and analysing the flow pattern may help discover leakages and deliver an ongoing revenue benefit to our client.

As a permanent network deployment, Flow.Watch has the potential to continually monitor area mains. With data transmitted via low cost cellular telemetry, the requirement for expensive site visits and "drive-by" data collection is removed.



MONITORING ASSETS, DELIVERING DATA, BRINGING CONTROL

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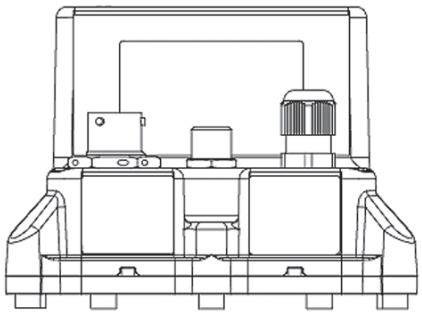
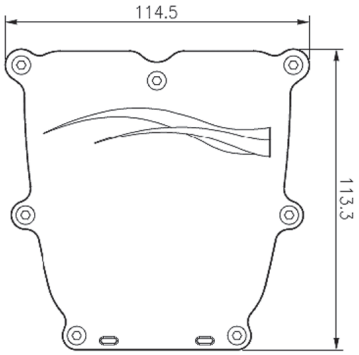
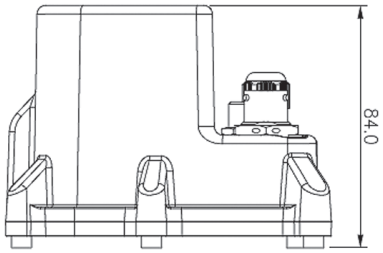
Street Level Sensing







Logger Features

Memory	Primary recording: 500,000 readings at 40 second sample rate (please note that this may affect battery life and communications cost).
Logger ID	7 alphanumeric characters. Readable factory set serial number in firmware
Internal Cellular Modem	Cellular modem supporting 2G/3G/NBIoT/ LTE-M (Cat-1) with SMS backup where available - contact HWM for available options
Dimensions	84mm x 114.5mm x 113.3mm
Construction	Tough ABS plastic enclosure (blue)
Weight	590g
Operating Temperature	Logger: -20°C to 60°C (-5°F to 140°F) Thermistor: -10°C to 40°C (14°F to 104°F)
Ingress Protection	IP68 submersible
Power	Lithium Thionyl-Chloride cell operational for 5 years under standard operating conditions, complete with low battery alarm

Sensor Input Options

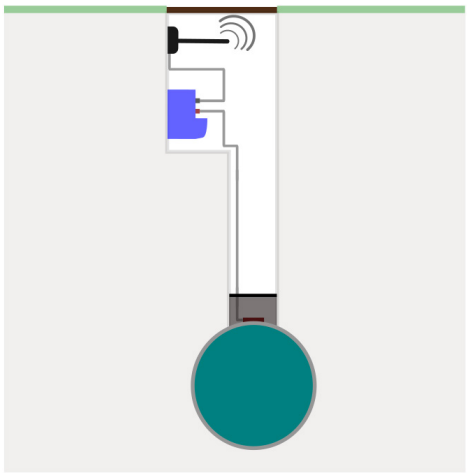
Temperature	Invenio 10k Thermistor

Installation

As illustrated in the diagram opposite, Flow.Watch is installed for street level sensing by clamping a thermistor (red) to the mains. A second thermistor is attached to the chamber wall to record changes to the environmental temperature (not shown).

To insulate from atmospheric changes and improve signal quality, the clamped sensor is surrounded by foam insulation (grey) and cable tied (black) onto the mains pipe.

The data is collected by the COMlog device (blue) and transmitted by low cost cellular telemetry.



HWM invenio systems

HWM Water Limited

Ty Coch House
Llantarnam Park Way
Cwmbran
NP44 3AW
United Kingdom

Tel: +44 (0) 1633 489 479
Fax: +44 (0) 1633 877 857
Email: sales@hwm-water.com
Web: www.hwmglobal.com