Flow.watch

Fire Supply Surveillance

Flow.Watch is a unique solution that combines advanced temperature analysis with our versatile telemetry technology to create an economical method to monitor fire supply flow.

Flow.Watch identifies and categorises fire supply flow into leakage, test use and intermittent use.

This enables water companies to identify the fire supplies from which water is being used or lost, helping to account for water consumption and determine whether apparent DMA night flow loss increases are because of customer use or customer-side losses.

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 the fire supply
- **Unaccounted for water:** improves the water balance
- **Supports revenue increase:** customer use in unmetered fire supplies identified
- **Enhance customer service:** enables rapid resolution of customer-side losses on unmetered services
- **Fixed network monitoring:** continual analysis of flow and/or leaks
- **Versatile application:** suitable for public supply fire hydrants and private fire supply systems
- **Customer protection:** detecting fire supply back-siphonage before water quality affected
- **Cost-effective:** cheaper, non-restrictive alternative to metering
- **Easy installation:** simple, cable tied attachment and remote set up via GPRS
- **Flow categorisation:** detected flow can be categorised into leakage, illegal use or fire tests
- **Telemetry:** integral SMS/GPRS/4G/NBIoT/LTE-M (Cat-1) cellular options
- **Remote viewing:** viewing via server hosted software

Case Study

Severn Trent approached Invenio systems in January 2019 to assess the extent of water use in the fire mains systems of some of their large industrial facilities. Accounting for this water may help discover leakages and deliver an on-going revenue benefit to Severn Trent.

Invenio's new approach monitored 118 industrial fire supplies over 8 weeks. Of these sites, 36 were found to have regular water usage events drawing from the unmetered fire supply (30.5%).
In addition, 35 were found to have some form of leakage (30%) and testing was recorded in 16 sites (14%).

Flow testing in the fire supply of one property discovered usage of 375 litres/minute. With weekly tests on average lasting 38 minutes, Invenio estimated up to 229,800 litres/week of usage from fire supply testing alone.

As a permanent network deployment, Flow.Watch has the potential to continually monitor fire supplies and unmetered connections. 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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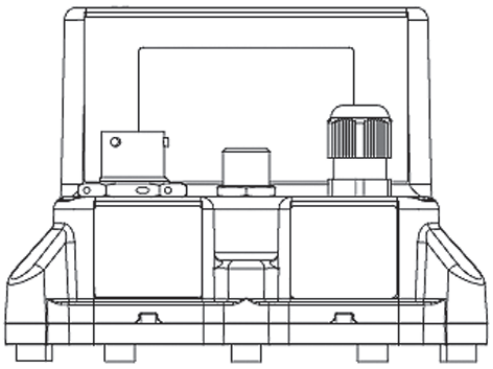
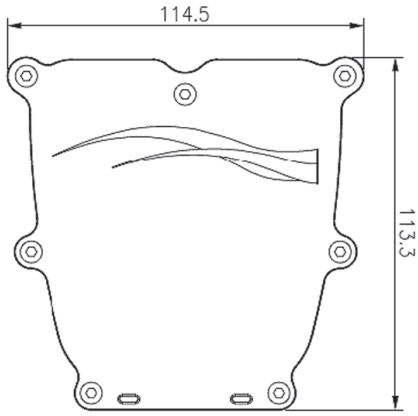
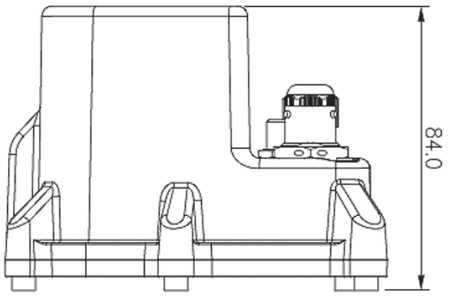


Logger Features

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

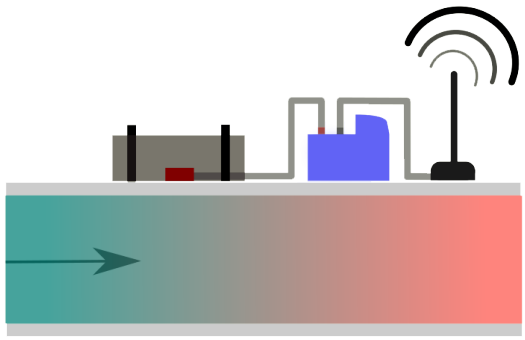
Temperature	Invenio 10k Thermistor

Installation

As illustrated in the diagram opposite, Flow.Watch is installed by clamping a Invenio thermistor to the fire supply. A second thermistor is placed away from the pipewall to record environmental temperature.

To insulate from atmospheric changes and improve signal quality, the clamped sensor is surrounded by a foam insulation pad.

The data is collected by the COMlog device (blue) and transmitted through integral modem with GPRS/2G, 4G, LTE-M (Cat-1) and other NBIoT cellular options available



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