WASTE WATER

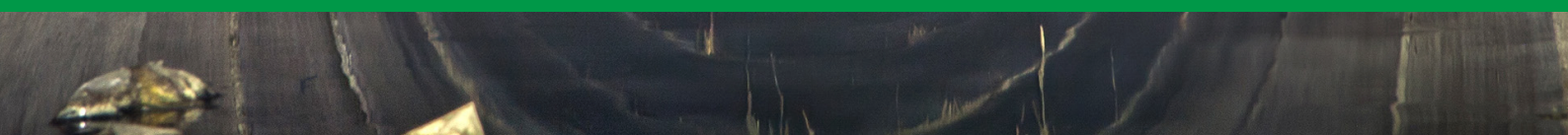
HWM

Experts in Waste Water Monitoring

for long term monitoring and surveying in waste water networks

PRODUCT CATALOGUE
SUMMER 2021

MONITORING ASSETS, DELIVERING DATA, BRINGING CONTROL



Who are **HWM?**

We are experienced and respected manufacturers of monitoring and telemetry equipment for water, wastewater and gas networks, together with telemetry AMR and facilities optimisation products.

Having serviced the clean water industry for nearly 40 years, we have combined advanced cellular communications technology with rugged, purpose-designed hardware to deliver a wide variety of robust and efficient network monitoring solutions.

We are dedicated to achieving our aim of **helping customers to save natural resources and reduce CO_2 emissions**.

Based out of our Head Office in South Wales, which incorporates a 400 year old, Grade II listed farmhouse, we design, test and manufacture all of our network monitoring solutions in-house.

We boast an innovative research, development and manufacturing facility and dedicated engineering and production teams, allowing us to deliver our industry-leading products to customers quickly.

Our unique Head Office also houses our advanced testing and development equipment. This includes our complex new test rig and our industry-renowned external leak site.

The test rig, which was developed to meet our own specifications, is built in three parts and allows the replication of a variety of network conditions. Our team of engineers and technical specialists use the test rig to support development of new technologies and to test upgrades of current products.

Our leak site is an underground network of pipes and valves designed to simulate leaks and generate authentic leak noise. While our technical teams use the leak site for product development, it is also a great facility to help train customers in leak noise detection.

Why monitor **Waste Water Networks?**

Challenges such as climate change and rapid population growth are adding additional demand to waste water networks that, in many cases, are already feeling the strain.

Both increased urbanisation (to meet the demand for new housing) and greater, more consistent quantities of rain water are having a direct impact on the capacity of waste water networks.

When pairing together the challenges of maintaining a Victorian-era sewer network with a growing population and climate change, water companies are finding themselves under increasing pressure to find smart, cost-effective solutions.

How do we monitor **Waste Water Networks?**

We have developed an innovative range of waste water network monitoring products that fall under the following categories:

Data Logging

The heart of our waste water monitoring system: highly-compatible data loggers that use advanced cellular telemetry to deliver customer data

Level

Innovative, multi-application level sensors that provide accurate chamber level data

Flow

Flow sensors monitor the flow-through of a chamber, delivering reliable data and tackling flooding caused by pipeline blockages

Intelligens WW

ATEX Certified Data Logger

Intelligens WW: NBIoT-enabled data logger engineered for waste water applications

Intrinsically safe and built for compatibility, the versatile Intelligens logger can be tailored to meet a variety of specific user needs.

Intelligens WW is safe for use in explosive environments, and as such, is an ideal logging solution in combined sewer overflows, general sewer monitoring, storm drains, storage tanks and flood warning systems.

Key Features and Benefits

- NBIoT LTE-based cellular communication standard with fallback 2G capability
- Compatible with a wide variety of sensors and inputs
- IP68 rated, making it fully waterproof under pressured immersion

Both Intelligens WW and Multilog 2 WW are compatible with a variety of different sensors, including: -

Pressure Transducers

Doppler Velocity Probe

H_2S

Conductivity Sensors

Current Switches

Multilog 2 WW

Multi-Input Data Logging and Telemetry Platform

Multilog 2 WW: the highly-versatile data logger designed for compatibility with a variety of third-party sensors including: RavenEye, MicroFlow-i, dBi and VEGAPULS.

Flexible and robust, Multilog 2 WW is the ideal solution for waste water monitoring applications where ATEX certification is not required.

Equipped with our advanced modem, Multilog 2 WW is capable of connecting via LTE-M or NBIoT with a 2G fallback, or through 3G or 2G for dependable data telemetry and future-proofing in the rapidly evolving cellular landscape.

Housed in a robust IP68 plastic enclosure, the unit offers multiple inputs and switch outputs and is ideally suited to installation in environments where corrosion is a concern. Multilog 2 WW is a highly versatile solution for waste water monitoring applications where ATEX certification is not required.

Key Features and Benefits

- Compatible with a range of sensors, including SpillSens, internal or external pressure transducers, active/passive 4-20mA, voltage, digital pulses, Modbus, SDI12 and more
- 4 sensor connections with up to 8 channels available
- Max, min, average and standard dev. recordings available
- Advanced LTE-M and NBIoT telemetry options available

IS Log

ATEX Certified Data Logger

IS Log: intrinsically safe and highly versatile data logger

A multi-application solution, IS Log is compatible with a variety of sensors, including SpillSens, the ATEX certified digital float sensor, as well as ultrasonic and capacitance sensors and depth transducers.

This innovative logger uses the latest integral cellular telemetry technology to provide rapid data transmission at low cost.

Key Features and Benefits

- Compatible with a range of sensors, including SpillSens
- Certified for use in Zone 0 hazardous areas
- Designed for easy integration into third party software via DataGate API
- Advanced cellular telemetry options available

SonicSens 3

Ultrasonic Level Sensor

SonicSens 3 is an intrinsically safe level sensor developed for use in multiple applications, including sewer level monitoring.

Through the use of ultrasonic technology, SonicSens 3 avoids contact with its environment, reducing contamination and lowering maintenance requirements.

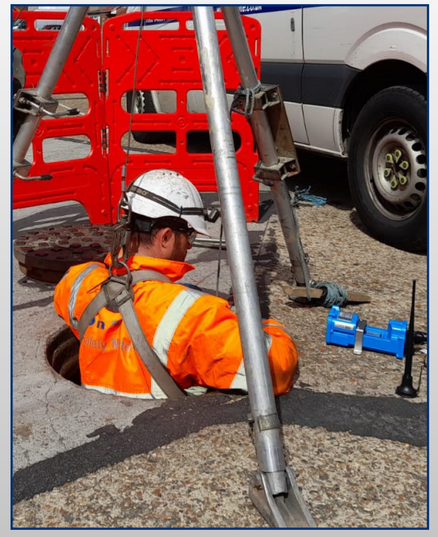
Compatible with multiple HWM telemetry data loggers and certified for use in Zone 0 hazardous areas, SonicSens 3 is the ideal solution for remote and challenging installations.

Key Features and Benefits

- The intelligent SonicSens sensor is compatible with a variety of HWM data loggers
- Contains 'Unwanted Echo Filter' to remove noises caused by objects such as ladder rungs
- Easy to install, with multiple pre-set options in software, including automatic level/flow conversion

Thames Water and HWM deliver ambitious SDM installation project

deploying almost 4,000 advanced ultrasonic level sensors last year



HWM is pleased to be supporting Thames Water in the delivery of an ambitious Sewer Depth Monitoring (SDM) installation programme which saw almost 4,000 advanced level sensors installed last year.

Every day, more than 15 million people in London and the Thames Valley flush or drain 4.6 billion litres of used water. To cope with this huge demand, Thames Water maintains a complex 68,000-mile sewer network.

With such huge quantities of water to manage, it is critical that the sewer systems remain functional at all times. This is especially important as population growth and more extreme weather patterns are putting additional stress on sewer networks.

Water companies also face various problems associated with pipe blockages, so sewer maintenance is key. On average, Thames Water spends £18 million every year clearing 75,000 blockages from its sewers, unclogging five house blockages and removing 30 tonnes of material from just one of its sewage works every day. This is critical maintenance, as blocked pipes can result in the flooding and pollution of customers' homes and businesses.

"We get thousands of entirely avoidable blockages on our sewers each year when things like wet wipes, nappies or cotton buds are flushed down the loo, or when cooking fat from kitchens is poured down the sink. We'd urge everyone to help by only flushing the 3Ps – pee, poo and paper – as well as disposing of fat and oils in the bin, not the sink, which helps to keep the sewers flowing and to prevent them blocking and backing up into people's houses and gardens, or even into the local rivers"
Anna Boyles, Performance, Risk and Optimisation Manager, Thames Water

To help monitor their network through Sewer Depth Monitoring, Thames Water installed 3,700 SonicSens 3 ultrasonic level sensors last year, which saw it hit its yearly deployment target.

SonicSens 3 uses ultrasonic technology to measure the level of wastewater in a chamber, information which can provide an early warning of blockages within the network. The benefit of using ultrasonic technology is that SonicSens 3 is installed within the chamber but avoids contact with its environment. This lack of contact with the contents of the sewer lowers the requirement for maintenance of the SonicSens 3 devices.

In this SDM programme, SonicSens 3 has been paired with our Intelligens WW data loggers for efficient data transfer. Intelligens WW is truly flexible, with the versatility to be tailored for a variety of specific user needs.

In installing the combination of SonicSens 3 and Intelligens WW, Thames Water has selected an effective early warning system. Should levels rise, the device will send alarms, drawing attention to a developing problem within the network and helping to avoid the damage caused by flooding and pollution incidents.

"These monitors are an important tool in our armoury in the fight against sewer blockages. The data they provide gives us a picture of what's happening in our sewers and helps us to nip blockages in the bud before they cause problems."
Anna Boyles, Performance, Risk and Optimisation Manager, Thames Water

SpillSens **Digital Float Sensor**

As a result of climate change and population growth, waste water networks are under more pressure now than they have ever been before.

More regular extreme rainfall events and rapid expansion of urban areas is greatly impacting the quantity of water entering sewer networks and is reducing the ability of sewers to cope with flood events.

To support water companies in greatly reducing the physical and financial costs of flooding we have developed our ATEX certified smart solution, **SpillSens**.

How SpillSens Works

SpillSens is an easy to install, low maintenance float sensor that acts as an early warning system for blockages and sewer overflows.

Installed at a critical height, **SpillSens** hangs in the sewer chamber where the tilt angle of the sensor is constantly monitored. When sewer levels rise past a pre-determined level, the contents of the sewer disturbs the sensor, causing it to float and the tilt angle to increase.

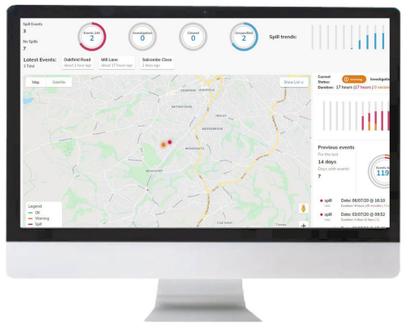
Each SpillSens sensor is connected to a data logger. When the tilt level reaches a specified angle, the logger uses NBIoT cellular telemetry to transmit alert messages to **SpillGuard**, our bespoke web portal for SpillSens.

SpillSens
Digital Float Sensor

- Intrinsically safe
- Three alert levels
- No moving components
- Compatible with multiple loggers

IS Log
ATEX Certified Data Logger

- NBIoT cellular telemetry (2G fallback)
- Multi-application compatibility
- Intrinsically safe
- Wireless programming
- Easy software integration



SpillGuard
Online Data Portal

- Real-time alerts
- Three alert levels
- Graphical map view
- Detailed site view
- Data security features

SpillSens

ATEX-certified Digital Float Sensor

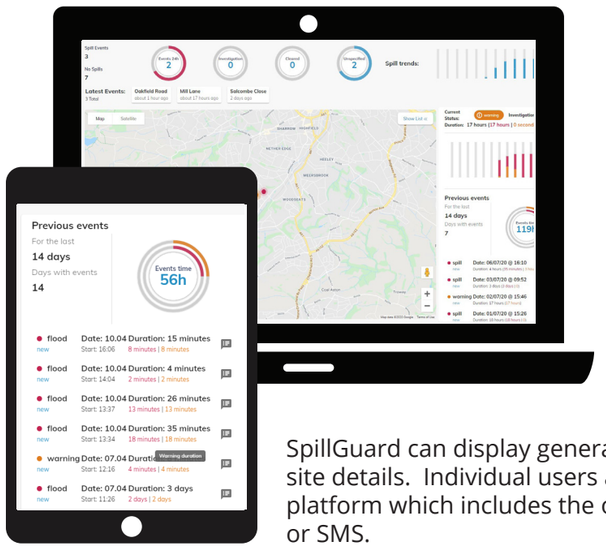
SpillSens is a low-cost, multi-alarm digital float sensor designed to act as an early warning system for blockages and sewer overflows.

ATEX-approved and built to withstand harsh sewer environments, SpillSens uses digital positioning technology to monitor rising levels in the waste water network. Connected to an advanced data logger with integral telemetry, alert messages are transmitted to a dedicated user portal.

SpillSens is a simple to install, robust and cost-effective solution for long-term level monitoring in waste water networks.

Key Features and Benefits

- Three levels of alert (green, amber and red), based on the angle of the sensor
- Designed to have no moving parts, unlike traditional steel ball and micro-switch sensors
- Certified for use in Zone 0 hazardous areas
- Online data viewing via SpillGuard portal



SpillGuard

Online Data Viewing Portal

SpillGuard is the dedicated online portal for the monitoring and fleet management of HWM's unique multi-level alert system.

Using Google Maps, SpillGuard provides a detailed map interface which colour codes the status of each individual installation. Three alert levels can be supplemented with user-assigned statuses, such as "site under investigation" or "alert cleared".

SpillGuard can display general site statistics and trends, as well as specific site details. Individual users and reports are managed using an advanced platform which includes the option to forward alarm messages via e-mail or SMS.

SpillSens

ATEX-Certified Digital Float Sensor

Using digital positioning technology, SpillSens monitors rising levels in waste water networks, acting as an effective early warning system for blockages and sewer overflows.

HWM

Intelligens Flow

ATEX-certified Flow Monitoring System

Intelligens Flow is a flow monitoring system designed for use in waste water applications including foul, combined and storm water sewers.

Built around an Intelligens WW data logger, flow velocity is measured by a Doppler-effect sensor that uses ultrasonic pulse technology. To generate level, a Piezo resistive probe is fitted, including a desiccant tube to maintain proper sensor function.

Non-contact level measurement can be achieved using a SonicSens ultrasonic sensor. Software within the unit can automatically be added depending on the nature of the application.

Key Features and Benefits

- NBIoT LTE-based cellular communication standard with fallback 2G capability
- Compatible with a wide variety of sensors and inputs
- IP68 rated, making it fully waterproof under pressured immersion

OnSite™

About COMlog 2

COMlog 2 is the highly versatile data logger designed to be a cost-effective, multi-application data logging solution.

Developed for flexibility, COMlog 2 is compatible with any sensor or meter that has a volt-free pulsed output.

Particularly effective for smart metering, COMlog 2 provides businesses with an efficient way of managing water and energy consumption and reducing costs.

HWM

COMlog 2 measures rainfall events for waste water specialists, OnSite

providing accurate data, helping to reduce the risk of blockages and flooding

To ensure sewer systems are operating effectively, and to reduce the risks of blockages, water companies often carry out flow surveys within their networks. A flow survey will indicate how the sewer is performing day-to-day, as well as how it copes with the added water from rainfall events.

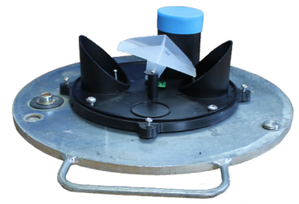
During any flow survey, water companies will also record the amount of rainwater that is delivered into the sewer system. The recognised way of doing this is through the use of rain gauge.

Tipping bucket rain gauges work by recording the number of times the bucket tips when collecting rainwater. The tipping mechanisms have a specific capacity, which when multiplied by the number of tips, calculates the amount of rainfall during a specific event.

When OnSite, one of the UK's leading waste water specialists, was looking to make their rain gauges more efficient, they required a data logger that has the ability to automatically upload the collected data to a central point. Not only would this save time, but it would also be more cost effective.

To meet OnSite's requirements HWM proposed **COMLog 2**, an innovative logger that uses latest GPRS technology for low cost data transmission.

COMLog 2 is compatible with any meter that uses pulse counting technology to take readings, making it perfect for OnSite's specific requirements. Automatically uploading data to a central server has numerous benefits for OnSite and their customers.



The data is available almost immediately, meaning it can be utilised more quickly and more efficiently. It is also much more cost-effective as automatic data transfer reduces the requirement for regular site visits for manual data downloads.

At HWM we've been pleased to be working in collaborative partnership with OnSite, delivering effective data monitoring solutions. In turn, OnSite are particularly satisfied with both the versatility and reliability of COMLog 2, which has proved ideal for rainfall measurement applications.

Antenna Options

2G/3G/4G/NBIoT/LTE-M (Cat-M1)+ Antenna

Signal strength within the cellular network can vary dramatically even within the same cell proximity to the transceiver.

The type of antenna, position and angular orientation of the antenna each has a significant effect on the ability of a device to reliably communicate with the cellular network.

To ensure reliable 2G/3G/4G/ NBIoT/LTE-M (Cat-M1) data communications, it is essential that the most suitable antenna is selected and mounted in the most appropriate location.

	Frequency Range	Dimensions	Operating Temp.	Mounting Method
I-Bar	698~960/1710~2655 MHz	26 x 125 x 7mm	-40°C - +85°C	Adhesive
Magmount+	700/850/900/1700/1800/1900/2100MHz	280 x Ø50 mm	-40°C ~ +85°C	Magnetic
Button+	850/863/900/1800/1900/2100 MHz	115 x 16.2 x 0.8mm	-40°C - +85°C	Bolted
Dipole+	850/900/1700/1800/1900/2100MHz	160 x 45 mm	-20°C - +60°C	Magnetic
Magpot+	698-960/1710-2655MHz	61 x Ø33 mm	-40°C ~ +85°C	Magnetic

+ Contact HWM to confirm worldwide coverage of NBIoT and LTE-M (Cat-M1)





ATEX Battery Pack

Intrinsically Safe Battery Pack

The ATEX battery pack is a market leading power solution for hazardous environments.

Designed to operate safely in intrinsically safe applications, the ATEX battery pack allows for accelerated dial-in for remote logging applications.

Fully waterproof, the ATEX battery pack can be easily installed in the harshest environments.

Key Features and Benefits

- Certified for use in Zone 0 hazardous areas
- Supports accelerated dial-in for HWM products
- Allows for 30 minute logging for up to 5 years with Intelligens WW

Additional Support

ESIB - External Sensor Interface with Battery

The intrinsically safe **ESIB** battery pack is fully waterproof to IP68 standard, with long life battery (5+ years) and an external non-corrosive connector. This allows long-term use of sensors with demanding power requirements.

ESI - External Sensor Interface

The **ESI** is an external pressure sensor for depth measurement. It calculates the depth of liquid by reading the pressure exerted on it.

We are experienced and respected manufacturers of monitoring and telemetry equipment for water, wastewater and gas networks, together with telemetry AMR and facilities optimisation products.

CLEAN WATER | WASTE WATER | GAS NETWORKS | AUTOMATED METER READING | FACILITIES MANAGEMENT

Clean Water Network Monitoring

With over 30 years in the water industry, HWM is skilled at addressing the challenges of water network monitoring. With increased pressure on water globally, we can solve the problems of effective water network management, providing data on performance and enabling effective network management.

Waste Water Network Monitoring

Control of waste water networks is a key public health challenge. Effective monitoring of waste water networks reduces both frequency and impact of pollution events. Permanent installation of remote monitoring equipment helps to alert network operators to immediate problem sites.

Gas Network Monitoring

Effective monitoring of gas networks has traditionally been a challenge, due to a lack of on-site power and deployment difficulty. Our gas products address these concerns, using our expertise in ATEX and low power design capabilities. This enables users to collect data about this critical infrastructure.

Automated Meter Reading

Accurate and consistent data is the foundation for effectively controlling energy usage and reducing waste. AMR delivers precise and timely consumption data for investigation and analysis of energy usage as well as exact billing.

Facilities Management

HWM has pioneered the development of wireless monitoring solutions for fixed network deployment. These can be combined with a variety of sensors, providing our partners with 'near real-time' data that they need to help their customers to eliminate waste, cut costs and reduce carbon emissions.

HWM

Palmer environmental | RADIO-TECH | RADCOM technologies | asl | Fcs Fluid Conservation Systems | invenio systems

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