



Waste Water Product Brochure

summer 2023



MONITORING ASSETS, DELIVERING DATA, BRINGING CONTROL

Who is 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 CO₂ 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.



Why monitor **Waste Water Networks?**

Water companies across the globe are under unparalleled pressure when it comes to managing our sewage networks. Rapid population growth and increasingly intense rainfall means more wastewater is flowing into our ageing sewage systems, creating potential pollution incidents.

The spillages and pollution incidents that result from sewer blockages can have devastating consequences, particularly when these incidents happen customer-side.

Not only are clean-ups expensive, but news travels fast via social media and a water company can quickly take a damaging hit to their reputation locally, nationally and even internationally.

How we support monitoring **Waste Water Networks**



CSO and Network Monitoring

- Monitor CSO levels for spills
- Multiple alarm levels, with accelerated sample rate and dial-in frequency
- Monitor screen performance
- Manage cleaning regimes, for efficiency and effectiveness
- Alert emerging problems
- Asset performance
- Feed AI models
- Ensure efficiency of jetting and cleansing



Small Sewer/Customer-Side Monitoring

- Monitoring to avoid blockages and customer floods
- Avoid Pollution
- Improve ODI performance
- Manage cleaning regimes
- Easy installation
- Maintenance-free
- Constant tilt angle for predictive AI alerts



Multi-Parameter Telemetry Logging

- Quality
- Flow
- Level
- Multi-parameter
- Infiltration studies
- Conductivity
- Temperature
- Rainfall

SonicSens 3

The intrinsically-safe, ultrasonic level sensor developed for use in multiple applications, including CSO and sewer level monitoring

SonicSens 3 uses intelligent ultrasonic technology to monitor networks and **prevent surcharge** and **spill events**, ensuring cost-effective **compliance** and damage limitation.

When deployed to conduct Event Duration Monitoring at Combined Sewer Overflows (CSO), SonicSens 3 alerts to surcharges, **reporting event occurrence, time and duration**, and because it avoids contact with its environment there is little need for scheduled maintenance.

ATEX (Zone 0) certified for use in hazardous environments, SonicSens 3 is dependable and, when paired with our ATEX Battery Pack, can deliver **accelerated sample rates** and **increased dial-in frequency** whilst maintaining a **five-year battery life**.



Key Features and Benefits

- easy to install, with multiple pre-set options in software, including automatic level/flow conversion
- features an 'Unwanted Echo Filter' that can remove noises caused by objects such as ladder rungs
- intrinsically safe; ATEX-certified for use in Zone 0 hazardous areas
- avoids contact with its environment, reducing contamination and lowering maintenance costs
- the intelligent SonicSens sensor is compatible with a variety of HWM data loggers

Thames Water and HWM deliver ambitious SDM installation project

initially deploying almost 4,000 advanced ultrasonic level sensors

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, especially 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.

To help monitor their network through Sewer Depth Monitoring, Thames Water initially installed 3,700 SonicSens 3 ultrasonic level sensors last year, hitting 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 a truly flexible data logger with the versatility to be tailored for a variety of specific user needs.

Intelligens WW delivers recorded data through advanced telemetry technology. This quick transfer of data allows customers to monitor their networks effectively and to react swiftly to any potential issues as they arise.

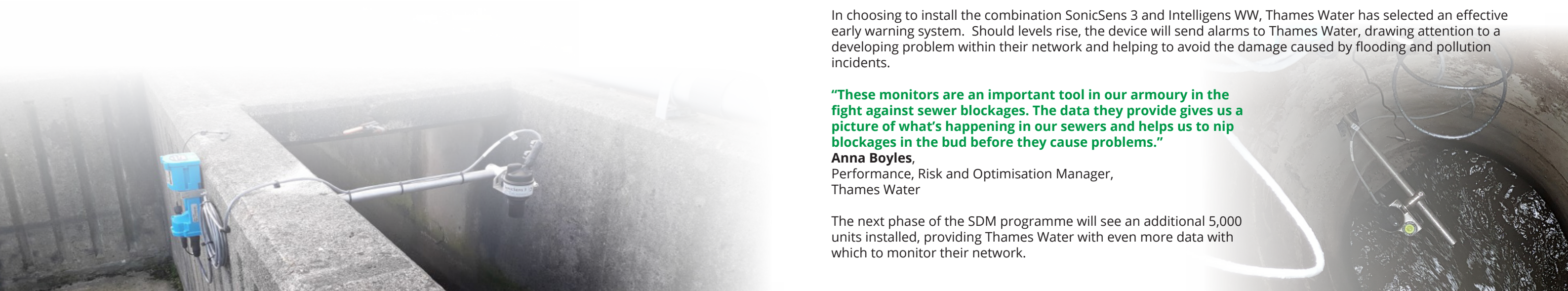
Intelligens WW was also chosen for this programme because it contains a long-life battery which powers not only itself, but also the SonicSens 3 sensor without the need for additional battery packs.

In choosing to install the combination SonicSens 3 and Intelligens WW, Thames Water has selected an effective early warning system. Should levels rise, the device will send alarms to Thames Water, drawing attention to a developing problem within their 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

The next phase of the SDM programme will see an additional 5,000 units installed, providing Thames Water with even more data with which to monitor their network.



RadarSens

The intrinsically-safe level monitoring system using radar sensing technology to deliver cost-effective, dependable, battery powered waste water level monitoring

Cost-effective and simple to install, RadarSens is available with a variety of stainless-steel, non-drill brace bars or conventional wall brackets for 'right first time' deployment.

Additionally, a **laser alignment tool** (supplied separately) is available to check the device is level and aligned correctly during the rapid installation.

Sensors are **configured locally via Bluetooth** through our Deployment App, meaning that site data (including photographs) can be uploaded and accessed remotely.

Through the app, **signal strength** and **sensor reflection tests** can be performed to significantly reduce the likelihood of call-in or poor data quality issues post deployment.



Key Features and Benefits

- intrinsically safe; ATEX-certified for use in Zone 0 hazardous areas
- advanced and cost-effective radar sensor delivers precise data for long-term network monitoring
- remote monitoring of sensor position, data quality and chamber temperature
- a range of easy-fit stainless steel wall brackets and non-drill installation brace bars are available
- drop-in laser alignment tool to ensure the sensor is positioned correctly
- compatible with NBIoT, LTE-M and 2G cellular networks for futureproofing



RadarSens Level Monitoring System

RadarSens is our cost-effective and easy-to-install level monitoring system that uses radar sensing technology to effectively monitor **level** in waste water networks. Intrinsically safe and compatible with our range of HWM data loggers, RadarSens includes a variety of different **deployment features** to ensure a quick and 'right first time' deployment.



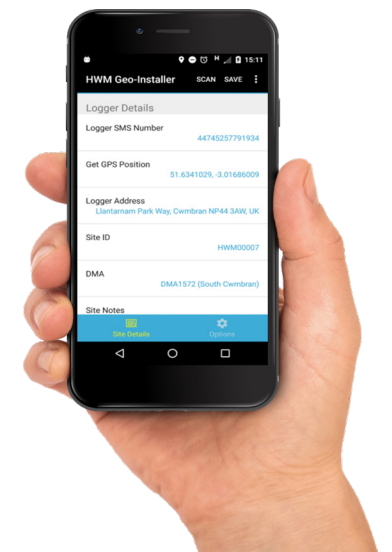
RadarSens
Radar Level Sensor

- Precise data via Radar
- Quick and easy to install
- Bluetooth connectivity
- Dynamic sensor health check
- Compatible with various HWM data loggers



IS Log
ATEX Certified Data Logger

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



Deployment App
Installation Support

- Simple to use
- Barcode scanning
- Accurate GPS
- Installation photos
- Automatic upload

SpillSens

The multi-alarm digital float sensor delivering early warnings of small sewer and customer-side blockages and overflows

Installed at a critical height in a chamber, SpillSens uses digital positioning technology to **monitor sewer levels** constantly and effectively.

Programmed with three alert levels, SpillSens indicates green when conditions are normal, amber when levels are rising and red when critical levels are reached.

Ideal for **Incident Prevention Monitoring**, SpillSens supports compliance with **Outcome Delivery Incentives** and helps to protect the environment by **reducing pollution** incidents.

ATEX (Zone 0) certified, SpillSens is dependable and, when paired with our ATEX Battery Pack, can deliver **accelerated sample rates** and **increased dial-in frequency** whilst maintaining a **five-year battery life**.



SpillSens Digital Float Sensor

SpillSens is an easy to install, low maintenance digital float sensor that delivers early warnings of small sewer and customer-side blockages and overflows. 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

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
- intrinsically safe; ATEX-certified for use in Zone 0 hazardous areas
- dedicated online portal (SpillGuard) for monitoring and fleet management
- highly compatible; works in conjunction with IS Log and other HWM loggers

SpillGuard

The secure online portal for the dedicated monitoring and fleet management of the SpillSens multi-level alert system

Designed specifically for use with SpillSens, SpillGuard provides secure access to the generated data for effective **fleet management** and **network monitoring**.

Using **Google Maps**, SpillGuard provides a detailed map interface which colour codes the status of each individual installation. The three alert levels (green, amber and red) 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.



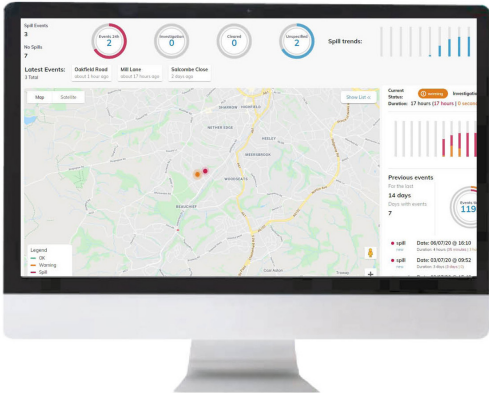
SpillSens
Digital Float Sensor

- 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

Data Logging



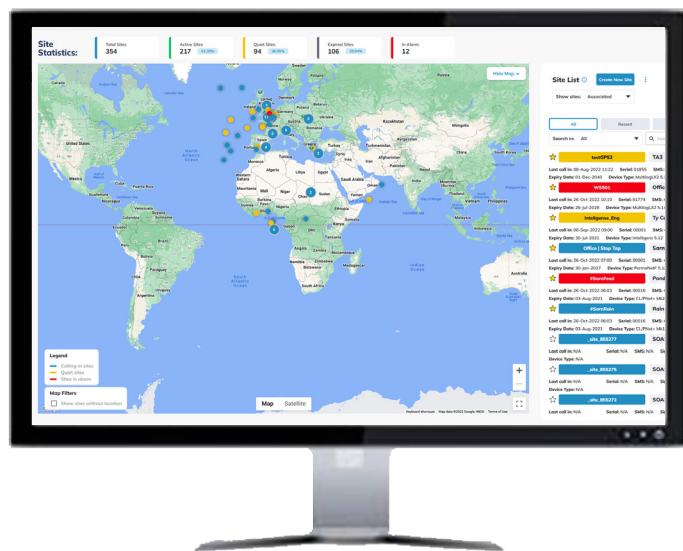
The heart of our waste water monitoring solutions: highly-compatible data loggers that use advanced cellular telemetry to deliver customer data

Accurate and reliable data logging is imperative for effective network monitoring. As such, HWM has developed a range of multi-application data logging solutions to support our clients in efficiently monitoring their networks.

Whether for preventing surcharges and spill events, or for CSO or customer-side small sewer monitoring, HWM can deliver a dependable data logging solution.

Each of our data loggers is battery-powered, meaning that they can be installed anywhere, without requirement for ATEX-compliant mains power connections. This self-reliance makes our data loggers particularly suitable for challenging sewer environments.

For consistent, low-powered data transmission, each of our data loggers benefits from our advanced modem, which is capable of connecting via NBIoT and LTE-M. Fully roaming, our SIM connects to the strongest network available to deliver data, and can even roam cellular technology generations, so it an NBIoT signal is not achievable then the strongest available 2G or 3G connection is made.



DataGate is our recently updated cloud-based data management system that provides our customers with secure access to their network monitoring data.

Developed with the user experience in mind, DataGate follows our 'one click away' concept, meaning the most important tools and most used applications are quick and simple to access.

IS Log

An advanced data logger, IS Log is ATEX-certified and built for compatibility, pairing seamlessly with a wide range of sensors



Intrinsically-safe and highly versatile, IS Log is designed to be a cost-effective, multi-application solution. It is compatible with a wide range of sensors, including our **SpillSens** digital float sensor, ultrasonic level sensors, depth transducers, flood alert sensors and more.

IS Log is **battery powered**, meaning no mains connection is required for deployment, and as standard, delivers a **five-year battery life** at typical call-in rates.

IS Log also benefits from our advanced modem, which is capable of connecting via **NBLoT** or LTE-M for low-powered data transmission. Where NBLoT is not available, then a **2G fallback** is in place to ensure consistent data transfer.

Key Features and Benefits

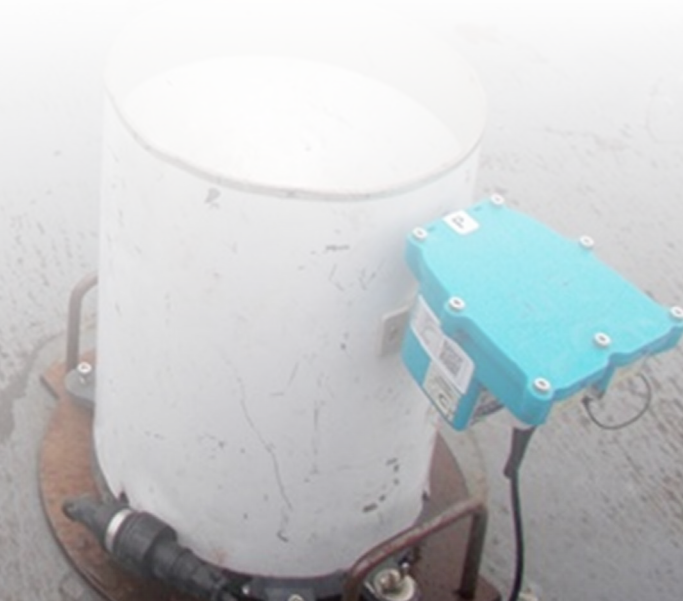
- compatible with a wide range of sensors, including ultrasonic and depth transducers
- intrinsically-safe and ATEX-certified for use in Zone 0 hazardous areas
- battery-powered, with a typical five-year battery life
- advanced cellular telemetry and integration into third party software apps.
- online data viewing via DataGate and EnviroView platforms

COMlog 2

The highly-versatile data logger designed to be a cost-effective multi-application logging solution

Developed for **flexibility**, COMlog 2 is compatible with any sensor or meter that has a volt-free pulsed output, using **accumulative pulse counting technology** to calculate index readings against a known volume.

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



Intelligens WW

The truly flexible, NBIoT-enabled data logger engineered for a variety of waste water applications including CSO monitoring and flood warning systems

Intrinsically-safe and built for compatibility, the versatile Intelligens WW 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**.

Featuring two-way communications and a long-life battery, Intelligens WW is perfectly suited to **'fit and forget'** applications in remote and hard to access locations. Additional power can be supplied through our ATEX Battery Pack.

Intelligens WW is available with support for **WITS 1.3**, delivering direct integration with WITS SCADA systems.



Key Features and Benefits

- NBIoT/LTE-M based cellular communication as standard with fallback 2G capability
- intrinsically-safe and ATEX-certified for use in Zone 0 hazardous areas
- two-way communication means Intelligens WW can be programmed remotely
- support for WITS 1.3, delivering direct integration with WITS SCADA systems
- plastic connectors ensure unit is not susceptible to corrosion

Intelligens Flow

The intelligent flow monitoring system designed to measure flow in part-filled pipes and open channels

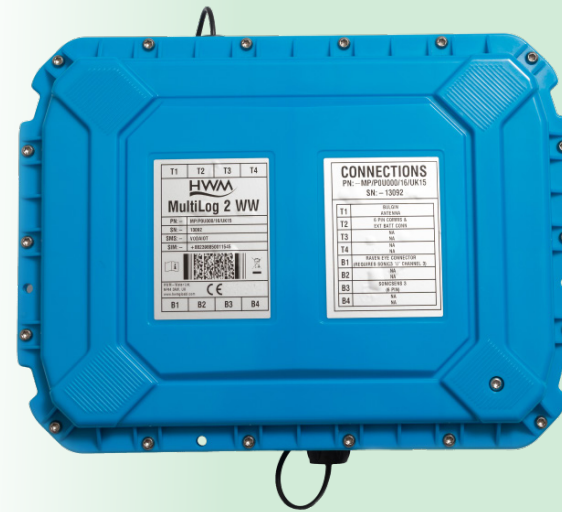
Built around an Intelligens WW data logger, flow velocity is measured by a **Doppler-effect sensor** that uses ultrasonic pulse technology. To generate level, a **Piezo resistive probe** is fitted, including a desiccant tube to maintain proper sensor function.

Non-contact level measurement can be achieved using a **SonicSens 3** ultrasonic sensor. Software within the unit can automatically be added depending on the nature of the application.



Multilog 2 WW

The robust, multi-input communications platform designed for environmental and waste applications where ATEX certification is not required



Built to withstand the corrosive conditions encountered within waste water environments, Multilog 2 WW is specifically designed to be **compatible** with a wide variety of third-party sensors, including **RavenEye, MicroFlow-i, dBi** and **VEGAPULS**.

Including four sensor connections and delivering up to 8 logging channels, Multilog 2 WW is highly versatile and is suitable for a wide array of applications, including **depth, flow** and **quality** data logging, battery telemetry for third party **radar depth** and **velocity** sensors and **Modbus** sensor telemetry.

Designed specifically for non-ATEX applications, Multilog 2 WW is housed in a drop tested non-metallic casing and has non-metallic connectors to prevent against corrosion in harsh environments.

Key Features and Benefits

- serial and analogue input for connection to SonicSens 3 and various other sensors
- four sensor connections with up to 8 data channels
- external battery input to support accelerated dial-in or powering of third-party sensors
- NBIoT/LTE-M based cellular communication as standard with fallback 2G capability
- firmware and programming changes made remotely for efficiency and cost-effectiveness

Multilog IS

The intrinsically safe multi-channel data logger ideally suited for environments where corrosion is a concern

Equipped with our advanced modem and capable of connecting via **LTE-M** or **NB IoT**, Multilog IS is a highly effective, battery powered data logging/RTU solution.

Designed for **compatibility**, typical applications include: Level, Velocity and Flow monitoring, radar level, radar velocity and flow monitoring, water quality monitoring, Modbus and SDI12 sensor telemetry and external power options.



ATEX Battery Pack

The ATEX-certified power solution delivering accelerated dial-in for remote data logging applications in challenging environments

With **reliable connectivity** more important than ever, our ATEX Battery Packs (Zone 0) provide the additional power required to ensure dial-in rates are increased.

With additional external power, our data loggers can support dial-in rates as high as **every 30 minutes** consistently over a **five-year period**. This means that data can be available more frequently, but also supports data delivery from problem sites where once or twice a day dial-ins can be sporadic or unsuccessful.

At a time when there is an ever-increasing focus on a many aspects of sewer system monitoring, External Battery Packs are valuable tools in ensuring data is consistently available.



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.

Antenna Options

A range of antenna options to ensure connectivity with the cellular network and to deliver reliable data connections

Part Number	Antenna	Connector	Connection	Length
AER8021	I-Bar	Bulgin	2G/3G/4G/NBLoT/LTE-M (Cat-M1)	1m*
AER9085	1/4 Wave	Bulgin	2G/3G/4G/NBLoT/LTE-M (Cat-M1)*	
AER6100-1	Magmount	Bulgin	2G/3G/4G/NBLoT/LTE-M (Cat-M1)*	2.5m*
AER9010	Button	FME**	2G/3G/4G/NBLoT/LTE-M (Cat-M1)*	1.5m*
AER8035-1	Dipole	Bulgin	2G/3G/4G/NBLoT/LTE-M (Cat-M1)*	2.5m*
CABA9498	Magpot	Bulgin	2G/3G/4G/NBLoT/LTE-M (Cat-M1)*	2m*
CABA8510-2	Extension	FME**	2G/3G/4G/NBLoT/LTE-M (Cat-M1)*	5m*
CABA9587	Adapter	FME/Bulgin	2G/3G/4G/NBLoT/LTE-M (Cat-M1)	140mm

*Additional cable lengths available on request
+Contact HWM to confirm worldwide coverage of NBLoT and LTE-M (Cat-M1)
**Requires FME adapter



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 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.



A Halma company

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