UDlive.io

Wastewater & Flood

Innovation Technologies

PRODUCTS AND SERVICES CATALOGUE

www.udlive.io

Contents

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> The record rainfall and storm surges that have brought flooding across the UK are a clear sign that we are already experiencing the impacts of Climate Change

Nicholas Stern

Chairman of the Grantham Research Institute on Climate Change

What's the rush?

Rising sea levels, increased intensity of rainfall, and the impact of development, all mean the threat of flooding looms larger than ever.

The need for effective flood management has never been greater. The careful and intelligent upkeep of flood control assets and infrastructure stands as an indispensable shield against the rising tide. This guide introduces our innovative portfolio of flood monitoring equipment and software services, designed to empower local professionals in the sector to safeguard their communities from the devastating impacts of flooding.

TIME TO GET ACCESS TO ACTIONABLE, RELIABLE DATA **WITH UDLIVE!**

Introduction to UDlive
What We Offer

We supply solutions to Local Authorities, Water Companies, Telecommunication Operators and Infrastructure Providers to collect valuable data, drive insights and inform crucial decisions. We do this by bringing together thoughtful mechanical and industrial design with embedded electronics and software to offer the most comprehensive, reliable and easiest-to-use products available. We strive to offer simple, repeatable data collection and high quality solutions combined with excellence in customer support.

Our Services

Level & Flow Monitoring

Flood & Drainage Analysis

Bespoke Solutions

Our remote level & flow monitoring solutions are centred on our innovative, low power, precise, in-house designed radar sensor and integrated data logger. When combined with our data platform, UDlive Portal, this offers users the most cost-effective solution for gaining visibility of assets and flood susceptibility.

We offer back office monitoring and analytics packages including market leading flood forecasting, to help Councils and Lead Local Flood Authorities obtain better value from their budgets, deliver successful projects, and safeguard their local communities.

UDlive has a track record in developing innovative, bespoke solutions that address customers' specific needs. We deliver useful and intuitive solutions for our customers, providing both the hardware and the software of a quality expected of one of the leading waste & floodwater providers

Market Leading Monitoring

Our Technology

Pixel XT
Advanced Radar Sensor

The most accurate, low-power, and affordable radar level sensor on the market. This standalone sensor has exceptional range (14m+), as well as accuracy (0.8mm at 7m). With a marine anodised aluminium 6061 body, ultra-low-power, MODBUS protocol and 20ms warm-up time, it is designed for years of reliable battery powered use. In addition, the narrow beam angle, built-in bench suppression, and other advanced features combine to ensure the Pixel XT is the perfect solution for a wide variety of water and liquid level measurement applications.

CatsEye RTU
Multi Parameter Data Logger

UDlive's next generation 'remote telemetry unit' is compatible with a wide range of instrumentation, and enables over-the-air updates via a cloud-based visualisation portal. External port options include 4-20mA, Modbus, SDI12, and HART. Serial inputs unlock additional sensor capabilities to collect extended process data and get more value from your instruments. Designed for use in hostile environments, and a market-leading battery-life of 5+ years. Also available in DIN rail form-factor.

CatsEye Pixel II

Radar Water Level Data Logger

The Pixel II is a groundbreaking radar water level and flow sensor with integrated telemetry data logger; the perfect solution for remote monitoring in rivers, sewers, reservoirs and a wide variety of other applications. The embedded precision radar sensor is capable of measuring 14m+ ranges, with an accuracy of 0.8mm at 7m (and 1.6mm at 14m).

The impressive range, ultra-long battery life and over-the-air diagnostics and updates, all combine to minimise installation and maintenance costs, removing the need for confined entry or regular visits. The Pixel II is the cutting-edge of water-level monitoring technology, at a price point that enables scalability.

Pixel Still

Stilling Tube Water Level Data Logger

The Pixel Still incorporates our market-leading radar sensing technology into a device that is ideal for any location where there is a high risk of interference in the radar beam. Sitting within a stilling tube, the Pixel Still offers a guided wave system, that is immune from turbulence, interference from vegetation, and false echoes. This is ideal for measuring the water level in rivers and water courses, as well as measuring rising levels outside a building.

The low-key enclosure has a wide range of attachments and brackets for different applications, and is designed to deter vandalism and blend into the surrounding environment.

Risk Analysis
# Flood, Inflow & Infiltration

Inflow & Infiltration Risk Mapping

Inflow & Infiltration is a leading cause of pollution events and for many treatment works can bring 'death by a thousand cuts' requiring major infrastructure upgrades.

In addition to traditional 'lifting lids', there are many established methods for finding and resolving I&I sources, however most remain expensive and inefficient at catchment scale.

UDlive Inflow & Infiltration analysis services can combine multiple data sources and provide real-time I&I risk mapping.
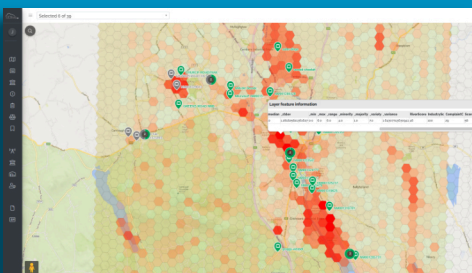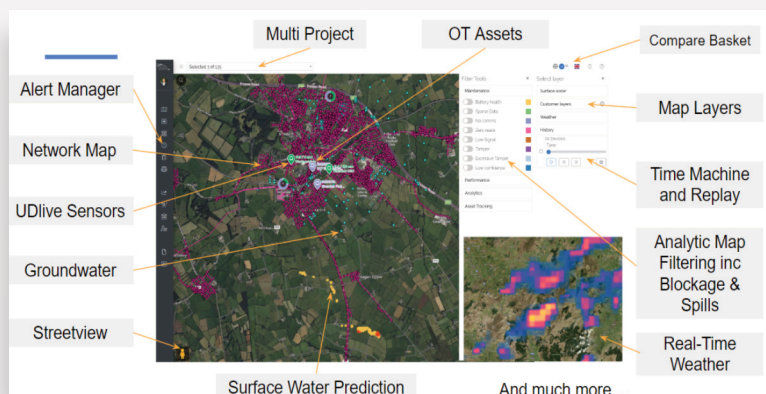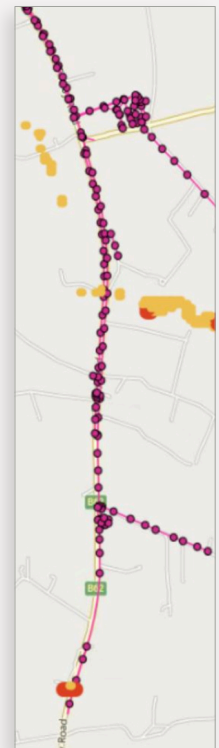

Flood Risk Analysis

UDlive has developed a market leading catchment-scale solution, encompassing pluvial, fluvial and coastal flood modelling and multi-parameter risk management solution that is scalable and proven.
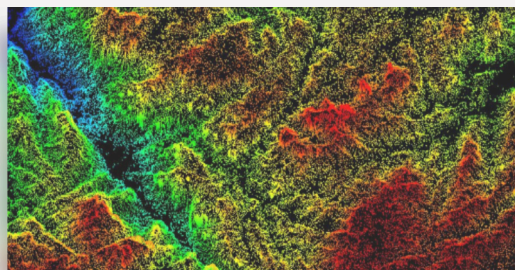
Drawing on a wide range of proprietary and open data sources, a risk map of likely flood sites can be created and validated with secondary and tertiary evidence, providing both long-term and short-term flood predictions.

Multi Project
OT Assets
Compare Basket
Alert Manager
Network Map
Map Layers
UDlive Sensors
Time Machine and Replay
Groundwater
Analytic Map Filtering inc Blockage & Spills
Streetview
Real-Time Weather
Surface Water Prediction
And much more…

Surface Water Infiltration Norfolk - UK

A catchment in Norfolk was experiencing **regular flooding**, with Anglian Water sewers not being able to cope with high **rainfall events**.

UDlive installed easy-to-fit and highly **accurate level** and **flow** monitoring equipment at several key sites, as well as the pumping station. This data allowed engineers to pinpoint the **exact locations** of the upstream **infiltration** and overland **flow** that was **overwhelming** the sewer, and create **remedial** plans.

Inflow & Infiltration Milan - Italy

The wastewater processing plant was receiving **double** the final **flow**, driving up costs and reducing capacity. UDlive deployed **Pixel II** devices to remotely monitor **level** and **flow** at key locations in the area.

The installation process was **simple**, and all devices were installed within 15min each, with traffic management and **health & safety** measures covered. Reliable data collected over the following month **identified** the **source of inflow** into the network.

Smart Drainage Enfield - UK

The **London Borough** of Enfield having recently suffered significant flooding, was determined to use the latest **technology** to tackle this issue, and provide an optimised, **threat** prevention and **fast-response** solution.

Enfield Council became the first council in England to roll out a **smart drainage** scheme consisting of gullies with integrated level sensors and cellular communications to monitor the condition of drains in areas at high-risk of **flooding.** This provided the Council with **immediate warnings** of sharp rises in water level that might lead to gully **overflow.**

Application Spotlight
Natural Flood Management

Attenuation ponds are an important part of **natural flood management**, and to monitor their **performance** and ensure they meet **design criteria**, you need **accurate** and **reliable** level **monitoring**. That is exactly what we have provided on several schemes, utilising a combination of the **Pixel II, CatsEye RTU** and **Pixel Still.**

Lower Pond
Upper Pond

Keys To Success

Experienced Installation Crew
UDlive have access to the most competent and efficient national installation crews, ensuring fit right, first time.

Reliable Data
UDlive's marketing-leading technology ensures organisations receive reliable, precise and accurate data day after day.

Back Office Support
At UDlive we pride ourselves on providing first-class customer support through phone, web and email to support you throughout the lifetime of your projects.

Cellular Connectivity
Above ground installations, supplemented by our high quality external antennas, lead to robust communications even in poor signal areas. .

Water Course Analysis
The relevant watercourses are mapped out and assessed. Suitability of install is considered along with bracket designs and RAMS.

Challenging Installations
We have a track record of working with challenging, difficult to reach installation sites whilst ensuring compliant and consistent data.
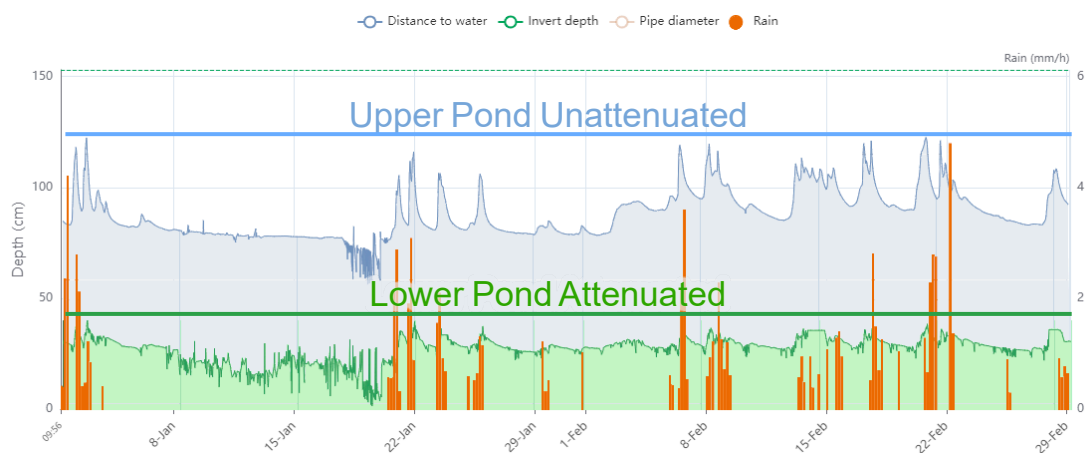
CatsEye RTU

Data Logger with External Sensor

The battery powered CatsEye RTU with external sensor and built-in telemetry. Configured for 15min logging and 2mm accuracy.

Example Results

The above chart shows a typical installation at a UK Council. The Council's hydraulic engineers were able to confirm, with the data returned from the CatsEye RTU to the UDlive Portal, that the attenuation ponds performed to their design specification by attenuating peak flows in the river and providing sufficient additional storage capacity.

Application Spotlight
Culvert & Trash Screen Monitoring

Blockages to culverts and **trash screens** is a well-known cause of localised **flooding**. By using the UDlive **Pixel Still**, combined with our web-based portal, you can effectively **monitor** both upstream and downstream levels to **identify** any emerging blockages. Easy-to-configure threshold-based **alarms** will alert all relevant team members **immediately** when a blockage is forming, enabling you to **clear** it before any **flooding** occurs.

Keys To Success

Actionable Data
Data you can trust coupled to weather forecast data allows you to plan your resources optimally.

Versatile Installation
Versatile and simple installation options reduce cost and ensure more accurate data collection.

Vandal Proof Options
A number of vandal proof options increase security and ensure equipment blends in to the environment.

Reliable Data
Devices automatically connect to the best signal via roaming data plans on 4G and LPWAN (NBIoT, CAT-M1) with 2G fallback for reliable data transfer.

Flexible Data End-Points
Data can be viewed and analysed on our highly intuitive web portal, or can be provided by API to any other Asset Management Platform.

High quality service
At UDlive we pride ourselves on providing first-class customer support through phone, web and email to support you throughout the lifetime of your projects.
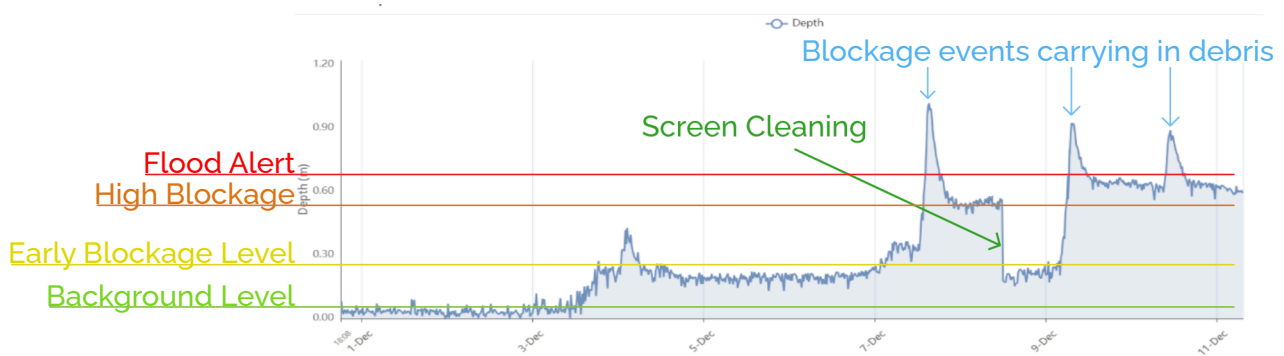
Pixel Still

Stilling Tube "Guided" Radar

Accurate water level monitoring from a discreet and compact enclosure with reduced interference from vegetation or turbulence.

Example Results

Data is easily viewable and downloadable from the UDlive Portal from any internet connected device, allowing you to clearly follow blockage trends and set up alarms. This helps you efficiently manage operational trash screen clearing and improve both the efficiency and effectiveness of your maintenance.

Application Spotlight

Storm Tank Monitoring

Large-volume **storm tanks** need accurate level **monitoring** to ensure the **hydraulic models** are properly calibrated, and **pumping schedules** are appropriate. The **Pixel II** has been deployed in a wide variety of storm tanks, providing customers with **accurate, reliable data** that is easy to feed into their existing systems and **detect changes** in Inflow & Infiltration.

Keys To Success

Zero Dead-band

Class leading Frequency Modulated Continuous Wave (**FMCW**) radar gives **zero dead-band**, increasing device **versatility** and improving data **quality** in all locations.

14m Range

Industry leading 0-14m sensing **range** makes the logger suitable for **all assets** from private sewers to storm tanks.

0.8mm Accuracy

Accuracy of **0.8mm** at 7m and 1.6mm at 14m, enables **accurate** and **reliable level and flow** measurements within a wide variety of asset types.

5+ Year Battery Life

Low power design and system **optimisation** gives the Pixel II in excess of **5 year** battery **life**, minimising maintenance costs.

Inflow & Infiltration Analysis

We have developed a **market-leading** catchment-scale **risk** management solution to improve understanding of **inflow** & **infiltration** risks and mitigate their **impacts**.

Catchment Analysis

A **unique** catchment based approach to **sewer** and **drainage** issues, combining modelling, forecasting, live telemetry and complex datasets that is **scalable** and proven to **improve understanding** of risk and **mitigate** impacts.

Easy To Install
Sub 15 minutes

Designed for a fast and simple installation, with a range of antenna options to ensure reliable connectivity. Removal and replacement for maintenance is easy, fast and precise.
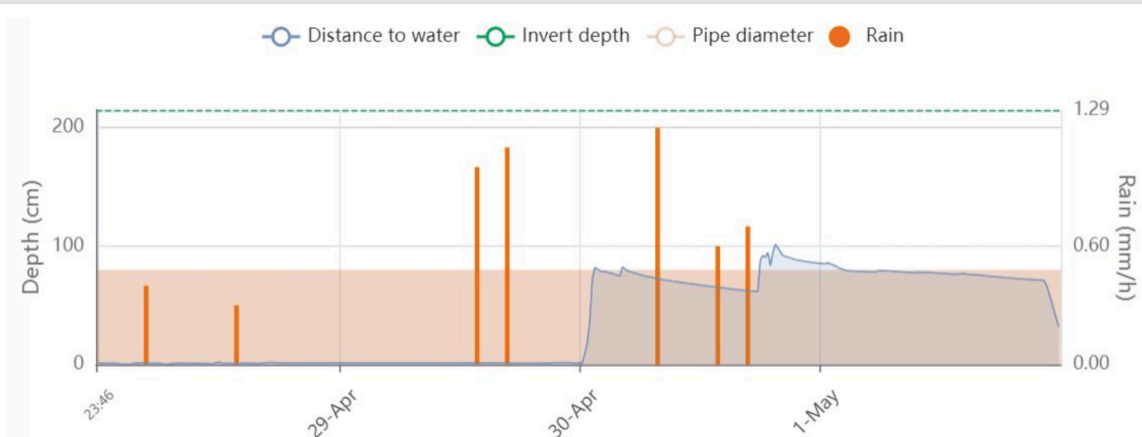

Pixel II
Radar Water Level Monitor

The battery powered Pixel II, with built-in radar and telemetry, is the perfect technology for monitoring tank levels in a variety of types and sizes, at better than 1mm accuracy.

Example Results

In this deployment with a water utility company, prolonged stress on 1400m3 storm water attenuation tanks with PLC controlled pumping lead to spill events during high rainfall. With no prolonged network stress north of attenuation sites, infiltration was located to the south of the site due to pluvial (surface) flooding and associated inflow and infiltration.

Application Spotlight

Sewer Level Monitoring

The **Pixel II** is the industry-leading **sewer level monitor**, with **tens of thousands deployed** across the UK alone. The precise and reliable data it produces, combined with our intuitive **analytics tool**, enables **identification** of upstream and downstream **blockages** and causes of **inflow and infiltration** at the earliest opportunity triggering **proactive maintenance before** they become **spills**.

Keys To Success

Zero Dead-band

Class leading **FMCW** radar gives **zero dead-band**, increasing device **versatility** and improving data **quality** in all locations.

14m Range

Industry leading 0-14m sensing **range** makes the Pixel II suitable for **all sewer assets**.

0.8mm Accuracy

Accuracy of **0.8mm** at 7m and 1.6mm at 14m, enables **accurate** and **reliable level and flow** measurements within any sewer.

5+ Year Battery Life

Low power design and system **optimisation** gives the Pixel II in excess of **5 year** battery **life**, minimising maintenance costs.

Blockage Detection

With over **10,000** devices **deployed** around the UK, our solution is **trained** to recognise clear patterns of **level** and **flow** that indicate **emerging blockages**.

I&I Investigation

I&I leads to **high volumes** of water inundating sewers and is a leading **cause** of flooding and **pollution events**.

Blockage Alerts
Act Faster

Act before **blockages** cause **floods,** sending pro-active maintenance crews with network knowledge to the right location to clear the blockage.
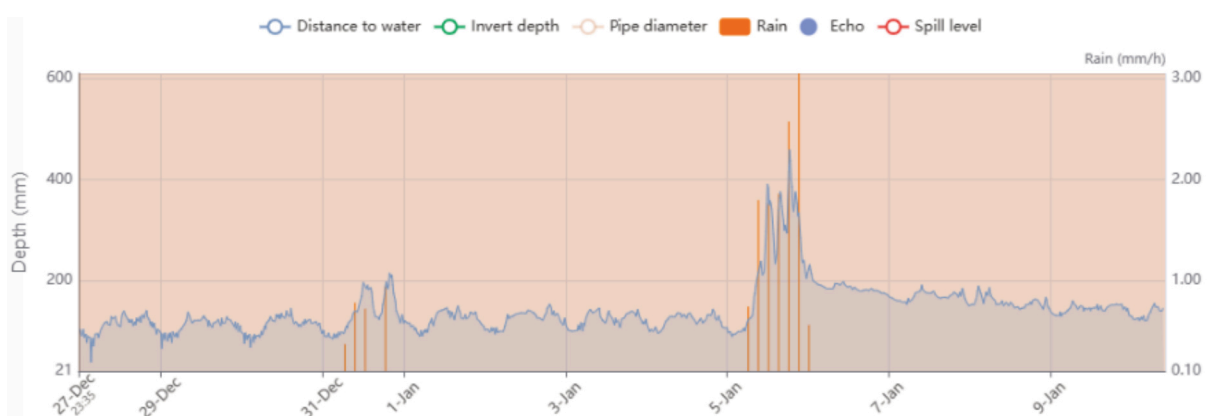
I&I Activities
Diagnose Causes

Build accurate hydraulic models that perform in real-world scenarios, whilst **identifying** the **root causes** of inflow and infiltration.
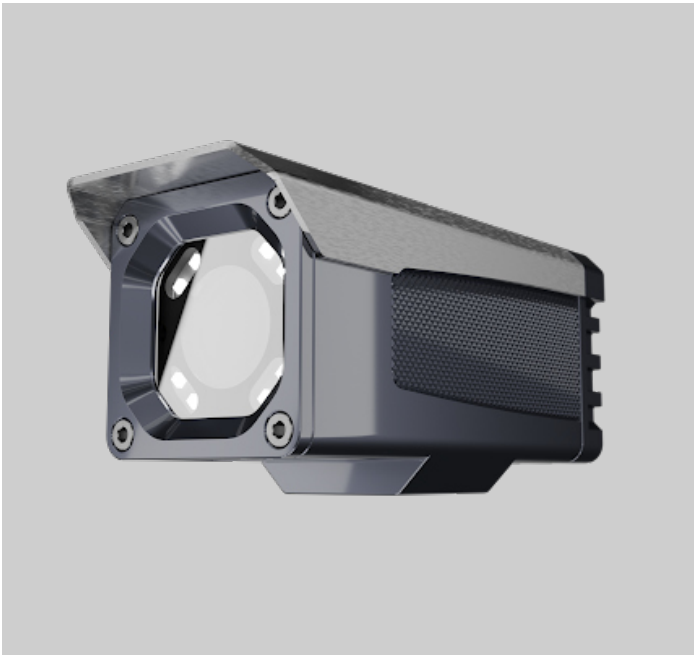
Example Results

I&I sources, like rainfall, can be identified with high degree of accuracy. Fully customisable alarms allow you to set the thresholds relevant to your level of resourcing and prioritise the most severe flood risk. These tools help build strong and robust mitigation strategies, and assist in meeting LLFA responsibilities.

Resilience Products

Pixel Vision

Alarm Triggered Still Images

For the most **critical** or **remote** sites and when only seeing is believing, the **Pixel Camera** is a lightweight, **low power** camera with day and night vision suitable for battery powered remote operation. It can be **triggered** by radar level or other sensors to be able to catch floods and **events** in action as well ensuring **safety** and access through remote monitoring.

Road Temperature Monitoring

Optional Salinity Monitoring

The UDlive **RTS** is used on roads and pavements to take accurate, localised temperature **measurements** around your **highway** and paved network. With the option of integrated **salinity** measurement, this is ideal for **optimising salting** operations, which **saves money** and helps the **environment**. Estimates suggest that many winter services teams use up to **8x more salt** than is necessary due to a lack of accurate data.

Composite Lids and Frames
Composite Gully Lids

Say goodbye to 'clanking', the UDlive Gully Cover is a fully composite **D400 grate and frame** technology that re-imagines the conventional road drainage grate. This sleek looking product offers **long life** and **ease of installation** as well as several **innovative features**.

The UDlive Gully cover has been designed for all of its users, from installers and maintainers to cyclists and residents, providing meaningful benefits for each.

Composite Lids and Frames
Composite Manhole Covers

UDlive access **covers** are made from a **lightweight** high strength SMC **composite** and are available in the most common sizes and **load classes** used by civil engineering industries. They address many of the issues found in traditional metal covers, including **corrosion**, **weight**, slippery surfaces, and **theft** for scrap.

All UDlive covers enable the use of UDlive IoT sensors for easy and safe remote sewer monitoring.

What Else Can We Monitor
Other Applications

Deployment Planning

Front-load deployments for **success** by meticulously preparing for challenging installations with our professional **network** of installers.

UDlive can support you to **mitigate** deployment risks through state-of-the-art **cellular** network tools and deployment **planning** services, setting the stage for successful **deployments**, reducing aborted installs by over 40%.
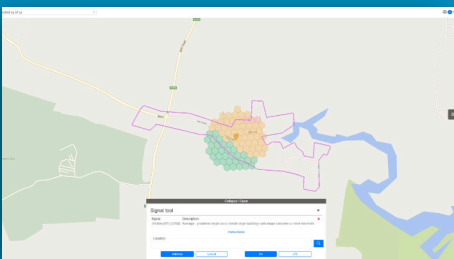
Our approach **empowers** both experienced and less-experienced installers, maximising success of new teams by **focusing** them on the 75% of **simpler** installs and harnessing the skills of more experienced teams ensuring they are armed with the correct equipment for their selected installations. Minimises aborts and revisits by "**Fitting Right, First Time**", ensuring deployment delivery on time and on budget.
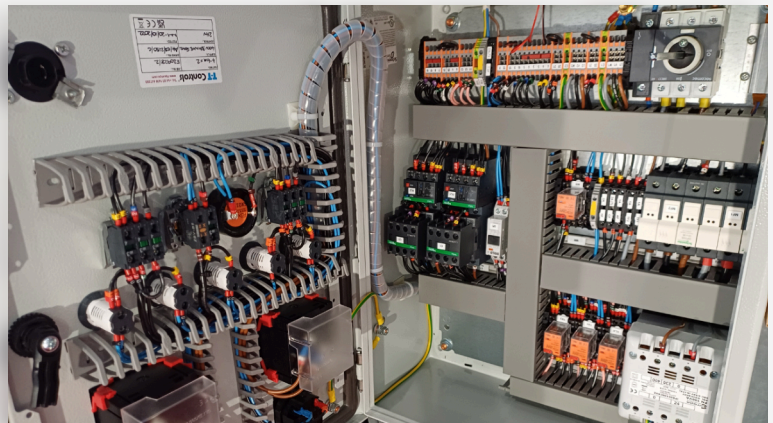
Additional Sensors

UDlive have experience with a range of different sensors including water quality parameters like turbidity and conductivity, as well as depth pressure sensors and MODBUS control panels. This will help you to collect the

data that matters most enabling informed decisions and optimisation of your operational resource and spend. Third party sensors and instrumentation can be integrated and used as part of bespoke projects.

Gully & SuDS Monitoring

Gullies & SuDS in highways & pavements can be monitored, in line with the Water Framework Directive, to assist with surface water flood and silt monitoring. Our ultra-compact radar and solutions integrated into composite gully lids are idea for this application.

Reservoir Monitoring

Reservoir level can be monitored in real time, using depth pressure or radar, to assist with compliance of The Flood Risk and Water Management Act 2010, In addition to calculated open channel flow and water quality using Modbus or SDI probes.

Ground Water Monitoring

Ground water flooding is estimated to affect up to 290,000 properties in the UK (BGS). With responsibility lying with the LLFA it is essential that ground water levels are monitored effectively and efficiently.
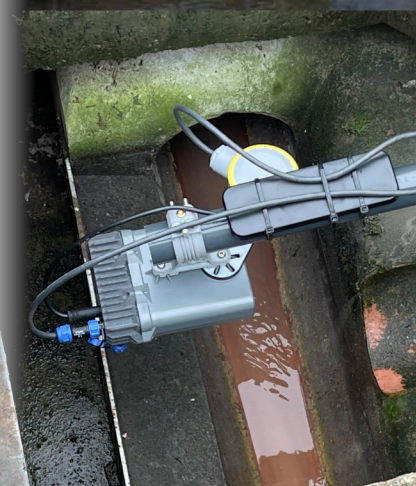
Sewer Monitoring

UDlive currently supplies Pixel II to most UK wastewater companies for both modelling and proactive Sewer Network Monitoring. Pixel II is also the ideal solution for private sewer monitoring.
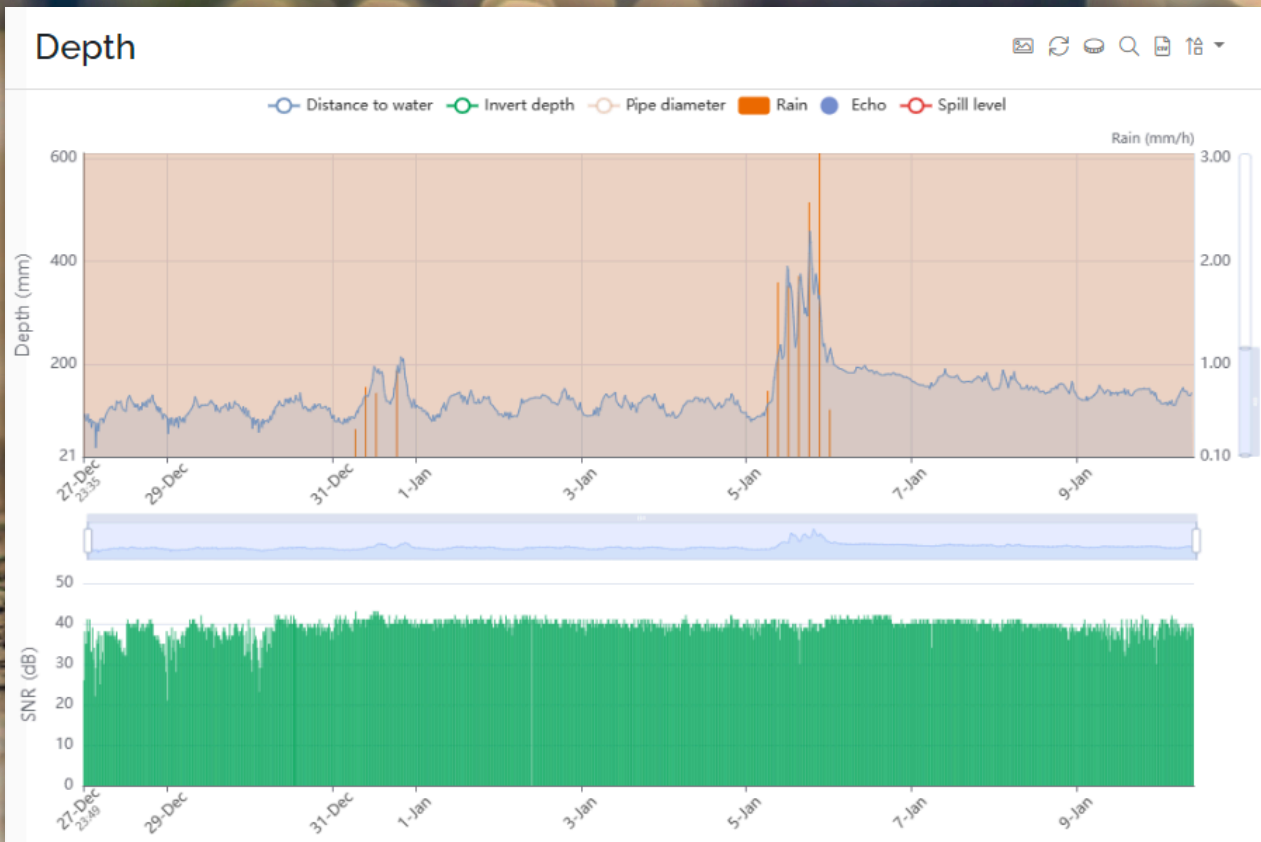
> ❝
>
> The quality and capability of the Pixel II is, in my opinion, far superior to other equipment in this field, I look forward to continuing to work with the UDlive team on this journey.

Peter Sanders

Program Manager
Public Sewers Anglian Water

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LIFT THE LID AND DISCOVER THE BENEFITS OF REMOTE MONITORING **WITH UDLIVE!**

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