



CASE STUDY

SCOTTISH WATER

Water Level Monitoring with Aircom Industrial IIOT in Scotland



WATER
INDUSTRY



LEVEL
MONITORING



MODBUS



BENEFITS

- ✓ Wireless telemetry
- ✓ Simple installation
- ✓ No line of sight
- ✓ Cost effective

SITUATION

In Scotland's mountainous regions, precise monitoring of water levels in Scottish Water's lochs is essential for efficient hydropower generation.

To run the hydropower station, they must know the water level of the loch.

PROBLEM

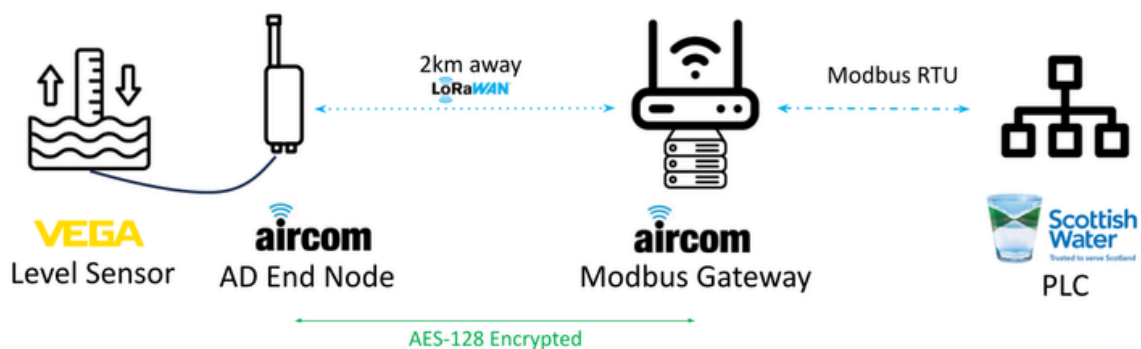
The main challenge was ensuring reliable communication between the level monitoring equipment at the loch and the nearby hydropower station, 2km away.

The rugged landscape, dense forests and uneven terrain, typically pose signal obstruction issues, critical for effective remote monitoring.

SOLUTIONS

We deployed Aircom IIoT LoRaWAN technology paired with a Vega level sensor at the loch. This setup was designed to accurately monitor water levels and transmit data back to a gateway installed at the hydro station.

The gateway was strategically mounted by partner Gilkes to maximize its range and overcome line-of-sight communication barriers posed by the local topography.





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IMPLEMENTATION

The implementation consisted of the following key steps:

1. Gateway Installation:

Installed at the hydro station, connected to the control system via Modbus RTU, RS485, ensuring reliable level transmission.

2. Sensor and Aircom Installation:

At the loch, the Aircom and Vega level sensor were mounted on the reservoir tower, connected via a 2-wire 4-20mA interface, allowing the battery powered Aircom to power the level sensor, take a reading and transmit it.

This project showcases the adaptability and reliability of Aircom technology in challenging environments, providing a robust solution for remote hydro-level monitoring necessary for efficient hydropower operations in Scotland.

This implementation not only addressed the immediate needs but also demonstrated potential for broader applications in similar settings.

RESULTS

Upon completion, the system demonstrated robust connectivity and effective data transmission:

• Successful Network Integration:

The end node joined the network seamlessly, confirming the system's operational integrity.

• Operational Commissioning:

Data was successfully transmitted to the gateway, allowing near real-time monitoring and management of the water flow for power generation.



Watch the case study video [here](#):

Further Information

For more details on how Aircom technology can be tailored to meet specific environmental challenges, **contact us** on yzsystems.com/aircom

