



Continuous Water Quality Monitoring

Telent's expertise in IoT monitoring solutions, edge computing, communications networks and remote power solutions have been brought together to create a fully self-contained solution for continuous water quality monitoring.

The ruggedised solution has been developed to address the requirements of Section.82 of the Environment Act 2021, requiring sewerage undertakers to continuously monitor the quality of water upstream and downstream of their assets. The solution can be deployed in remote and off-grid locations, with provision for solar power and wireless connectivity via 4G/5G or low earth orbit satellite.

A solution to address Section.82 of the Environment Act 2021

The requirements of Section.82 of the Environment Act 2021 mandate that sewerage undertakers and the water companies continuously monitor the quality of water upstream and downstream of their assets. The objective is to monitor and detect any discharge of unclean water or other pollutants in real time to protect the environment, maintaining the quality of water in our rivers and waterways.

These monitoring locations are often remote and off grid, even with no access to power or communication networks. Therefore, Telent's solution is fully self-contained, ruggedised and designed for remote, autonomous operation. Built on our experience in IoT monitoring, combined with expertise in edge computing, networking and green power solutions, it is delivered as a pre-integrated, ready to be deployed solution.

The solution has an integrated solar panel with battery storage and requires no mains power. It connects via 4G, with optional low earth orbit satellite connectivity in areas with unreliable mobile network coverage. The combination of these features means it can be deployed anywhere.

The key component for this solution is the Sonde device that analyses the water quality. The solution adopts a fully modular, vendor-agnostic design, allowing integration with any Sonde manufacturer or supplier ecosystem. The design is also fully flexible for how the Sonde is deployed, it can be permanently installed in the water course, or installed inside the cabinet, using a pump to draw water in for analysis. Cabinet installation offers enhanced physical security and easier access for maintenance and calibration.

The monitoring unit has an edge compute device providing local data storage, in case of lost connectivity through network outages or service disruption. Data is automatically upload after a communications outage and autonomous readings will continue to be taken if connectivity is lost, ensuring that no readings are missed. The unit can be placed into a low power or sleep mode

between readings to preserve power, particularly valuable during the short days of mid-winter.

The edge compute capability also enables telemetry readings for the unit to be captured for connectivity performance and power statistics of solar generation and battery charge levels, providing valuable information for planned maintenance. Physical security can also be monitored for door opening, intrusion detection and unauthorised access to the cabinet.

Mandatory readings supported for Section.82 of the Environment Act 2021:

- Temperature
- Specific Conductivity
- pH
- Ammonium as Nitrogen (NH₄⁺ -N)
- Ammonia as Nitrogen (NH₃-N)
- Dissolved Oxygen
- Dissolved Oxygen Saturation
- Turbidity

Optional supplementary readings, supported by additional sensors:

- Actual Conductivity
- pH mV
- Ammonium (NH₄) mV
- Resistivity
- Salinity
- Total Dissolved Solids
- Density of Water
- ORP
- Total Ammonia as Nitrogen (NH₃-N)
- Oxygen Partial Pressure
- Total Suspended Solids

Beyond Section 82 requirements, different sensors are available and interchangeable for use in different applications, such as surface water run off contamination.

Cabinet Dimensions:

Depth 620mm Width 620mm Height 1500mm

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