

## MONITORING WATER QUALITY USING A CELLULAR DATA LOGGER

REMOTE DATA AUTOMATICALLY SENT TO DESKTOP EVERY DAY



CAS DataLoggers was contacted by a municipal water department that needed to record dissolved oxygen (DO) concentrations in several ponds and slow-moving streams to determine the impact on the health of aquatic life. If DO concentrations in these water sources became too low, fish and other organisms would face significant risk, especially in stagnant environments. Since DO levels are strongly affected by temperature, and are lower in summer, the customer wanted to begin monitoring water quality in order to help protect fish from dying off that upcoming season.

Effective municipal water monitoring commonly requires sample collection and the EPA specified that the department needed to take water samples at least once a day in each of its bodies of water that are at risk of low DO levels. The department's technician wanted a remote telemetry data logger to transmit data and alarms, but found that leading manufacturers didn't offer models for [environmental monitoring](#).

### INSTALLATION

CAS supplied the department with three [Infinite ADU-500](#) data loggers as a low-cost remote monitoring solution. The ADUs are rugged field telemetry devices designed

for rapid deployment at a low cost. These data loggers each have 2 analog inputs suitable for voltage or current measurements plus an SDI-12 digital interface compatible with many types of hydrometric sensors. The technician connected each ADU to a depth/level pressure sensor with a 4-20 mA output and a [Sonde](#) with dissolved oxygen and temperature sensors that communicated via SDI-12. With this setup, the logger recorded 3 values at each sample interval: water level, % saturation, and temperature.

At each remote site, an ADU-500 data logger was installed into a fiberglass cabinet with the connected sensors fitted into a GRP 100mm sq. box section [stilling tube](#)



enclosure. This enabled easy riverside installation. For added protection, the Infinite loggers have a rugged construction with an IP66 rating. The ADU is designed for extremely low power operation and is powered by an internal lithium battery pack that is field-replaceable and can last as long as 10 years depending on the sample rate and upload interval.

## USAGE

The data loggers automatically transmitted the recorded data via their built-in 4G cell modem via an external antenna. Data was sent to the [Infinite WAT cloud server](#) and was accessible via a standard web browser or via an app on a mobile device. Measurements for all locations were conveniently displayed as a list of time-stamped values or in graphs while real-time values were shown on a map with alarm indicators. The ADU data loggers were also configured to send a separate daily health message including cellular signal strength. A built-in battery gauge provided advanced notice when the battery was nearly depleted. If especially low DO levels were measured at any of the sites, the ADU-500 data loggers had the ability to immediately send SMS text message warnings to a list of multiple

users.

## BENEFITS

The ADU-500 data loggers have already lowered the department's operating costs by logging every water value and automatically sending data directly to the cloud. This Infinite solution was well within the organization's budget and the remote telemetry capability now saves the organization the time and money otherwise spent sending someone out to manually collect the logger's readings. In the future, if the technician wants to utilize additional smart sensors, the ADU's can connect to multiple SDI-12 sensors.

---

For more information on [Infinite ADU-500](#) telemetry data loggers, or to find the ideal solution for your application-specific needs, contact a CAS DataLogger Application Specialist at **(800) 956-4437** or [www.DataLoggerInc.com](http://www.DataLoggerInc.com).