

TANK TEMPERATURE MONITORING WITH A WIRELESS SYSTEM

T&D RTR-502B WIRELESS TEMPERATURE DATA LOGGER



CAS DataLoggers provided the wireless temperature monitoring solution for a company with water storage tanks that needed to be temperature-monitored for their customer. These tanks contained polluted wastewater awaiting treatment, requiring constant monitoring and maintenance within a specific temperature range to prevent bacterial growth. The company searched for a wireless temperature monitoring device that could perform highly accurate measurements, automatically download data, and trigger alarms if the temperature strayed from the required range.

INSTALLATION

The company installed 8 T&D [RTR-502B Wireless Temperature Data Loggers](#) on their water storage tanks. These data loggers were paired with a T&D [RTR-500BW Wireless Base Station](#) connected to their Ethernet LAN to automatically collect data from all loggers. Each RTR-502B monitored the tank temperature in real-time using an external sensor probe with a measurement range of -60°C to 155°C (-76°F to 311°F) and 0.1°C resolution. Real-time readings are displayed on the built-in LCD. The RTR-502B loggers featured a rugged, compact, splash-proof design with internal storage for 16,000 data points. The measurement interval was configurable from once a second to once an hour, with options to stop when memory was full or overwrite the oldest data.

USAGE

Using 900 MHz [ISM band](#) wireless communication, the loggers offered a range of up to 150 meters (500 feet) from the base unit. This range could be easily extended using the [RTR-500BC base station](#) as a wireless repeater. The loggers' water-resistant cases protected them from accidents, and wall mount brackets simplified installation. Each RTR-502B had a battery life of about 10 months using the standard battery pack, with an option to upgrade to a large-capacity battery pack for up to 4 years of operation.



Several base station models exist to collect data from the temperature data loggers, including USB, network, and cellular models. In this case, the customer opted for the RTR-500BW network base station. It connected wirelessly to the 900 MHz radio in the RTR-500B units to automatically download real-time and recorded temperature data and then upload it using a 10/100BaseT Ethernet interface. The RTR-500BW also had an 802.11 a/b/g/n WiFi interface for easy connection to the network when wired Ethernet was unavailable.

The base station could be easily configured using either the T&D 500B utility on a smartphone or the RTR-500BW for Windows software on a PC. Data could be uploaded automatically to either a local server running the T&D Data Server software or to T&D's own free [WebStorage Service](#), where it was available to view anywhere via a web browser. The company decided to keep all data locally, so they used the RTR500BW for Windows software on a PC in the main office. The Base Unit could download one RTR-502B data logger with full memory in about two minutes.

If a measurement exceeded the set upper or lower limits, the base station detected the warning, and sent an email to up to 4 addresses via the WebStorage Service or Data Server software. A relay contact output on the RTR-500BW also provided a local alarm signal for a light or buzzer to alert anyone nearby. After deploying the base unit and starting operation, the company could easily make settings changes or add another data logger over the network without directly connecting to the base station.

BENEFITS

The storage company benefitted in several key ways from installing the T&D wireless system to monitor their water storage tanks:

- Highly accurate data loggers provided wireless monitoring of each tank's temperature, with their water-resistant casings ensuring reliable and durable operation.
- The loggers' range was easily extended when needed, and management was always kept informed of the tanks' temperature via automatic data downloads.
- The data loggers offered multiple ways to send data and warning messages online, providing a convenient and cost-effective temperature monitoring solution.

For more information on the TandD [RTR-502B](#) wireless temperature 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.