Temperature Monitoring for Water Treatment

Wireless Temperature Sushi Sensor| XS550

Avoiding regulatory fines through redundant water temperature monitoring is crucial for many industrial plants, by commonly extracting water from local outlets like nearby rivers, employing it for cooling, water purification, and steam for power generation.

Often, the plant recycles the water and returns it to the source. Not only must the water be free from pollutants, but its temperature must also be within an acceptable range based on ambient conditions.
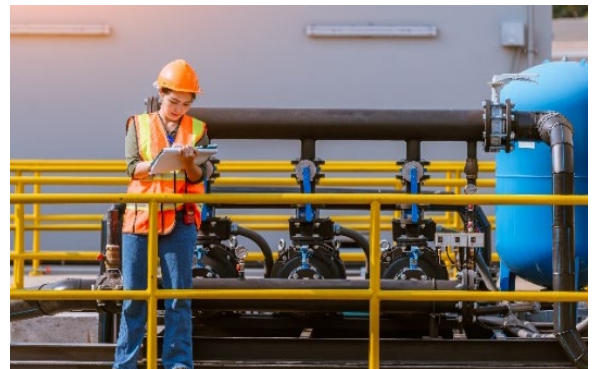
To comply with regulations, companies must monitor and record the recycled water temperature. Companies violating regulations or missing data are subject to fines for each infraction. Since data is recorded every hour, penalties can add up quickly.

Temperature monitoring near water treatment pond

Challenges

Holding ponds are often far from the plant process and can be expensive to monitor. Many wireless solutions are available, but they must be selected carefully. Some point-to-point systems are not sufficiently reliable. A wireless gateway could be a single point of failure in systems with many measurements.

Arial view of water treatment ponds near river

In one case, a U.S. chemical manufacturer was subject to fines due to the failure of an existing temperature monitoring system. The company incurred a $100 fine every hour for 50 monitoring points.

Solutions

After facing significant fines, the chemical manufacturer needed more reliable monitoring and recording. The engineering team selected the XS550 Yokogawa's temperature sushi sensor due to its cost-effective, reliable long-range wireless communication.

To boost the solution's reliability and availability further, the manufacturer configured the network with redundant gateways.

The low power-consuming Sushi sensor provides long battery life. With temperature sensing every hour at ponds and river outlets, the light load on the sensor batteries offers the chemical manufacturer a potential 10-year battery life. That translates to low maintenance. Because the Sushi sensor can transmit data over a long range via the LoRaWAN protocol, the solution does not require data repeaters. That eliminates another potential source of failure. Since the sensor is plug-and-play and often arrives with factory-installed configuration, installation is simplified.
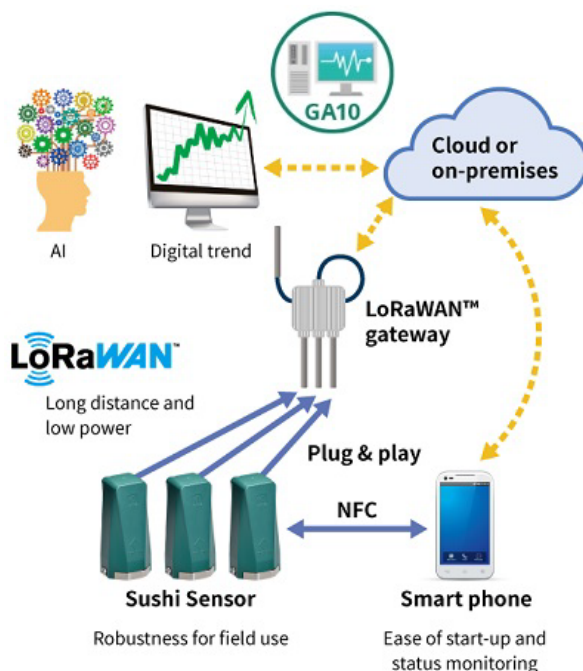
For this chemical manufacturer, Yokogawa's GA10 Data Logging Software rounds out the self-contained solution to meet EPA regulations for effluent discharge. Since this fully on-premise solution can be isolated from the control room, there is no concern about losing the connection to the process control system or missing data.

Key Benefits

- The Sushi sensor's low power consumption results in extended battery life and significantly reduced maintenance expenses.

- The Sushi sensor offers seamless, simple integration with a wide range of host systems through an industry-proven communication platform.

- Improved measurement availability with gateway redundancy enables the manufacturer to comply with regulations and avoid fines.

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