Solution Datasheet

Dissolved Oxygen Monitoring in Remote Industrial Water Treatment Units

In the era of smart cities and IoT, the real-time monitoring of water quality parameters such as Dissolved Oxygen (DO) has emerged as a critical need for efficient and sustainable industrial water treatment.

CHALLENGE

Dissolved Oxygen (DO) is a crucial parameter in industrial water treatment processes, playing a vital role in the health and efficiency of aquatic ecosystems and wastewater treatment. Remote locations often pose significant logistical issues, hindering the implementation of continuous DO monitoring. Traditional monitoring methods may involve manual sample collection and testing, which are labor-intensive, time-consuming, and do not provide real-time data for swift decision-making.

SOLUTION

10Sorex's battery-operated Dissolved Oxygen Sensor, utilizing Narrowband IoT (NB-IoT) technology, provides a reliable solution to this challenge. This IP65-rated rugged sensor withstands the harsh conditions prevalent in industrial settings. The sensor transmits near real-time DO data, allowing for proactive management of water treatment processes.

The benefits of this approach include:

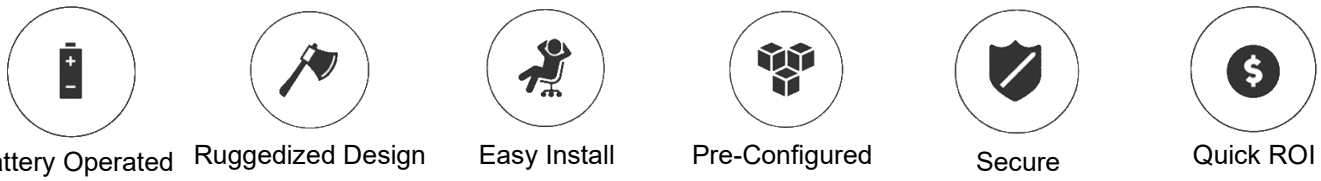
- **Continuous Monitoring**: With data transmitted every few hours, potential issues can be identified and addressed proactively.
- **Remote Accessibility**: Utilizing NB-IoT technology, the sensor data can be accessed remotely, eliminating the need for on-site inspections.
- **Efficiency**: Quick and timely detection of deviations in DO levels enables swift corrective actions, ensuring the efficiency of the treatment process.

WQ-TU-DO-N

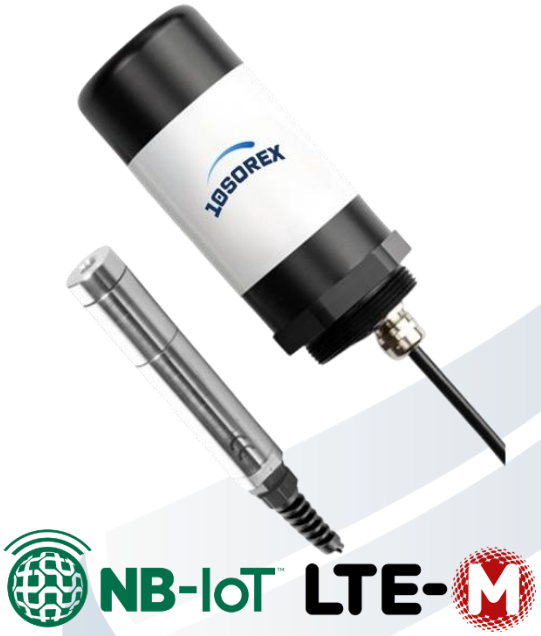
Dissolved Oxygen Monitoring in Remote Industrial Water Treatment Units

- **Cost-effectiveness**: By eliminating the need for manual monitoring, significant cost savings can be realized over time.
- **Rugged and Reliable**: The robust construction of 10Sorex sensors ensures reliability and longevity in harsh industrial environments.

With the 10Sorex DO sensor, challenges associated with dissolved oxygen monitoring in remote industrial water treatment units are addressed, leading to improved water quality management and operational efficiency.



TECHNOLOGY



10Sorex employs cutting-edge communication technology by utilizing the LTE Cat M1 protocol, which operates on 4G and 5G cellular networks, making it suitable for mobile and stationary monitoring applications. However, its remarkably low power consumption and superior penetration rate, specifically designed for industrial solutions, sets it apart. Narrowband Internet of Things (NB-IoT) and LTE Cat M1 are advanced communication technologies that offer significant advantages for monitoring applications. These technologies provide efficient and reliable connectivity for IoT devices, allowing for seamless communication between our sensor and remote monitoring systems. NB-IoT and LTE Cat M1 are known for their low power consumption, enabling prolonged battery life for the devices, which is crucial for remote or hard-to-reach areas. Moreover, these technologies offer excellent penetration capabilities, allowing for reliable communication even in challenging environments, such as underground or remote locations where devices are often deployed. NB-IoT and LTE Cat M1 also provide secure and scalable connectivity, enabling robust and cost-effective solutions for monitoring applications in various industrial sectors, including agriculture, utilities, logistics, and more.

WQ-TU-DO-N

Dissolved Oxygen Monitoring in Remote Industrial Water Treatment Units

SENSOR TECHNICAL SPECIFICATIONS

• Measurement principle	luminescent optical, approved by the ASTM - D888-05 without need of recalibration
• Measure ranges (mg/L ppm %)	0 - 20 0 - 20 0 - 200
• Accuracy (mg/L ppm %)	± 0.1 ± 0.1 ± 1
• Resolution	0.01
• Water Move	No necessary move
• Temperature Compensation	Via NTC
• Storage Temperature (°C)	-10 to +60
• Power Supply	Built-in Replaceable Lithium Battery
• Rated Voltage (V)	3.6
• Battery Lifetime	10,000+ transmissions
• Materials	Sensor Head:stainless steel 316L (Titanium on request), Enclosure: POM
• Max Pressure on Sensor Head	5bar
• Weight (g)	~800 (for 3m cable)
• Protection Rate	IP68 for sensor head and IP66 and UV Protected enclosure
• SIM Card Type	4FF Nano-SIM, from any Network Provider
• Firmware Update	Over The Air, Locally via Wireless Connectivity
• Sampling Period	Configurable via downlink (default 4 hours)
• Communication Bands	B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B26/B28 and B39
• Antenna	Internal (Default)/ External (customised options available)

WQ-TU-DO-N

Dissolved Oxygen Monitoring in Remote Industrial Water Treatment Units

PLATFORM FEATURES

10Sorex's software platform is a comprehensive and user-friendly solution specifically designed for diesel delivery management. The platform offers a wide range of features tailored for diesel delivery operations, including real-time data visualization, customizable alerts and notifications, historical data analysis, and predictive analytics. It provides users with a holistic view of their diesel delivery assets, allowing them to make data-driven decisions for optimal fuel management. The platform is accessible via web browsers and mobile devices, providing convenient remote access to critical information anytime, anywhere. 10Sorex's software platform is designed with a user-centric approach, offering intuitive navigation and a user-friendly interface for easy setup and configuration. With its advanced features and ease of use, 10Sorex's software platform empowers users to effectively monitor and manage their diesel delivery operations in remote areas, ensuring efficient and sustainable fuel resource management.

- Encrypted ultra-low power communication protocol
- Advanced device inventory
- Integration APIs for enterprise systems
- Multi-tenant role-based access control
- Data export and import
- White-label platform for enterprise runs on private account
- Variable alarm setting for high and low thresholds and multi-channel alerting
- Sampling and transmission interval configuration
- Transmission condition configuration
- Other configurations and customization available on request


Encrypted & ultra-low power


Integratable


Dynamic alerting


Multi-tenant


Scalable


Composable & API first

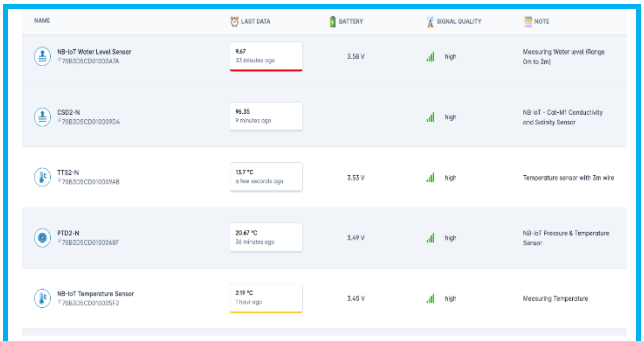

Low cost


Action management

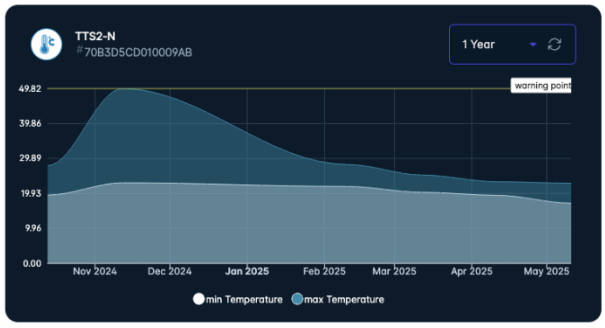

Resource monitoring

WQ-TU-DO-N

Dissolved Oxygen Monitoring in Remote Industrial Water Treatment Units



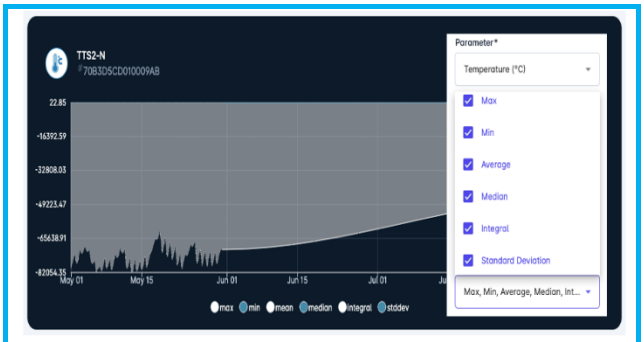
Single-screen visualization of device data



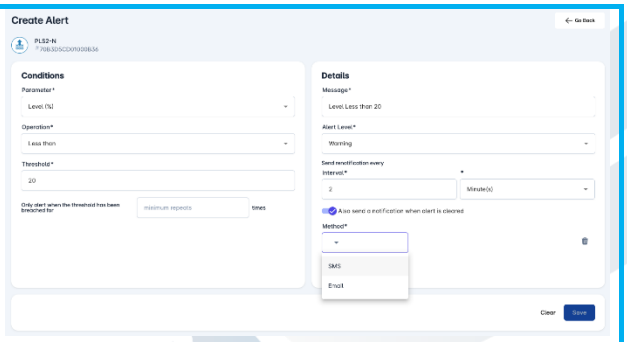
Easy analytic insight into long-term data

Integration-ready Webhook & APIs

Global visualization of device locations with address-level zoom



Customizable aggregations & stats



Multi-channel, rule-based alert management

WQ-TU-DO-N

Dissolved Oxygen Monitoring in Remote Industrial Water Treatment Units

INTEGRATION OPTIONS

10Sorex's solution sets itself apart with its pre-configured and plug-and-play design, eliminating the complexities of configuration, programming, and connection to the platform. This unique approach ensures that users can start monitoring their diesel tanks quickly and easily without any technical hassles. Additionally, 10Sorex offers seamless integratability at both the network and platform levels, allowing for easy integration with any network or visualization/analysis platform. This competitive advantage makes 10Sorex's solution highly adaptable and compatible with existing systems, providing users with flexibility and convenience in managing their diesel resources effectively.

WQ-TU-DO-N

Dissolved Oxygen Monitoring in Remote Industrial Water Treatment Units

ORDERING PROCESS

10Sorex offers simple and easy way to order the solution from any location on earth with narrow band cellular coverage. Please visit our sales portal (www.10sorex.com) or contact us to discuss your application. This is the first step to experience a reliable IoT solution at scale.

Purchase the solution online

Learn more about our Software Platform

View the Included Sensor Datasheet

Browse our other solutions

Rev2025_00