

A scenic photograph of a Dutch landscape featuring several traditional wooden windmills along a calm river. The sky is overcast, and the water reflects the surrounding greenery and structures.

# River and Waterway Dissolved Oxygen Monitoring

**Effective dissolved oxygen monitoring in rivers and waterways is a critical aspect of preserving aquatic ecosystems and ensuring sustainable water management.**

## CHALLENGE

Water bodies around the world, particularly rivers and waterways, are increasingly being affected by declining dissolved oxygen levels due to pollution and climate change. This is threatening aquatic life, disrupting ecosystems, and complicating water management efforts. Current monitoring methods are often labor-intensive, time-consuming, and unable to provide frequent, accurate data in challenging environmental conditions.

## SOLUTION

The 10Sorex battery-operated dissolved oxygen sensor presents a groundbreaking solution to this challenge. Leveraging NB-IoT technology, these ruggedized, IP65 rated sensors are built to withstand harsh industrial applications and can provide accurate, near real-time dissolved oxygen measurements every few hours. This frequent reporting enables timely detection of potential water quality issues, facilitating swift action.

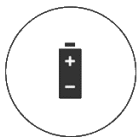
The benefits of this approach include:

- **Enhanced Data Accuracy:** These sensors provide reliable and accurate measurements, ensuring precise monitoring of dissolved oxygen levels.
- **Near Real-Time Monitoring:** With data transmission every few hours, they allow for near real-time tracking of water quality changes.

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- **Improved Efficiency:** The battery-operated nature of these sensors eliminates the need for constant manual intervention, thereby reducing labor costs and increasing operational efficiency.
- **Robustness:** Being ruggedized and IP65 rated, these sensors can withstand harsh environmental conditions, ensuring longevity and durability.
- **Scalability:** Leveraging NB-IoT technology, these sensors can be deployed in large numbers across extensive river systems or waterways, allowing for scalable and comprehensive monitoring.

By using 10Sorex's battery-operated dissolved oxygen sensors, we can dramatically enhance our ability to preserve and manage the health of our rivers and waterways, ensuring sustainable water quality for future generations.



Battery Operated



Ruggedized Design



Easy Install



Pre-Configured



Secure



Quick ROI

## 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.



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### 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)

## River and Waterway Dissolved Oxygen Monitoring

### 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



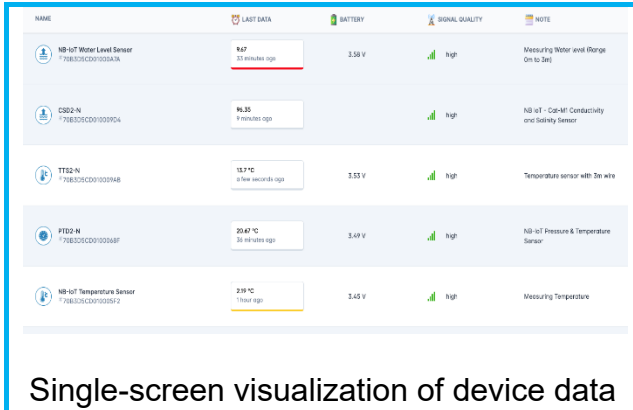
Action management



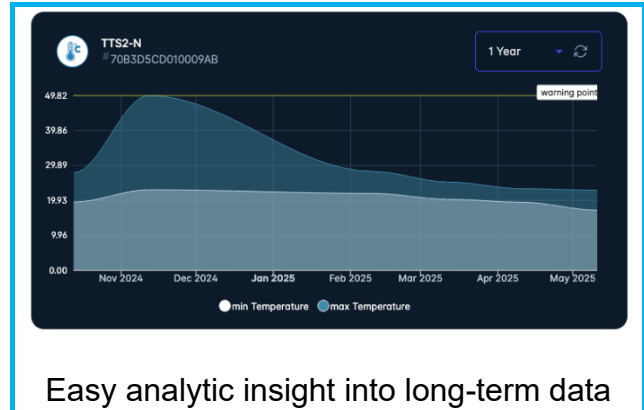
Resource monitoring

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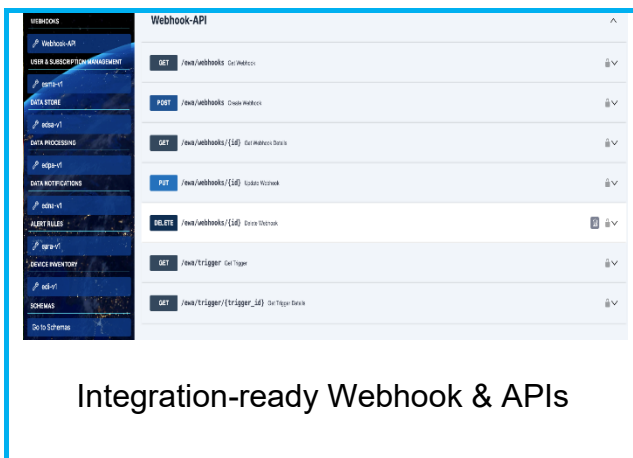
## River and Waterway Dissolved Oxygen Monitoring



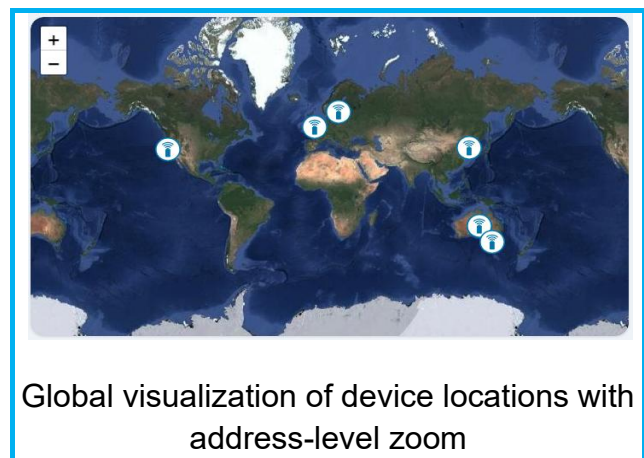
Single-screen visualization of device data



Easy analytic insight into long-term data



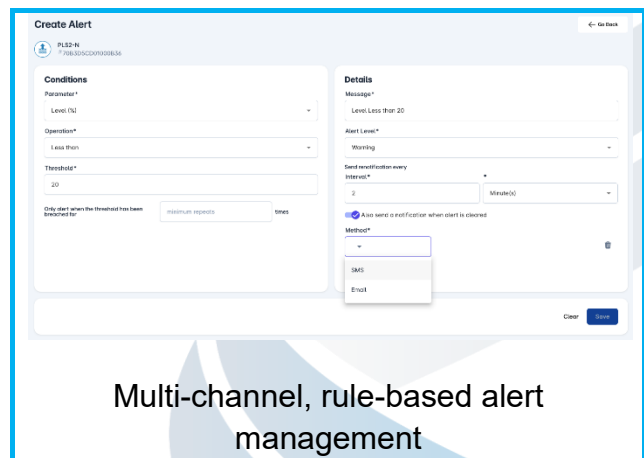
Integration-ready Webhook & APIs



Global visualization of device locations with address-level zoom



Customizable aggregations & stats



Multi-channel, rule-based alert management

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## River and Waterway Dissolved Oxygen Monitoring

### 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.



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## River and Waterway Dissolved Oxygen Monitoring

### 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](http://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

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## Integrated IoT Solutions

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