10SOREX

Fish and Oyster farm temperature and water salinity monitoring

Effective water quality monitoring in fish and oyster farming is crucial for maintaining healthy aquatic environments and ensuring sustainable growth in the aquaculture industry.

CHALLENGE

Aquaculture is a growing industry, and fish and oyster farming play a significant role in feeding the global population. A critical aspect of successful fish and oyster farming is monitoring water temperature and salinity levels to ensure optimal growth and health of the organisms. Traditional methods of monitoring water quality can be time-consuming, labor-intensive, and lack precision, making it difficult for farmers to maintain optimal conditions for their aquatic species.

SOLUTION

10Sorex battery-operated Salinity Sensors, coupled with Narrowband IoT (NB-IoT) technology, offer a precise and efficient solution for monitoring water temperature and salinity levels in fish and oyster farms. These rugged, IP65-rated sensors are designed to withstand harsh industrial applications and provide near real-time data transmission, enabling farmers to monitor and manage water quality remotely.

The benefits of using 10Sorex Salinity Sensors and NB-IoT technology in aquaculture include:

- Reduced labor and time spent on manual water quality monitoring.
- Improved accuracy of temperature and salinity measurements.

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- Near real-time data transmission for informed decision-making.
- Enhanced sustainability and efficiency in aquaculture operations.
- Reduced environmental impact through precise monitoring and management.

By leveraging 10Sorex Salinity Sensors and NB-IoT technology, fish and oyster farmers can maintain optimal water quality conditions, ensuring the health and growth of their aquatic species and contributing to a sustainable and efficient aquaculture industry.

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

• Measure ranges conductivity (µS/cm µS/cm mS/cm mS/cm)	0-200 0-2000 0-20 0-200 Selected Automatically
• Accuracy (%FS)	±1 (typ.) (For more than 100 mS/cm appropriate buffer solution is required)
• Resolution (mm)	0.01-1 according to range
• Measurement range salinity (g/Kg)	5-60
• Measurement range TDS-KCl (ppm)	0-133,000
• Temperature compensation	NTC
• Storage Temperature (°C)	-10 to +60
• Operation Temperature (°C)	0 to +50
• Power Supply	Built-in Replaceable Lithium Battery
• Rated Voltage (V)	3.6
• Battery Lifetime	10,000+ transmissions
• Materials	Sensor Head: PVC, DELRIN, stainless steel Enclosure: POM
• Max Pressure on Sensor Head	5bar
• Weight (g)	~900 (for 3m cable)
• Protection Rate	IP68 for sensor head and IP66 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)

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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

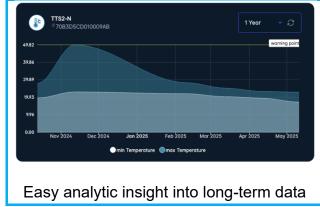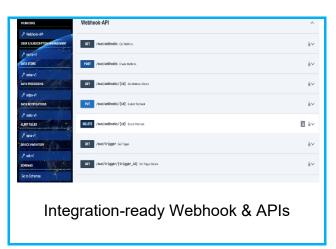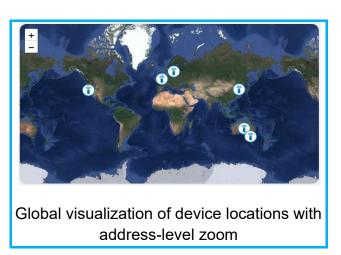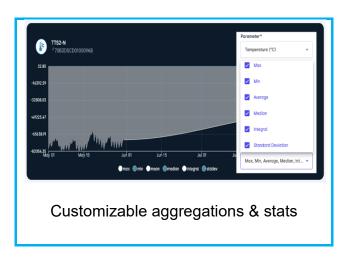|		
Encrypted & ultra-low power	Integratable	Dynamic alerting
Multi-tenant	Scalable	Composable & API first
Low cost	Action management	Resource monitoring

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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

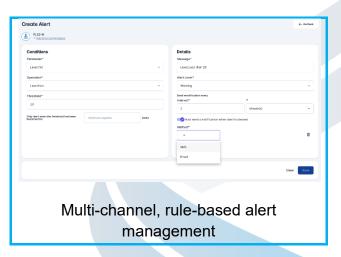Multi-channel, rule-based alert management

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INDUSTRIES SERVED

Agriculture & Farming

Water & Wastewater

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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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

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Integrated IoT Solutions

Email: sales@10sorex.com
Web: www.10sorex.com