Solution Datasheet

River and Waterway pH Monitoring

Rapid and precise monitoring of pH levels in water bodies is a critical factor in protecting our aquatic ecosystems and ensuring safe water supplies. Innovative technologies like IoT can transform this task, allowing for near real-time, efficient, and accurate data collection.

CHALLENGE

Monitoring river and waterway pH levels is a crucial yet challenging task in water quality management. Traditional methods often involve manual sample collection and lab analysis, which can be time-consuming, costly, and offer limited data points. This approach also struggles to capture sudden pH changes, leaving ecosystems vulnerable to acidification or alkalinity spikes that can harm aquatic life and compromise water safety.

SOLUTION

10Sorex's battery-operated pH sensors leverage Narrowband IoT (NB-IoT) technology to address these challenges. Deploying these rugged, IP65-rated sensors in rivers and waterways allows for automated, near real-time monitoring of pH levels.

Data from the sensors, transmitting every few hours, is sent via NB-IoT to a cloud-based platform. This allows for efficient data management and analysis, enabling early detection of pH fluctuations and timely intervention.

Benefits of this approach include:

- **Near Real-Time Monitoring:** Frequent data transmission allows for near real-time pH monitoring, enabling swift response to sudden changes.

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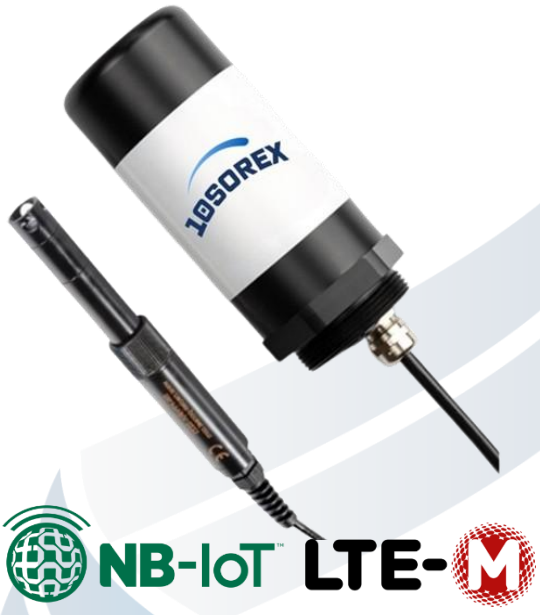
- **Cost-Effective:** Automation reduces the need for manual sampling, lowering labor costs and resource requirements.
- **Rugged and Reliable:** 10Sorex's sensors are designed for harsh industrial applications, ensuring reliability even in challenging environments.
- **Efficient Data Management:** The cloud-based platform facilitates easy access, management, and analysis of data, improving decision-making processes.
- **Eco-Friendly:** Continuous monitoring can help mitigate environmental impacts by identifying potential pH imbalances early, aiding in the protection of aquatic ecosystems.

This solution revolutionizes water quality monitoring, making it more efficient, precise, and responsive to changes, thereby protecting aquatic ecosystems and water safety.

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

• pH Measurement Range (pH)	0-14
• pH Accuracy (pH)	± 0.1
• pH Resolution (pH)	0.01
• ORP Measurement Principle	Combined electrode (ORP/reference) Platinum tip, Ag/AgCl AgAgCl. Gelled reference (KCl)
• ORP Measurement Range (mV)	-1000 to +1000
• ORP Resolution (mV)	0.1
• ORP Accuracy (mV)	± 2
• Temperature Measurement Range (°C)	0 to +50
• Temperature Resolution (°C)	0.01
• Temperature Accuracy (°C)	± 0.5
• Storage 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, special pH glass, platinum, Polyamide, cable: Coaxial armoured polyurethane, Enclosure: POM
• Max Pressure on Sensor Head	5bar
• Weight (g)	~900 (for 3m cable)
• Protection Rate	IP68, 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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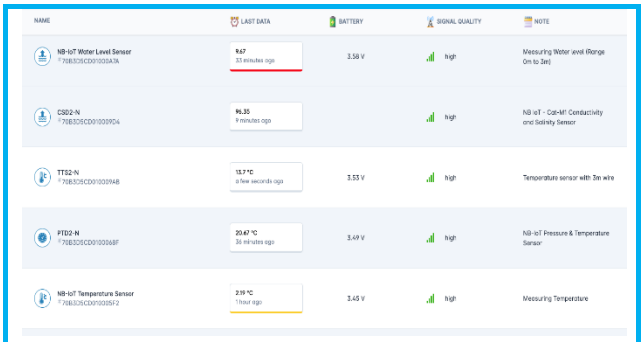
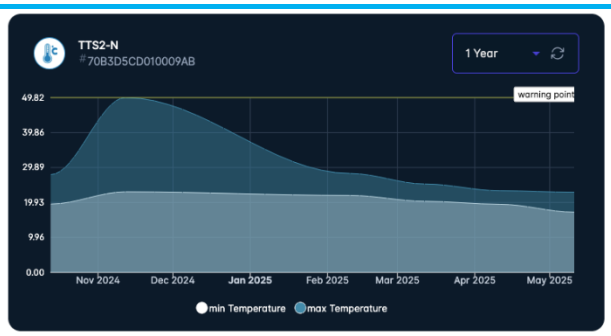


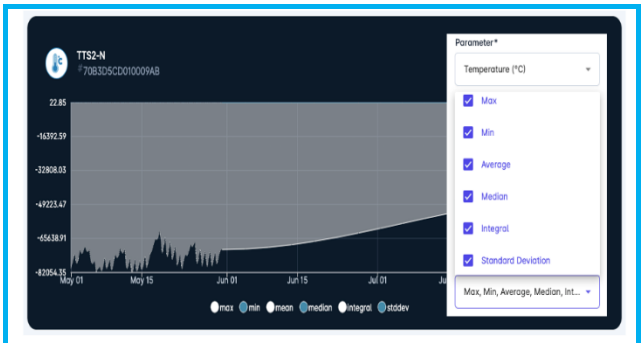
Single-screen visualization of device data



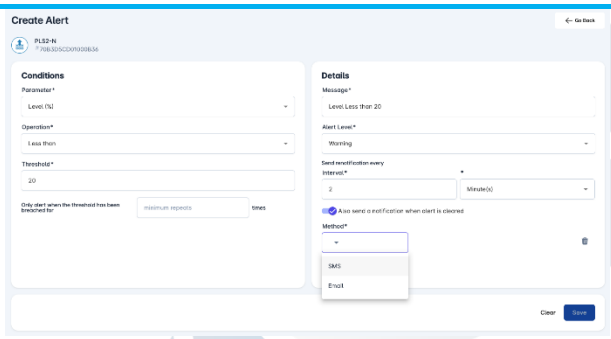
Easy analytic insight into long-term data

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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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

Browse our other solutions

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Integrated IoT Solutions

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