Solution Datasheet

Remote Ground Water Level Monitoring

Accurate and efficient remote ground water level monitoring is essential for sustainable water management and mitigating the effects of climate change on water resources.

CHALLENGE

In remote areas with limited infrastructure, monitoring ground water levels can be a complex and costly endeavor. Accurate and timely data collection is essential for managing water resources, predicting droughts or floods, and ensuring sustainable water use. Traditional methods often involve manual measurements and time-consuming site visits, which are not ideal for areas with difficult access and can lead to inefficient use of resources.

SOLUTION

Utilizing 10Sorex's battery-operated Submersible Level Sensor with NB-IoT technology offers a robust and efficient solution for remote ground water level monitoring. The IoT sensor used in this solution is the 10Sorex Submersible Level Sensor, specifically designed for harsh environments and remote applications.

The benefits of using this approach include:

- Near real-time data transmission: With data transmitted every few hours, decision-makers can quickly respond to changing ground water levels and make informed decisions.
- Reduced operational costs: The battery-operated sensors eliminate the need for frequent site visits and manual measurements, significantly reducing labor and transportation costs.

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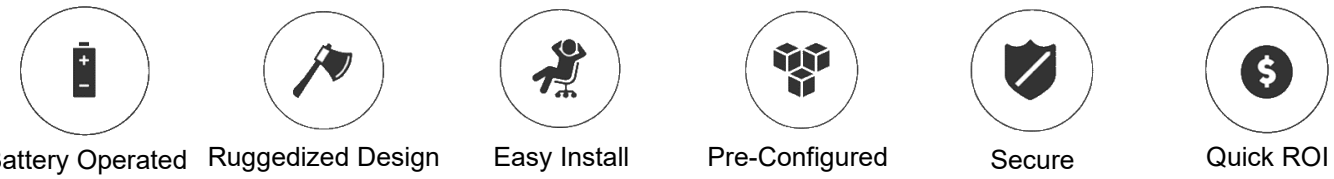
- Enhanced accuracy: The 10Sorex Submersible Level Sensor provides precise measurements, ensuring reliable data for effective water resource management.
- Easy deployment and maintenance: The ruggedized, IP65-rated design of 10Sorex sensors allows for easy installation and minimal maintenance, even in harsh conditions.
- Long battery life: The sensors' extended battery life ensures uninterrupted monitoring over long periods, reducing the need for frequent battery replacements.

Implementing 10Sorex's battery-operated Submersible Level Sensor with NB-IoT technology can significantly improve remote groundwater level monitoring, enabling more effective water management and contributing to a sustainable future.



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

• Range (m)	10m (or other ranges up to 200m)
• Accuracy (combined linearity, hysteresis, repeatability) (%Span)	±0.25 (typ.)
• Resolution (%Span)	±0.01
• Temperature Coefficient of Zero (%FS/°C)	≤±0.03
• Temperature Coefficient of Span (%FS/°C)	≤±0.03
• Long Term Stability (1 year) (%Span)	≤ 0.2
• Overload Protection (%FS)	150
• Load Cycles (Zero to Full Scale) (Million)	10+
• Storage / Operation Temperature (°C)	-20 ~ +85
• Compensated Temperature (°C)	0 ~ +60
• Power Supply	Built-in Replaceable Lithium Battery
• Rated Voltage (V)	3.6
• Battery Lifetime	10,000+ transmissions
• Sensor Materials	O-ring: Viton, Body: SS316L, Diaphragm: SS316L, Oil: Silicon, Enclosure: POM
• Weight (g)	~1200 (for 5m range)
• Protection Rate	IP66, UV Protected enclosure and IP68 sensor head
• 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


Integrable


Dynamic alerting


Multi-tenant


Scalable


Composable & API first


Low cost


Action management


Resource monitoring

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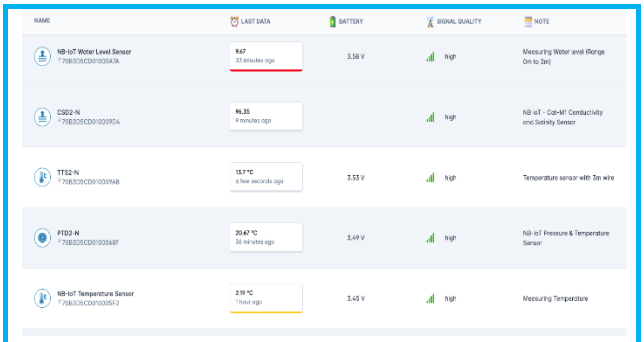
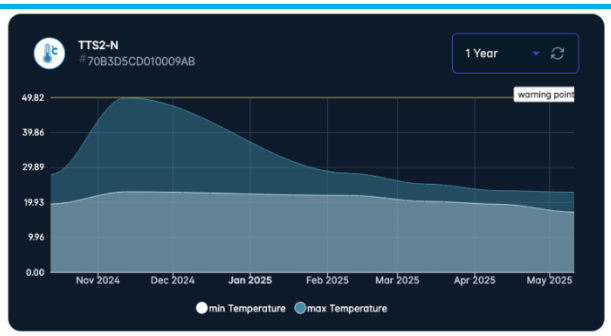


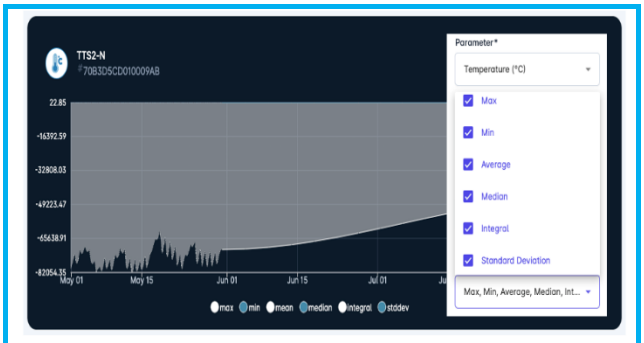
Single-screen visualization of device data



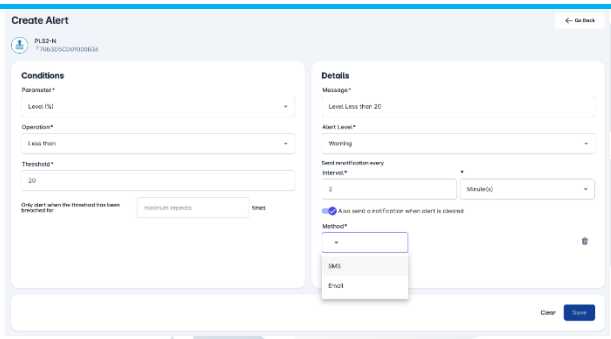
Easy analytic insight into long-term data

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

City & Councils

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 integrability 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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