10SOREX

Remote Underground Waterway Storm Water level monitoring

Effective stormwater level monitoring in remote underground waterways is crucial to prevent disastrous floods and protect vital infrastructure.

CHALLENGE

In remote underground waterways, continuous and accurate monitoring of stormwater levels is crucial to manage floods, infrastructure integrity, and environmental impacts. However, the inaccessibility of these locations and the need for reliable and low-maintenance sensors make this task extremely challenging.

SOLUTION

10Sorex's battery-operated submersible level sensors with NB-IoT technology provide a robust and efficient solution for monitoring stormwater levels in remote underground waterways. The IoT-enabled sensors can be installed in hard-to-reach areas, transmitting near real-time data every few hours to a central system for analysis and action.

The benefits of this approach include:

- Ruggedized design: 10Sorex sensors are built to withstand harsh industrial applications and are IP65 rated, ensuring long-lasting performance in challenging environments.
- Low maintenance: Battery-operated sensors reduce the need for frequent maintenance, saving time and resources.
- Near real-time data: NB-IoT technology enables data transmission every few hours, providing near real-time insights for better decision-making.

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- Improved flood management: Timely monitoring and alerts help mitigate the risk of flooding and potential infrastructure damage.
- Enhanced environmental protection: Accurate stormwater level data allows for better understanding of the impacts on the surrounding ecosystem and helps in devising effective environmental management strategies.

By deploying 10Sorex's battery-operated submersible level sensors with NB-IoT technology, stakeholders can effectively address the challenge of monitoring stormwater levels in remote underground waterways, ensuring better flood management and environmental protection.

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 SPECIFICATION

• Range (m)	**10**
• Accuracy (mm) (combined linearity, hysteresis, repeatability)	±5
• Resolution	Sub mm
• Sensor Minimum Distance (cm)	0 ~ 20
• Process Pressure (bar)	-1 to 3
• Frequency (GHz)	80
• Beam angle (°)	8
• Compensated Temperature °C	-20 ~ +60

Power

• Power Supply	Built-in Replaceable Lithium Battery, External Power option
• Rated Voltage (V)	3.6
• Battery Lifetime	5,000+ readings and 5,000+ transmission (With UDP protocol/ More than 10 years for most applications)

Physical Specification

• Materials	Enclosure: POM, Sensor Head: PVDF, PA6 and Fiberglass
• Weight (g)	~700
• Protection Rate (-)	IP68, UV protected

Communication

• 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)
• Power Consumption	Power Saving: < 5uA, Transmission: < 220mA
• Communication Standards	Cat-NB1 (NB-IoT), Cat-M1, (option of back support by GPRS)
• Communication Bands	B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B26/B28 and B39
• Data Rates	Cat-M1: 375Kbps (DL)/375Kbps (UL) NB-IoT: 32Kbps (DL)/70Kbps (UL)
• TX Power	23dBm
• Min Receiver Sensitivity	Cat-M1: -107dBm NB-IoT: -113dBm
• Antenna	Internal (Default)/ External (optional) (customized 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
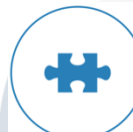
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Single-screen visualization of device data
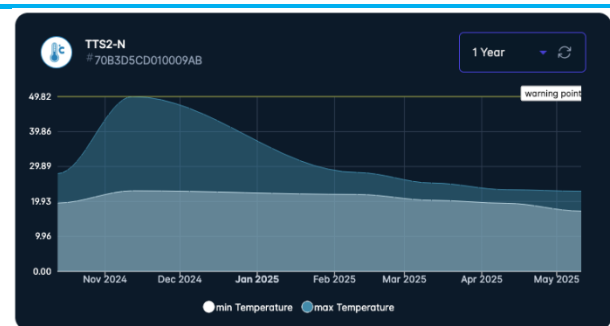
Easy analytic insight into long-term data

Integration-ready Webhook & APIs

Global visualization of device locations with address-level zoom
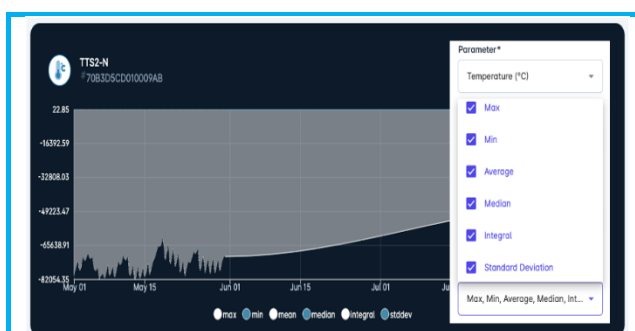
Customizable aggregations & stats

Multi-channel, rule-based alert management

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INDUSTRIES SERVED

Smart Building & HVAC

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 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

Integrated IoT Solutions

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