

Dam and Water Resource Level and Volume Monitoring

Effective dam and water resource management is crucial for ensuring the adequate supply of water for agriculture, industry, and domestic use, as well as preventing devastating floods.

CHALLENGE

The management and control of water resources, especially in dams, require continuous monitoring of water levels and volume. Traditional methods of monitoring are labor-intensive, expensive, and may not provide accurate and up-to-date information. These challenges can lead to ineffective water resource allocation and increased risks of floods or water shortages.

SOLUTION

The battery-operated Floating Enclosure attached to a submersible level sensor manufactured by 10Sorex leverages NB-IoT technology to address these challenges. This IoT sensor solution consists of 10Sorex's wireless submersible level sensor and the floating enclosure.

The benefits of using this approach include:

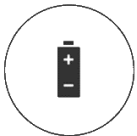
- Near real-time data transmission: The 10Sorex sensors transmit data every few hours, providing near real-time information on water levels and volume for better decision-making.
- Rugged and reliable: 10Sorex's products are built to withstand harsh industrial applications and have an IP68 rating for durability in challenging environments.
- Battery-operated and low maintenance: The sensors' long battery life reduces the need for frequent maintenance, saving time and resources.

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- Enhanced connectivity: The NB-IoT technology allows for better coverage, even in remote locations, ensuring seamless data transmission.
- Cost-effective solution: The IoT-enabled approach reduces labor and infrastructure costs, providing an affordable alternative to traditional monitoring methods.

By implementing this solution, authorities can efficiently monitor and manage water levels in dams and other water resources, leading to better water allocation, flood prevention, and overall water resource sustainability.



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

| | |
|---|---|
| • Range (m) | 10 (or other ranges up to 200) |
| • Accuracy (combined linearity, hysteresis, repeatability) (%Span) | ±0.25 (typ.) |
| • Resolution (%Span) | ±0.01 |
| • Pressure Reference | Sealed Gauge (with Built-in Atmospheric Pressure Sensor and floating housing) |
| • 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 |
| • Materials | O-rings: Viton, Sensor Head: SS316L, Diaphragm: SS316L, Oil: Silicon, Enclosure: POM and Compressed Plastic |
| • Weight (g) | ~1800 (for 10m range) |
| • Protection Rate | IP68 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) |

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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



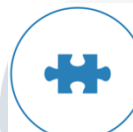
Dynamic alerting



Multi-tenant



Scalable



Composable & API first



Low cost








Action management



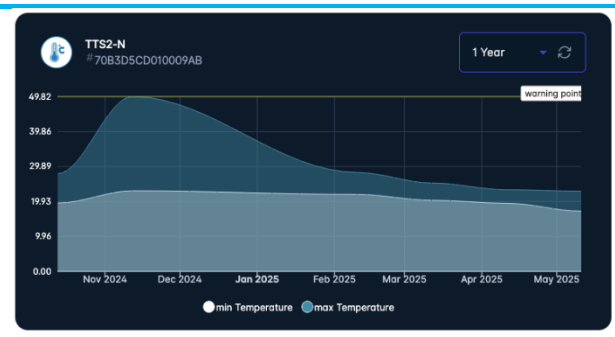
Resource monitoring

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| NAME | LAST DATA | BATTERY | SIGNAL QUALITY | NOTE |
|--|---|---------|----------------|---|
|  NB-107 Water Level Sensor <small>#70B3D5CD01000A7N</small> | 847 <small>33 minutes ago</small> | 3.58 V | high | Measuring Water and Range (On to 3m) |
|  CS02-N <small>#70B3D5CD01000C04</small> | 96.35 <small>9 minutes ago</small> | | high | NB-107 - Cal-Mit Conductivity and Safety Sensor |
|  TTS2-N <small>#70B3D5CD010009AB</small> | 13.7 °C <small>1 hour seconds ago</small> | 3.53 V | high | Temperature sensor with 2m wire |
|  PT02-N <small>#70B3D5CD0100088F</small> | 20.47 °C <small>30 minutes ago</small> | 3.49 V | high | NB-107 Pressure & Temperature Sensor |
|  NB-107 Temperature Sensor <small>#70B3D5CD010005F2</small> | 2.99 °C <small>1 hour ago</small> | 3.45 V | high | Measuring Temperature |

Single-screen visualization of device data



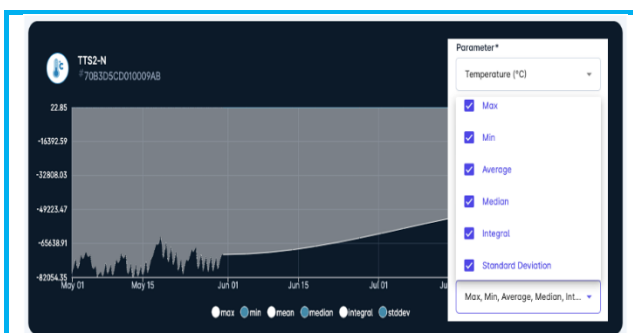
Easy analytic insight into long-term data

| Webhooks | Webhook-API |
|---|---|
|  Webhook API <small>Webhook & Subscription Management</small> | GET /new/webhooks Get Webhooks |
|  Data Store <small>Webhook & Subscription Management</small> | POST /new/webhooks Create webhook |
|  Data Processing <small>Webhook & Subscription Management</small> | GET /new/webhooks/{id} Get Webhook Data |
|  Data Notifications <small>Webhook & Subscription Management</small> | POST /new/webhooks/{id} Update Webhook |
|  Alert Rules <small>Webhook & Subscription Management</small> | DELETE /new/webhooks/{id} Delete Webhook |
|  Device Inventory <small>Webhook & Subscription Management</small> | GET /new/trigger Get Trigger |
|  Schemas <small>Webhook & Subscription Management</small> | GET /new/trigger/{trigger_id} Get Trigger Data |

Integration-ready Webhook & APIs




Global visualization of device locations with address-level zoom



Customizable aggregations & stats

Create Alert
Go Back


TTS2-N
#70B3D5CD010009AB

Conditions

Parameter*
Level (N)
Operation*
Less than
Threshold*
20

Only alert when the threshold has been breached for

minutes

Details

Message*
Level Less Than 20

Alert Level*
Warning

Send notification every
Interval*
2
minutes

☒ Also send a notification when alert is cleared

Webhook*

☐ SMS
☐ Email

Clear
Start

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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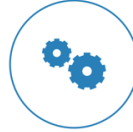
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ORDERING PROCESS

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

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