

Salinity and Conductivity Monitoring in Remote Industrial Water Treatment Units

Sustaining water quality in industrial setups is crucial, not only to maintain operational efficiency but also to prevent environmental hazards. Implementing effective salinity and conductivity monitoring ensures optimal water treatment processes and contributes significantly to environmental sustainability.

CHALLENGE

Remote industrial water treatment units often grapple with challenges related to accurate and reliable monitoring of salinity and conductivity. Traditional methods may be time-consuming, expensive, and susceptible to errors, especially in remote, inaccessible locations. Moreover, conditions in industrial settings can be harsh, impacting the longevity and performance of monitoring equipment.

SOLUTION

The 10Sorex battery-operated Salinity Sensor, designed for rugged industrial applications, can effectively address this challenge. Leveraging Narrowband-Internet of Things (NB-IoT) technology, these sensors offer near real-time data transmission, allowing for timely detection and rectification of any irregularities.

10Sorex's Salinity Sensor is built to withstand harsh environments, being IP65 rated, and can be installed in remote locations without the need for constant physical checks. The battery-operated nature of these sensors eliminates the necessity for continuous power supply, further enhancing their suitability for remote applications.

The benefits of this approach include:

- **Accurate Monitoring:** The salinity sensors provide reliable and accurate data, ensuring efficient water treatment processes.
- **Timely Alerts:** Near real-time transmission of data helps in identifying any irregularities quickly, allowing for timely action.

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- **Longevity and Durability:** Built for rugged industrial conditions, these sensors have a long operational life and can withstand harsh environments.
- **Ease of Installation:** Being battery-operated, these sensors can be installed in remote locations without the need for continuous power supply.
- **Cost-Effective:** This approach reduces the need for frequent on-site visits, thus saving costs related to manpower and transportation.

This solution promotes not only improved industrial water treatment processes but also sustainable and environmentally responsible practices.



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 ($\mu\text{S/cm}$ $\mu\text{S/cm}$ 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 ($^{\circ}\text{C}$)	-10 to +60
• Operation Temperature ($^{\circ}\text{C}$)	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



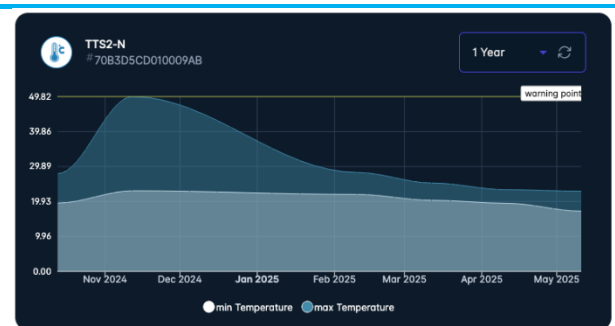
Resource monitoring

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NAME	LAST DATA	BATTERY	SIGNAL QUALITY	NOTE
 NB-107 Water Level Sensor 770B3D5CD01005A7N	847 33 minutes ago	3.58 V	high	Measuring Water and Range (On to 3m)
 CS02-N 770B3D5CD01009C4	96.35 9 minutes ago		high	NB-107 - Cal-Mit Conductivity and Safety Sensor
 TTS2-N 770B3D5CD01009AB	13.7 °C 41 minutes ago	3.53 V	high	Temperature sensor with 2m wire
 PTS2-N 770B3D5CD01009BF	20.47 °C 36 minutes ago	3.49 V	high	NB-107 Pressure & Temperature Sensor
 NB-107 Temperature Sensor 770B3D5CD01005F2	23.9 °C 1 hour ago	3.45 V	high	Measuring Temperature

Single-screen visualization of device data



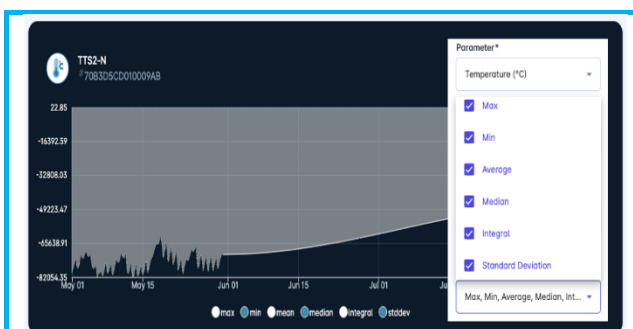
Easy analytic insight into long-term data

WEBHOOKS	Webhook-API
 Webhook API LINK & SUBSCRIPTION MANAGEMENT	GET /new/webhooks Get Webhooks
 DATA STORE DATA STORE	POST /new/webhooks Create webhooks
 DATA PROCESSING DATA PROCESSING	GET /new/webhooks/{id} Get Webhook Data
 DATA NOTIFICATIONS DATA NOTIFICATIONS	POST /new/webhooks/{id} Update Webhook
 ALERTS ALERTS	DELETE /new/webhooks/{id} Delete Webhook
 DEVICE INVENTORY DEVICE INVENTORY	GET /new/trigger Get Trigger
 SCHEMAS Go to Schemas	GET /new/trigger/{trigger_id} Get Trigger Data

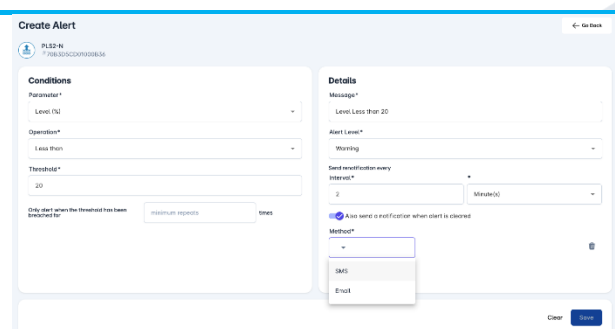
Integration-ready Webhook & APIs



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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Rev2025_00



Integrated IoT Solutions

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