Solution Datasheet

River and Waterway Salinity and Conductivity Monitoring

In a world where 30% of freshwater fish species are threatened with extinction, effective water quality monitoring is more than a necessity, it's a call to action for the survival of our ecosystems.

CHALLENGE

The monitoring of river and waterway salinity and conductivity is a critical aspect of water quality management. Yet, traditional methods are often labor-intensive, costly, and lack the ability to provide frequent and timely data. This poses significant challenges in promptly identifying and mitigating issues related to high salinity and conductivity levels, which can harm aquatic ecosystems and impact water supply for agricultural, industrial, and domestic uses.

SOLUTION

Ellenex's battery-operated Salinity Sensors can be the answer to this pressing challenge. These sensors, leveraging Narrowband Internet of Things (NB-IoT) technology, can transmit near real-time data every few hours, providing consistent and accurate monitoring of salinity and conductivity levels.

Benefits of this approach include:

- **Timely and Frequent Data:** Near real-time data transmission enables quick identification of any alarming changes in salinity or conductivity, allowing for prompt action.
- **Cost-Effective:** Eliminates the need for manual sampling and frequent site visits, thus reducing operational costs.

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River and Waterway Salinity and Conductivity Monitoring

- **Rugged and Reliable:** These IP65-rated sensors are built to withstand harsh environmental conditions, ensuring longevity and reliable performance.
- **Easy Integration:** The use of NB-IoT technology facilitates easy integration with existing water management systems, ensuring seamless operation and data collection.
- **Scalability:** The ability to deploy multiple sensors across different locations allows for large-scale monitoring and data collection.

By employing Ellenex's battery-operated Salinity Sensors, water quality monitoring can become more efficient, accurate, and cost-effective. This will significantly enhance the ability to manage and protect our precious water resources.

Battery Operated | Ruggedised Design | Easy Install | Pre-Configured | Secure | Quick ROI

TECHNOLOGY

Ellenex 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

NB-IoT LTE-M

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River and Waterway Salinity and Conductivity Monitoring

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.

SENSOR TECHNICAL SPECIFICATIONS

• Measure ranges conductivity	0-200 0-2000 0-20 0-200 Selected Automatically	µS/cm µS/cm mS/cm mS/cm
• Accuracy	±1 (typ.) (For more than 100 mS/cm appropriate buffer solution is required)	%FS
• Resolution	0.01-1 according to range	mm
• Measurement range salinity	5-60	g/Kg
• Measurement range TDS-KCl	0-133,000	ppm
• Temperature compensation	NTC	
• Storage Temperature	-10 to +60	°C
• Operation Temperature	0 to +50	°C
• Power Supply	Built-in Replaceable Lithium Battery	
• Rated Voltage	3.6	V
• Battery Lifetime	10,000+ transmissions	
• Materials	Sensor Head: PVC, DELRIN, stainless steel Enclosure: POM	
• Max Pressure on Sensor Head	5bar	
• Weight	~900 (for 3m cable)	g
• 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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River and Waterway Salinity and Conductivity Monitoring

PLATFORM FEATURES

Ellenex'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. Ellenex'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, Ellenex'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 customisation 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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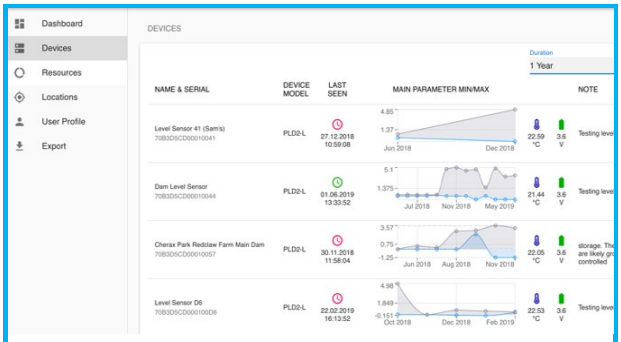
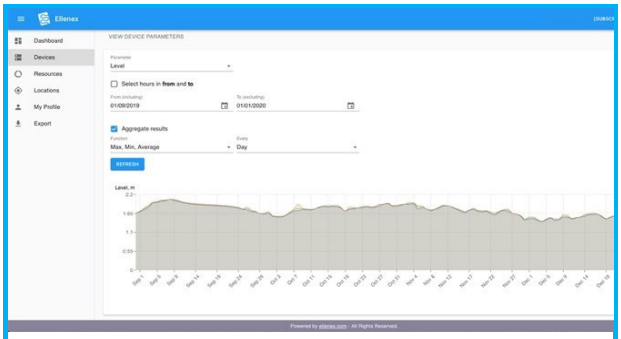
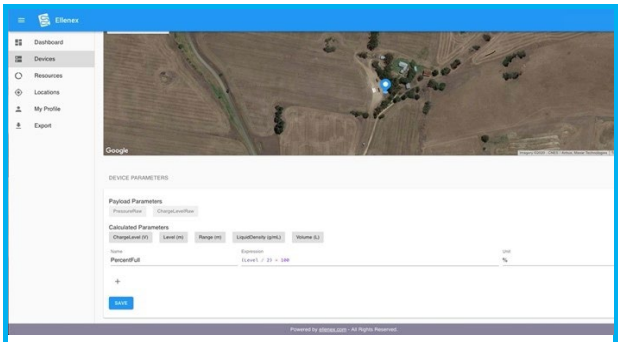
River and Waterway Salinity and Conductivity Monitoring



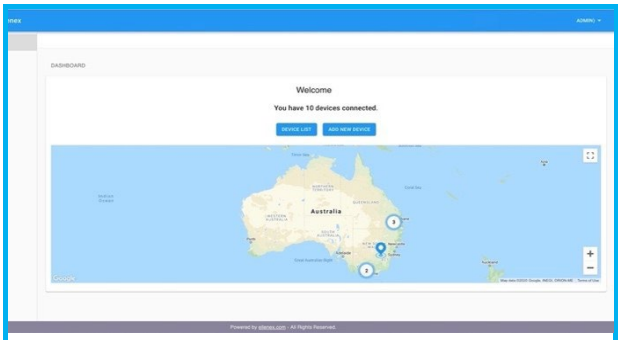
Single shot data visualisation of devices



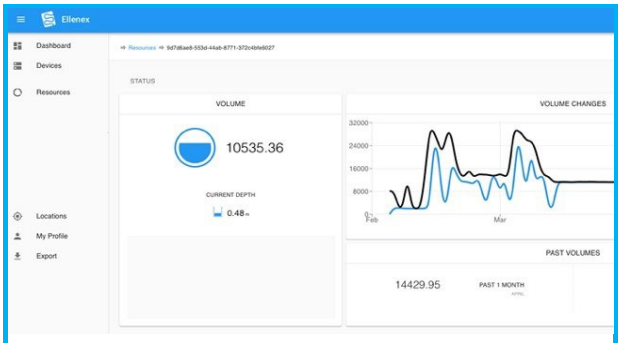
Easy historic data analysis



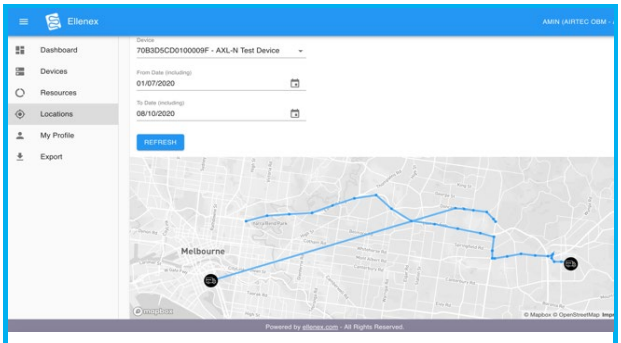
Asset location indication and complex formula



Device list visualisation on map



Volume calculation and prediction



Asset location monitoring (for mobile assets)

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INTEGRATION OPTIONS

Ellenex'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, Ellenex 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 Ellenex's solution highly adaptable and compatible with existing systems, providing users with flexibility and convenience in managing their diesel resources effectively.

ORDERING PROCESS

Ellenex 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.ellenex.shop) or contact us to discuss your application. This is the first step to experience a reliable IoT solution at scale.

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Purchase the solution online

Learn more about our Software Platform

View the Included Sensor Datasheet

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Integrated IoT Solutions

Email: sales@ellenex.com
Web: www.ellenex.com
Platform: ellenex.net
Sales Portal: www.ellenex.shop