Solution Datasheet

pH Monitoring in Remote Industrial Water Treatment Units

Effective pH monitoring in remote water treatment facilities is a critical component of ensuring water quality and safety, ultimately contributing to the global aim of sustainable water management.

CHALLENGE

Remote industrial water treatment units often face challenges in continuous pH monitoring due to their inaccessible locations, harsh environmental conditions, and power constraints. This lack of consistent monitoring leads to ineffective water treatment, posing risks to both human health and environmental safety.

SOLUTION

Using the battery-operated pH sensor manufactured by Ellenex, this challenge can be significantly mitigated. These sensors leverage Narrowband IoT (NB-IoT) technology to transmit data, providing near real-time updates on the pH levels of the water.

- **Sensors Used:** The Ellenex pH sensor is the key device used in this solution. With its IP65 rating, it is ruggedized and designed to withstand the harsh conditions of remote industrial sites.
- **Ease of Installation:** Due to their battery-operated nature, these sensors can be installed with minimal hassle and do not require a constant power supply.
- **Near Real-Time Monitoring:** With data transmission every few hours, it allows for near real-time monitoring of pH levels in the water. This improves the response time to any anomalies and enhances the overall water treatment process.

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- **Durability:** The ruggedised design of Ellenex sensors ensures their longevity, reducing maintenance and replacement costs.
- **Enhanced Connectivity:** The use of NB-IoT technology allows for reliable and enhanced connectivity even in remote locations, ensuring that pH data is consistently reported.

Addressing this challenge using the Ellenex pH sensor will drastically improve the monitoring process in remote water treatment units, resulting in enhanced water quality and resource management.

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 penetration capabilities, allowing for reliable communication even in challenging environments,

NB-IoT LTE-M

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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

• pH Measurement Range	0-14	pH
• pH Accuracy	± 0.1	pH
• pH Resolution	0.01	pH
• ORP Measurement Principle	Combined electrode (ORP/reference) Platinum tip, Ag/AgCl AgAgCl. Gelled reference (KCl)	
• ORP Measurement Range	-1000 to +1000	mV
• ORP Resolution	0.1	mV
• ORP Accuracy	± 2	mV
• Temperature Measurement Range	0 to +50	°C
• Temperature Resolution	0.01	°C
• Temperature Accuracy	± 0.5	°C
• Storage 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, special pH glass, platinum, Polyamide, cable: Coaxial armoured polyurethane, Enclosure: POM	
• Max Pressure on Sensor Head	5bar	
• Weight	~900 (for 3m cable)	g
• Protection Rate	IP68, 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

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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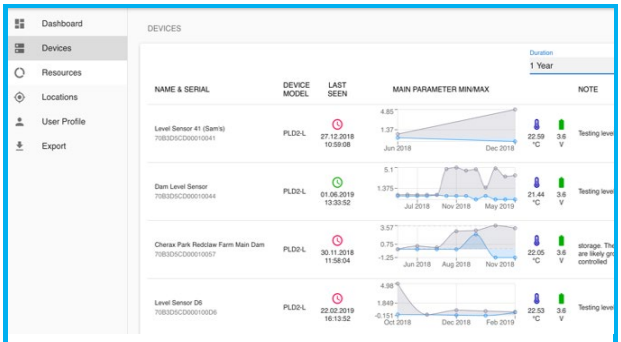
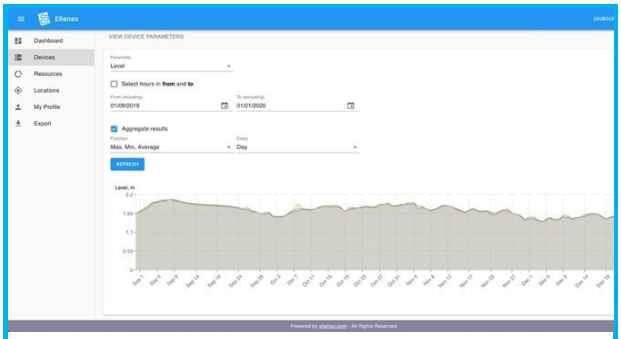
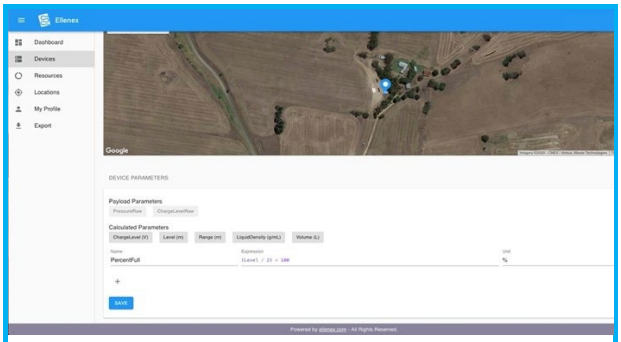


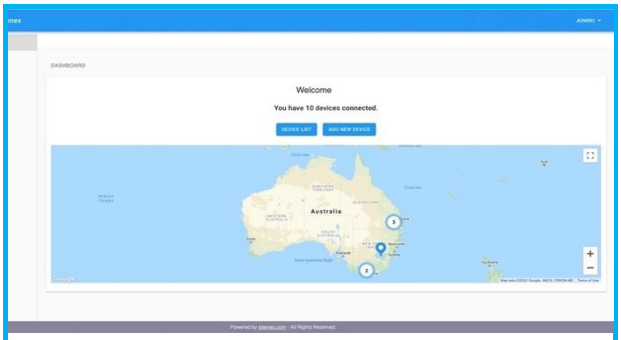
Single shot data visualisation of devices



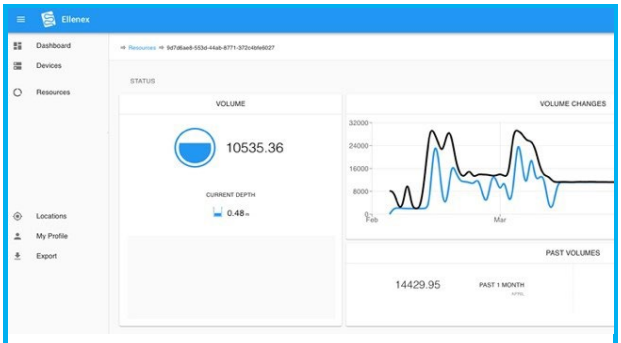
Easy historic data analysis



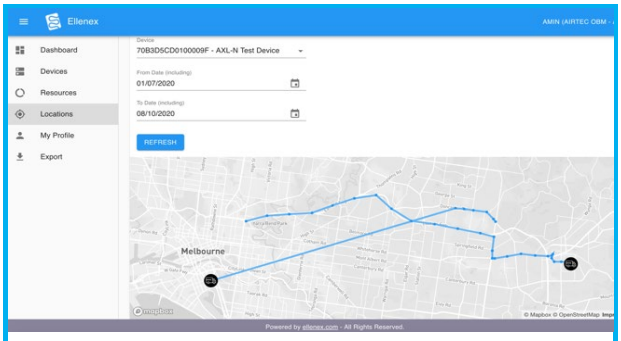
Asset location indication and complex formula



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