

# Remote Manhole Water and Wastewater Level Monitoring

**Effective remote monitoring of manhole water and wastewater levels is crucial for maintaining the health and efficiency of urban water infrastructure systems, reducing the risks of overflows and environmental pollution.**

## CHALLENGE

Manholes are essential for managing water and wastewater systems in urban areas. However, monitoring water levels and wastewater levels in these manholes can be challenging due to limited access, harsh environments, and the need for regular manual data collection. This makes it difficult to maintain efficient operations, prevent overflows, and avoid costly damage to infrastructure.

## SOLUTION

Ellenex's battery-operated Submersible Level Sensors with IP68 water resistance and NB-IoT technology offer a comprehensive solution for remote manhole water and wastewater level monitoring. These ruggedized sensors are designed to withstand harsh industrial applications, ensuring reliable performance even in demanding conditions. The IoT sensors transmit near real-time data every few hours, allowing for prompt response and informed decision-making.

The benefits of using this approach include:

- Improved safety and efficiency by eliminating the need for manual data collection in hazardous environments.
- Continuous monitoring, providing timely alerts in case of potential overflows or infrastructure issues.

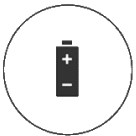
# LM-MH-WW-N

## Remote Manhole Water and Wastewater Level Monitoring



- Near real-time data transmission for quick response and decision-making.
- Reduced maintenance costs and labor requirements.
- IP68 water resistance for reliable performance in submerged conditions.
- Long-lasting battery life, suitable for remote and hard-to-reach locations.
- Environmentally-friendly NB-IoT technology with low power consumption and minimal interference.

By adopting Ellenex's Submersible Level Sensors with IP68 water resistance and NB-IoT technology, municipalities and utility companies can effectively monitor and manage their manhole water and wastewater levels, ensuring the safety and efficiency of their infrastructure while reducing costs and minimizing environmental impact.



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.



# LM-MH-WW-N

## Remote Manhole Water and Wastewater Level Monitoring



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.

### SENSOR TECHNICAL SPECIFICATIONS

• Range	3m (or other ranges upto 200m)	m
• Accuracy (combined linearity, hysteresis, repeatability)	±0.25 (typ.)	%Span
• Resolution	±0.01	%Span
• Temperature Coefficient of Zero	≤±0.03	%FS/°C
• Temperature Coefficient of Span	≤±0.03	%FS/°C
• Long Term Stability (1 year)	≤ 0.2	%Span
• Overload Protection	150	%FS
• Load Cycles (Zero to Full Scale)	10+	Million
• Storage / Operation Temperature	-20 ~ +85	°C
• Compensated Temperature	0 ~ +60	°C
• Power Supply	Built-in Replaceable Lithium Battery	
• Rated Voltage	3.6	V
• Battery Lifetime	10,000+ transmissions	
• Materials	O-ring: Viton, Body: SS316L, Diaphragm: SS316L, Oil: Silicon, Enclosure: POM	
• Weight	~1300 (for 5m range)	g
• Protection Rate	IP68, UV Protected	
• 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)	

# LM-MH-WW-N

## Remote Manhole Water and Wastewater Level 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



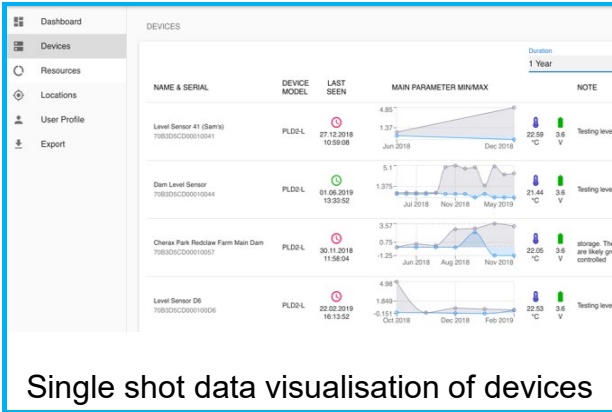
Action management



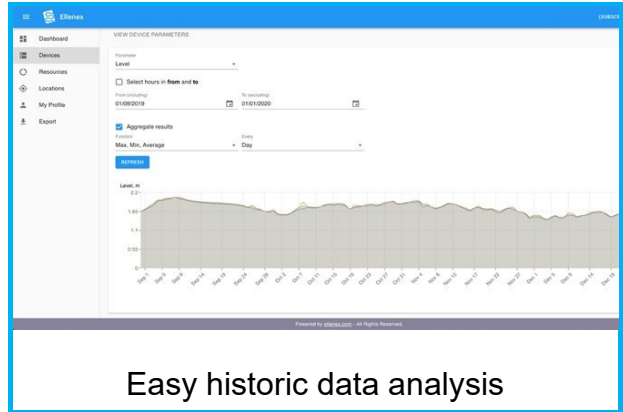
Resource monitoring

# LM-MH-WW-N

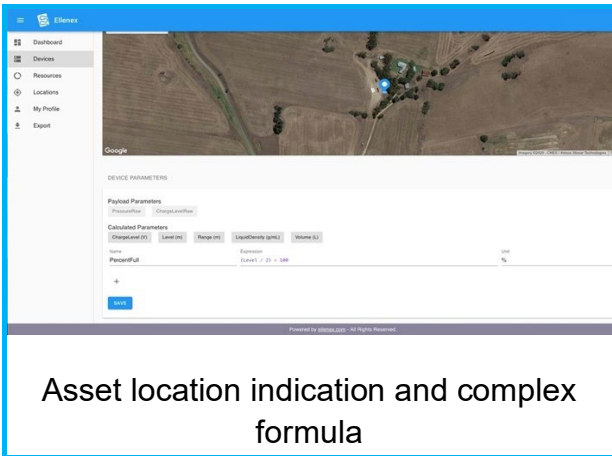
## Remote Manhole Water and Wastewater Level Monitoring



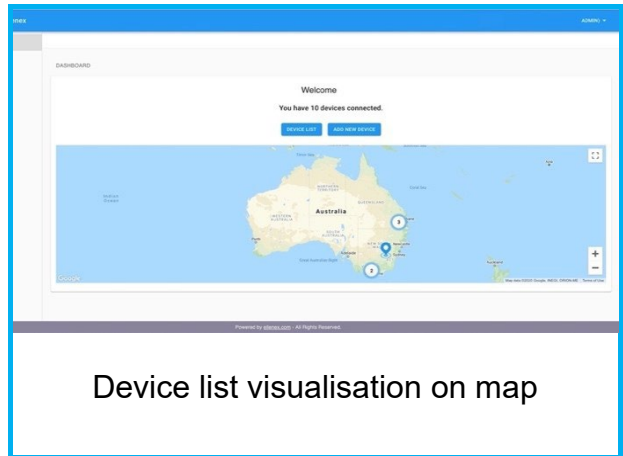
Single shot data visualisation of devices



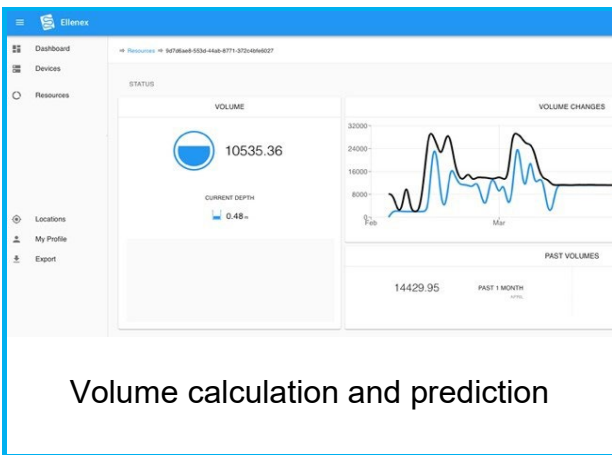
Easy historic data analysis



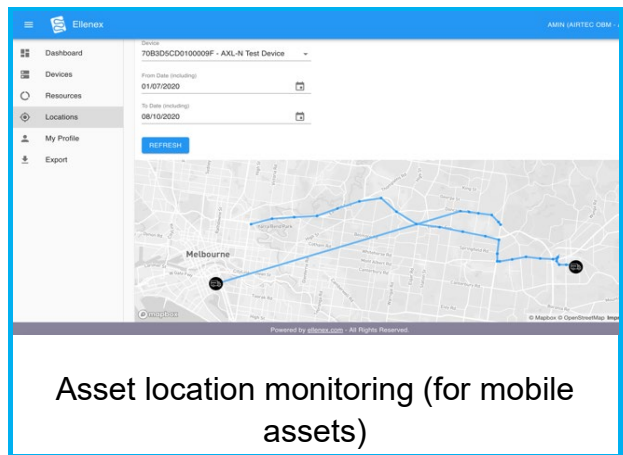
Asset location indication and complex formula



Device list visualisation on map



Volume calculation and prediction



Asset location monitoring (for mobile assets)

# LM-MH-WW-N

## Remote Manhole Water and Wastewater Level Monitoring



### INDUSTRIES SERVED



City & Councils

---

### 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](http://www.ellenex.shop)) or contact us to discuss your application. This is the first step to experience a reliable IoT solution at scale.

# LM-MH-WW-N

## Remote Manhole Water and Wastewater Level Monitoring



Purchase the solution online



Learn more about our Software Platform



View the Included Sensor Datasheet



Browse our other solutions

All details are subject to change without prior notice  
© All Rights Reserved for Ellenex

Ver. 1.3-05/23

# Integrated IoT Solutions



Email: [sales@ellenex.com](mailto:sales@ellenex.com)  
Web: [www.ellenex.com](http://www.ellenex.com)  
Platform: [ellenex.net](http://ellenex.net)  
Sales Portal: [www.ellenex.shop](http://www.ellenex.shop)