

Applications Note: Managing Storm & Surface Water with ForeSITE™ UL Monitoring System

Over recent years municipalities and sewer management districts have been facing new challenges with regard to stormwater and surface water management.

Some of the key issues include:

- **Aging Infrastructure:** Many stormwater management systems in urban areas are outdated and in need of repair or replacement, as well as surface water infrastructure such as dams, levees and water treatment plants. Upgrading aging infrastructure is a major challenge due to high costs and disruptions to existing systems.
- **Urbanization and Land Use Changes:** Rapid urbanization and changes in land use patterns pose challenges for stormwater management. Increased impervious surfaces like roads, parking lots, and buildings reduce natural infiltration, leading to more stormwater runoff and potential flooding.
- **Water Quality Concerns:** Stormwater runoff can carry pollutants such as sediment, heavy metals, fertilizers, and bacteria, impacting the quality of receiving waters. Managing and treating stormwater to reduce pollutant loads requires effective filtration and treatment systems.
- **Regulatory Compliance** Stormwater regulations and permits can be complex and challenging for municipalities and industries. Meeting stringent requirements for monitoring, reporting, and implementing best management practices requires dedicated resources and expertise.
- **Funding and Resources:** Adequate funding and resources for stormwater monitoring and management programs are often limited. Securing funding for infrastructure upgrades, monitoring equipment, and maintenance can be a significant hurdle for local governments and organizations.
- **Climate Change Impacts:** Changing weather patterns and increased frequency and intensity of storms due to climate change pose additional challenges for stormwater management. Designing resilient systems capable of handling extreme events and adapting to changing conditions is crucial.

As flooding increases along coastal and river-adjacent communities, the need for low-cost, reliable monitoring and warning systems has become a critical factor for managing these issues in real time, without requiring major infrastructure overhauls.

To address this need, ADS Environmental Services® has introduced the all-new ForeSITE™ FS-UL ultrasonic level system, a solution for flood-prone site monitoring

The monitoring system includes a fully integrated and stabilized ultrasonic sensor, exceptionally long-life battery, high performance antenna, start-up software for fast, easy configuration and setup, cloud-based software for ongoing data capture and graphical visualization, mounting bracket, and installation accessories.



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The ForeSITE™ UL (FS-UL) system is designed to enable cost-effective, easy-to-setup and reliable monitoring of water levels.

The system is designed for direct mounting above the water surface. This non-contact monitoring system provides measurements at user-prescribed intervals with ± 0.04 inches (± 1 mm) accuracy. It's compact 3.5-inch height x 4.9-inch diameter size provides inconspicuous mounting in remote locations and applications, including:

- **Stormwater** - vaults and outfalls
- **Surface Water** - lakes, reservoirs, lagoons, rivers, streams, canals, channels, tidal gates, structures
- **Flood Control** - streets, underpasses, parks, and other flood-prone locations
- **Irrigation** - canals, channels, flow control structures



The low-cost system includes all hardware and software necessary for continuous monitoring of vulnerable locations with two, user-defined alarm levels. Data is stored in non-volatile flash memory and wirelessly communicated. The FS-UL elevates communication reliability with its unique redundant cellular communication. The system automatically accesses one of two providers (CAT-M1 and NB-IoT Networks), selecting the most efficient connection to assure communication during critical events.


The FS-UL is also very low maintenance. Depending on communication and measurement intervals, battery life can exceed four years.

Summary

The ForeSITE FS-UL monitoring system combines a fully integrated and stabilized ultrasonic sensor with exceptionally long-life battery, a high performance antenna, and start-up software for fast, easy configuration and setup. As with all ADS remote monitoring solutions, the FS-UL is fully supported by comprehensive cloud-based ADS PRISM™ software, which manages data storage and data management, along with integrated tools for graphical visualization and analysis.

FS-UL is also available through comprehensive D-SITE services where ADS' technical teams perform installation, activation, any necessary field service, data monitoring, and reports to assure that storm or surface monitoring programs are consistent and always reliable.


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