

MetTel Smart City Solutions Municipal Water Supply Pressure Monitoring

LTE-M & NB-IoT for Smart City Water Department Initiatives

MetTel's Sensor-as-a-Service platform easily adapts to the array of use cases emerging with water distribution throughout City and State Governments. Recent evidence shows that pressure extremes and variability caused by system operation and fluctuations in end-user's demand are major contributing factors in many pipe failures, as well as background leakage. Pressure control in water distribution systems remains a significant concern for water utilities. Despite the general agreement that pressure variability should generally be minimized, the investigation of the impact of unsteady hydraulics on pipe failures has been inhibited by technological and technical constraints. Limited by the cost barriers of existing monitoring solutions, water departments struggle to increase visibility on system operations.

Mobile IoT through MetTel provides low-power/low-cost advantages to introduce quantities of pressure sensors that provide updates as they happen. Water pressure monitoring with MetTel provides data capture and anomaly reports, as they happen. Installation and API integration into internal systems keeps the system adaptable and easy to use.

Example of Deployment

A customized design/solution is built based on a scope of work. MetTel is usually consulted to design systems that capture real-time updates, enhance reporting and alerts based on pressure thresholds, batter life and easy replacement of battery packs, functionality (particularly in harsh and extreme conditions) and data accuracy. MetTel prototypes and tests each design and then, in cooperation with municipal city water department staff, MetTel deploys the low power cellular solution for monitoring water pressure in underground fresh water mains.

Features/Functionality

- MetTel's MIoT PCB (printed circuit board) is connected to a small circuit board that integrates the pressure loop sensor data.
- Boards are securely mounted within an IP67 rated enclosure that also houses an additional 12V 7.55 Ah non-rechargeable battery pack. The system measures the battery voltage and alerts can be set to warn for pending replacement.
- Enclosures include an externally mounted enhanced antenna, as well as connectors for a cable harness. The cable harness provides sufficient length to reach from the enclosure typically mounted near the top of the vault to the sensor installed in the water main.
- Sensor tapped into live water main using a stainless-steel tapping sleeve.
- The live tap installation of the sensor must be done by certified Safe Drinking Water Operators.
- Onboard sensors gather mission critical information that is analyzed and reported back through the easy-to-understand MetTel dashboard software interface.

