

Plant Efficiency Improvements

Industrial plants use the newest protocols, IoT gateways and sensors to increase safety and improve plant efficiency

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Opening or shutting a valve seems like a straightforward task, until that valve is placed in an industrial environment, surrounded by chemicals, machinery, high heat and dangerous equipment. In such an environment, making a mistake can be disastrous. Thankfully, new communication protocols and sensors are now available, eliminating the risk of mistakes by hands-on workers performing more dangerous day-to-day operations within industrial plants worldwide.

Armed with proven experience in providing solutions for the Industrial Internet of Things (IIoT), Belgium-based Aloxy, was ideally suited to take on the challenge of developing a safe, efficient solution that increases the safety of error-prone, manual valve operations. The time had come to automate the process. Aloxy considered all options, including current technological solutions to automate the process using wired position indicators or limit switches, which are quite expensive to install. Having assessed these, Aloxy decided to develop its own, more affordable, plug-and-play wireless solution that could not only determine if valves were in the correct position, but also enable realtime alerts, offering continuous no-fault information on the actual position of the valves. Ultimately, Aloxy opted for multiple low power wide area network (LPWAN) radio technologies such as LoRaWAN® and DASH7 Alliance Protocol to monitor communications from its ATEX/IECEX certified sensors, that were placed on the valves. LoRa®, coined from 'long range', is a proprietary spread-



Problem

Tracking valve positioning in dangerous industrial environments is critical to avoid disastrous mistakes



Solution MultiTech Conduit® IP67

Benefits

- Long range compared to Wi-Fi
- Excellent signal propagation
- Low power
- Multiple protocols
- Well-accepted standard

spectrum modulation for low data rate, low power, and long-range wireless communication and is ideally suited for industrial environments. LoRaWAN is the wide area network protocol specification for use with LoRa modulation and is designed for secure bidirectional communication, mobility and localisation services. DASH7 is an open source wireless sensor and actuator network protocol. Depending on the use case and specific requirements from the customer, one or both protocols is selected for communication.

Some of the benefits of LoRAWAN as well as DASH7 within such an environment include:

- Long range compared to Wi-Fi
- Excellent propagation in industrial environments
- Low power – good trade-off between data rate and energy consumption
- Private – onsite network deployments are able to use multiple protocols which allows the most suitable protocol for the specific use case to be selected, in terms of sensor range, reliability, latency and battery life.
- Well-accepted standard within many industrial and chemical plants

Pivotal to the solution was finding an IoT gateway that could work with both of these protocols, that was flexible to accommodate the needs of varied industrial environments, including those without LPWAN infrastructure, and was rugged enough for harsh industrial environments. After considering a variety of gateways, Aloxy opted for the **MultiTech Conduit® IP67 Base Station**, a ruggedised IoT gateway solution, specifically designed for outdoor LoRa public or private network deployments. The highly scalable and certified Conduit IP67 gateway is capable of resisting the harshest environmental factors including moisture, dust, wind, rain, snow and extreme heat. The device also supports LoRaWAN applications in virtually any environment. “Utilising the Conduit, our solution lets us use multiple radio technologies so we can select the right one for the use case or support both at the same site,” said Glenn Ergeerts at Aloxy. “We considered other gateway providers, but they didn’t have this flexibility. Our LoRa and DASH7 sensors needed a gateway that could support both of these protocols. We found it with the Conduit and look forward to working with the MultiTech team in the future.” Aloxy’s original goal of improving safety and efficiency and automating processes to deliver actionable insights into industrial operations has been met. What’s next for the future? “We are looking for gateways to run Docker containers and software defined radio at the gateway level to support more radio technologies,” added Ergeerts. For now, the future is brighter for Industrial IoT workers thanks to wireless protocols, sensors and IoT gateways and innovators like Aloxy and MultiTech who partner effectively to use them.

Ready to learn more about how MultiTech products can take your business to the next level? Contact our team of experts online at [MultiTech.com](https://www.multitech.com) today!

For additional information, contact: sales@multitech.com



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*Glenn Ergeerts,
Chief Technical Officer,
Aloxy*



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