

**MUELLER**

# SHAPING THE FUTURE OF SMART CITIES

LoRaWAN® Application



The Internet of Things (IoT) plays a significant role in enabling a fully interconnected smart cities with intelligent infrastructure, services, devices and systems, to communicate with each other. For example, water sensors communicate with remote disconnect valves to shut off water service.

A smart city is one that is effective and efficient in utilizing and optimizing digital technology and intelligent data in a meaningful way to streamline city operations, make informed decisions and deliver an improved quality of life. In order to build a smart city infrastructure, smart cities must enable themselves with an ecosystem of developers, equipment manufacturers, service providers to deliver hardware, software, connectivity and processing capabilities.

## LORAWAN®: FOR A FASTER AND SECURE APPROACH TO NEW APPLICATIONS THAN CUSTOM OR PRIVATE PROTOCOLS

Smart cities connect disparate endpoints that are ubiquitously available indoors and outdoors, even underground, such as waste bins, streetlights, public transport, water network system, etc. What they have in common is a need for secure, available and cost-effective connectivity. Endpoints differ from one another as they perform different and sector-specific tasks. However, the network infrastructure and the data handling are largely the same. Therefore, it is not necessary to reinvent the wheel every time smart cities look to connect a new endpoint.

Unlike other application specific systems, LoRaWAN is an ideal system for smart cities applications. It is designed from the ground up for lower cost; long life systems with greater ease of deployment than other systems.

LoRaWAN is a Low Power Wide Area Network specification (LPWAN) designed to wirelessly connect battery operated devices to the internet in regional, national or global networks.

It is designed to provide features specifically needed to support low-cost, mobile, secure bi-directional communication for IOT applications.

A key strength of LoRaWAN is its ability to support large numbers of devices per gateway. Depending on the policy applied and the time allowed on the network per device each day, more than 3,000 devices can be supported. It is important to note that this is not a high bandwidth industry. Assets only need to communicate their locations in order to be tracked.

LoRaWAN devices typically have very long battery life, making them ideal for long term deployments. Some of the use cases are water metering, streetlighting, air quality monitoring, and bin emptying.

## SMART CITY APPLICATIONS USING LORAWAN



LIGHTING



SANITATION



ENERGY



IRRIGATION



WATER



FIRE SECURITY

## MUELLER MI.NET LORAWAN NODE: ACCELERATOR OF DIGITAL WATER TRANSFORMATION

Utilities and municipalities are constantly challenged to meet public demand for efficiency, optimized resources, reduced cost and consumption – all without compromising quality of customer service. Evidently, they are a crucial piece to successful smart cities' development.

Over the last decade, many cities have started riding the wave of IOT, with smart metering serving as a primary application. We have witnessed many success stories along the way. One notable example is the implementation of Mueller Mi.Net AMI system in the City of Sheridan, Wyoming, across more than 10,000 service connections. The city saw an estimated 65% decrease in labor hours and improved daily read to 99.6%.

Giving the Mueller Mi.Net AMI system an added boost is the industry's first LoRaWAN Class B endpoint – the Mi.Net LoRaWAN (LW) node. The Mi.Net LW node is designed to support the digital transformation of smart water metering operations by helping water utilities go beyond automated reading and improve utility efficiency with AMI based on Low Power Wide Area (LPWA) network protocol.

Implemented with LoRaWAN Class B specification mode, the Mi.Net LW Node is the only solution in the water metering industry right now that delivers the fastest two-way wireless communication with an unparalleled level of flexibility for long term deployment – all without shortening its battery lifespan. It permits on-demand data to be collected and transmitted remotely within seconds. Besides consumption data, alerts such as leak detection, no flow, reverse flow and register tampering are constantly monitored.



Downtown Sheridan, Wyoming

Through LoRaWAN, data can be transmitted swiftly to its destination – Mi.Net AMI system. This reduced delayed time attributes to identifying outage information quicker and therefore, improve quality of customer service.



Mi.Net® LW Node connected to 420RDM (Remote Disconnect Meter) to enable remote valve actuation



## MUELLER MI.NET LORAWAN (LW) NODE IN ACTION

The Town of Florence, Arizona became the first municipality to reap the benefits of the Mi.Net LW node with more than 3,000 endpoints deployed across the town. This deployment is a significant step taken for the town to fulfill comprehensive Smart City Agenda for infrastructure and connectivity advancement.

*“The deployment of smart meters is accelerating our journey toward digital transformation and the foundation required to build out our smart city grid,” said Brent Billingsley, Town Manager of the Town of Florence. “We are confident that this open source network solution will provide new operational efficiencies, enhanced service opportunities and additional revenue streams.”*

A big part of being a smart city is the use of streamlining processes to improve operations. For water utilities and municipalities, the ability to eliminate the need for truck rolls can dramatically reduce costs. The Mi.Net LW node has the built-in capability to seamlessly connect with Mueller Systems Model 420 RDM (Remote Disconnect Meter) that allows easy and secure remote valve actuation to turn water service on or off.

For operations to go uninterrupted, the Town of Florence can rest assured as each of the Mi.Net LW node is powered by a lithium battery that provides an abundance of power and warrants for a 20-year life inside the meter pit.

To learn more about Mueller Mi.Net LoRaWAN node, go to:  
<https://muellersystems.com/Lorawan>



Town of Florence, Arizona



Mi.Net® LW Node  
installaton in the Town  
of Florence, Arizona

**For more information about Mueller or to view our full line of water products, please visit [muellersystems.com](https://muellersystems.com) or call Mueller customer service at 1.800.423.1323.**

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