**City of South Daytona**
**Office of the City Manager**
1672 S. Ridgewood Avenue • South Daytona, FL 32119 • 386/322-3014

MEMORANDUM

To: James L. Gillis Jr., City Manager

From: Becky Witte, Deputy City Clerk

Re: Consideration of awarding the Water Meter Replacement Program project (RFP 2022-001) to Water Works in the amount of $1,540,882.86 as budgeted in the current fiscal year and supplemented with ARPA (American Rescue Plan Act) funds.

Date: January 3, 2023

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In July, the City published RFP No. 2022-001 for a Water Meter Replacement Program with the goal of securing the services of a firm/team with experience in water meter installation and management to install a complete fixed-based, automatic meter reading system complete with associated software, hardware, support, and maintenance.

Seven proposals were received on Thursday, September 8, 2022 and staff hosted presentations from the lowest four responsive firms. After presentation and numerous meetings and discussions, staff is recommending WaterWorks for the Water Meter Replacement Program project (RFP 2022-001) in the amount of $1,540,882.86 as budgeted in the current fiscal year and supplemented with ARPA (American Rescue Plan Act) funds.

If approved, the project to provide state of the art Advanced Metering Infrastructure (AMI) technology throughout the City of South Daytona will begin this Spring. Every meter will be replaced which will allow two-way communication providing real-time data on-demand with a push of a button. The innovative AMI system will greatly enhance monthly automated meter reads with a wireless system that collects multiple remote reads per day, allowing for better leak detection, increased billing features and improved customer service.

The key benefits of AMI include:

- Operational cost savings: A smart meter deployment offers cost savings through the reduction or elimination of manual meter reads which generate vehicle trips.
- Read Accuracy: AMI produces more accurate reads leading to revenue increases – AMI systems have a 99.9% accuracy rate. The meters can be read to the gallon.
- Increased Field Service Safety: This enhanced communication increases safety for service crews and residents alike while reducing costs of unnecessary field visits.
- Increased Customer Service: This new AMI system will provide real time data to the Utility Billing Department and the Resident via the new Neighborhood Portal. The upgrade will increase the efficiency of the water system, lowers operating costs, and aids in customer service. Meters will be read via a fixed transmitter on the Cell Tower located on Segrave Street. There is the availability of some meters to be disconnected from City Hall.

- Neighborhood Portal: In conjunction with the Smart Water Meter installations, the City will have an engagement portal which will help residents track and better understand their water consumption patterns, allow residents to detect and resolve leaks on their own, view hourly and daily usage, and allows city staff to proactively monitor high consumption reports on a daily basis to minimize water loss through leaks.

In August 2021, the City Council adopted Resolution No. 2021-22 regarding the use of ARPA (American Rescue Plan Act) funds which included a continuous read water meter system. To align with these goals set forth by the Council, staff recommends awarding the Water Meter Replacement Program project (RFP 2022-001) to Water Works in the amount of $1,540,882.86 as budgeted in the current fiscal year and supplemented with ARPA (American Rescue Plan Act) funds.

If approved, construction is expected to begin in April 2023 and have an estimated completion date of June 2024. The sequence of construction will begin with the installation of the software and tower components followed by meter replacements in cycles designed to minimize interruptions to service and billing.

WATER WORKS INC.

LoRa Wide Area Network

# South Daytona Water Meter Replacement Program RFP# 2022-001

September 8th 2022 2pm

Water Works Inc
1425 Rock Quarry Road
Raleigh, NC 27619

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Vice President of Metrology
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*For more information about us or to view our full line of water products, please visit www.muellersystems.com or call Mueller customer service at 1.800.423.1323.*



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## Attachments

# EXECUTIVE SUMMARY

Water Works Inc in partnership with Mueller Systems, LLC (Mueller) has carefully read and considered the South Daytona FL's AMI System RFP. We understand the business objectives, timeline, and technical requirements described by the City of South Daytona, FL. We understand and are ready to commence with the stated scope of work including the provision and installation of approximately 5,565 water meters and AMI/IoT endpoints. We will provide South Daytona, FL with a secure, reliable, and maintenance-free, Network-as-a-Service platform for the life of the system. We will provide all necessary software integration and data hosting, equipping South Daytona FL with the training and support needed for successful system operation. Finally, we will provide full-time, on-site project management staff for the duration of the deployment ensuring on-time delivery with minimal impact to South Daytona FL's business operations, conducted in a manner that treats your customers with the same respect and priority that you do.

Savings and improvements are provided by many of the traditional benefits associated with AMI such as remote reading capabilities and consumption alert monitoring. However, an ideal AMI system, goes beyond basic remote reading capabilities and provides a reliable network with minimal or no maintenance headaches on the part of City of South Daytona employees.

Furthermore, the City of South Daytona, FL wants a quality-driven, well-managed installation that uses industry best practices for quality and incorporates and encourages the use of Aqua Meter. It is evident throughout the RFP that the City of South Daytona is focused on [providing the highest level of service to its customers in terms of accurate billing, proactive notification for leaks or other customer-side issues which can generate high bills, dependable and readily accessible information in the hands of both customers and customer service staff to quickly and confidently resolve disputes and provide best-in-class service, and continuing to provide safe and secure drinking water to your customers]. Finally, the ability to achieve the highest return on investment, employee safety, and customer service is driven through the system-wide deployment and use of remote service disconnect and reconnect capability.

After careful consideration of these requirements, we are pleased to submit the following *comprehensive proposal, inclusive of AMI, Meters, and System Installation* components to the City of South Daytona for a Long Range Wide Area Network Mi.Net® AMI System that *fully complies with, meets, or exceeds all of the* City of *South Daytona's requirements* as stated in the following proposal. We are confident that Mueller's advanced Mi.Net® AMI system offers the functionality, robust communication, and cost-effectiveness needed to achieve South Daytona's goals for an AMI metering system in the timeline required. As the clear market leader in remote disconnect/reconnect meters, Mueller will provide a proven platform.

## Our Understanding

The City of South Daytona has detailed several requirements for an ideal AMI system. Significant among these are:

**100% Two-Way AMI Coverage** – The Mi.Net® system provides full two-way communication to *every meter* in the City's system providing real-time data on-demand with the push of a button. Our robust network design will meet the requirements for performance and provides mobile data collection capabilities as a backup scenario.

**Low Cost of Ownership** – Our proposal allows the City of South Daytona to take advantage of all the features and benefits associated with an AMI system without any of the headaches involved with infrastructure ownership. Our

# MI.NET SYSTEM

## LoRa Wide Area Network

*Network-as-a-Service* (*NaaS)* proposal covers 100% of the installation, maintenance, and support required for the network for the 20-year life of the system for a minimal annual fee, eliminating any concerns related to performance, additional infrastructure, hurricanes, lightning strikes, or routine maintenance associated with the ownership of a private network.

[Reliable and Advanced Metering Platforms] – In addition, Mueller is releasing the latest in static measurement technology with our Aquaient meter line. Our Aquaient meter uses the latest in ultrasonic flow measurement for improved accuracy with no moving parts and provides advanced measurement including *customer line pressure and water temperature in every single meter*.

Integrated Remote Disconnect/Connect Capability – Mueller is also the only manufacturer on the market who offers meters with built-in remote disconnect and reconnect ability in both positive displacement and static meters. Mueller's Remote Disconnect Meter (RDM) is a fully integrated product that fits the standard meter lay length and is available in both mechanical (5/8") and static (5/8" – 3/4" today, 1" – 2" coming soon) meters. This allows remote activation and deactivation of service within two minutes without leaving the office. The fully integrated valve eliminates extra connections or the need to re-plumb the meter setting. Our proven RDM provides the City the fastest return on its AMI investment and helps South Daytona achieve its goals for Labor Savings, Operational Savings, and Improved Safety by eliminating truck rolls for non-payment and service starts as well as improving customer service by allowing for pre-payment plans. The RDM from Mueller is the only field-proven disconnect meter in the country and has successfully completed over 4.8 million activation cycles in active deployment since 2013, helping ensure the project is a success based on proven, real-world use.

Smart City Network Capability - Long Distance, Robust Communication – Our Long Range Wide Area Network (LoRaWAN™) for the City of South Daytona is an open-standard platform that provides the ability to communicate large amounts of data (most available bandwidth) across miles without interference. LoRaWAN technology is designed for Internet of Things (IoT) devices and provides a network that can be used by the City and private residents for hundreds of other applications beyond water meters. This includes applications such as parking, trash and sanitation, tracking, and more, providing Smart City infrastructure for the people of the City of South Daytona.

Advanced Analytics Designed for Water Utilities – Our Sentryx™ software platform was designed by Mueller specifically to support the needs of water utilities. Powerful analytics will enable the City users to help customers faster by utilizing interval data to drive new insights and by combining meter data with other water sensors or data sources like pressure or leak detection sensors for efficient and effective operations. The interface offers features such as District Metering Areas and asset management via ESRI® mapping.

Software Hosting – All proposed software platforms are 100% web-based and provided in a hosted Software-As-A-Service (SaaS) environment with the most secure data hosting and storage available. This empowers the City of South Daytona to control day-to-day activities and own the data without the worry and hassle of maintaining and updating costly server hardware. Utility staff can monitor and manage the AMI network from any secure, web-enabled device at the office, at a specific account, or anywhere else in the world.

On-time completion – Water Works in partnership with Mueller fully understands and agrees to the proposed timeline from the City for the deployment phases and has drafted a project plan in accordance with this schedule.

**Integrated Distribution Leak Detection** – As one of the largest water infrastructure providers in the United States, Mueller offers a suite of smart water utility products including our own fully integrated acoustic leak detection platform known as EchoShore which identifies and locates leaks on the City of South Daytona's distribution and transmission mains and correlates those with pinpoint accuracy. All data is consumed, displayed, and analyzed in Mueller's Sentryx™ platform.

**Integrated Distribution Pressure Monitoring and Control**– Mueller delivers our own fully integrated products to allow the City to monitor distribution and customer side pressure and the ability to identify dangerous pressure transients. Mueller's pressure monitoring suite of products includes the latest Smart Hydrant, which will allow the City to monitor pressures using existing fire hydrants without having to open or charge the hydrant, our Aquaient meter, which records pressure at every account, and our Singer and i20 products which allow utilities to remotely manage and adjust pressures based on data and avoid boil water notices and other disruptions in a single platform, Sentryx™.

**Integrated Water Quality Management** – In today's world, the ability to deliver safe and clean drinking water is more paramount than ever. The City's commitment to the customer is apparent in everything South Daytona does in this regard. Mueller delivers our own fully integrated suite of products that includes the ability to monitor water quality and automatically initiate flushing events to maintain safe drinking water for the City of South Daytona's customers through our Sentryx™ platform.

## Our Solution: The Proposal

Water Works in partnership with Mueller will act as the prime contractor and will supply a complete LoRaWAN Mi.Net® AMI system inclusive of meters, 2-way radio transmitters, LoRaWAN NaaS for the 20-year life of the system, software hosting and support, training, project management, and other ancillary devices. Leveraging our long-standing partnership with Aqua Meter, we will deliver meter installations in a professional and quality manner the City can be proud of. With a local Mueller Office in Atlanta, GA, our team will provide the City of South Daytona with the highest level of project management and support throughout the deployment and years of continuously improving and backwards-compatible operation.

Mueller will fully satisfy 100% of the City's technical requirements with this proposal. These include the functional and technical requirements surrounding the AMI system, software, integration with existing systems, and water metering platform as well as the delivery requirements including project schedule, management, implementation, and support.

The Mi.Net Solution from Mueller uses a LoRaWAN-based architecture to collect information from water meters equipped with AMI/LoRaWAN radio units and to transmit this information across extreme distances with great reliability to data collectors mounted at existing specific locations where it is then sent to data servers and made available through web-based software. Mi.Net provides full two-way communication to collect incoming consumption and alert messages while managing outgoing programming changes and real-time read requests to and from the City. This allows a South Daytona team member to get real-time readings or create work orders within minutes from an account at the far end of the service territory without leaving the office.

Information is securely transferred from every system endpoint up through the data collectors to the server and is made available to the City through a powerful, graphical, and easy-to-use web interface called Sentrxy™ that is integrated with the City's Utility Billing Software. Sentryx™ provides powerful analytics to the City staff combining meter data with information from our optional integrated acoustic leak detection and pressure

monitoring solutions as well as 3rd party data sources, such as sensors and control devices, that also utilize the LoRa™ protocol to help with smart city initiatives and advancement.

Account-specific information can also be presented to the City of South Daytona's customers through a separate, easy-to-use consumer portal known as WaterSmart. This tool increases customer support and satisfaction and provides a clear return on investment in the AMI technology for the City's customers. Customers can use their phones to view hour-over-hour consumption history, billing statements, pay their bills, report issues such as water outages or main breaks, or see important messages from COT such as boil water notices.

By using the Smart City and IoT platform known as LoRaWAN as the backbone for the AMI platform, the City will be able to add off-the-shelf products from hundreds of different smart city applications and providers. This includes applications such as parking sensors, waste management sensors, tank level sensors, leak detection, water quality sensors, and street lighting, for example. As opposed to proprietary networks, these devices can operate in a plug-and-play fashion without having to be purchased or supplied by the AMI vendor.

## Our Company

The RFP makes it clear that the City is searching for a partner who brings quality and a commitment to excellence. Throughout the waterworks industry, the Mueller name is associated with quality and value and is well known as a leading manufacturer of hydrants, valves, fittings, and meters. With a 150-year history, Mueller Water Products (NYSE: MWA) has proven stability and market strength. Our position within Mueller Water Products affords us the ability to offer the City unparalleled resources and synergies that bring the best products and technologies to market within an efficient and integrated platform under one of the most respected names in water infrastructure.

Our AMR (Automated Meter Reading) and AMI solutions have been proven for over 17 years with more than 2.5 million endpoints delivered to over 950 utilities across the nation. Mueller Water Products' longstanding presence gives our customers access to products, services, and financial stability that improves the efficiency of their operations and provide a higher level of customer service and enhanced experience for your customers.

Originally founded in 1859, we have been manufacturing water meters under our Hersey Meters brand name for over 150 years. Today, Mueller is a leading manufacturer of water meters, AMI radio units and infrastructure, software, and analytic tools to lead IoT efforts in the industry.

## System Highlights

Our Mi.Net® system features will help the City of South Daytona to achieve its long-term goals by providing:

**Sentryx™ Water Intelligence Platform -** Sentryx™ Water Intelligence is a digital services platform for water utilities to monitor, operate, and monetize water distribution networks. Understanding what digital transformation means to your utility in terms of which challenges to address and which initiatives to prioritize are a good starting point is of utmost importance to Mueller.

**Two-Way Communications Network** – Mi.Net provides two-way communication to 100% of the City's meters. This includes sending commands, changing operating parameters, meter right-sizing, setting customer-specific detection thresholds, custom alert notification, and disconnect and reconnect commands. All of which are fully configurable over-the-air. Remote Firmware Upgrade (RFU) capability of all system components, including radio endpoints, helps to ensure that meters installed now can be upgraded to support new features over the life of the system.

**Remote Meter Disconnects** – Mueller offers the Remote Disconnect Meter (RDM) using both positive displacement and static measurement technologies, which is the industry's first fully-integrated remote disconnect meter that can be used to remotely connect and disconnect water services within minutes without leaving the office. Mueller's RDM is the only field-proven RDM in the U.S. with over 4.8 million field actuations to date.

**On-Demand Reads** – Customer service staff can remotely read one or more meters with the push of a button, resolving customer issues and complaints quickly. The ability to read meters on-demand also supports more accurate final reads for billing, move-in and move-out processes, and conservation efforts.

**Smart Water Infrastructure (Beyond Meter Reading)** – The name Mi.Net® stands for the **M**ueller **I**nfrastructure **Net**work and is the platform for smart water offerings from Mueller Water Products. Some of these adders are EchoShore® DX Acoustic Leak Detection System, pressure monitoring and management, water quality monitoring, and more.

**LoRaWAN Technology** – The Mi.Net® System is built on LoRa™ technology and provides open, standards-based communication and the ability for the City to "add-on" devices or technology to the network in a plug-and-play fashion providing more value than simple meter reading alone. By leveraging this open protocol, Mueller is leading the way for utilities to have the ability to operate a variety of devices and sensors from hundreds of other vendors within the same network.

**Interval Data Recording and Collection** – The Mi.Node™ endpoint automatically logs consumption data on an hourly basis as a standard interval and may be configured down to five minutes, while keeping up to 511 days of data stored in non-volatile memory as the collector confirms receipt of each data packet.

**Customer Leak Detection** – Customer leak detection can provide automatic detection of large and small leaks on the consumer's side of the meter. Customers can be notified, and repair actions taken earlier to prevent extensive damage, property loss, or customer-side water waste. These leaks can automatically generate emails within seconds to the City or directly to customers by email and are easily viewable through the consumer portal using any web-enabled device or computer.

**Customer Pressure Monitoring** – The Aquaient product line monitors water pressure and temperature at every meter. This means no more low-pressure truck rolls to determine if a customer issue or utility problem is present and fewer boil water notices.

**Tamper Alerts and Event Notifications** – These configurable elements of Mi.Net® provide the capability of logging events and sending notifications to City personnel or consumers in the event of multiple leak levels allowing the ability to distinguish between normal household leaks and potential pipe bursts. The system continuously monitors for issues, such as meter removal, tampering, reverse flow, poor battery health and register malfunction. Alerts provide real-time notification to the City without compromising battery life.

**Advanced Analytics and Reports** – Graphical and summary reports include interval data analysis, peak usage information, event reporting, trend reports, usage, and variance analysis. The powerful Sentryx™ MDMS and AMI head-end system will allow the City to create custom views and reports, virtual meters, DMA analysis, or combine meter data with outside data sources for advanced modeling. Detailed usage information for all customers will help the City to respond quickly and resolve customer complaints with comprehensive customer usage information. It will also help the City of South Daytona immediately identify periods of abnormally high or low usage

allowing automatic and immediate notification to consumers about potential issues. Rather than waiting for a high bill, account owners can react faster to correct any metering or potential water loss issues.

**Robust and accurate meter hardware** – It all starts with accurate meter reads reliably transmitted to the City's customer information system for accurate and on-time customer billing. Mueller manufactures industry-leading meter platforms built to exact specifications at our ISO-certified Cleveland, NC manufacturing facility.

**Strategic Battery Use** – Mi.Node™ endpoint batteries have a life expectancy of more than 20 years and are backed by a 20-year warranty regardless of the number of disconnects and reconnects or on-demand reads. Mi.Net® ensures smart battery management by confirming successful communication at each exchange via a digital handshake minimizing the number of transmissions required.

**Integration** –Securing a state-of-the art AMI system shouldn't risk the City's investment in existing software tools such as Utility Billing Software. Mueller will help the City leverage these platforms to provide the highest level of service through a well thought out system integration plan. Sentryx™ was built around APIs. Literally every function within Sentyx™ is accomplished using APIs which are made available through our developer dashboard for simple integration with other systems.

**Network Support** – Keeping your system operating at peak performance is of high importance. The Mueller Network Operations Center (NOC) is made up of a team of AMI systems experts, providing around-the-clock surveillance for all hosted Mi.Net® Systems. Mueller's NOC team will continually monitor the City of South Daytona's network and will proactively notify the City and Mueller of any issues during deployment and after.

**Maintenance Free Network as a Service** – Our NaaS proposal means that the City of Vidalia doesn't have to worry about the installation or maintenance of dozens of network collectors or repeaters. This coverage is provided by Mueller through our partnerships with NaaS Partners. Whether it's a recent storm or a simple component failure, the network will be up and running without any maintenance or headaches on the part of the City.

**Security** – Mueller is committed to providing next-level security at all levels of the network and as a part of process and product designs. Quarterly Internal Testing, Security, and Vulnerability Reviews keep the City informed of responses to changes in the security landscape within the water industry and beyond. Yearly, third-party penetration testing (software, hardware, devices, network, and infrastructure) ensures the system remains safe and strong. Mueller's Product Security Incident Response Team (PSIRT) is always ready to help our customers respond to any threat or incident that does occur using encrypted communications for added security. Mueller leads the industry for network security and remote disconnect security including:

- Every endpoint has its own unique network security key that is programmed at the factory and never transmitted over the air.
- Remote disconnect commands are given a unique digital signature valid for a single point in time and cannot be duplicated or reused eliminating "copy-cat" commands.
- Remote disconnect commands require authentication and provide network throttling ability to avoid mass disconnects from a single user.

In summary, our proposal provides the City of South Daytona a field proven, low-risk AMI solution that will offer much more than just meter reading. As the utility's requirements grow, our partnership will allow the City to embrace smart city technologies at its own pace. Product longevity and system support is proven for long-term results. Mueller uniquely understands the evolving expectations for improved customer service to usher in a new

standard while working toward a connected ecosystem. Our shared investment in the success of this project will further strengthen our ties to the community and to the City. Nobody expects more from us than we do, and our commitment remains unwavering to exceed the expectations of the City of South Daytona and deliver on every aspect covered in this proposal.

# 2 PROPOSER AND SUBCONTRACTORS

## Proposer Team and Company's Background

## Water Works Inc.

The Kennedy Companies and. Water Works Inc. serve customers throughout the Mid Atlantic region. Our corporate headquarters is located in Mount Laurel New Jersey. The Kennedy Companies has a total of 12 stocking locations. In New Jersey, we have locations in Hillsborough, Clementon, and Totowa. In Eastern Pennsylvania, we have a location in Horsham. In Virginia, we have locations in Chantilly and Chesapeake. In North Carolina, We have two locations in Raleigh another in Fayetteville and Jacksonville. In South Carolina we have a location in Summerville. In Garden City,Georgia our location is under going a remodel before opening in December 2022 and finally we have acquired a location In Kissimmee Florida ready to open October 2022. Our Next location will be near Nashville Tennessee  Our offices are open from 7am to 5pm weekdays, and we can be reached at anytime by E-mail.


The Kennedy Companies and Water Works Inc. are full line distributors of water, storm, sanitary sewer and erosion control products. We offer the most diverse product lines in the industry today.

We offer full service products and engineering support with an experienced and knowledgeable staff of inside and outside sales professionals. Please Contact Us for complete information on any of our quality products.

For nearly 50 years, The Kennedy Companies have been building relationships with our manufacturers and our customers. We specialize in providing excellent engineered products to the utility and construction industries at competitive prices. Please ask your Sales Representative for more information by contacting us.

Water utility products such as Pipe, Valves, Hydrants, and AMR/AMI Meter products are in stock at all of our stocking locations.

Storm water drainage systems are continually subjected to strict regulations. The industry is demanding lower-cost solutions with increased performance and reliability. We provide storm water drainage solutions to meet a wide variety of performance requirements. Please ask your Kennedy Companies representative. From Pipe, Chamber systems, Geocellular systems, to Water Quaility devices, we havethe best systems for your application.

For all of your Woven and Non-Woven Geotextile needs, our company offers a wide range of products. We offers a complete line of woven and non-woven geotextiles to improve the performance of highways, unpaved roads, parking lots and storage areas. Your Sales Representative can assist you in selecting the Geotextile that is right for your job. We also has a broad spectrum of fabrics specifically designed for drainage applications including three pavement enhancement fabrics for paving and repairs.

We also offer Tensar triaxial structural geogrids for proven performance and cost-effectiveness in ground stabilization. They improve the effective bearing capacity of sub grade by distributing the load over a wider area. Remarkable results can be achieved by using geogrids over soft ground. Undercutting can often be eliminated, and site access is improved in most types of weather. Firm construction platforms can even be built over ground too soft to support a man's weight. Contact a Kennedy Rep for more information.

We support civil engineers and contractors with a complete line of reliable, cost effective erosion control products. We offer a variety of erosion control blankets for a wide range of applications. From moderate erosion situations to the most severe applications, we have products that are proven effective. From temporary and permanent erosion control blankets to design software, the range and quality of products are guaranteed to satisfy. Quality products supported by Kennedy reps make us a leader in erosion control technology.

## Our Commitment

In order to achieve our vision, The Kennedy Companies commit to the following:

The Kennedy Companies mission is to provide top-quality, innovative, engineered utility products that ultimately produce a better way of living for others. We believe our first

responsibility is to Kennedy customers (including but not limited to): utility, general, plumbing, and mechanical contractors, municipal utility authorities, private and public water companies, public works departments, landscape architects and contractors, and civil/consulting engineering firms who specify our products and services.

In carrying out our day-to-day business we strive to:

- Never lose focus that our customers are deserving of our best service and utmost respect. To this extent, our companies' commitment continues tobe the building of strong relationships.
- Compete within the Mid-Atlantic Region, focusing in our immediate home area.
- Always meet our annual economic objectives, including our companies' commitment toward solid growth and sustained, strong profitability.
- Preserve existing and increase market share through the Kennedy Companies unsurpassed ability to promote its engineered products within the engineering community, thereby providing potent sales opportunities once specified. This style of promotional leader, which is unique to our companies, is rarely practiced by our competitors, and assures the future success of the Kennedy Companies.
- Represent those products and services, which are deserving of our best quality, most technologically advanced, and most widely accepted in the marketplace –products and services that have a proven track record and work!
- Utilize the most recent business wholesale distribution software available to our industry that is in our companies' best interest.
- Offer a high-grade work and moral ethic for our employees to follow, and a productive working environment for those to flourish within. We intend to attract the highest quality personnel possible, delivering, not jobs, but careers.
- Through a long-term commitment to this mission, we will be the preferred source of supply for underground utility products. The Kennedy Companies will

## Mission Statement

For 50 years the Kennedy Companies have offered the widest range of quality products, delivered at competitive prices. It is our goal to maintain the highest service standard in our industry today.

Great service, great products & always in stock. Contact us today!

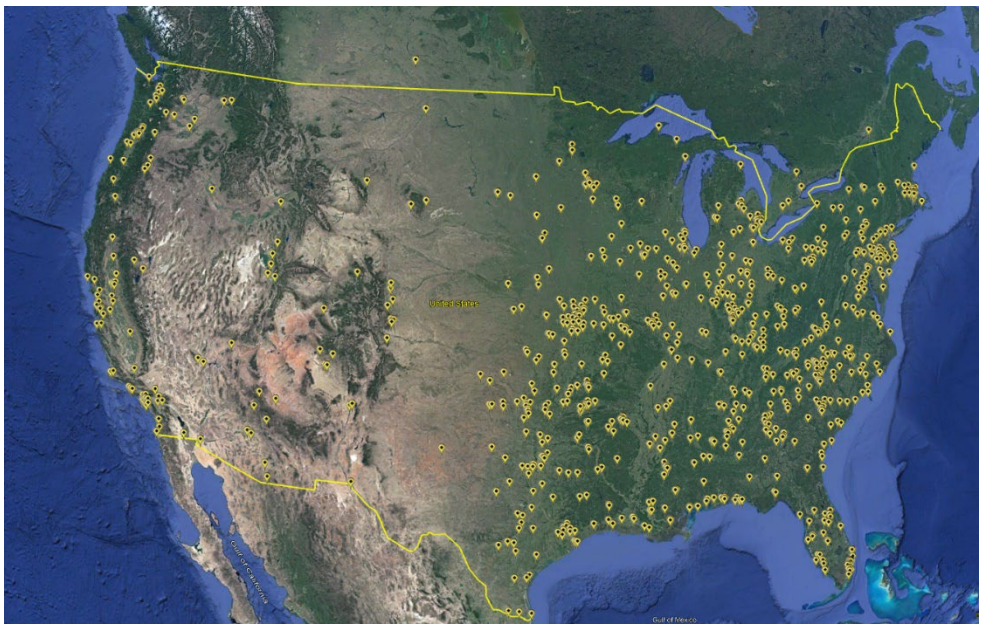
http://water-workssupply.com/
http://www.kennedy-companies.com/

# MI.NET SYSTEM
## LoRa Wide Area Network

## Mueller

Throughout the waterworks industry, the Mueller name is associated with quality and value and is well known as a leading manufacturer of hydrants, valves, fittings, and meters. With a 150-year history, Mueller Water Products (NYSE: MWA) has proven stability and market strength. Our position within Mueller Water Products affords us the ability to offer the [UtilityAbbreviation] unparalleled resources and synergies that bring the best products and technologies to market within an efficient and integrated platform under one of the most respected names in water infrastructure.

Originally founded in 1859, we have been manufacturing water meters under our Hersey Meters brand name for over 150 years. Today, Mueller is a leading manufacturer of water meters, AMI and IoT radio units and infrastructure, software, and analytic tools to lead the industry. Mueller shipped our first AMR equipped meter in 1995 and has been actively engaged as a leader in the AMR and AMI industry. We began shipments of our own proprietary and Mueller-owned AMR system in 2005, and in 2010, we acquired and introduced our revolutionary Mi.Net AMI system to the water industry. Since that time, we have shipped over 2.5 million smart water endpoints to utilities across the United States. Mueller has extensive experience in deploying both AMR and AMI systems across the country at utilities ranging from only a few hundred endpoints to utilities with over 100,000 endpoints. Our AMR and AMI solutions have been proven for over 17 years at over 950 utilities across North America as indicated by the map below.



As a part of Mueller Water Products, we are a part of one of the largest and most respected water infrastructure companies in the U.S. and are committed to bringing intelligent water solutions to the US water market. Mueller's

current roadmap and development strategy involves continued focus into smart water platforms, such as pressure and water quality management, hydraulic modeling, and other smart water applications, and providing these tools as part of our core product offerings, which include fire hydrants, gate valves, pressure regulating valves, remote actuation valves, smart flushing, and metering devices. We will continue to integrate these technologies across all our value streams so that they complement one another and allow utilities, like the City of South Daytona increased value by using ancillary Mueller Water Products. By building our AMI technology around an open-standard, non-proprietary platform known as LoRaWAN™, it will allow 3rd party companies to develop solutions that build onto it and harness the combined research and development investments from hundreds of smart city companies that are forecasted to reach into the billions of dollars over the next 10 years.

# 3 OVERALL SYSTEM CHARACTERISTICS

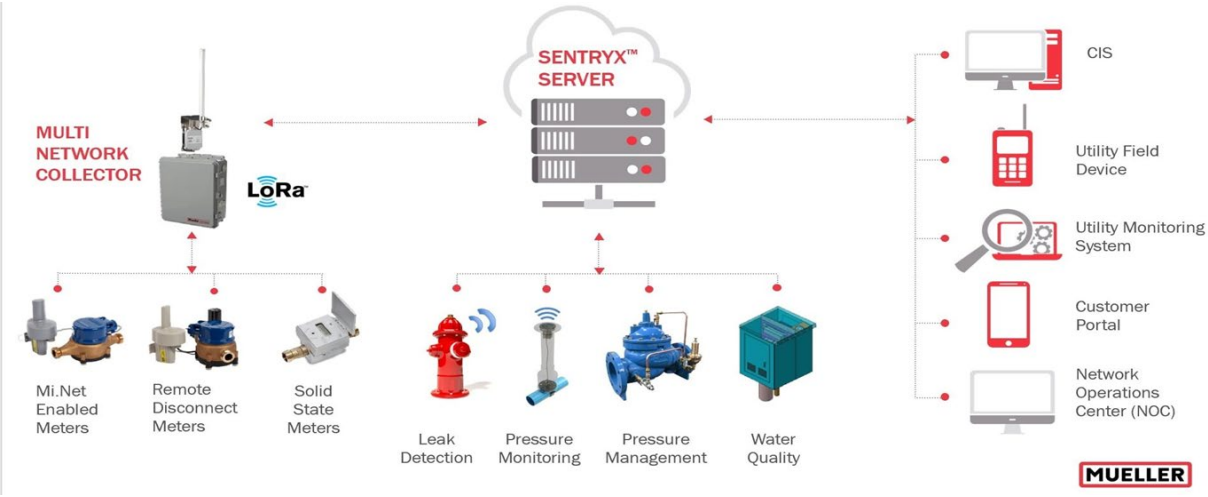
## System Overview

The Mi.Net system uses a robust, two-way communications network that uses an open-standards-based LoRaWAN protocol for passing both meter data and system management messages. A variety of hardware and software components make up the system and are organized into four functional operations: field monitoring and recording, network communications, system management, and consumer engagement, each of which are outlined in more detail.

- **Water meters** – Mueller manufactures our own line of both mechanical and solid-state meters. Our positive displacement meters are field proven, and our forthcoming Aquaient meter line provides the latest in ultrasonic measurement technology and advanced features. These features include pressure and temperature measurements in every single meter.
- **Remote disconnect meters** – Mueller offers our industry-leading remote disconnect in both our positive displacement and Aquaient meter lines. With more than 4.8 million valve cycles to date, we have more field-proven experience than all other manufacturers combined.
- **LoRa Wide Area Network (WAN)** – Mueller is proposing a Network as a Service (NaaS) offering using a LoRaWAN provided by [NaaSPartners]. All network devices, services, and support are provided for an annual service fee with no ownership, maintenance, replacement, or other headaches needed on the part of the City.
- **Sentryx™** – Mueller's industry-leading Sentryx™ intelligent water platform provides advanced monitoring, management, analysis, reporting, and control for all of Mueller's smart water technologies, including metering, water quality, pressure management, and pressure control. All proposed software is provided in a SaaS environment hosted using Amazon Web Services (AWS).
- **WaterSmart Consumer Portal** – Mueller offers South Daytona residents the industry's leading consumer portal from WaterSmart.
- **Deployment, Training, Project Management, and Support** – Our proposal covers all aspects of the deployment and ownership for the life of the system. This includes:
    - Onsite project management and quality installation throughout deployment.
    - Training for all City of South Daytona staff.
    - Advanced integration with existing systems.
    - NaaS means no network headaches for the life of the system.
    - Support from Mueller's Atlanta-based Network Operations Center.

- Opportunities for additional smart water technologies.

## System Architecture




*Mueller Smart Water Infrastructure Network*

## FIELD MONITORING AND RECORDING

Each individual water meter is equipped with and read by a two-way radio module endpoint. These endpoints collect and store consumption data, and the data is transmitted on a schedule or through an immediate on-demand read. The endpoints communicate directly to one or more network collectors, using LoRaWAN protocol. Mueller's LoRaWAN endpoints typically read the meter on an hourly basis and report consumption data once per day. Mueller endpoints are LoRaWAN Class B devices, which means they synch with the network approximately every 2 minutes. This allows for fast response times for on-demand reads, remote disconnects, or near real-time alerting.

**Meters -** Mueller offers both Positive Displacement (PD) meters and the latest in ultrasonic technology in our Aquaient Solid State meters. All meters are available with high-resolution displays. Our PD meter line utilizes the ME-8, a high-resolution mechanical register. In addition to meter consumption data and alerts, Mueller's Aquaient meter provides customer water pressure and water temperature measurement in every single meter. All meters proposed include the use of a Nicor inline connector for quick and easy connection to our Mi.Node radio endpoint.

**Mi.Node Radio Endpoint** – Each individual water meter is equipped with and read by a two-way radio endpoint known as a Mi.Node. The endpoint is attached to meters to make meter reading and data collection simple and automatic. In standard configuration, the endpoint reads and logs consumption data in 60-minute intervals. Each endpoint maintains meter data and messages in its non-volatile onboard memory for 511 days to protect the City of South Daytona against any single point of failure that would result in system-wide, cell-wide, or other catastrophic loss of data.

In addition to basic consumption data, system alerts such as leak detection, no flow, back flow, register removal, low battery alarm, and more are constantly monitored. Priority alerts, such as a back flow or high leak, will cause the endpoint to immediately wake and send a message within seconds over the network. These alerts can generate notifications to the City personnel and individual water consumers. Interval data and non-priority alarms are transmitted back to the User Interface (UI) every 24 hours.

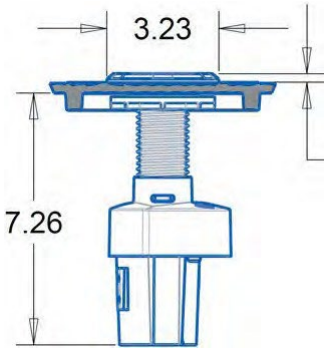
Due to the severe environment of meter pits, it is essential that any AMI device installed is engineered for the harshest of conditions. The endpoints are designed to survive life inside the meter pit and be subjected to the nastiest of temperature and moisture extremes. Each endpoint circuit board is potted to military and medical grade standards and then isolated within an engineered potting compound inside the enclosure. The endpoint is designed with no customer serviceable or replaceable parts, including batteries. This methodology eliminates any possible pathways for moisture intrusion and provides the City with the highest level of protection against environmental damage to the radio unit. This has been proven effective in similar locations across the country, including multiple installations in the Southeast U.S. The Mueller endpoints are designed and warranted for a 20-year life inside the meter pit.

The endpoint is available in multiple mounting configurations for pit installations including versions to mount through meter box lids. For the radio signal propagation to be most effective, the endpoint needs to be positioned properly in the pit and as high as possible if installed underneath a plastic pit lid or through the lid for maximum performance. Water Works in partnership with Mueller is proposing all radio endpoints be installed using one of our Through-The-Lid (TTL) solutions as shown below. For residential meters (2" and smaller) we are proposing the use of our TTL hanger with a replacement plastic lid and a recessed hole. For all commercial meters (3" and larger) and any residential meters where a plastic lid is not acceptable, Mueller is proposing the use of our TTL

*Mi.Node with protective cap*

*Mi.Node with TTL Hanger for plastic lids*

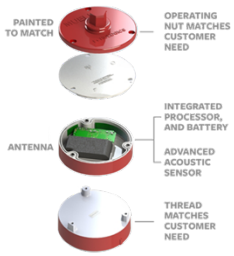
*Mi.Node with TTL Antenna for metal lids*




*Mi.Node with TTL Antenna installed in a metal lid*

antenna which is specially designed to aid in transmission through a metal lid. These are shown below.

# MI.NET SYSTEM
## LoRa Wide Area Network




**Acoustic Leak Detection** – Mueller endpoints can also be configured to log data from acoustic leak detection sensors strategically placed on fire hydrants throughout the City service area. Specialized pumper nozzle caps are configured with integrated acoustic sensors, which listen for leaks in between several adjacent points and can identify distribution side leaks and then use this data to pinpoint a location. This leak detection data is passed through the network and analyzed to find distribution side leaks and to lower unbilled water loss. By monitoring for leaks over the network on a 24/7 basis, the City staff will be able to immediately address leaks as they arise. In addition, the City of South Daytona will benefit from the following capabilities:

- Ability to identify leaks early.
- Monitor leak progression.
- Prioritize field crew schedules.
- Significantly reduce pipe repair costs.
- Achieve non-revenue water loss targets.

**Pressure Management** – Pressure management in water distribution and transmission main networks is fundamental to providing safe drinking water. Mueller provides user-friendly and cost-effective technology to continuously monitor pressure in potable water distribution systems. The pressure monitoring system can be installed directly on a saddle or other appurtenances or as a part of Mueller's industry-first Smart Hydrant reports at user-defined intervals via cellular service. Data is logged and made available for periodic upload and stored for up to two years on a secure web server. When a pressure spike occurs, utility personnel can be notified within minutes by email and text messaging.

The Sentryx™ software-enabled Super Centurion hydrant acts as a communications hub housing our state-of-the-art pressure monitoring system and leak monitoring system, which communicates data via a cellular signal to the Sentryx™ Water Intelligence Platform to provide a total overview of the health of your water system.

Leveraging over 160 years of industry experience and state-of-the-art hydrants, sensors, analytics, and processing, your data will be securely transformed into insights that can be used to power critical decisions about your asset management, operations, and maintenance programs.

- Leak and pressure monitoring options are available on new fire hydrants or as a retrofit kit for America's most popular fire hydrant.
- Innovative wireless design and engineered components make hydrant installation, operation, repair, and maintenance easy.
- Provides pressure data while the main valve is closed without charging the hydrant; leak monitoring is irrespective of valve position.

**Water Quality Management** – In areas in the distribution system where it is difficult to maintain an acceptable level of disinfectant residual, or where taste, color, or odor issues are leading to customer complaints, Mueller provides automated flushing and water quality sampling solutions. The Hydro-Guard system can be programmed to flush a line and monitor water quality conditions in distribution piping. When conditions warrant, the device automatically initiates flushing and helps a utility to comply with USEPA Safe Drinking Water Standards. This system conserves water, reduces chlorine consumption, and improves customer satisfaction requiring minimal supervision by utility personnel.

## Network Communications

Incoming meter data is passed to **Everynet Collectors** using LoRaWAN communication protocols. Everynet's KONA Mega IoT Gateways are high capacity, high availability, carrier-grade, full duplex, 1 Watt transmit power LoRaWAN collectors. Featuring a hardened carrier-grade waterproof enclosure, they are typically installed on cell towers and are ideal for massively scalable applications with public network operators. These gateways ensure that the network can provide the City with the highest level of service with support for the Mi. Node's Class B LoRaWAN operation for the fastest on-demand reads, off-schedule alarms, outgoing parameter changes, and firmware upgrades.

Mueller is proposing a 20-year NaaS solution with all network devices owned and operated by one of Mueller's partner network providers. This eliminates the traditional headaches associated with a private AMI network. With LoRaWAN Collectors located on cell towers and serviced by the LoRaWAN™ partner network provider, this ensures that the AMI network will be one of the first utilities to respond after a storm or other event. It also eliminates any maintenance requirements on the part of the City and eliminates any surprises to your O&M budget for unexpected repairs or services and replaces these with a low-cost and transparent NaaS fee. Mueller is proposing to partner with Everynet for the City of South Daytona's LoRaWAN network.

## System Management

**Sentryx™ Intelligent Water Platform** – Mueller provides an intelligent water monitoring platform that combines data from across Mueller's portfolio as well as 3rd party devices. AMI data, alerts, and virtual meters can be combined with pressure readings, water quality information, and acoustic leak detection in a single platform. Machine learning and intelligence enable faster decisions and operational efficiencies across all departments for better use of the City's most precious resource. Real-time customer data is placed directly in the hands of the people who need it most providing improved customer service and the ability to provide real answers to some of the most challenging billing questions.

**Remote Disconnect Meter (RDM)** – The 420 RDM is the industry's premier residential meter with a built-in disconnect valve that fits into the AWWA standard 71/2-inch laying length for 5/8-inch meters. The City can access either a single RDM or a group of RDMs through the Sentryx™ UI and send either disconnect or reconnect commands causing the internal solenoid-actuated valve to open or close usually within sixty seconds for a single meter. This is especially useful for high-turnover areas, for habitually late, or non-payment offenders. The City will realize immediate savings by eliminating two site visits per meter each month, which in most cases are disconnect and reconnect visits. Additionally, the City will be able to eliminate potentially hazardous conditions to employees resulting from confrontations in the field with customers on the turn-off list and increase customer satisfaction with the ability to immediately reconnect a meter once a payment has been posted. Furthermore, the RDM offers

potential enhancements for pre-payment services and enforcement of conservation or water restriction programs.

**Aquaient Ultrasonic Meter** – The Aquaient solid state meter is the latest metrology offering in Mueller's stable of meter products. The Aquaient meter is currently available in 5/8" x ½", ¾" short and ¾" standard sizes. Soon to be released are sizes 1", 1-1/2", and 2". The Aquaient meter provides up to 10 digits of granular data for visual and encoded electronic format reads. The meter can be used in residential or commercial applications where low flow rates, low pressure loss, and high accuracy across the flow range are desired.

In addition to measuring water consumption, the Aquaient meter provides water temperature and service line pressure data on every single meter. The Aquaient is also available with RDM capability using the same field-proven technology employed in the 420 RDM, which has successfully completed over 4.8 million valve actuations across the country to date.

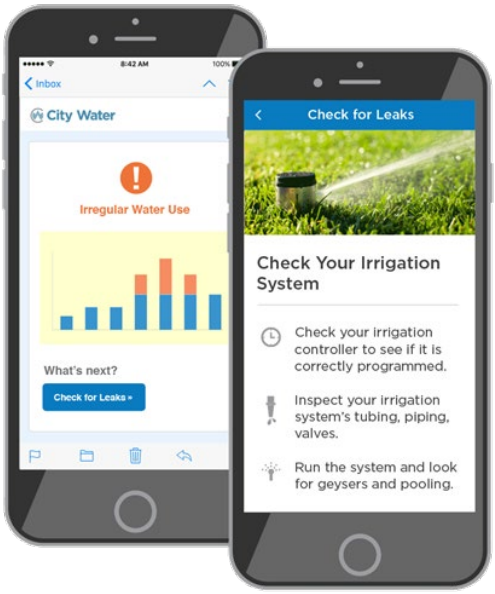
The Aquaient meter utilizes ultrasonic measurement technology to provide accuracy across a broad range of flows with low-pressure loss. The solid-state meter design incorporates no moving mechanical parts inside the meter measuring tube to maintain a high degree of accuracy over the life of the meter. The low flow accuracy of the Aquaient meter has multiple applications ranging from standard residential to high volume commercial and industrial sites. Small leaks and backflow conditions and customers receive notification of potential issues through the Mueller Sentryx™ platform. The Aquaient meter design channels water over the reflectors to increase velocity and keep the reflectors free of debris during the Mueller operation which contributes to the high degree of meter accuracy.

The liquid crystal display provides large numerals and icons that permit easy visual verification of the meter registration, temperature status, pressure status, direction of flow, error, alarm status codes, air in the line, and a four-segment battery life to supplement the electronically transmitted system notifications available in the Sentryx™ platform. A unique 10-digit serial number on the Aquaient meter faceplate and lid identifies it as the basis for systems communication. The processor cover provides additional visual information specific to the model, size, and date of manufacture to provide verifiable and retrievable data in the event it is required.

## Consumer Engagement

For the City of South Daytona, an investment in AMI represents a dramatic change in the information available for both the City and its customers. By providing more tools to communicate usage and billing information to its customers, Mi.Net helps increase customer satisfaction and ensures a well-received change to existing metering processes.

WaterSmart
a vertexone brand




**WaterSmart Consumer Portal** – Mueller has partnered with WaterSmart, the water industry's leading consumer portal provider. WaterSmart provides clear up-front communications to the City's customers. Having a transparent and easy-to-understand presentation of billing charges and reading methods is essential to the success of any AMI rollout. WaterSmart's consumer portal was designed to help educate consumers on their consumption habits, leading them to more efficient water usage, enhanced customer satisfaction, and fewer surprise bills. Through a highly interactive and easy-to-use website and mobile app, consumers can see their interval usage, compare current usage to previous periods, configure individual alerts, and set monthly and yearly budget goals. WaterSmart will provide a clear and easily identifiable tool the City can immediately deliver to the public and show a return on its investment in technology that benefits customers.

## Additional Features

As the United States' largest manufacturer and marketer of infrastructure flow control products and services for over 150 years, Mueller will provide a proven platform cable of incorporating Smart Water technology from its other essential products such as hydrants, valves, and pipes, all utilizing the same HES to provide the City of South Daytona with advanced analytics and control of their entire water system. Mueller's Sentryx™ software platform would provide the analytics designed by Mueller to support the needs of water utilities. Powerful analytics will enable the City's users to help customers faster by using interval data and driving new insights by combining meter data with other water sensors or data sources like pressure or leak detection sensors for efficient and effective operations.

Mueller will continue to develop new functionality for the Sentryx™ platform based on feedback and insight from utility customers. Sentryx™ is the future of intelligent water. It provides a single solution for end-to-end water management and data analytics. The platform measures, monitors, and empowers users to act on insights from across their water distribution systems. It ensures efficient, safe, secure, and reliable delivery of high-quality water to the City of South Daytona's customers. Sentryx™ includes, but is not limited to:

- AMI command and control including remote disconnect meters (RDMs)
- Service line pressure and temperature including Aquaient
- Distribution pressure monitoring and management, including Smart Hydrant, Hydro-Guard, Singer Valve, and i20
- Water quality monitoring and management including Hydro-Guard
- Acoustic leak detection including Echologics

These sensors or controllers are manufactured by Mueller brands. The Sentryx™ platform enables our customers to utilize the full Mueller suite of products under a single head-end software. Expanding the City's network capability is as simple as acquiring the relevant endpoints and enabling access within Sentryx™ for the relevant tabs and functionality. Sentryx™ is a full-scale water management platform that is provided to the City in a pay-for-what-you-need SaaS configuration. This means the City of South Daytona will only pay for the access and functionality that is relevant to the sensors deployed in its system.

# MI.NET SYSTEM

## LoRa Wide Area Network

***Remote Disconnect Meter:*** The Mueller 420RDM is the water industry's first residential meter with a built-in disconnect valve that fits into the AWWA standard 7-1/2-inch laying length for 5/8-inch meters. Mueller has built on the success of our mechanical RDM by releasing our Aquaient RDM using the same proven valve technology. The City of South Daytona can access either a single RDM or a group of RDMs through the Sentryx™ platform and send either disconnect or reconnect commands causing the internal solenoid-actuated valve to open or close usually within sixty seconds for a single meter. This is especially useful for high-turnover areas or for habitual late or non-payment offenders. The City will realize immediate savings by eliminating two site visits per meter per month in most cases disconnects and reconnects. Additionally, the City will be able to eliminate potentially hazardous conditions to employees resulting from confrontations in the field with customers on the turn-off list, as well as increase customer satisfaction with the payment to an account has posted. Mueller's RDM also offers potential enhancements for pre-payment services and enforcement of conservation or water restriction programs.

By using water pressure to provide the power for valve actuation, the RDM is provided with a 20-year battery warranty based on a complete cycle turn-off and turn-on every month for the life of the meter. A disconnect or reconnect command can be initiated either through the Sentryx™ user interface for a single account or a small number of accounts, or it can be batch processed and automated through the CIS allowing an entire cut-off list to be processed at once. The potential savings associated with the automation of disconnects and reconnects can often justify the entire investment into AMI technology depending on the utility. Additionally, the avoidance of potentially life-threatening situations for City staff can further help to justify the technology.

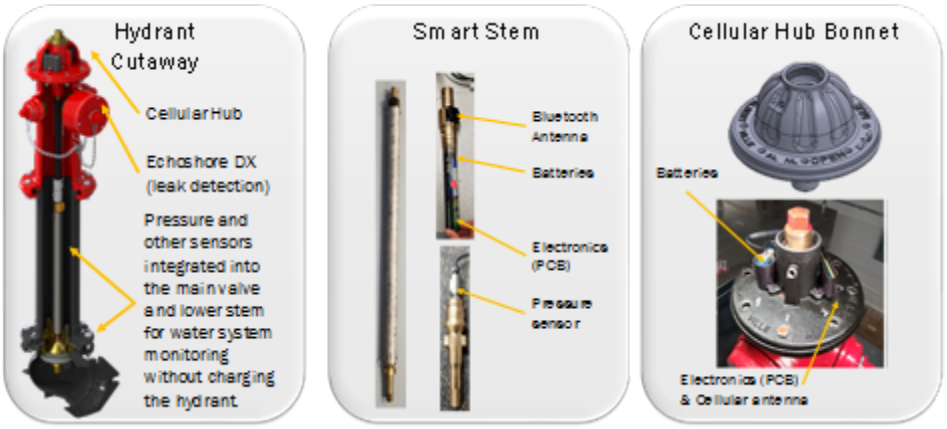
***Service Line Pressure and Temperature:*** The Aquaient solid-state meter is the latest metrology offering in Mueller's stable of meter products. In addition to the Remote Disconnect Meter mentioned above, the Aquaient meter is the first ultrasonic meter to offer service line pressure and temperature measurement in every meter. This data is reported to Sentryx™ for analysis, reporting, and alerting of issues such as low or high service line pressure. This could indicate dangerous situations, such as a cross-connection or required boil water notice. It can also save field visits by solving low-pressure complaints that are customer-side issues without having to roll a truck.

***Distribution Pressure Monitoring and Management:*** Active pressure monitoring and management in the distribution system is fundamental to providing safe drinking water. The loss of pressure can allow groundwater to contaminate the distribution system. Fluctuations in pressure can affect the physical integrity of pipes. Surges in pressure have been known to create additional leaks, main breaks, or dramatically reduce infrastructure life. Active pressure monitoring and management can also dynamically improve the accuracy of hydraulic models.

Additionally, accurate pressure data allows system operators to reduce leakage volumes, energy costs, system maintenance costs, customer complaints, and water quality problems.

- Reduce unaccounted for or non-revenue water (NRW)
- Identify potential infrastructure failures related to pressure fluctuations that can lead to significant repair costs
- Improve pump management and reduce energy costs
- Improve public safety

Mueller has made the deployment of pressure monitoring simple and easy with multiple available options including connection to existing saddles, water sampling stations, air release valves, or other appurtenances. Recently, Mueller has further revolutionized the industry with the release of our smart hydrant, which incorporates pressure sensing technology into a standard hydrant with no wires or other messy components and *without the need to open the hydrant.*




All pressure data is returned to Sentryx™ for analysis and reporting. Parameters such as default measurement frequency and alert settings are remotely configurable. The bottom-line is the latest advancements in water distribution monitoring and event management are geared to give the utility management teams' the ability to reduce operational expenses, better utilize personnel, and enhance the overall management of the operation. These advanced management systems are capable of monitoring system pressure, including transient pressure at frequencies of 4, 32, or 256 readings per second. They are capable of alerting of pressure changes that exceed the owner's determined set-points, via SMS messaging or email, within minutes of the event occurrence. These devices can operate in a standard operational mode of one reading per 15 seconds and transition into a transient monitoring state when the owner-determined trigger set-point has been surpassed.

# MI.NET SYSTEM

## LoRa Wide Area Network


In addition to remotely monitoring system pressures, Mueller's recent acquisition of i20 will also provide tools to allow the City of South Daytona to remotely control pressure using Sentryx™ and Mueller's own line of Singer pressure regulating valves. Pressure set points are programmed within Sentryx™ and remotely controlled Singer valves are automatically adjusted to maintain desired system pressures, avoiding unnecessary water hammers, reducing losses due to leaks, and avoiding boil water notices.

***Water Quality Monitoring and Management:*** The Hydro-Guard Flushing System is the ultimate automated flush management system. S.M.A.R.T. enabled flushing can be set to occur either by scheduled flush times or in response to real-time analysis of water quality parameters. It also allows two-way communication and remote flush and water quality management through Sentryx™ or with the City's existing SCADA via MODBUS TCP protocol. Operators receive near-time updates from each Hydro-Guard Unit in the distribution system equipped with the S.M.A.R.T. controller. It can be integrated with a residual analyzer and a variety of other water quality management devices to flush only when the disinfectant residual drops below the parameters established by the end-user.

***Echologics Leak Detection:*** As a division of Mueller Water Products, Mueller has integrated the industry-leading acoustic leak detection technology from Echologics® into the Mi.Net® system. Echologics® has developed leading-edge technology that is integrated into our unique EchoShore®-DX logger supported by the Mi.Net® network. This allows the City to utilize existing fire hydrants to identify leaks and monitor hydrants for unauthorized access.

Specialized pumper nozzle caps are configured with integrated acoustic sensors which listen for leaks between two points and identify distribution main leaks and then correlate this data to a specific location on the main. By monitoring for leaks over the network on a 24-hour basis, the City will be able to immediately address leaks as

they arise as well as monitor for pipe bursts and unauthorized access to fire hydrants. This leak detection data is passed through the network and analyzed to find distribution side leaks and to lower unbilled water loss.

Sentryx™ is built to be the single data repository and analytics tool for all of Mueller's intelligent water products. By using a true data lake, Mueller is now able to not only provide information on meter data, pressure, water quality, and acoustic leak detection and allow users to view, report, and analyze data from separate data sources such as leak detection and pressure management. Sentryx™ also provides remote command and control for these distribution automation devices as well.

# MI.NET SYSTEM OVERVIEW

## Fixed Network

## CITY OF SOUTH DAYTONA

Mueller, LLC
1200 Abernathy Road NE, Suite 1200
Atlanta, GA 30328

*For more information about us or to view our full line of water products, please visit www.muellersystems.com or call Mueller customer service at 1.800.423.1323.*



F xxxx 9/20

# CONTENTS



# APPENDIXA

A.1.1. Minimum Requirements for Bidders

The City of South Daytona places substantial weight in this bid on the ability of the successful respondent to perform at the highest level and to provide an optimum quality product and service before, during and after the completion of the Project. Accordingly, at a minimum, each Respondent shall meet the minimum requirements as follows:
Respondents must be factory authorized distributors for the AMI system proposed and be capable of processing the warranty claims for South Daytona as part of ongoing service requirements.
Comply.

Post project completion, respondents must have a facility with personnel assigned to its location within 200 miles of City of South Daytona's City limits and capable of stocking future equipment needs of South Daytona within 24 hours. Such facility must be staffed and in operation at the time of respondent's submission in response to this RFP. Information in this respect should be included in respondent's submission to the RFP.

*Water Works Inc has two Metrology specialists that live and work in Florida. We also have an AMI Specialist that can have boots on the ground in Florida within 24 hours should that need ever arise. Water Works is a stocking distributor of AMI Meters, Nodes and alll needed equipment.

Post project completion, respondents must have at least one (1) on-staff, factory trained, AMI support specialist with the primary responsibility of providing AMI system support, sales, and service to its customers including South Daytona and having AMI system support and service available 24/7 with the capability of providing emergency on-sight support and service within 4 hours of a request by South Daytona and to include related billing charges as a project item added under the Contingency Item Section of the RFP Pricing Schedule. Information in this respect should be included in respondent's submission to the RFP. (Respondents shall provide a biography or resume of all key support personnel as part of their response.) Proposer must submit evidence of their compliance with this section in their response.

*Water Works Inc. has an AMI specialist and he can be on the ground in less than 12 hours. Mueller Systems' Network Operations Center (NOC) is a round-the-clock sentry, providing real-time surveillance of its North American customers' water infrastructure. This service is included in the first year of purchase and is highly recommended that the City of South Daytona continue to purchase the annual technical support service fees after the first year has concluded. Incident and per hour fees are applicable if the City chooses to not purchase.
Insurance Requirements: The approved contractor shall purchase, at their own expense and maintain throughout the duration of this continuing contract, types and amounts of insurance in form and companies satisfactory to the City and shall furnish proof of insurance prior to commencing work. GENERAL LIABILITY* Bodily Injury: $300,000.00, each occurrence 600,000.00, aggregate Property: 300,000.00, each occurrence 300,000.00, aggregate Or 300,000.00, bodily injury 600,000.00, and property damage combined each occurrence RFP 2022-001, Water Meter Replacement Program Page 80 of 88 *Including: Premises-Operations; Independent Contractors; Products/Completed Operations, Personal Injury Liability; Fire Legal Liability. If the exposure exists, the following are required: Explosion & Collapse Hazard; Underground Hazard; Contractual &2Broad from Property Damage. AUTOMOBILE LIABILITY** Bodily Injury: $300,000.00, each person 300,000.00, each accident Property Damage:

Statutory: as required by the State of Florida Employer's Liability: $300,000.00 each accident Waiver of Subrogation will apply in favor of the City of South Daytona INSURANCE COMPANIES MUST BE LICENSED TO CONDUCT INSURANCE BUSINESS IN THE STATE OF FLORIDA WITH A BEST RATING GUIDE RATING OF A. THE CITY OF SOUTH DAYTONA, FLORIDA, IS TO BE NAMED AS AN ADDITIONAL NAMED INSURED ON THE CERTIFICATE SUBMITTED TO THE CITY. INSURANCE CERTIFICATES WILL BE REVIEWED. It is requested that the city be named as Additional Named Insured on Worker's Compensation and any Professional Liability coverage. Professional Liability Insurance is to be in the amount of $300,000. All insurances are to be project specific to this contract, not general umbrella insurance.

*Water Works and Aqua Meter have general liability in the amount of $1,000,000.00
We have Worker's Comp in the amount of $500,000.00. We do not have Professional Liability Coverage

A.2.1. Bonding Requirements

The selected respondent shall furnish South Daytona a payment and performance bond in a form approved by South Daytona and in the amount of the contract awarded. The performance bond shall remain in effect until the project has achieved substantial completion as determined by the City's Engineer and Public Works Director.

Comply.

A.3.1. Proven System

All proposed meter and transmitter model(s) shall have been commercially sold in the United States for a minimum of 3 years. Respondents shall provide a reference list of at least 3 customers using the brand and model of meter and transmitter quoted in its submission to the RFP. South Daytona acknowledges that remote disconnect meters constitute new technology which may not have been commercially sold in the United States for 3 years prior to the submission deadline; however, South Daytona will consider a submission which includes this meter and transmitter technology, with the provision that the respondent submit with particularity the relative merits and benefits of using remote disconnect meters and provide a reference list of at least 3 customers utilizing remote disconnect meters and having characteristics similar to South Daytona is customer count and mix, area of service, terrain, and weather conditions. RFP 2022-001, Water Meter Replacement Program Page 81 of 88 All references must be from customers of a similar or greater customer count and mix, area of service, terrain, and weather conditions as South Daytona. South Daytona intends to purchase only an AMI system which is proven by prior experience to meet all of the requirements identified herein.

Comply.

A.4.1. Migration Ability Requirements

The transmitter proposed must be capable of being read via a drive-by collector or with a fixed base collector with only the addition of a small number of collectors and headend software/server being required. No additional hardware shall be required at the meter box location for a migration path from Automated Meter Reading (AMR) to AMI. In Fixed Base Mode the transmitter shall be fully two-way and able to provide a demand read to the meter transmitter (Two-way to the collector shall not be considered fully two-way.)

In the event network collectors are disabled, our Network Management Tool (NMT) can be loaded on a City laptop connected to our Maintenance Radio to be a drive-by (disaster recovery) reading system. The NMT software communicates directly with the Sentryx server through the laptop's internet connection. In normal operation, the Maintenance Radio receives signals from the MIU in the form of the current singular read.

Through the NMT's "Forced Upload" feature, the MIUs stored interval data can be accessed, downloaded, and then communicated directly to the Sentryx server via the laptop's internet connection.

For walk-by reading, the hardware components are the same described in Section 11 "Portable Installation, Field Programming, and Testing; Devices" an Install Radio and a City iOS or Android smartphone or tablet utilizing the Sentryx Mobile App.

Both systems support manual read entry. The Sentryx workflow for creating manual read or drive-by read cells is highlighted below.

Using the Sentryx UI, a City user can use these cells to load Mi.Tech handheld(s) with routes of missed reads for either manual or walk-by radio reads or to load a laptop utilizing the NMT with a route for use as a drive-by (disaster recovery) method in the event the network collectors are disabled.

The user can load meters to be read to either a Mi.Tech handheld or the NMT for collection in walk-by or drive-by AMR fashion. The process for accomplishing this is described below:

- The manual read cell is created when the billing function "Process for Missing Reads" is performed or manual read cells can be manually created from Tools, Reporting, and Manual Readings in Sentryx.
- The cell can be split as it is downloaded and loaded onto multiple smartphone apps or multiple NMTs laptops.
- When reading using the smartphone app, the screen shows the distance from the meter to read in feet, while the NMT offers a map-based view.
- The handhelds can read the non-reporting meters in close proximity to the install radio. The NMT can read them with the maintenance radio. The NMT can be set to automatically retrieve the read if within so many feet, making the read collection work in drive-by fashion.
- If the meter does not read with the radio, the reading can be entered manually into the handheld or NMT.
- Once all handhelds and NMT's are complete and the cells are uploaded, the billing process "Process for finalization" can be run, pulling the obtained reads into billing.

When using the NMT laptop in connect to a maintenance radio and GPS locator, the process for collecting reads in a drive-by fashion is as follows:

- From the NMT, open the edit task dialog box and hit the download manual reading worksheet.
- Open the task view window and show only the locations that are on the list.
- Uncheck the show complete tasks, so only the locations you still need to visit are shown on the map.
- Check the auto-send if within 300 feet. This number is configurable by the user. This automatically sends a read meter over the RF and will get the reading if the node can communicate and has a readable register.
- If not, a box pops up asking the user to type in the reading.
- Once the task list is empty, return to edit tasks and upload the readings to the server.

A.5.1. Installation Aspects

**Each respondent shall provide with their submission to the RFP: Meter installation guidelines.**

Please see attached

**Each respondent shall provide with their submission to the RFP: A comprehensive project management and installation plan .**

**Please see attached**

Comply. It is attached.

Each respondent shall provide with their submission to the RFP: - A minimum of three (3) utility systems references where respondent has provided installation and project management services and post completion service, support and maintenance for systems having a similar size, customer count and mix, service area, terrain, and weather conditions as South Daytona.
Comply.

A.5.2 Installation Guidelines

As part of this RFP, each respondent shall submit pricing for the installation of the system, water meters, meter boxes, curb stops and endpoints. Thereafter, if South Daytona determines to proceed with the RFP process and select a respondent, South Daytona and the selected respondent shall enter into negotiations for a final contract the terms of which shall be generally consistent with this RFP. In conjunction with any contract which may be awarded in this process, the following provisions will be utilized to establish the basic requirements of the endpoint and meter installation provision. South Daytona is requesting the transition of the following in include RMA transmission of all meters:
Comply.

A.5.3 Installation Responsibilities of the Proposer

No additional compensation will be provided for difficult conditions. The respondent must understand that digging and unfavorable conditions (ie: roots, rocks, insects, debris) may exist throughout the project. Respondent will be responsible for removing debris and the like from the meter box during installation.
Comply

A.5.3.1. Water Shutoffs

The respondent shall be responsible for shutting off the water to each meter service as well as notifying each customer of the water shutoff. Some assistance may be required with the City South Daytona with the notification of its customers. Respondent shall knock on the doors of residential customers as well as leave notifications on their doors advising of the meter changeout(s). South Daytona is home to a few large commercial RFP 2022-001, Water Meter Replacement Program Page 82 of 88 customers such as schools, apartment complexes, nursing homes, etc. Special efforts will be made to ensure minimum disruption of service to these and other commercial customers. To prevent any damage from running flush valves or any other plumbing fixtures sensitive to water shutoffs, the respondent shall schedule replacements with these customers at times convenient to them and shall notify these customers when turning the water back on at these facilities.
Water Works and Installer Comply

A..5.3.2. Meter Boxes, Vaults, and Roadways

The respondent is responsible for repairing any damage it causes to meter boxes and vaults that result from its work on the Project; however, the respondent will not be liable for pre-existing conditions or leaks. The respondent is responsible for informing the city if they see a meter box which may need replacing. The respondent will install new meter boxes when authorized by the Project Manager for South Daytona. Installation shall be billed per item at a rate established under the Contingency Item Section of the RFP Pricing Schedule. Meter Boxes shall be plastic boxes with lids unless a traffic rated box is required. With prior approval of South Daytona, the respondent may use salvageable meter box parts to repair existing meter boxes. Some areas of concrete and other hard surfaces may need to be broken-up to gain access to meters. If this is the case, the affected area will be restored to a condition as close as

possible to the condition as it existed prior to installation, and this repair work shall be billed as a project item added under the Contingency Item Section of the RFP Pricing Schedule.
Installer Comply

A.5.3.3. Disposal
South Daytona will provide a disposal site for the respondent to dispose of all replaced water meters, meter boxes and related equipment, waste, debris, and materials arising or occurring from the installation of components associated with the Project. The respondent shall collect all such equipment, material and debris from the work area and deliver such to the collection/disposal site designated by South Daytona. South Daytona will establish a storage location for any salvage material which shall be segregated for future use by South Daytona. It is intended that all replaced meters, meter boxes and related equipment, material and debris shall be and remain the property of South Daytona; however, South Daytona may consider a salvage credit or offset proposed by respondent in its proposal. Any such salvage credit or off-set shall be separately indicated in the proposal submitted as an option for South Daytona to consider at a rate established under the Salvage Item Section of the RFP Pricing Schedule; however, respondents should be cognizant that South Daytona may not determine to include a salvage off-set in awarding the contract and may determine to retain all such equipment to salvage and/or dispose of as it deems appropriate.
Installer will give a $2.00 salvage credit for all brass meters

A.5.3.4. Programming and Other Required Work
The respondent shall be responsible for proper programming of the transmission mode for each AMI Endpoint, and mount each transmitter through the pit lid. Each AMI Endpoint shall be mounted through the meter box lid to optimize the performance of the system. The respondent is responsible for drilling or cutting holes in all metal and plastic lids. In RFP 2022-001, Water Meter Replacement Program Page 83 of 88 the event concrete or other lids are not drillable, lid replacement may be required and negotiated between South Daytona and the respondent.
Water Works and Installer Comply.
The endpoint is available in multiple mounting configurations for pit installations including versions to mount through meter box lids. For the radio signal propagation to be most effective, the endpoint needs to be positioned properly in the pit, as high as possible if installed underneath a plastic pit lid or through the lid for maximum performance. Water Works is proposing all radio endpoints be installed using one of our Through-The-Lid (TTL) solutions as shown below. For residential meters (2" and smaller) we are proposing the use of our TTL hanger with a replacement plastic lid and a recessed hole. For all commercial meters (3" and larger) and any residential meters where a plastic lid is not acceptable, we are proposing the use of the TTL antenna which is specially designed to aid in transmission through a metal lid.

A.5.3.5. Data Integration
As part of the scope of work, the respondent shall be responsible for the integration of all data collected and shall configure its software to interface with South Daytona's Import/Export file.
Comply.

Mueller recognized the need for a single, integrated, smart water platform that could serve as the central data repository for its intelligent water technologies and began building one from the ground up. This platform would need to provide lightning-fast analytics and reporting tools across various technologies, including traditional meter AMI data, pressure data, water quality data, acoustic leak detection data, and more.
Sentryx™ is the future of intelligent water management. It is a single solution for end-to- end water management. Sentryx™ measures, monitors, and will empower City staff to act on insights from across your

water distribution system. It ensures efficient, safe, and reliable delivery of high-quality water to the City's customers.

Utilities today tell Mueller that it is no longer enough to focus only on water consumption. Today's water distribution challenges require a deep understanding of data from across the distribution system to make informed decisions. By aligning previously separate tools and data sources, the Sentryx™ Intelligent Water Platform lets utilities take a holistic approach to today's challenges, including increasing distribution operations efficiency, actively managing aging water infrastructure, and building the utility workforce of tomorrow. Sentryx™ was designed to power smart decisions on water loss analysis, distribution leak monitoring, understanding and reducing non-revenue water (NRW), pressure and transient pressure management, water quality analysis, remote control and disconnect, and hydraulic model support.

With the Sentryx™ Water Intelligence Platform, the City will no longer need a separate Meter Data Management (MDMS) and AMI Head End system. Both are merged into a single powerful platform bringing the City the robust features it expects from standalone systems, unified into a single, easy-to-use, high-performance, and secure single solution. More than that, Sentryx™ also unifies other sensors and controls from across your distribution system, enabling the City to manage Echologics fixed acoustic leak detection, pressure monitoring, flushing, and water quality analysis from Hydro-Guard, and Singer control valves, all from the same shared user interface.

The Sentryx™ software will interface to the City's CIS (Tyler Technologies, MUNIS) to provide monthly and on demand meter readings both individually and in batch upon request by the system. It will synchronize data related to meters, service locations and customers between the two platforms. And it will provide status reports of alerts for accounts.

See below a list of fields with customer information available to be shared and synchronized with the CIS.

- PRODUCT TYPE
- SOCKET ID
- ACCOUNT ID
- METER SERIAL NUMBER
- METER SERVICE ADDRESS STREET 1
- METER SERVICE ADDRESS STREET 2
- METER SERVICE CITY
- METER SERVICE STATE/PROVINCE
- METER SERVICE ZIP
- SEQUENCE NUMBER/ROUTE NUMBER
- CUSTOMER FIRST NAME
- CUSTOMER LAST NAME
- BILLING STREET 1
- BILLING STREET 2
- BILLING CITY
- BILLING STATE/PROVINCE
- BILLING ZIP
- RATE STRUCTURE
- BILLING CYCLE
- PHONE

- FAX
- EMAIL
- METER BASE SERIAL NUMBER
- USER DEFINED FIELD (UDF) 1
- USER DEFINED FIELD (UDF) 2
- LATITUDE
- LONGITUDE
- MANUFACTURER
- LAST BILLED READ5z
- READING UNITS
- LAST BILLED READ DATE

Mueller has integrated with various version of the Tyler Munis software on previous AMR and AMI system projects. We have a working relationship with the City's CIS provider and will be able to integrate the Sentry™ software utilizing our standard integration plan and procedures. We encourage the City to discuss the upcoming project with the CIS provider to ensure its version of the software is AMI ready and will not require any configuration work on the part of the CIS provider prior to the start of the project. The City provides a file and layout for the CIS that matches the above fields. Once that layout is agreed upon and set, Mueller maps the UI to look for that specific layout. The City can then use Mueller's UI to upload the CIS file any time they wish to add or update customer data. This service can also be automated for an additional fee. Once decided, the layout must remain the same otherwise the integration will break.

Mueller understands the City prefers that meter readings for billing are provided automatically in response to an automated request from the CIS following the billing cycle and that the database synchronization be automated as well. Mueller has provided this functionality in the past for other customers and can provide it to the City as well. Once Mueller and the City agree on which fields will be present in the request and response, Mueller can configure the process to be automated utilizing an FTP.

By nature of the AMI system, hourly readings should be present through an automatic transmission to our collector. If that fails, the UI has a way of sending out a message to the nodes/radios to obtain a reading. If that too fails, then the billing request can create a missing reads "cell" that can be downloaded into the Trimble handheld, and allow for a field service representative to go to each location and obtain a reading. Once the readings are obtained and the cells uploaded back to the database, then the reads will be available on the Sentryx™ platform.

After the initial upload, Mueller can set the frequency of CIS uploads to whatever works best for the City. Typically, this is done nightly.

A.5.3.6. Data Management

**The respondent shall be required to acquire certain data as it completes the aforementioned installation work. This information will be acquired and delivered to South Daytona in an electronic form compatible with South Daytona's GIS system. During the installation, the respondent must provide digital data management. Information gathered in the field shall be provided to South Daytona in an electronic format. At least once a week, the respondent shall be required to provide as to each meter replaced during the period since the last report, the following: > Old meter reading > Old meter serial number > Photo of uninstalled meter for billing verification as needed > New meter serial number > New register serial number > New transmitter serial number > Photo of installed meter, transmitter, and box > Installation date > Name of installer > Meter size > Meter GPS coordinates 2-5 mm accuracy ***Each**

replaced meter must be physically labeled with the address*** Data must be delivered to South Daytona in an electronic/digital format that is compatible with South Daytona's GIS system or the Billing Software.
Installer Comply

A.5.4 Responsibilities of South Daytona during Installation

A.5.4.1. Owner-Furnished Data
South Daytona will provide the selected respondent all reasonably available technical data in its possession, including previous reports, maps, surveys, and such other information for respondent to perform the work. South Daytona will identify the location of meters and will endeavor to locate the meter location in a timely manner.
Comply.

A.5.4.2. Access to Facilities and Property
South Daytona shall make its system facilities and properties available and accessible for inspection by the selected respondent.
Comply.

A.5.4.3. South Daytona Cooperation
South Daytona acknowledges that its support is critical to the timely and effective implementation of the work and will provide such assistance as and when necessary, in a timely manner.
Comply.

A.5.4.4. Utility Data Integration
South Daytona shall provide the selected respondent with an Import/Export file format for its billing software for respondent to make necessary upgrades to its billing system and to enable the billing system to accept data from and push necessary data to the AMI system. South Daytona shall ensure that its billing system has the necessary file Import/Export capability so that data collected in the field can be accepted by the billing software.
Comply.

A.5.4.5. Timely Review
South Daytona shall examine all invoices and inspect all completed work by respondent in a timely manner and such invoices will be submitted to the City for payment within 30 days of the approval of the same by the City's Engineer and Public Works Director. Regardless of any delay by South Daytona in this respect, the respondent shall not delay work on the Project.
Comply.

A.6.1. Non-Covered Work
The scope of this Project contemplates a standard meter change out. In the event that conditions at a location require nonstandard work i.e. move a service location etc., resize or re-plumb services, etc., the respondent and South Daytona will resolve such issues before the respondent proceeds with work at such non-standard location. The respondent should include labor pricing for nonstandard meter installation as a project item added under the Contingency Item Section of the RFP Pricing Schedule. In the event the conditions are unable to be reasonably anticipated to include on the pricing schedule, the respondent and South Daytona shall negotiate the cost for the same before the respondent performs any such work in this respect.
Water Works and Installer Comply

A.7.1. Liability

**The respondent shall be responsible for any damages associated with its work on the Project and shall indemnify, defend, and hold harmless South Daytona, its officers, officials, agents, and employees from any claims arising from respondent's acts or omissions related to its work on the Project. Any damages incurred will be promptly repaired at the expense of the respondent. The respondent shall not be responsible for pre-existing damage except as to any additional damage caused by respondent's work under the Project Proposer should document pre-existing damages prior to beginning work at that location and notify South Daytona accordingly. Any request for repairs of such pre-existing damage by South Daytona to the respondent shall be billed as a project item added under the Contingency Item Section of the RFP Pricing Schedule. In the event the conditions are unable to be reasonably anticipated to include on the pricing schedule, the respondent and South Daytona shall negotiate the cost for the same before the respondent performs any such work in this respect.**

Water Works and Installer Comply

A.8.1 Service

A.8.1.1. Service Manuals

**The successful Proposer shall supply City of South Daytona with two hard copies and one electronic copy of the operation and service manual.**

Comply.

A.8.1.2. Service after the Sale

**Respondent shall list the name and address of the nearest authorized service location. Proposers must provide service phone number and describe the hours of operation. City of South Daytona requests that respondent include their best offer for after sale service and component pricing.**

*Water Works is opening a location in October on 2754 Michigan Ave Kissimmee Fl 34744 to be our next stocking location. The hours of operation will be 8-5pm, until said time you may reach us a 901-301-8466

The Network Operations Center (NOC) is located at Mueller Systems in Atlanta, GA and provides data monitoring and reporting provided at pre-determined levels, based on customer needs. Mueller customers value the expertise, timeliness and precision of NOC service—and the peace of mind that comes from continuous, real-time surveillance.

The full business address for Mueller Systems is 1200 Abernathy Road NE, Suite 1200 Atlanta, GA 28031. The NOC hours of operation are 8:00 AM to7:00PM EST. The phone number for support is 877.886.5945 and the web address is www.muellersystems.com.

In addition, Mueller's Customer Care Support can be reached at (800) 323-8584 or support@muellersystems.com.

A.8.1.3. Ongoing Service Requirements

**Proposer must provide a detailed Service Agreement for post-completion. Each proposed Service Agreement should include detailed costs and options for service, technical support, meter inventory and such other matters related to the effective operation, maintenance, and upgrade of the AMI system.** Comply.

# Meter Installation Guidelines and Plan

Any contracts are overseen by Aqua Meter's President, Charles Bowden. Charles has extensive experience in the water meter industry--over 30 years. He has overseen over 3 million meter installs and has ran well over 100-meter projects during his time in the water meter industry. Charles believes in a "hands-on" approach. He will be seen at the job site with the meter installers ensuring that the work performed is consistent with our company's standard and all deadlines are being met. Charles will have direct contact with the utility and ensure that the job is running smoothly. Further, with Charles' extensive experience, he will be able to evaluate the project and suggest any improvements that may need to be made before, during, and after the project.

AMC also employs an Installation Manager, Jeff Burgess. Jeff has overseen between 500,000-600,000 meter installs on multiple jobsites. Jeff also is responsible for training new meter installers. He is detail oriented, conscientious, and hard working. Jeff will be responsible for overseeing the day to day installs occurring in the field and ensuring that the project goals are met, and the quality of work is consistent with our company's standards. He will also have direct contact with the utility.

The Installers will also play a key role in ensuring that the project is successful. Our meter installers are the heart and soul of Aqua Meter. Each one receives one on one training with our Installation Manager, Jeff Burgess. Our meter installers understand the importance of correctly and accurately changing out meters. They also understand the importance of notifying each customer of the changeout, ensuring that water is left off if it is off when they arrive, ensure that the meter is properly changed out, and the area is cleaned up. Our installers confirm that the customer is back in service once they complete the meter changeout and before moving on to the next customer. They also understand the importance of logging each meter and taking meticulous notes if something additional is needed. Our installers strive on meeting project goals and providing unparalleled meter changeout services consistent with our company standards

## Appendix B: Proposal Price Sheet

Date: 9/8/2022

Proposing Firm Water Works Inc

The goal of this Project is to provide equipment, installation for a fixed base meter reading for South Daytona that fully meet the requirements contained within this document. Responding firms who meet all criteria outlined herein are invited to present a proposal addressing the following scope of work:

| Item Number | Description* | Quantity** | Unit Price | Amount |
|---|---|---|---|---|
| WM-1 | 5/8 x 3/4" Water Meter with encoded register (cost of full operational installation) | 5320 | 225.13 | 1,197,691.60 |
| WM-2 | 1" Water Meter with encoded register (cost of full operational installation) | 112 | 361.37 | 40,473.44 |
| WM-3 | 1 1/2" Water Meter with encoded register (cost of full operational installation) | 43 | 831.57 | 35,757.51 |
| WM-4 | 2" Water Meter with encoded register (cost of full operational installation) | 78 | 882.71 | 68,851.38 |
| WM-5 | 3" Water Meter with encoded register(cost of full operational installation) | 5 | 3614.44 | 18,072.20 |
| WM-6 | 4" Water Meter with encoded register(cost of full operational installation) | 5 | 4214.40 | 21,072.00 |
| WM-7 | 6" Compound Water Meter with encoded register (cost of full operational installation) | 2 | 6386.62 | 12,773.24 |
| - | Water Meter Subtotal | 5565 | | 1,394,691.37 |

| Item Number | Description* | Quantity** | Unit Price | Amount |
|---|---|---|---|---|
| A-1 | Vehicle Mobile Meter reading device to include software, Hardware, and setup | 1 | | 7144.64 |
| A-2 | Handheld Programing device | 2 | 2678.41 | 5356.82 |
| A-3 | AMI Data Collector and Necessary Accessories | | | N/A |
| A-4 | Additional Software/Hardware required to make a functional Fixed Base Meter Reading system | | | 24,622.51 |
| A-5 | Any Item(s) not outlined in this RFP Project Management | | | 64,547.52 |
| | Hardware and Miscellaneous Subtotal | | | 101,671.49 |
| D-1 | Annual Data Hosting YEAR 1 | 1 | | 44,520.00 |
| | Data Hosting Subtotal | | | 44,520.00 |
| **Contingency Items*** Only as authorized by South Daytona priced** | | | | |
| C-1 | Concrete/Asphalt repair per sq. yard | | 1333.33 | |
| C-4 | Replace 5/8 x 3/4" Curb Stop | | 83.33 | |
| C-5 | Replace/Install 5/8 x 3/4" Dual Check | | 83.33 | |
| C-6 | Replace 1" Curb Stop | | 83.33 | |
| C-7 | Replace/Install 1" Dual Check | | 83.33 | |
| C-8 | Replace damaged meter(s) | | 44.44 | |
| C-9 | Replace damaged transmitter(s) | | 44.44 | |
| C-10 | Per foot cost to relocate water line and box. | | 16.67 | |
| C-11 | Replace Meter Box and Lid | | 38.89 | |
| C-12 | Other: Mueller 5/8x3/4 Dual Check | | 55.41 | |

| | | | | |
|---|---|---|---|---|
| C-13 | Other: Mueller 1" Dual Check | | 115.13 | |
| C-14 | Other: 5/8x3/4 RDM | | 284.09 | |
| | | | | |

**All equipment contained herein must meet the specification outlined herein.*

***Quantity is an estimation provided by South Daytona final project pricing shall be determined by actual meter numbers at the price per item as listed.*

**** Contingency items include installation of Utility provided materials.*

Signature of respondent. By signing below respondent acknowledges that they have the authority to sign on behalf of the responding company:

Water Works Inc
*(Name of Bidding Firm)*

*(Signature of person signing form)*

(William) Brett Dickerson Vice President of Metrology
*(Printed name and Title of person signing form)*

STATE OF North Carolina
COUNTY OF Harnett

This document was sworn to (or affirmed) and subscribed before me by means of ✓ physical presence or ___ online notarization, this 2 day of September, 2022, he/she is personally known to me or has presented NCDL as identification.

SCOTT SMITH NOTARY PUBLIC JOHNSTON COUNTY, NC

*Notary Public*
My Commission Expires: 8/24/2025

***End of Solicitation Documents***

# Section 4: Respondent Information

**How long has Respondent been an AWMR provider?**

"Mueller has offered the Mi.Net AMI solution since 2009 when Mueller Water Products acquired the AMI company Arkion Systems and combined them with its Hersey Meters, LLC division. The new division was renamed Mueller Systems, LLC to reflect the diversity of product offerings which includes data acquisition, acoustic leak detection, systems integration, software, and Smart Water applications for water utilities as well as embracing capabilities that support the Internet of Things (IoT). Through its Hersey Meters, LLC division, Mueller has offered water metering products for over 150 years and sold their one millionth water meter in 1924."

**How long has Respondent's proposed solution been commercially available?**

LoRaWAN has been commercially available for four years.

**Provide reference and contact information for at least three utilities that have deployed Respondent's proposed AWMR solution. Consider utilities in the vicinity of South Daytona, those with similar-sized systems and those with similar solution offerings.**

Please see 8G

Davie, Florida began deployment in February of 2019. There are currently 9,968 meters in their system. Deployment finished in June of 2020 and is now an ongoing project. The point of contact for Davie Florida is Robert Walker 954-327-3769 rwalker@davie-fl.gov

Satilla Regional Water & Sewer Authority located in Waycross GA began deployment in February 2018. There are currently 6,404 meters in their system. Deployment finished in January 2019 and is now an ongoing project. Contact for Satilla is Henry McLaughlin 912-287-4366 henry@srwsa.com

Pace, Florida began deployment in February 2016 there are currently 19,276 meters in their system. Deployment finished in December 2016 and now is an ongoing project. The point of contact is Bridget Conner 850-393-4790 bconner@pacewater.org

Belmont, North Carolina began deployment in October 2016 There are currently 7,835 meters in their system deployment finished in November 2017 and is now an ongoing project. Contact for Belmont is Danny Whisnant 704-901-2073 dwhisnant@cityofbelmont.org

Cooper City, Fl began it's deployment in 2017. There are currently 6,000 meters in their system deployment finished and is now an ongoing project The contact for Cooper City is Chad Bergeron 954-591-2399 cbergeron@coopercityfl.org

**Respondents ability to connect with Tyler Technologies (MUNIS) software.**

**Current customers**

| Customer | Mueller System Type | Billing Software | Software House | Year | Electric |
|---|---|---|---|---|---|
| Weston MA | Mi.Net | MUNIS | Tyler Technologies | 2021 | |
| Wellesley MA | Mi.Net | MUNIS | Tyler Technologies | 2015 | |
| Sterling Electric MA | Mi.Net | MUNIS | Tyler Technologies | 2014 | Yes |
| Rome GA Pilot | Mi.Net | MUNIS | Tyler Technologies | 2020 | |
| Riviera Beach, FL | Mi.Net | MUNIS | Tyler Technologies | 2020 | |
| Newport Beach CA | Mi.Net | MUNIS | Tyler Technologies | 2019 | |
| Kennebunk ME | Mi.Net | MUNIS | Tyler Technologies | | |
| Ipswich | Mi.Net | MUNIS | Tyler Technologies | 2014 | Yes |
| El Centro, CA | Mi.Net | MUNIS | Tyler Technologies | 2017 | |
| Chaska MN | Mi.Net | MUNIS | Tyler Technologies | 2014 | Yes |
| Brunswick ME | Mi.Net | MUNIS | Tyler Technologies | | |

# Everynet in South Daytona

Everynet BV

Everynet already has 100% of the meters covered today in South Daytona. With the deployment of a second tower if awarded, not only would mean that South Daytona would have 100% redundancy but it means that we could **immediately** start putting meters in the ground on **day 1** and already have coverage.

Everynet is the largest, neutral-host public network operator in the world. They build and maintain carrier-grade networks and offer fully managed, ultra-low-cost connectivity as a service to enterprise users across all verticals and play an active role in enabling the global creation of Smart Infrastructure.

Global Reach

They currently operate LoRaWAN networks in 13 countries, offering connectivity as a service to 45% of the world (excluding China and India). They have a curated ecosystem of partners within the infrastructure and telecommunications sectors, including partnerships with American Tower Corporation, Crown Castle, Telkom Indonesia, Lyria and Cellnex. Through these partnerships, they provide access to 100,000 towers worldwide and continue to grow.

Leveraging these partnerships they have established theirselves as the LoRaWAN public network operator in Brazil, Indonesia, Ireland, Italy, Mexico, Spain, the United Kingdom and the United States/Puerto Rico; as well as Andorra, Bulgaria and Iceland.

In [Date], they launched their network in [Location] and currently offer coverage to [Percentage]% of the population and [percentage]% of the [Area]. With an already operational system, we can rapidly expand coverage where needed without the delays of deploying a new network.

Support and Resiliency

Everynet has a research and development team that deals with the entire LoRaWAN connectivity stack, including gateway design (HW and FW; see Everynet V2 and Everynet Cloudcell models), the gateway management tool installed on towers and roofs (Radio Access Network), and the Network Server. Since their inception, they have developed a comprehensive ecosystem of device manufacturers and application providers. All of whom have been certified to meet

their operational standards and with whom they collaborate both locally and globally to deliver end-user solutions.

They manage all the issues of network installation, including educating the local teams in charge. Because of their experience deploying and maintaininig networks around the world, they have refined their capabilities to mitigate network outages or data loss due to temperature, humidity, torrential rains, hurricanes, tsunamis, and other environmental extremes. The gateways have back up batteries and optional solar powered gateways where applicable.

With their Network as a Service (NaaS), there is no maintenance required on the part of [Client]. Under their service level agreement all maintenance, coverage, and other “ownership headaches” are covered. [Client] can be confident that all network devices are reporting and have the highest read rate available. In the event of [Location Specific Extreme] or other natural disaster, their teams will respond in near real time, ensuring the network is back up and available as soon as possible. They have already addressed staffing and other response challenges in their deployed network in [Location], and in the event of network problems or other unforeseen issues, their already in place team can apply their previous learnings to deliver the most rapid responses and resolution possible.

Thanks to large projects, including Comgas and Sabesp in Brazil and PLN in Indonesia, in the field of gas, water and energy utilities, they have developed a network design expertise capable of overcoming the inherent challenges within the utility sector.

Everynet History

Founded in 2014, Everynet is headquartered in the Netherlands and maintain offices across Europe, North and South America, and Indonesia. They are a contributing member and active presence in the LoRa Alliance, and they have collaborated in drafting its technical specifications. They introduced LoRaWAN technology in Brazil and Indonesia, ratifying network standards in collaboration with the local government and other regulatory bodies with the support of both Semtech and the LoRa Alliance. They have played a similiar pioneering role in other countries, including Italy, Spain, the United States and Puerto Rico. They have one of the most successful business models on the market, which has allowed us to realize rapid territorial expansion and fast scalability.

# SECTION 8: BID FORMS

## BID FORM 8A: BID SUBMITTAL CHECKLIST

- ☑ Form 8B: Acknowledgement and Pricing Proposal
- ☑ Form 8C: Drug Free/Tie Preference Statement
- ☑ Form 8D: Public Entity Crimes Statement
- ☑ Form 8E: Anti-Collusion Statement
- ☑ Form 8F: Statement of Vendor Qualifications
- ☑ Form 8G: Professional References for Previous Experience
- ☑ Form 8H: Listing of Subcontractors
- ☑ Form 8I: Required Project Milestones
- ☑ Form 8J: Independent Contractors Agreement
- ☑ Attachment: Bid Proposal
- ☑ Copy of License(s)
- ☑ Submission of one (1) original marked "ORIGINAL" and one (1) digital (flash drive) copy.

BY: Brett Dickerson
*Name of Business*

_Water Works Inc._ Brett Dickerson Vp of Metrology
*Authorized Signature* *Printed Name and Title*

*Date 9/1/22*

**THIS DOCUMENT MUST BE COMPLETED AND RETURNED WITH YOUR BID.**

# BID FORM 8B: Bid Form
# Acknowledgement and Pricing Proposal

PROJECT IDENTIFICATION: **Water Meter Replacement Program**

BID IDENTIFICATION AND NUMBER: RFP NO. 2022-001

THIS BID IS SUBMITTED TO: **CITY OF SOUTH DAYTONA**
**OFFICE OF THE CITY MANAGER**
**1672 S. RIDGEWOOD AVENUE**
**SOUTH DAYTONA, FLORIDA 32119**

Name of Bidder: Water Works Inc

Brett Dickerson

Mailing Address: 1425 Rock Quarry Rd Suite 106 Raleigh NC 27610

Street Address: 1425 Rock Quarry Rd Suite 106

Raleigh, North Carolina 27610

Phone Number: (919) 301-8466 FAX Number: (_____) _____

I have carefully examined the Invitation to Bid (ITB), Instructions to Vendors, General and/or Special Conditions, Specifications, and any other documents accompanying or made a part of this invitation.

I hereby propose to furnish the goods or services specified in the Invitation to Bid at the prices or rates as finally negotiated. I agree that my bid will remain firm for a period of up to ninety (90) days in order to allow the City of South Daytona adequate time to evaluate the proposed bid. Furthermore, I agree to abide by all conditions of the Invitation to Bid.

I certify that all information contained in this Bid is truthful to the best of my knowledge and belief. I further certify that I am a duly authorized to submit this Bid on behalf of the Vendor / Contractor as its act and deed and that the Vendor / Contractor is ready, willing and able to perform if awarded the contract.

I propose and agree, if this Bid is accepted, to enter into an Agreement with the City in the form included in the Contract Documents to furnish all necessary materials, equipment, machinery, tools, apparatus, transportation and labor and to complete all Work as specified or indicated in the Contract Documents for the Contract Price and within the Contract Time indicated in this Bid and in accordance with the Contract Documents.

I will accept as full compensation for completion of the project in full compliance with the Contract Documents, the lump sum price for the work items submitted herein with this Bid.

I further certify that this Bid is made without prior understanding, Contract, connection, discussion, or collusion with any person, firm or corporation submitting a Bid for the same product or service; no officer, employee or agent of the City of South Daytona City Council or of any other Vendor interested in said ITB; and that the undersigned executed this Vendor's Acknowledgement with full knowledge and understanding of the matters therein contained and was duly authorized to do so.

I further certify that having read and examined the specifications and documents for the designated services and understanding the general conditions for contract under which services will be performed, does hereby propose to furnish all labor, equipment, and material to provide the services set forth in the ITB.

I hereby declare that the following listing states any clarifications, any and all variations from and exceptions to the requirements of the specifications and documents. The undersigned further declares that the "work" will be performed in strict accordance with such requirements and understands that any exceptions to the requirements of the specifications and documents may render the Bid non-responsive.

**ADDENDUM ACKNOWLEDGEMENT**

I have carefully examined the Invitation to Bid (ITB), Instructions to Vendors, General and/or Special Conditions, Specifications, and any other documents accompanying or made a part of this Invitation to Bid.

I acknowledge receipt and incorporation of the following addenda, and the cost, if any, of such revisions has been included in the price of the bid proposal.

Addendum Number: 1 Date: 7/19/22
Addendum Number: 2 Date: 7/20/22
Addendum Number: 3 Date: 7/26/22
Addendum Number: 4 Date: 8/2/22
Addendum Number: 5 Date: 8/15/22

*Please note that the City may award contracts to multiple contractors.*

**BID BOND (10%)**

Attached hereto is a cashier's check on the _____ Bank of _____ or Bid Bond for the sum of One hundred fifty four thousand Dollars ($ 154,302.30 made payable to CITY OF SOUTH DAYTONA (Owner).

## BID

The undersigned offers to furnish **all materials, equipment and labor for construction of the "RFP NO. 2022-001, Water Meter Replacement Program,"** for the City of South Daytona, Florida, complete in every respect in strict accordance with the drawings, specifications, exhibits, figures and any future changes therein.

The LUMP SUM bid total is: One million five hundred forty three thousand twenty three 06/100 Dollars
*(In Words)*

*(In Figures)* $ 1,543,023.06.

**IN WITNESS WHEREOF,** Bidder has hereunto executed this form this 2nd day of September, 20 22.

Water Works Inc.
*(Name of Bidding Firm)*

*(Signature of person signing form)*

(William) Brett Dickerson Vice President of Metrology
*(Printed name and Title of person signing form)*

STATE OF North Carolina
COUNTY OF Harnett

This document was sworn to (or affirmed) and subscribed before me by means of ✓ physical presence or ___ online notarization, this 2 day of September, 2022

he/she is personally known to me or has presented NCDL as identification.

SCOTT SMITH NOTARY PUBLIC JOHNSTON COUNTY

*Notary Public*
My Commission Expires: 8/26/2025

**THIS FORM MUST BE COMPLETED AND RETURNED WITH YOUR BID.**

# BID FORM 8C:
# Drug-Free Preference Statement

IDENTICAL TIE BIDS - Preference shall be given to businesses with drug-free workplace programs. Whenever two or more bids, proposals, statements, or replies that are equal with respect to price, quality, and service are received by the city for the procurement of commodities or contractual services, a bid received from a business that certifies that it has implemented a drug-free workplace program shall be given preference in the award process. Established procedures for processing tie bids will be followed if none of the tied vendors have a drug-free workplace program.

In order to have a drug-free workplace program, a business shall:

(1) Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.

(2) Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.

(3) Give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection (1).

(4) In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction.

(5) Impose a sanction on or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is so convicted.

(6) Make a good faith effort to continue to maintain a drug-free workplace through implementation of Section 287.087, Florida Statutes.

As an authorized representative of the firm, I certify that this firm complies fully with the above requirements.

Water Works Inc.
*(Name of Bidding Firm)*

*(Signature of person signing form)*

(William) Brett Dickerson Vice President of Metrology
*(Printed name and Title of person signing form)*

STATE OF North Carolina
COUNTY OF Harnett

This document was sworn to (or affirmed) and subscribed before me by means of ✓ physical presence or ___ online notarization, this 25th day of September, 2023 he/she is personally known to me or has presented _____ as identification.

NICOLE SCOTT SMITH NOTARY PUBLIC JOHNSTON COUNTY, NC

*Notary Public*
My Commission Expires: 8/24/2025

**THIS FORM MUST BE COMPLETED AND RETURNED WITH YOUR BID.**

# BID FORM 8D:
# Public Entity Crimes Statement

*(To be signed in the presence of notary public or other officer authorized to administer oaths.)*

Before me, the undersigned Authority, personally appeared affiant who, being by me first duly sworn, made the following statement:

This sworn statement is submitted with Bid, Proposal **or** Contract No 2022-001 for The City of South Daytona Water Meter Replacement Program. This sworn statement is submitted by WATER WORKS INC. whose business address is 1425 Rock Quarry Rd Suite 106 Raleigh, North Carolina 27610 and (if applicable) its Federal Employer Identification Number (FEIN) is 54-1780608 .(If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement: _____.)

My name is (William) Brett Dickerson and my relationship to the entity named above is Vice President of Metrology.

(relationship such as sole proprietor, partner, president, vice president)

(1) I understand that a public entity crime as defined in Section 287.133 of the Florida Statutes includes a violation of any state or federal law by a person with respect to and directly related to the transaction of business with any public entity in Florida or with an agency or political subdivision of any other state or with the United States, including, but not limited to, any proposal or contract for goods or services to be provided to any public entity or such an agency or political subdivision and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy or material misrepresentation.

(2) I understand that "convicted" or "conviction" is defined by the Florida Statutes to mean a finding of guilt or a conviction of a public entity crime, with or without an adjudication of guilt, in any federal or state trial court of record relating to charges brought by indictment or information after July 1, 1989, as a result of a jury verdict, non-jury trial, or entry of a plea of guilt or nolo contendere.

(3) I understand that "affiliate" is defined by the Florida Statutes to mean (1) a predecessor or successor of a person or a corporation convicted of a public entity crime, or (2) an entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime, or (3) those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an affiliate, or (4) a person or corporation who knowingly entered into a joint venture with a person who has been convicted of a public entity crime in Florida during the preceding 36 months.

(4) I understand that a "person" as defined in Paragraph 287.133(i)(e), Florida Statutes, means any natural person or entity organized under the laws of any state or of the United States with the legal power to enter into a binding contract and which bids or applies to bid on contracts for the provision of goods or services let by a public entity, or which otherwise transacts or applies to transact business with a public entity. The term "person" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of an entity.

(5) Based on information and belief, the statement which I have marked below is true in relation to the entity submitting this sworn statement. (Please indicate which statement applies).

N/A Neither the entity submitting this sworn statement, nor any officers, directors, executives, partners, shareholders, employees, members or agents who are active in management of the entity, nor any affiliate of the entity have been charged with and convicted of a public entity crime subsequent to July 1, 1989.

N/A The entity submitting this sworn statement, or one or more of the officers, directors, executives, partners, shareholders, employees, members, or agents who are active in management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989, AND (Please indicate which additional statement applies.)

N/A There has been a proceeding concerning the conviction before a hearing officer of the State of Florida, Division of Administrative Hearings. The final order entered by the hearing officer did not place the person or affiliate on the convicted vendor list. (Please attach a copy of the final order.)

N/A The person or affiliate was placed on the convicted vendor list. There has been a subsequent proceeding before a hearing officer of the State of Florida, Division of Administrative Hearings. The final order entered by the hearing officer determined that it was in the public interest to remove the person or affiliate from the convicted vendor list. (Please attach a copy of the final order).

As an authorized representative of the firm, I certify that this firm complies fully with the above requirements.

Water Works Inc.
*(Name of Bidding Firm)*

*(Signature of person signing form)*

(William) Brett Dickerson Vice President of Metrology
*(Printed name and Title of person signing form)*

STATE OF North Carolina
COUNTY OF Harnett

This document was sworn to (or affirmed) and subscribed before me by means of ✓ physical presence or ___ online notarization, this 2 day of September, 2022, he/she is personally known to me or has presented NCDL as identification.

SCOTT SMITH NOTARY PUBLIC JOHNSTON COUNTY, NC

*Notary Public*
My Commission Expires: 8/26/2025

**THIS FORM MUST BE COMPLETED AND RETURNED WITH YOUR BID.**

## BID FORM 8E:
## Anti-Collusion Statement

By signing this form, the Proposer agrees that this Bid is made without any other understanding, agreement, or connection with any person, corporation, or firm submitting a bid for the same purpose and that the bid is in all respects fair and without collusion or fraud.

**SIGN** in ink in the space provided below. Unsigned Bids will be considered incomplete, and will be disqualified, and rejected.

IT IS AGREED BY THE UNDERSIGNED VENDOR THAT THE SIGNING AND DELIVERY OF THE BID REPRESENTS THE VENDORS ACCEPTANCE OF THE TERMS AND CONDITIONS OF THE FOREGOING SPECIFICATIONS, CONTRACT AND PROVISIONS, AND IF AWARDED, THIS CONTRACT WILL REPRESENT THE AGREEMENT BETWEEN THE VENDORS AND THE CITY OF SOUTH DAYTONA.

*(Signature of person signing form)*

(William) Brett Dickerson Vice President of Metrology

*(Printed name and Title of person signing form)*

Name of Bidder: Water Works Inc

Address: 1425 Rock Quarry Rd

Suite 106

City/State/Zip: Raleigh, North Carolina 27610

Phone Number: (919) 301-8466 FAX Number: (_____) _____

FEIN Number: 54-1780608

**NO** Bid may be withdrawn for a period of ninety (90) days subsequent to the submittal of the Bids, without the consent of the City of South Daytona.

**NO BID (REASON):** _____

**THIS FORM MUST BE COMPLETED AND RETURNED WITH YOUR BID.**

## BID FORM 8F:
## Statement of Vendor Qualifications

The undersigned warrants that he or she is duly authorized to complete this document, and hereby affirms that the information contained in this Form is complete, true, and correct to the best of their knowledge and belief. If necessary, questions may be answered on separate paper and attached, with any additional information that may be pertinent.

(1) Name of Vendor. **Water Works Inc.**

(2) Permanent main office address. **1425 Rock Quarry Rd Suite 106, Raleigh, NC 27610**

(3) Date organized. **April 10th, 1973**

(4) If a corporation, where incorporated. **New Jersey**

(5) How many years have you been engaged in the contracting business under your present firm or trade name? **49 years**

(6) Contracts on hand: (Schedule these, showing amount of each contract and the appropriate anticipated dates of completion.) **Ranlo NC $1.2 milliion est completion 10/31 Beaulaville, NC $350,000.00 Est completion 10/31/22**

(7) General character of work performed by your company. **Sale and distribution of Mueller Systems Water Meters and Water Meter Parts**

(8) Have you ever failed to complete any work awarded to you? If so, where and why? **No**

(9) Have you ever defaulted on a contract? If so, where and why? **No**

(10) List the more important projects recently completed by your company, stating the approximate cost for each and the month and year completed. **Pace Fl 4.7million on going, Town of Davie FL 3 million ongoing, Cooper City Fl 2million on going**

(11) List your major equipment currently owned or leased. **Flatbed trucks and tractor trailers for deliveries**

(12) Experience in work similar to this type of project.

**Our experience is head and shoulders above anyone for starters, the reason being is that we are a company that specializes in Meters and Meter Reading Systems. We are designed to achieve maximum satifaction from our customer base due to our knowledge and experience. We are Mueller's distributor from New Jersey to Florida. We work soley with Meters including their systems for AMI/ AMR.**

(13) Background and experience of the principal members of your organization, including the officers. please see attached resumes

(14) The undersigned hereby authorizes and requests any person, firm, or corporation to furnish any information requested by the City in verification of the recitals comprising this Statement of Vendor Qualifications.

_____
*(Name of Bidding Firm)*

_____
*(Signature of person signing form)*

Brett Dickenson, VP of Metrology
*(Printed name and Title of person signing form)*

STATE OF NC
COUNTY OF Harnett

This document was sworn to (or affirmed) and subscribed before me by means of ✓ physical presence or ___ online notarization, this 1 day of September, 20 22, he/she is personally known to me or has presented NC DL as identification.

SCOTT SMITH NOTARY PUBLIC JOHNSTON COUNTY NC

_____
*Notary Public*
My Commission Expires: 8/26/2025

**THIS FORM MUST BE COMPLETED AND RETURNED WITH YOUR BID.**

## BID FORM 8G:
## Professional References for Previous Experience

The Vendor proposes that he/she is qualified to perform the referenced work and has successfully done so on recent projects similar in nature and size. The City reserves the right to check references and confirm information provided herein.

Please provide three (3) current and correct references from clients for similar services. (Do not include the City of South Daytona)

***Reference 1:***

| | |
|---|---|
| *Company Name:* | Pace Water System, Inc. |
| *City, State:* | Pace, FL |
| *Contact Person:* | Damon Boutwell |
| *Telephone Number:* | 850-232-7376 |
| *Email Address:* | dboutwell@pacewater.org |
| *Description of Goods or Services provided:* | 19,000 endpoint on AMI Network and 10% RDM (remote disconnect meter) |
| *Contract Amount:* | $4.7M |
| *Start/End Date of Contract:* | 2016-ongoing |

***Reference 2:***

| | |
|---|---|
| *Company Name:* | Cooper City |
| *City, State:* | Cooper City, FL |
| *Contact Person:* | Chad Bergeron |
| *Telephone Number:* | 954-591-2399 |
| *Email Address:* | cbergeron@coopercityfl.org |
| *Description of Goods or Services provided:* | 6,000 endpoints on AMI network, 400 RDM |
| *Contract Amount:* | $2M |
| *Start/End Date of Contract:* | 2017-ongoing |

***Reference 3:***

| | |
|---|---|
| *Company Name:* | Town of Davie |
| *City, State:* | Davie, FL |
| *Contact Person:* | Renuka Mohammed |
| *Telephone Number:* | 954-327-3743 |
| *Email Address:* | renuka_mohammed@davie-fl.gov |
| *Description of Goods or Services provided:* | 10,000 endpoints on AMI network, 7,000 RDM |
| *Contract Amount:* | $3M |
| *Start/End Date of Contract:* | 2018-ongoing |

**THIS FORM MUST BE COMPLETED AND RETURNED WITH YOUR BID.**

## BID FORM 8H:
## Listing of Subcontractors

The Vendor proposes that the following subcontractors are qualified to perform the referenced work and have successfully done so on recent projects similar in nature and size. All subcontractors whose work product accounts for 5% or more of the total contract value shall be listed. Upon approval of subcontractors listed, the successful Vendor shall not substitute subcontractors without approval from the City. Vendor shall attach additional sheets as necessary.

***Subcontractor 1:***

| | | | |
|---|---|---|---|
| *Name:* | Aqua Meter | | |
| *City, State:* | Midway Georgia | | |
| *Description of Work:* | Installation and removal of water meters and parts | | |
| *Percent of Contract Price:* | 19.38% | *Previous Experience Together:* | ☑ Yes<br>☐ No |

***Subcontractor 2:***

| | | | |
|---|---|---|---|
| *Name:* | | | |
| *City, State:* | | | |
| *Description of Work:* | | | |
| *Percent of Contract Price:* | | *Previous Experience Together:* | ☐ Yes<br>☐ No |

***Subcontractor 3:***

| | | | |
|---|---|---|---|
| *Name:* | | | |
| *City, State:* | | | |
| *Description of Work:* | | | |
| *Percent of Contract Price:* | | *Previous Experience Together:* | ☐ Yes<br>☐ No |

**THIS FORM MUST BE COMPLETED AND RETURNED WITH YOUR BID.**

## BID FORM 8I:
## Required Project Milestones

The Vendor agrees to complete the required project milestones listed below within the time frame specified.

Expected inventory fulfillment date: SEE ATTACHED
*(Please list the date that meters will be available to start the project)*

Milestone #1: Software implementation, training, and testing
Required Milestone #1 Completion Time*: **Day 90**

Milestone #2: Cycle 1 full installation and operational
Required Milestone #2 Completion Time*: **Day 180**

Aqua Meter

Milestone #3: Cycle 2 full installation and operational
Required Milestone #3 Completion Time*: **Day 270** ere

Milestone #4: Cycle 3 full installation and operational
Required Milestone #4 Completion Time*: **Day 360**

Milestone #5: All Cycles fully installed and operational
Required Milestone #5 Completion Time*: **Day 365**

****Add additional milestones if needed****

Required Substantial Completion Time*: **365 Days**

Required Final Completion Time*: **405 Days**

The Vendor agrees to accept liquidated damages and pay the City **Five Hundred Dollars ($500)** for each consecutive calendar day, including rain days and holidays, that expires after each of the required project milestone completion times listed above until each are completed. All milestone completion dates, including substantial and final completion, will be determined solely by the City. The City has the option to retain this amount from the compensation otherwise paid to the Vendor. Should the total amount chargeable as liquidated damages exceed the amount due or payable to the Vendor or his/her Surety, then such excess shall be paid to the City by the Vendor or his/her Surety.

*(Signature of person signing form)*

(William) Brett Dickerson Vice President of Metrology
*(Printed name and Title of person signing form)*

Name of Bidder: Water Works Inc.

Address: 1425 Rock Quarry Rd Suite 106

City/State/Zip: Raleigh, North Carolina 27610

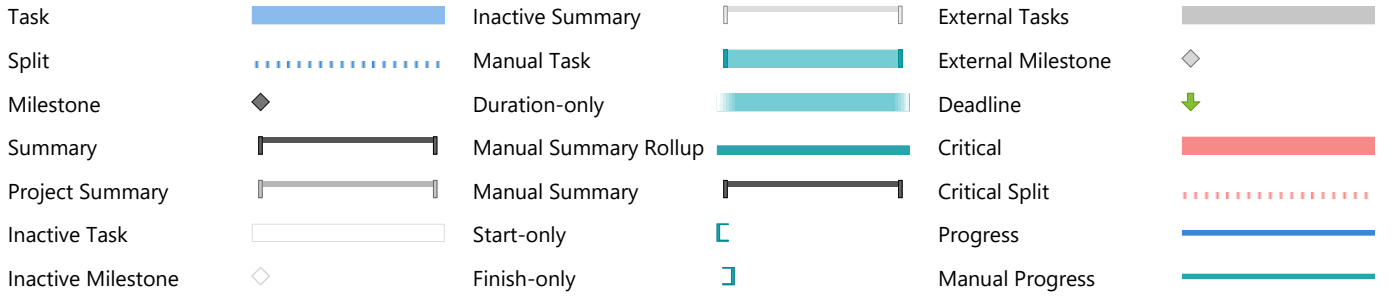
Phone Number: (919) 301-8466 FAX Number: (____) _____

* All completion times listed are consecutive calendar days, including rain days and holidays, that expire from (and including) the date when the Contract Time commences to run as written in the Notice to Proceed.

**THIS FORM MUST BE COMPLETED AND RETURNED WITH YOUR BID.**

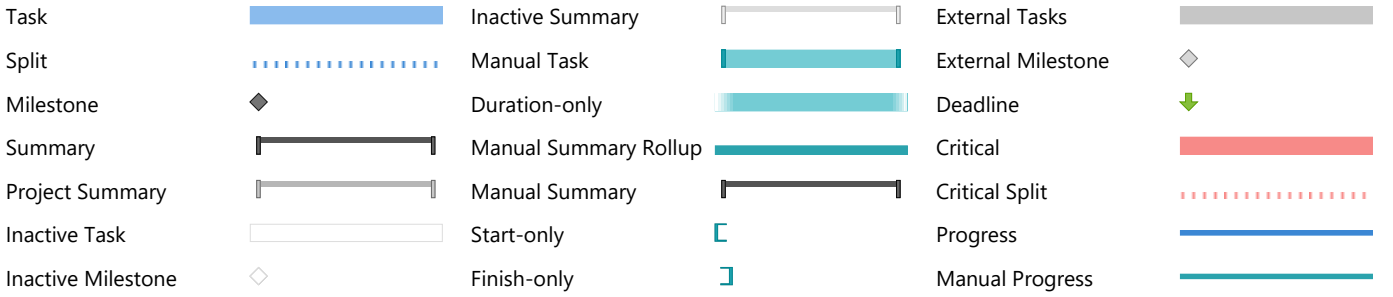
| ID | Task Mode | Task Name | Milestone | Duration | Start | Finish | Predece | Resource Names |
|---|---|---|---|---|---|---|---|---|
| 1 | | Notice to Proceed | No | 1 day | Mon 1/16/23 | Mon 1/16/23 | | |
| 2 | | Work Start | No | 1 day | Tue 1/31/23 | Tue 1/31/23 | 1FS+10 | |
| 3 | | **Define** | **No** | **36 days** | **Wed 2/1/23** | **Wed 3/22/23** | | |
| 4 | | **Kickoff Meeting (Pilot Phase)** | **No** | **36 days** | **Wed 2/1/23** | **Wed 3/22/23** | **2** | |
| 5 | | Prep | No | 1 day | Wed 2/1/23 | Wed 2/1/23 | 2 | MS Project Manager |
| 6 | | **MS Internal Meeting** | **No** | **5 days** | **Wed 2/1/23** | **Tue 2/7/23** | | |
| 7 | | Resource Planning | No | 5 days | Wed 2/1/23 | Tue 2/7/23 | 2 | MS Project Manager |
| 8 | | Contract Reviews | No | 5 days | Wed 2/1/23 | Tue 2/7/23 | 7SS | MS Project Manager |
| 9 | | Insurance Review | No | 5 days | Wed 2/1/23 | Tue 2/7/23 | 8SS | MS Project Manager |
| 10 | | Risk Review | No | 5 days | Wed 2/1/23 | Tue 2/7/23 | 9SS | MS Project Manager |
| 11 | | Roles and Responsibilities | No | 5 days | Wed 2/1/23 | Tue 2/7/23 | 10SS | MS Project Manager |
| 12 | | Cust Internal Meeting | No | 35 days | Thu 2/2/23 | Wed 3/22/23 | 5 | South Daytona CS Mgr |
| 13 | | **Kickoff** | **Yes** | **1 day** | **Wed 2/8/23** | **Wed 2/8/23** | | |
| 14 | | Stakeholders introduction | No | 1 day | Wed 2/8/23 | Wed 2/8/23 | 11 | MS Project Manager |
| 15 | | Overview training of product | No | 1 day | Wed 2/8/23 | Wed 2/8/23 | 14SS | MS Project Manager |
| 16 | | Project Scope | No | 1 day | Wed 2/8/23 | Wed 2/8/23 | 14SS | MS Project Manager |
| 17 | | Contract Review | No | 1 day | Wed 2/8/23 | Wed 2/8/23 | 16SS | MS Project Manager |
| 18 | | Roles and Responsibilities | No | 1 day | Wed 2/8/23 | Wed 2/8/23 | 17SS | MS Project Manager |
| 19 | | Schedule Review | No | 1 day | Wed 2/8/23 | Wed 2/8/23 | 18SS | MS Project Manager |
| 20 | | **Workshops** | **No** | **8 days** | **Thu 2/2/23** | **Mon 2/13/23** | | |
| 21 | | Workshop Planning | No | 2 days | Thu 2/2/23 | Fri 2/3/23 | 5 | MS Project Manager |
| 22 | | Network | No | 0.5 days | Thu 2/9/23 | Thu 2/9/23 | 19 | |
| 23 | | Meter / Node Installation | No | 1 day | Thu 2/9/23 | Fri 2/10/23 | 22 | MS Project Manager |

Project: South Daytona
Date: Sun 11/27/22



| ID | Task Mode | Task Name | Milestone | Duration | Start | Finish | Predece | Resource Names |
|---|---|---|---|---|---|---|---|---|
| 24 | | Integrations Plan | No | 1 day | Fri 2/10/23 | Mon 2/13/23 | 23 | MS Integrations |
| 25 | | Communications | No | 0.5 days | Mon 2/13/23 | Mon 2/13/23 | 24 | MS Project Manager |
| 26 | | **Design** | **No** | **27 days** | **Tue 2/14/23** | **Wed 3/22/23** | **25** | |
| 27 | | **Project Control Documents** | **No** | **27 days** | **Tue 2/14/23** | **Wed 3/22/23** | | |
| 28 | | Integration Design Requirements (Full Deployment | No | 5 days | Tue 2/14/23 | Mon 2/20/23 | 24 | MS Integrations |
| 29 | | Inventory Management | No | 10 days | Tue 2/14/23 | Mon 2/27/23 | 23 | Water Works |
| 30 | | Invoicing | No | 10 days | Tue 2/14/23 | Mon 2/27/23 | 20 | MS Project Manager |
| 31 | | Network Design (Full Deployment) | No | 10 days | Tue 2/14/23 | Mon 2/27/23 | 22 | |
| 32 | | Meter / Node Installation | No | 10 days | Tue 2/14/23 | Mon 2/27/23 | 23 | Water Works Install Manage |
| 33 | | Quality Management | No | 10 days | Tue 2/14/23 | Mon 2/27/23 | 23 | Water Works Install Manage |
| 34 | | Project Schedule (Work plan) | No | 10 days | Tue 2/14/23 | Mon 2/27/23 | 20 | MS Project Manager,Water \ |
| 35 | | Systems Acceptance Test | No | 20 days | Tue 2/14/23 | Mon 3/13/23 | 20 | MS Project Manager |
| 36 | | Endpoint Acceptance Test | No | 20 days | Tue 2/14/23 | Mon 3/13/23 | 20 | Water Works Install Manage |
| 37 | | Communications Plan (Customer Outreach) | No | 5 days | Tue 2/14/23 | Mon 2/20/23 | 25 | MS Project Manager,Water Works |
| 38 | | Test Plan | No | 10 days | Tue 2/14/23 | Mon 2/27/23 | 24 | MS Integrations |
| 39 | | Training Plan | No | 10 days | Tue 2/14/23 | Mon 2/27/23 | 20 | MS Training |
| 40 | | Submit PCD | No | 1 day | Tue 2/28/23 | Tue 2/28/23 | 28,29,3 | MS Project Manager |
| 41 | | Review PCD with Feedback | No | 10 days | Wed 3/1/23 | Tue 3/14/23 | 40 | South Daytona Project Mana |
| 42 | | PCD Acceptance | No | 6 days | Wed 3/15/23 | Wed 3/22/23 | 41 | South Daytona Project Mana |
| 43 | | **Develop** | **No** | **57 days** | **Tue 2/7/23** | **Wed 4/26/23** | | |

Project: South Daytona
Date: Sun 11/27/22



| ID | Task Mode | Task Name | Milestone | Duration | Start | Finish | Predece | Resource Names |
|---|---|---|---|---|---|---|---|---|
| 44 | | **Interface Programming** | **No** | **57 days** | **Tue 2/7/23** | **Wed 4/26/23** | | |
| 45 | | Server and Database Provisioning & SW Install | No | 2.5 days | Tue 2/14/23 | Thu 2/16/23 | 28SS | MS Integrations ,Water Works |
| 46 | | **Work Order Management System** | **No** | **20 days** | **Fri 2/10/23** | **Fri 3/10/23** | **22** | |
| 47 | | Review Work Order Management System | No | 10 days | Fri 2/10/23 | Fri 2/24/23 | 23 | Water Works Install Manager |
| 48 | | Set up WOM system | No | 3 days | Fri 2/24/23 | Wed 3/1/23 | 47 | Water Works Install Manage |
| 49 | | Develop Interfaces (WOM) | No | 5 days | Fri 2/24/23 | Fri 3/3/23 | 47 | Water Works Install Manage |
| 50 | | Unit Test System (WOM) | No | 5 days | Fri 3/3/23 | Fri 3/10/23 | 48,49 | Water Works Install Manage |
| 51 | | **Sentryx** | **No** | **57 days** | **Tue 2/7/23** | **Wed 4/26/23** | | |
| 52 | | Review Documentation | No | 1 day | Tue 2/21/23 | Tue 2/21/23 | 28 | MS Integrations |
| 53 | | **Customer Sync File** | **No** | **11 days** | **Tue 2/7/23** | **Tue 2/21/23** | | |
| 54 | | Develop Customer Sync Interface | No | 10 days | Tue 2/7/23 | Mon 2/20/23 | 28FS-1 days | MS Integrations |
| 55 | | Unit Test Customer Sync Interface | No | 1 day | Tue 2/21/23 | Tue 2/21/23 | 54 | MS Integrations |
| 56 | | **Meter Exchange File** | **No** | **19 days** | **Wed 2/22/23** | **Mon 3/20/23** | | |
| 57 | | Develop Meter Exchange Sync Interface (Master Data) | No | 15 days | Wed 2/22/23 | Tue 3/14/23 | 55 | MS Integrations |
| 58 | | Unit Test Meter Exchange Sync Interface | No | 4 days | Wed 3/15/23 | Mon 3/20/23 | 57 | MS Integrations |
| 59 | | **Billing Interface File** | **No** | **21 days** | **Tue 3/21/23** | **Tue 4/18/23** | | |

Project: South Daytona
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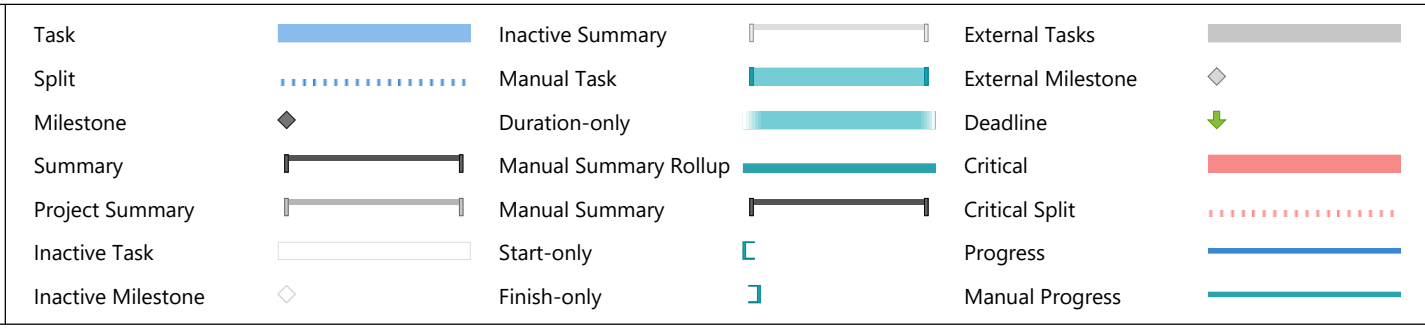

| ID | Task Mode | Task Name | Milestone | Duration | Start | Finish | Predece | Resource Names |
|---|---|---|---|---|---|---|---|---|
| 60 | | Develop Billing Interface (Meter Reading) | No | 15 days | Tue 3/21/23 | Mon 4/10/23 | 58 | MS Integrations |
| 61 | | Unit Test Billing Interface | No | 6 days | Tue 4/11/23 | Tue 4/18/23 | 60 | MS Integrations |
| 62 | | **Integrations End to End test** | **No** | **6 days** | **Wed 4/19/23** | **Wed 4/26/23** | | |
| 63 | | Integration End to End Test Execution | No | 5 days | Wed 4/19/23 | Tue 4/25/23 | 61 | MS Integrations |
| 64 | | Review test results | No | 1 day | Wed 4/26/23 | Wed 4/26/23 | 63 | MS Integrations |
| 65 | | Accept and sign off of test results | No | 1 day | Wed 4/26/23 | Wed 4/26/23 | 64SS | MS Integrations |
| 66 | | **Network Deployment Plan (Planning)** | **No** | **1 day** | **Tue 2/28/23** | **Tue 2/28/23** | | |
| 67 | | No action here due to LoRa WAN - Data Collection System Installation & Network Design and Propagation Study | No | 1 day | Tue 2/28/23 | Tue 2/28/23 | 31 | |
| 68 | | **Meter / Node Installation Planning** | **No** | **41.5 days** | **Fri 2/10/23** | **Mon 4/10/23** | | |
| 69 | | Review meter installation schedule | No | 5 days | Fri 2/10/23 | Fri 2/17/23 | 23 | Water Works Install Manager |
| 70 | | **Warehouse Setup** | **No** | **30 days** | **Tue 2/28/23** | **Mon 4/10/23** | | |
| 71 | | Identify Location | No | 15 days | Tue 2/28/23 | Mon 3/20/23 | 32 | Water Works,MS Project Ma |
| 72 | | Obtain equipment | No | 15 days | Tue 3/21/23 | Mon 4/10/23 | 71 | Water Works,MS Project Ma |
| 73 | | Sign Lease | No | 0.5 days | Tue 3/21/23 | Tue 3/21/23 | 71 | Water Works,MS Project Ma |
| 74 | | Set up Office | No | 5 days | Tue 3/21/23 | Mon 3/27/23 | 71 | Water Works,MS Project Ma |

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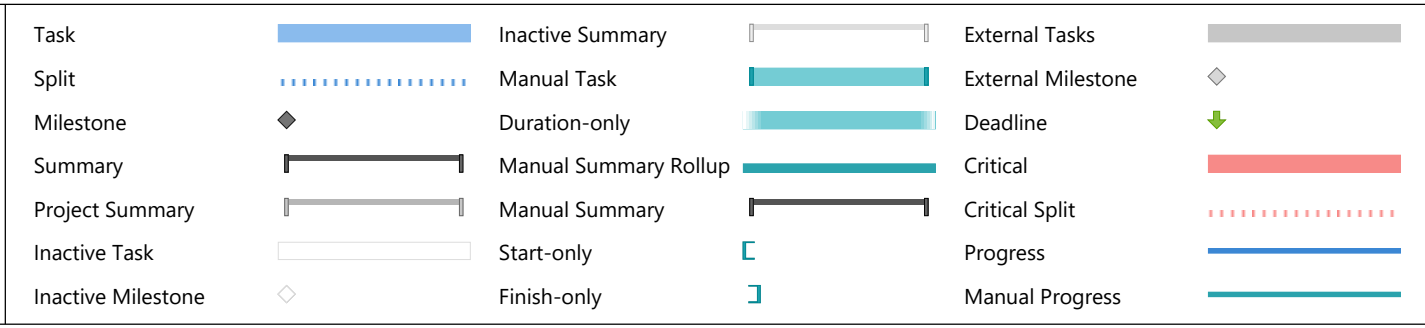

| ID | Task Mode | Task Name | Milestone | Duration | Start | Finish | Predece | Resource Names |
|---|---|---|---|---|---|---|---|---|
| 75 | | Review Inventory plan | No | 10 days | Tue 2/28/23 | Mon 3/13/23 | 29 | Water Works Install Manage |
| 76 | | **Meter Installation Planning** | **No** | **5 days** | **Tue 3/14/23** | **Mon 3/20/23** | | |
| 77 | | No installs on Blackout days - Billing | No | 5 days | Tue 3/14/23 | Mon 3/20/23 | 75 | Water Works Install Manager |
| 78 | | Route Priority by area | No | 1 day | Tue 3/14/23 | Tue 3/14/23 | 77SS | Water Works Install Manage |
| 79 | | **Test** | **No** | **115.5 days?** | **Fri 2/10/23** | **Tue 7/25/23** | | |
| 80 | | **Systems Acceptance Test** | **No** | **71.5 days?** | **Fri 2/10/23** | **Mon 5/22/23** | | |
| 81 | | Identify Criteria | No | 1 day | Tue 2/28/23 | Tue 2/28/23 | 38 | MS Project Manager |
| 82 | | Develop Systems Acceptance Test Plan | No | 10 days | Wed 3/1/23 | Tue 3/14/23 | 81 | MS Integrations |
| 83 | | **Meter / Node Installation (small quantity (Bench Test)** | **No** | **47 days?** | **Fri 2/10/23** | **Tue 4/18/23** | | |
| 84 | | Order quantity for Pilot and test | No | 1 day | Fri 2/10/23 | Mon 2/13/23 | 23 | MS Project Manager |
| 85 | | Build meter / nodes | No | 40 days | Mon 2/13/23 | Mon 4/10/23 | 84 | MS Project Manager |
| 86 | | Ship meter / nodes | No | 5 days | Mon 4/10/23 | Mon 4/17/23 | 85 | MS Project Manager |
| 87 | | Receive Meter / Nodes | No | 1 day? | Mon 4/17/23 | Tue 4/18/23 | 86 | |
| 88 | | **Bench Test** | **No** | **5 days** | **Tue 4/18/23** | **Tue 4/25/23** | **87** | |
| 89 | | Install test equipment | No | 5 days | Tue 4/18/23 | Tue 4/25/23 | | Water Works Install Manage |
| 90 | | **Conduct Systems Acceptance Test** | **No** | **8 days** | **Thu 4/27/23** | **Mon 5/8/23** | **82,89,(** | |
| 91 | | Validate communication plan | No | 5 days | Thu 4/27/23 | Wed 5/3/23 | 89SS | Water Works |
| 92 | | Validate Installation process | No | 5 days | Thu 4/27/23 | Wed 5/3/23 | 89SS | Water Works |

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| | | | | | |
|---|---|---|---|---|---|
| Task | | Inactive Summary | | External Tasks | |
| Split | | Manual Task | | External Milestone | |
| Milestone | | Duration-only | | Deadline | |
| Summary | | Manual Summary Rollup | | Critical | |
| Project Summary | | Manual Summary | | Critical Split | |
| Inactive Task | | Start-only | | Progress | |
| Inactive Milestone | | Finish-only | | Manual Progress | |

| ID | Task Mode | Task Name | Milestone | Duration | Start | Finish | Predece | Resource Names |
|---|---|---|---|---|---|---|---|---|
| 93 | | Validate Performance | No | 3 days | Thu 5/4/23 | Mon 5/8/23 | 92 | MS Project Manager |
| 94 | | Sign off on Systems Acceptance (Software Deployment) | Yes | 1 day | Mon 5/22/23 | Mon 5/22/23 | 91,103 | MS Project Manager |
| 95 | | **Pilot Test** | **No** | **54 days** | **Tue 5/9/23** | **Tue 7/25/23** | | |
| 96 | | **Operations Training (High Level Training)** | **No** | **3 days** | **Tue 5/9/23** | **Thu 5/11/23** | | |
| 97 | | Customer Service Operations #1 | No | 0.5 days | Tue 5/9/23 | Tue 5/9/23 | 93 | MS Training |
| 98 | | Daily Operations | No | 0.5 days | Tue 5/9/23 | Tue 5/9/23 | 97SS | MS Training |
| 99 | | Field Operations (Meter / MIU) | No | 0.5 days | Tue 5/9/23 | Tue 5/9/23 | 98 | MS Training |
| 100 | | Other Operations | No | 2 days | Wed 5/10/23 | Thu 5/11/23 | 99 | MS Training |
| 101 | | **Conduct Pilot Test** | **No** | **54 days** | **Tue 5/9/23** | **Tue 7/25/23** | | |
| 102 | | **Meter Installation** | **No** | **50 days** | **Mon 5/15/23** | **Tue 7/25/23** | | **Water Works** |
| 103 | | Validate communication plan | No | 5 days | Mon 5/15/23 | Fri 5/19/23 | 93 | Water Works |
| 104 | | Validate Installation process | No | 5 days | Mon 5/15/23 | Fri 5/19/23 | 93 | Water Works |
| 105 | | Validate Performance | No | 10 days | Mon 5/15/23 | Fri 5/26/23 | 93 | MS Project Manager |
| 106 | | Conduct Daily Operations | No | 5 days | Tue 5/9/23 | Mon 5/15/23 | 93 | South Daytona Test Team |
| 107 | | Conduct Alert analysis | No | 5 days | Fri 5/12/23 | Thu 5/18/23 | 100 | South Daytona Test Team |
| 108 | | Conduct business operations | No | 5 days | Fri 5/12/23 | Thu 5/18/23 | 100 | South Daytona Test Team |
| 109 | | Pilot Support | Yes | 10 days | Tue 5/9/23 | Mon 5/22/23 | 101SS | MS Project Manager |

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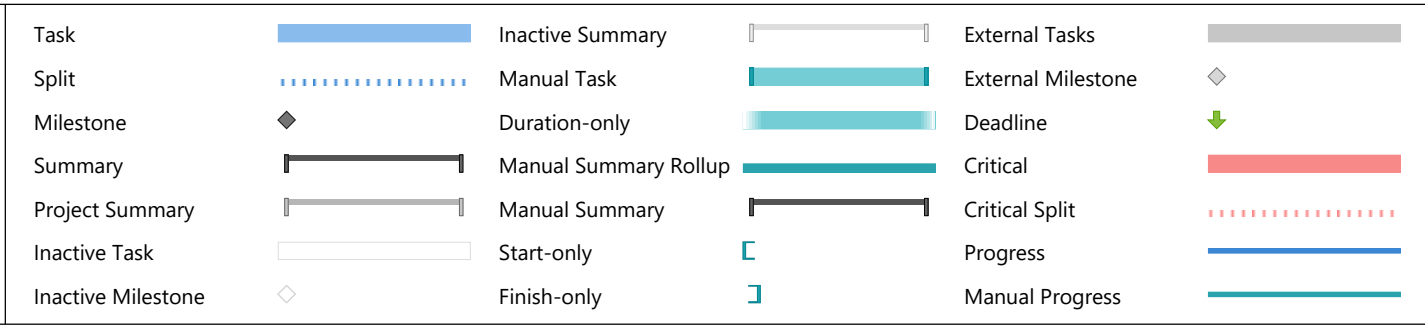

| ID | Task Mode | Task Name | Milestone | Duration | Start | Finish | Predece | Resource Names |
|---|---|---|---|---|---|---|---|---|
| 110 | | **Deployment** | **No** | **101 days** | **Wed 2/8/23** | **Thu 6/29/23** | | |
| 111 | | **Route Acceptance Test** | **No** | **20 days** | **Tue 2/28/23** | **Mon 3/27/23** | | |
| 112 | | Identify Criteria | No | 10 days | Tue 2/28/23 | Mon 3/13/23 | 38 | MS Program Manager |
| 113 | | Develop Route Acceptance Test Plan | No | 10 days | Tue 3/14/23 | Mon 3/27/23 | 112 | MS Project Manager |
| 114 | | **Communications Plan (Customer Outreach)** | **No** | **52 days** | **Tue 2/21/23** | **Wed 5/3/23** | | |
| 115 | | Define Process for installation communication | No | 10 days | Tue 2/21/23 | Mon 3/6/23 | 37 | Water Works Install Manager |
| 116 | | Design installation communication material | No | 30 days | Tue 3/7/23 | Mon 4/17/23 | 115 | Water Works Install Manager |
| 117 | | Construct first pass material | No | 10 days | Tue 4/18/23 | Mon 5/1/23 | 116 | Water Works Install Manage |
| 118 | | Review material | No | 1 day | Tue 5/2/23 | Tue 5/2/23 | 117 | South Daytona Project Mana |
| 119 | | Sign off of communications material | No | 1 day | Wed 5/3/23 | Wed 5/3/23 | 118 | South Daytona Project Manager |
| 120 | | **Training** | **No** | **48 days** | **Wed 2/8/23** | **Fri 4/14/23** | | |
| 121 | | Present standard material at kickoff | No | 1 day | Wed 2/8/23 | Wed 2/8/23 | 15SS | MS Training |
| 122 | | Review Training Plan | No | 3 days | Tue 2/28/23 | Thu 3/2/23 | 39 | MS Training |
| 123 | | Review existing material | No | 5 days | Fri 3/3/23 | Thu 3/9/23 | 122 | MS Training |
| 124 | | Update Syllabus | No | 5 days | Fri 3/10/23 | Thu 3/16/23 | 123 | MS Training |
| 125 | | Update Material | No | 20 days | Fri 3/17/23 | Thu 4/13/23 | 124 | MS Training |
| 126 | | Update Agenda | No | 1 day | Fri 4/14/23 | Fri 4/14/23 | 125 | MS Training |
| 127 | | Provide material to Brantford | No | 1 day | Fri 4/14/23 | Fri 4/14/23 | 125 | MS Training |
| 128 | | **Materials Management** | **No** | **87 days** | **Tue 2/28/23** | **Thu 6/29/23** | | |

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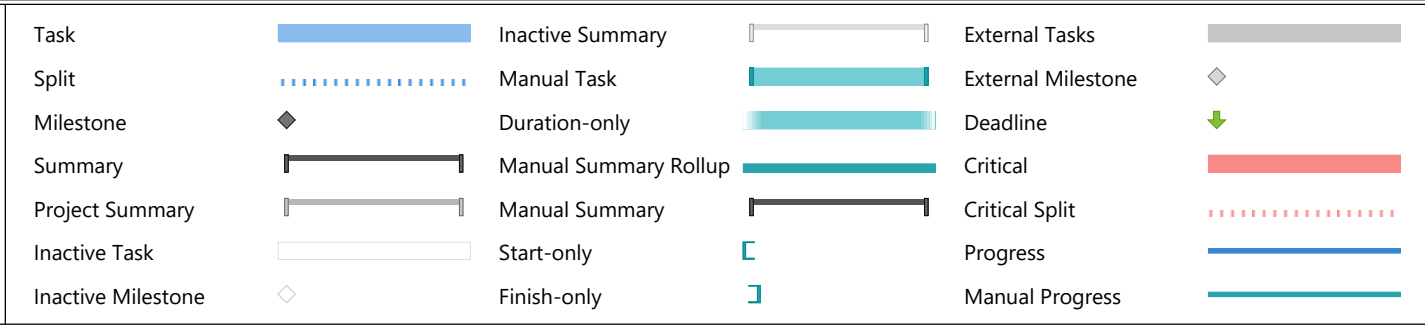

| ID | Task Mode | Task Name | Milestone | Duration | Start | Finish | Predece | Resource Names |
|---|---|---|---|---|---|---|---|---|
| 129 | | **Order #1 Equipment** | **No** | **23 days** | **Tue 5/30/23** | **Thu 6/29/23** | | |
| 130 | | Order 1st Month of meters / nodes / etc | No | 1 day | Tue 5/30/23 | Tue 5/30/23 | 102FS-days | MS Sales |
| 131 | | Build / Ship / Receive equipment | No | 20 days | Wed 5/31/23 | Tue 6/27/23 | 130 | Water Works,MS Project Manager |
| 132 | | Provide Asset listing to Customer | No | 1 day | Wed 6/28/23 | Wed 6/28/23 | 131 | Water Works |
| 133 | | Inventory Equipment | No | 1 day | Thu 6/29/23 | Thu 6/29/23 | 132 | Water Works |
| 134 | | **Order #2 Equipment** | **No** | **33 days** | **Tue 2/28/23** | **Thu 4/13/23** | | |
| 135 | | Order 2nd Month of meters / nodes / etc | No | 1 day | Tue 2/28/23 | Tue 2/28/23 | 32 | MS Sales |
| 136 | | Build / Ship / Receive equipment | No | 30 days | Wed 3/1/23 | Tue 4/11/23 | 135 | Water Works,MS Project Manager |
| 137 | | Provide Asset listing to Customer | No | 1 day | Wed 4/12/23 | Wed 4/12/23 | 136 | Water Works |
| 138 | | Inventory Equipment | No | 1 day | Thu 4/13/23 | Thu 4/13/23 | 137 | Water Works |
| 139 | | **Order #3 Equipment** | **No** | **33 days** | **Tue 2/28/23** | **Thu 4/13/23** | | |
| 140 | | Order 3rd Month of meters / nodes / etc | No | 1 day | Tue 2/28/23 | Tue 2/28/23 | 32 | MS Sales |
| 141 | | Build / Ship / Receive equipment | No | 30 days | Wed 3/1/23 | Tue 4/11/23 | 140 | Water Works,MS Project Manager |
| 142 | | Provide Asset listing to Customer | No | 1 day | Wed 4/12/23 | Wed 4/12/23 | 141 | Water Works |
| 143 | | Inventory Equipment | No | 1 day | Thu 4/13/23 | Thu 4/13/23 | 142 | Water Works |
| 144 | | **Deployment** | **No** | **293 days** | **Mon 1/16/23** | **Fri 3/8/24** | | |

Project: South Daytona
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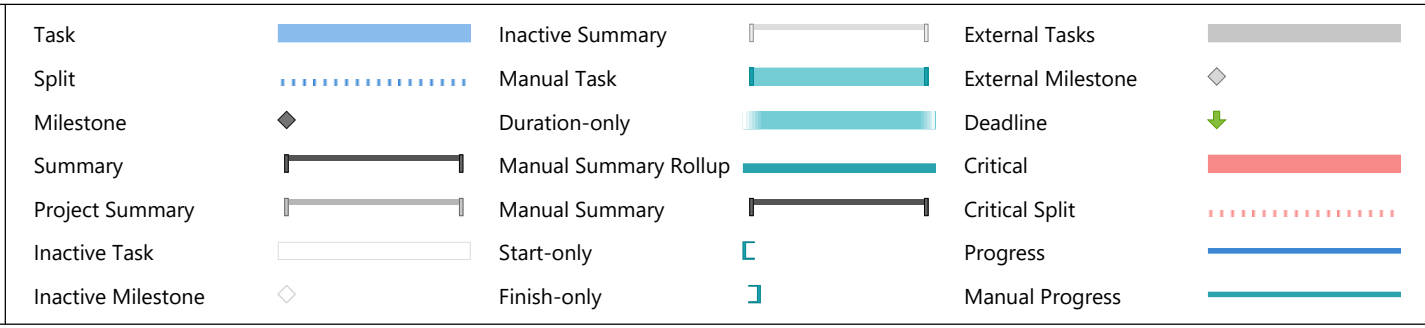

| ID | Task Mode | Task Name | Milestone | Duration | Start | Finish | Predece | Resource Names |
|---|---|---|---|---|---|---|---|---|
| 145 | | **Start up** | **No** | **47 days** | **Tue 2/28/23** | **Wed 5/3/23** | | |
| 146 | | **Field Resources** | **No** | **27 days** | **Tue 3/28/23** | **Wed 5/3/23** | | |
| 147 | | Interview Field Resources | No | 10 days | Tue 3/28/23 | Mon 4/10/23 | 74,32 | Water Works Install Manage |
| 148 | | Security Check on Field Resources | No | 10 days | Tue 4/11/23 | Mon 4/24/23 | 147 | Water Works Install Manager |
| 149 | | Train Field Resources | No | 5 days | Thu 4/27/23 | Wed 5/3/23 | 148,15 | Water Works Install Manage |
| 150 | | **Field Install equipment** | **No** | **42 days** | **Tue 2/28/23** | **Wed 4/26/23** | | |
| 151 | | Obtain wrenches | No | 5 days | Tue 2/28/23 | Mon 3/6/23 | 32 | Water Works Install Manage |
| 152 | | Obtain water pumps / buckets | No | 5 days | Tue 3/7/23 | Mon 3/13/23 | 151 | Water Works Install Manager |
| 153 | | Order Install Radios | No | 1 day | Tue 2/28/23 | Tue 2/28/23 | 32 | Water Works Install Manage |
| 154 | | Build Install Radios | No | 40 days | Wed 3/1/23 | Tue 4/25/23 | 153 | Water Works Install Manage |
| 155 | | Receive Install Radios | No | 1 day | Wed 4/26/23 | Wed 4/26/23 | 154 | Water Works Install Manage |
| 156 | | **Meter / Node Route Install Acceptance** | **No** | **220 days** | **Mon 1/16/23** | **Fri 11/24/23** | | |
| 157 | | **Month 1** | **No** | **124 days** | **Mon 1/16/23** | **Mon 7/10/23** | | |
| 158 | | Install Plan w/ blackouts by route | No | 0.5 days | Mon 1/16/23 | Mon 1/16/23 | | |
| 159 | | Review Install Schedule | No | 0.5 days | Tue 6/13/23 | Tue 6/13/23 | 161FS- | Water Works |
| 160 | | Validate material available | No | 0.5 days | Tue 6/13/23 | Tue 6/13/23 | 159 | Water Works |
| 161 | | Install material | No | 29 days | Tue 5/23/23 | Mon 7/3/23 | 109 | Water Works |
| 162 | | Quality Verification | No | 3 days | Wed 7/5/23 | Fri 7/7/23 | 161 | Water Works |
| 163 | | Endpoint Acceptance | No | 1 day | Mon 7/10/23 | Mon 7/10/23 | 162 | |
| 164 | | **Month 2** | **No** | **24 days** | **Wed 7/5/23** | **Mon 8/7/23** | | |

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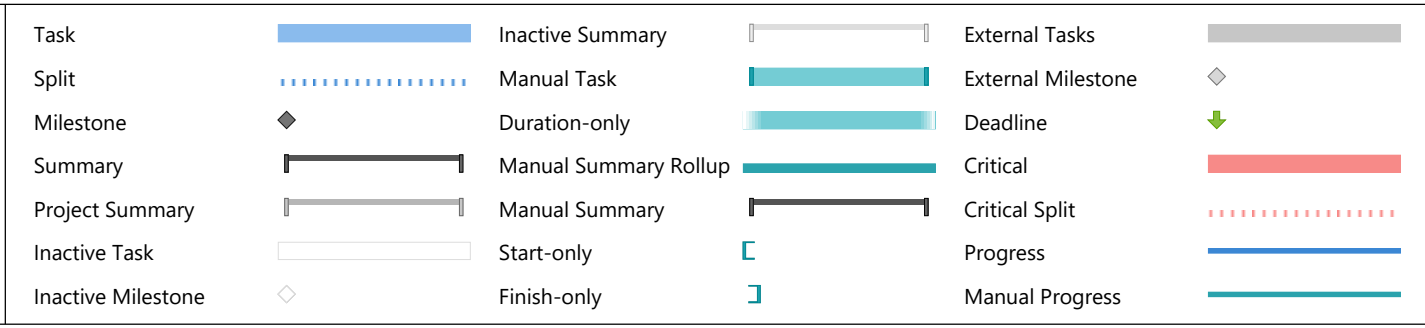

| ID | Task Mode | Task Name | Milestone | Duration | Start | Finish | Predece | Resource Names |
|---|---|---|---|---|---|---|---|---|
| 165 | | Review Install Schedule | No | 0.5 days | Wed 7/12/23 | Wed 7/12/23 | 167FS- | Water Works |
| 166 | | Validate material available | No | 0.5 days | Wed 7/12/23 | Wed 7/12/23 | 165 | Water Works |
| 167 | | Install material | No | 20 days | Wed 7/5/23 | Tue 8/1/23 | 161 | Water Works |
| 168 | | Quality Verification | No | 3 days | Wed 8/2/23 | Fri 8/4/23 | 167 | Water Works |
| 169 | | Endpoint Acceptance | No | 1 day | Mon 8/7/23 | Mon 8/7/23 | 168 | |
| 170 | | **Month 3** | **No** | **27 days** | **Wed 8/2/23** | **Fri 9/8/23** | | |
| 171 | | Review Install Schedule | No | 0.5 days | Mon 8/14/23 | Mon 8/14/23 | 173FS- | Water Works |
| 172 | | Validate material available | No | 0.5 days | Mon 8/14/23 | Mon 8/14/23 | 171 | Water Works |
| 173 | | Install material | No | 23 days | Wed 8/2/23 | Fri 9/1/23 | 167 | Water Works |
| 174 | | Quality Verification | No | 3 days | Tue 9/5/23 | Thu 9/7/23 | 173 | Water Works |
| 175 | | Endpoint Acceptance | No | 1 day | Fri 9/8/23 | Fri 9/8/23 | 174 | |
| 176 | | **Month 4** | **No** | **24 days** | **Tue 9/5/23** | **Fri 10/6/23** | | |
| 177 | | Review Install Schedule | No | 0.5 days | Tue 9/12/23 | Tue 9/12/23 | 179FS- | Water Works |
| 178 | | Validate material available | No | 0.5 days | Tue 9/12/23 | Tue 9/12/23 | 177 | Water Works |
| 179 | | Install material | No | 20 days | Tue 9/5/23 | Mon 10/2/23 | 173 | Water Works |
| 180 | | Quality Verification | No | 3 days | Tue 10/3/23 | Thu 10/5/23 | 179 | Water Works |
| 181 | | Endpoint Acceptance | No | 1 day | Fri 10/6/23 | Fri 10/6/23 | 180 | |
| 182 | | **Month 5** | **No** | **27 days** | **Tue 10/3/23** | **Wed 11/8/23** | | |
| 183 | | Review Install Schedule | No | 0.5 days | Fri 10/13/23 | Fri 10/13/23 | 185FS- | Water Works |
| 184 | | Validate material available | No | 0.5 days | Fri 10/13/23 | Fri 10/13/23 | 183 | Water Works |
| 185 | | Install material | No | 23 days | Tue 10/3/23 | Thu 11/2/23 | 179 | Water Works |
| 186 | | Quality Verification | No | 3 days | Fri 11/3/23 | Tue 11/7/23 | 185 | Water Works |
| 187 | | Endpoint Acceptance | No | 1 day | Wed 11/8/23 | Wed 11/8/23 | 186 | |

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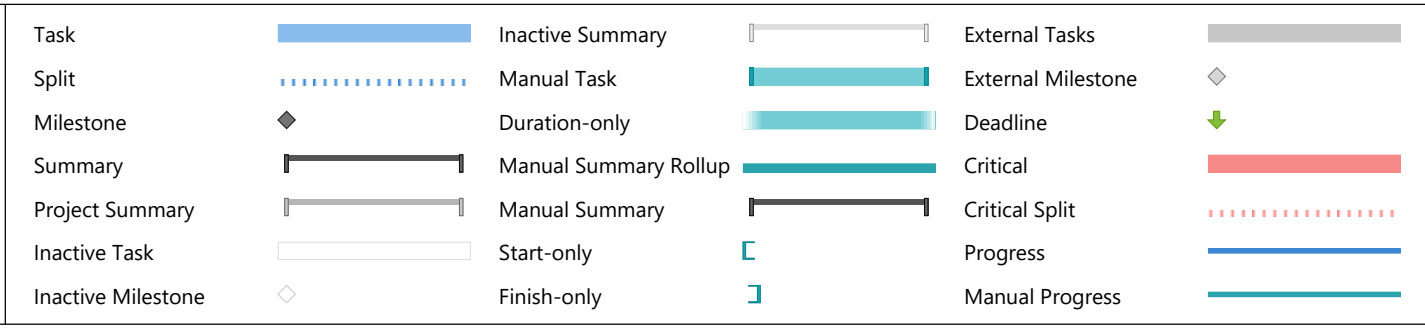

| ID | Task Mode | Task Name | Milestone | Duration | Start | Finish | Predece | Resource Names |
|---|---|---|---|---|---|---|---|---|
| 188 | | Systems Acceptance (Validation process) | No | 10 days | Thu 11/9/23 | Fri 11/24/23 | 187 | South Daytona Project Manager |
| 189 | | **Pilot Project Close out** | **No** | **20 days** | **Mon 11/27/23** | **Fri 12/22/23** | | |
| 190 | | Final Cleanup and Punch List | No | 10 days | Mon 11/27/23 | Fri 12/8/23 | 188 | MS Project Manager |
| 191 | | Contract Review with Change Orders | No | 10 days | Mon 12/11/23 | Fri 12/22/23 | 190 | MS Project Manager |
| 192 | | Project Closure | Yes | 0 days | Fri 12/22/23 | Fri 12/22/23 | 191 | MS Project Manager |

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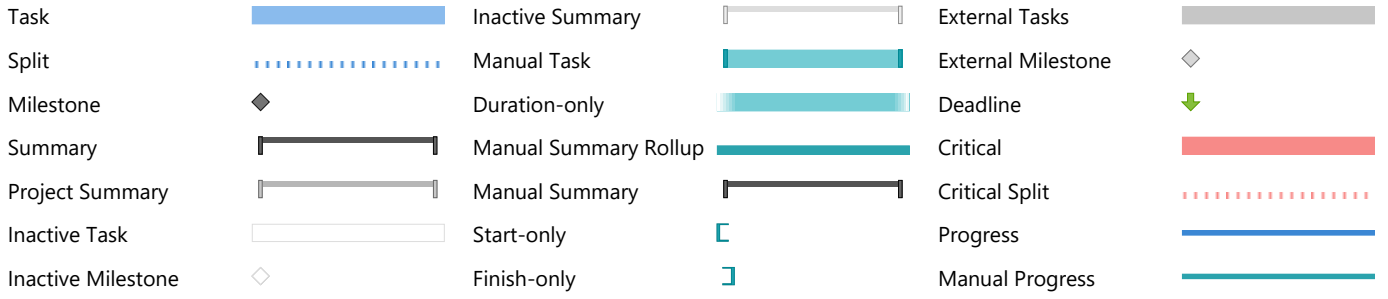


# AIA® Document A310™ – 2010

## Bid Bond

**CONTRACTOR:**
*(Name, legal status and address)*

Water Works, Inc.
35 Monica Drive
Angier, NC 27501

**SURETY:**
*(Name, legal status and principal place of business)*

NGM Insurance Company
4601 Touchton Road East, Suite 3400
Jacksonville, FL 32246

**OWNER:**
*(Name, legal status and address)*

City of South Daytona
1672 South Ridgewood Avenue
South Daytona, FL 32119

**BOND AMOUNT:** $ Ten Percent of Amount Bid (10%)

**PROJECT:**
*(Name, location or address, and Project number, if any)*

RFP No. 2022-001, Water Meter Replacement Program

**ADDITIONS AND DELETIONS:**
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so

furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this 8th day of September, 2022

(Witness)

(Witness) H. Thomas Dawkins

Water Works, Inc.
*(Contractor as Principal)* *(Seal)*

VICE PRESIDENT OF METROLOGY
*(Title)*

NGM Insurance Company
*(Surety)* *(Seal)*

*(Title)* Wendy E. Lahm, Attorney-in-Fact
& FL Licensed Nonresident Agent (FL License #P034094)

NGM INSURANCE COMPANY
A member of The Main Street America Group

# POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That NGM Insurance Company, a Florida corporation having its principal office in the City of Jacksonville, State of Florida, pursuant to Article IV, Section 2 of the By-Laws of said Company, to wit:

> "Article IV, Section 2. The board of directors, the president, any vice president, secretary, or the treasurer shall have the power and authority to appoint attorneys-in-fact and to authorize them to execute on behalf of the company and affix the seal of the company thereto, bonds, recognizances, contracts of indemnity or writings obligatory in the nature of a bond, recognizance or conditional undertaking and to remove any such attorneys-in-fact at any time and revoke the power and authority given to them. "

does hereby make, constitute and appoint **Brad W Gibson, Debra S Ritter, Martin D Pallazza, Raymond J Garruto,, Angela Y. Buckner, Jenny Snell, H Thomas Dawkins, Wendy E Lahm, Robert C Tresher** ----------

its true and lawful Attorneys-in-fact, to make, execute, seal and deliver for and on its behalf, and as its act and deed, bonds, undertakings, recognizances, contracts of indemnity, or other writings obligatory in nature of a bond subject to the following limitation:

1. **No one bond to exceed Twenty Five Million Dollars ($25,000,000.00)**

and to bind NGM Insurance Company thereby as fully and to the same extent as if such instruments were signed by the duly authorized officers of NGM Insurance Company; the acts of said Attorney are hereby ratified and confirmed.

This power of attorney is signed and sealed by facsimile under and by the authority of the following resolution adopted by the Directors of NGM Insurance Company at a meeting duly called and held on the 2nd day of December 1977.

> Voted: That the signature of any officer authorized by the By-Laws and the company seal may be affixed by facsimile to any power of attorney or special power of attorney or certification of either given for the execution of any bond, undertaking, recognizance or other written obligation in the nature thereof; such signature and seal, when so used being hereby adopted by the company as the original signature of such office and the original seal of the company, to be valid and binding upon the company with the same force and effect as though manually affixed.

*IN WITNESS WHEREOF*, NGM Insurance Company has caused these presents to be signed by its Vice President, General Counsel and Secretary and its corporate seal to be hereto affixed this 7th day of January, 2020.

NGM INSURANCE COMPANY By: Kimberly K. Law

Kimberly K. Law
Vice President, General
Counsel and Secretary

NGM INSURANCE COMPANY FOUNDED 1923 FLORIDA

State of Florida,
County of Duval.

On this 7th day of January, 2020, before the subscriber a Notary Public of State of Florida in and for the County of Duval duly commissioned and qualified, came Kimberly K. Law of NGM Insurance Company, to me personally known to be the officer described herein, and who executed the preceding instrument, and she acknowledged the execution of same, and being by me fully sworn, deposed and said that she is an officer of said Company, aforesaid: that the seal affixed to the preceding instrument is the corporate seal of said Company, and the said corporate seal and her signature as officer were duly affixed and subscribed to the said instrument by the authority and direction of the said Company; that Article IV, Section 2 of the By-Laws of said Company is now in force.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal at Jacksonville, Florida this 7th day of January, 2020.

Lisa K Penton

Notary Public State of Florida
Lisa K Penton
My Commission GG 926567
Expires 12/17/2023

I, Nancy Giordano-Ramos, Vice President of NGM Insurance Company, do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney executed by said Company which is still in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of said Company at Jacksonville, Florida this 8th day of September, 2022.

Nancy Giordano-Ramos

# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 09/06/2022

**THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.**

**IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).**

| PRODUCER | CONTACT NAME: Erin Eckhart | |
|---|---|---|
| Brown & Brown of Lehigh Valley, LP<br>3001 Emrick Blvd, Suite 120<br>Bethlehem PA 18020 | PHONE (A/C, No, Ext): (610) 974-9490 | FAX (A/C, No): (610) 974-9791 |
| | E-MAIL ADDRESS: erin.eckhart@bbrown.com | |

| INSURED | INSURER(S) AFFORDING COVERAGE | NAIC # |
|---|---|---|
| Kennedy Culvert & Supply Co.,<br>Water Works Supply, Inc<br>125 Sixth Avenue<br>Mount Laurel NJ 08054 | INSURER A : Selective Insurance Company of America | 12572 |
| | INSURER B : Insurance Company of the West | 27847 |
| | INSURER C : Selective Insurance Company of South Carolina | 19259 |
| | INSURER D : | |
| | INSURER E : | |
| | INSURER F : | |

**COVERAGES** **CERTIFICATE NUMBER:** 22/23 Master **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

| INSR LTR | TYPE OF INSURANCE | ADDL INSD | SUBR WVD | POLICY NUMBER | POLICY EFF (MM/DD/YYYY) | POLICY EXP (MM/DD/YYYY) | LIMITS | |
|---|---|---|---|---|---|---|---|---|
| A | ☒ COMMERCIAL GENERAL LIABILITY<br>☐ CLAIMS-MADE ☒ OCCUR<br>GEN'L AGGREGATE LIMIT APPLIES PER:<br>☒ POLICY ☐ PRO-JECT ☐ LOC<br>☐ OTHER: | | | S2210972 | 03/03/2022 | 03/03/2023 | EACH OCCURRENCE<br>DAMAGE TO RENTED PREMISES (Ea occurrence)<br>MED EXP (Any one person)<br>PERSONAL & ADV INJURY<br>GENERAL AGGREGATE<br>PRODUCTS - COMP/OP AGG<br>$ | $ 1,000,000<br>$ 500,000<br>$ 15,000<br>$ 1,000,000<br>$ 2,000,000<br>$ 2,000,000<br>$ |
| A | AUTOMOBILE LIABILITY<br>☒ ANY AUTO<br>☐ OWNED AUTOS ONLY ☐ SCHEDULED AUTOS<br>☐ HIRED AUTOS ONLY ☐ NON-OWNED AUTOS ONLY | | | S2210972 | 03/03/2022 | 03/03/2023 | COMBINED SINGLE LIMIT (Ea accident)<br>BODILY INJURY (Per person)<br>BODILY INJURY (Per accident)<br>PROPERTY DAMAGE (Per accident)<br>Underinsured motorist | $ 1,000,000<br>$<br>$<br>$<br>$ 1,000,000 |
| A | ☒ UMBRELLA LIAB ☒ OCCUR<br>EXCESS LIAB ☐ CLAIMS-MADE<br>☐ DED ☐ RETENTION $ | | | S2210972 | 03/03/2022 | 03/03/2023 | ~~COMBINED SINGLE LIMIT~~<br>EACH OCCURRENCE<br>AGGREGATE<br>$ | $ 1,000,000<br>$ 1,000,000<br>$ |
| B | WORKERS COMPENSATION AND EMPLOYERS' LIABILITY<br>ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y/N: N<br>(Mandatory in NH)<br>If yes, describe under DESCRIPTION OF OPERATIONS below | N / A | | WPH5059783 | 03/03/2022 | 03/03/2023 | ☒ PER STATUTE ☐ OTH-ER<br>E.L. EACH ACCIDENT<br>E.L. DISEASE - EA EMPLOYEE<br>E.L. DISEASE - POLICY LIMIT | <br>$ 1,000,000<br>$ 1,000,000<br>$ 1,000,000 |
| C | Virginia Auto Liability<br>Any auto | | | S2210973 | 03/03/2022 | 03/03/2023 | Each Occurrence | $1,000,000 |

**DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)**

City of South Daytona, Florida is additonal insured, where required by written contract, per the attached form #CG7300 as respects to the general liability.

**CERTIFICATE HOLDER**

City of South Daytona
1672 South Ridgewood Ave
South Daytona FL 32119

**CANCELLATION**

**SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.**

**AUTHORIZED REPRESENTATIVE**

WATER WORKS INC.

Name: Thomas Adam Montgomery
Title: AMI Specialist

| Contact Information | email: adam.montgomery@water-workssupply.com<br>Phone: (910)444-9856 |
|---|---|

## Summary

Meter and customer service specialist with over 20 years of experience in the water industry.

## Experience

**Water Works Supply INC.**– AMI specialist — 2021 - Present

- Trains customers in all aspects of meters and nodes, such as proper installation, infrastructure, and software.
- Troubleshoots field hardware and software issues and documents corrective actions.
- Troubleshoot AMI systems remotely.

**City Of Southport** – ORC Water distribution, ORC Cross connection — 2018 - 2021

- Managed and performed all aspects of the meter crew, including reading, replacement, new installation, creating and completing service orders, purchasing, billing issues, and testing.
- Managed and performed all aspects of the customer service crew, including posting properties for termination, billing on and off service orders, and stopping meter service orders.
- Administered the cross connection and non-revenue water programs.

**Atlantic Utility Specialist INC.** – Meter Retrofit Field Specialist — 2007 - 2018

- Installed, maintained, and retrofitted AMI/AMR metering systems across Virginia, North Carolina, and South Carolina
- Tested and repaired large meters in place
- Installed new large meters and firelines

## Education & Certifications

- **NC. State University**
  - Courses in Mechanical Engineering
- **Cary high school**
  - Graduated with a smile on my face
- **NC. Water Treatment and Cross Connection ORC Certification** – Distribution **B Operator #190032**
- Continually Certified Forklift Operator for over 20 years

# *Charles Bowden, Jr.*

**(912) 312-4422**
**cbowden@aqua-meter.net**


## Professional Profile

**Personal Profile**

Highly motivated individual with over thirty years experience in the water industry, sales and management field. Able, committed, loyal, and enthusiastic individual who has the ability to manage a varied workload, and enjoys the challenge of new tasks and meeting new people. Overseen over 3 million water meter installations.

**Skills Summary**

- Management
- Sales
- Customer Service
- Reliable
- Interpersonal Skills
- Organizational Skills

## Professional Experience

**Aqua Meter Consultants** **October 2019-Present**
**Owner/President**

- Oversees daily activities of the water meter installation company, executives, reviews contracts and hires staff.
- Develops and executes sales strategy for company's sales force.
- Interacts with utilities, contractors, and suppliers to ensure that a job is completed on time and properly.
- Drafts and reviews contracts, proposals, cost sheets, and bids. Identifies and manages all projects contractual and/or scope of work.
- Identifies and facilitates resolution of customer issues throughout the project life cycle.
- Creates budgets and provides strategies for income generation and expense control.
- Ensures all policies and procedures are followed by all members of the company.
- Builds and maintains client and partner relationships.

**UWS, Inc.** **May 2014-October 2019**
**Vice President**

- Accomplishes human resource objectives by recruiting, selecting, orienting, training, assigning, scheduling, coaching, counseling, and disciplining employees.
    - Communicates job expectations
    - Plans, monitors, appraise, and reviews job contributions.
    - Plans and reviews compensation actions.
    - Enforces policies and procedures.
- Achieves operational objectives by contributing information and recommendations to strategic plans and reviews.
    - Prepares and completes action plans.
    - Implements production, productivity, quality, and customer service standards.
- Resolves problems.
- Determines system improvements and implements change
- Identifies business opportunities and sells products.
    - Identifies prospects and evaluates their position in the industry
    - Researches and analyzes sales options
    - Establishes contacts and develop relationships with prospects.
    - Recommends solutions to prospects' problems.
- Maintains relationships with clients by providing support, information, and guidance.
    - Researches and recommends new opportunities.
    - Recommends profit and service improvements.
- Coordinating work activities and communicating with multiple municipalities.
    - Oversees execution of contracts.
    - Prepares reports to the municipalities and UWS, Inc.
    - Supervises and mentors water, gas and electric installers.
    - Liason between the municipalities and their citizens.
-

# *Jeff Burgess*

## Professional Profile

### Personal Profile

Highly motivated individual with sixteen years experience in the meter installation field. Overseen 500,000-600,000 meter installations.

### Skills Summary

- Management
- Customer Service
- Meter Installation
- Reliable
- Interpersonal Skills
- Organizational Skills

## Professional Experience

**Aqua Meter Consultants** **October 2019-Present**
**Senior Project Manager**

- Trains all new employees on proper procedures in installing water, gas and electric meters.
- Overseas multiple installation job sites and crews.
- Interacts with utilities, customers of utilities, and employees to ensure that any issues are handled properly.
- Conducts safety meetings.
- Installs water, gas and electric meters as needed.
- Collects GPS data for meter installation.

**UWS, Inc.** **May 2014-October 2019**
**Meter Installation/Project Manager**

- Installed water, gas and electric meters.
- Promoted to Project Manager.
- Oversaw multiple projects and crews.
- Ensured that any issues with utilities, customers of utilities, and employees were taken care of.
- Collected GPS data for meter installation.

**Matchpoint, Inc.** **January, 2006-May 2014**
**Senior Project Manager/Sales**

- Installed water, gas and electic meters.
- Repaired lines as needed.

**Contractor at Various Locations** **August 1985-January 2006**

- Framed houses.
- Installed siding on buildings.
- Roof installation.
- Completed general construction projects.

**Name: Jeff Ramirez**
Title: Service Operations Manager


| Contact Information | email: Jramirez@muellerwp.com<br>Phone: 470.493.9482 |
|---|---|


## Summary


Expert in support operations with over 15 years of experience in networking, IT, Call Center, and field service along with a bachelor's degree in computer science as well as A+ and Network+ certifications.


## Experience

**Mueller Water Products** – NOC Manager, Call Center — 2020 - Present

- Established operational policy and vision for a team of 9 NOC Analysts.
- Responsible for the monitoring, reporting, diagnosis, configuration, and triage of metrology network equipment.
- Responsible for overall tracking of ongoing projects for new network implementations as part of the Project Management team.

**Momentum Telecom** – Senior Manager, NOC and Support Operations — 2014 - 2019

- Established operational policy and vision for a team of 13 NOC Engineers and 2 Supervisors.
- Responsible for the monitoring, reporting, diagnosis, configuration, and triage of network equipment for Multiple Service Operators in the Cable TV, Internet, and VoIP industries.
- Implemented performance metrics, defined baseline skillset, and established tiered structure resulting in enhanced professional development, client satisfaction, and measurable progress.

**ServiceLive Inc. (Division of Sears Holding Corp.)** – Account Executive — 2013 - 2014

- Established relationships with service providers, national associations, and nationally branded service and construction companies.
- Managed onboarding and strategic expansion of the provider network for multiple industries and clients.
- Improved service provider availability by establishing relationships with business units to anticipate demand.

**NEWAsurion Europe Ltd.** – Contractor, Logistics and Service Management — 2010 - 2010

- Tasked with the creation of a national service provider network for the launch of Best Buy stores in the U.K.
- Built strong service relationships with the manufacturers of all serviceable products sold at Best Buy stores.
- Negotiated logistics of service notifications and products to a manufacturer's authorized service providers.
- Trained service providers on the online ticketing and claims payment system Servicebench.
- Developed Standard Operating Procedures Manual (SOPs) for the central logistics team.

**N.E.W. Customer Service Companies, Inc** – Service Support Manager — 2005 - 2010

- Optimized operations for third-party service administrators by improving claim follow-up processes and driving higher customer service satisfaction scores (From –12 to +50 in the VERIZON Program).
- Successfully managed service for 55 clients, including VERIZON, TARGET, Office Depot, and Ingram Micro.
- Consistently achieved and surpassed SLAs and operational goals when presenting weekly dashboard reports to the company's executive branch on service operations, measuring claim volume, aging, and turn-around time.
- Effectively trained remote customer service teams on 50+ client service agreements, processes, policy and procedures, proprietary ticketing, and database software.

## Education & Certifications

- **University of Puerto Rico** – Bachelor's, Computer Science
- **The Training Camp** – COMPTIA+ and Network+ Certifications

# Name: Kevin Gorman

Title: Senior Project Manager


| Contact Information | email: kgorman@muellerwp.com<br>Phone: 352.425.9801 |
|---|---|


## Summary


Project manager and electrical engineer with over 10 years of experience in design and validation. An effective leader with a strong background in Advanced Metering Infrastructure (AMI), RF networks, hardware and firmware development, and product verification.


## Experience

**Mueller Systems, LLC** – Senior Project Manager 2013 - Present

- Subject Matter Expert for the MegaNet AMI system, supporting sales, deployment, and transferred systems.
- RF network design engineer for MegaNet and Mi.Net AMI systems for both pre-sales proposals and post-award deployments.
- Managing product validation for new MegaNet AMI developments including new 1-way (AG) and new 2-way endpoint and systemcomponents.
- Responsible for creating and managing the RF propagation simulation software (EDX SignalPro) models for AMI RF networks.

**Elster AMCO Water, LLC** – Lead AMI Engineer and Project Manager 2011 - 2013

- Served as the high-level engineering support for MegaNet AMI systems.
  - Duties included network design, remote network monitoring, full system troubleshooting, board-level debugging, and new product design verification.
- Coordinated engineering team activity and interfaced with management as a project manager for MegaNet AMI Network developments including the following projects: 2-way endpoint, remote valve integration, handheld software, and PMI with a passive radiator.
- US project manager for global multidiscipline development team tasked to migrate existing 900 MHz AMI networks to new Energy ICT infrastructure and EI Server energy management software.
  - Managed the creation of technical requirements and specifications, data-model development, and system validation with an international team in 8 months.
  - Completed the successful migration of 10k endpoints at two customer sites.

**Elster AMCO Water, LLC** – Electronics Engineer 2007 - 2011

- Managed all aspects of AMI system validation including, developing original test methodology, project planning, and test execution. Provided critical design feedback reducing the impact on customers.
- Served as a technical expert for Elster providing remote and on-site support to evolution AMI systems. Interfaced directly with customers to resolve problems.
- Communicated all technical aspects of the AMI projects to local and executive management through technical reports and presentations.
- Performed system and board-level failure analysis including the discovery of an intermittent crimp issue in 21k endpoints before shipment to customer sites

**Spartan Electronics, Inc.** – Electrical Engineer II 2002 - 2007

- Developed hardware from concept to production for ASW Navy contracts including high-level system design, analog and digital circuit design, schematic capture, PCB layout, and board-level prototyping.
- Developed embedded software (C) for Freescale microcontrollers using CodeWarriorIDE.
- Designed low-noise, high efficiency switching power supplies to incorporate a low-cost Lithium battery solution into an existing product. Successfully transitioned the designs to production on schedule.

## Education & Certifications

- **University of Florida** – Bachelor of Science; Electrical Engineering

Name: Peter Thomas

# Title: Service Operations Manager


| Contact Information | email: pthomas@muellerwp.com<br>Phone: 948.541.6510 |
|---|---|


## Summary


Extensive Experience supporting networks and providing integrations for multiple systems as small as a few hundred meters to more than 125,000-meter systems.


## Experience

**Mueller Water Products** – Service Operations Manager, Call Center — 2021 - Present

- Collaborates with in-house billing companies to develop integration plans and manages between 5-10 projects. Composes responses to RFPs that demonstrate the functionality of our software integration to potential customers.
- Works side-by-side with software to ensure project deadlines are met.
- Trains Network Operation Center analysts to locate, use, and subscribe themselves and customers to daily, weekly, and monthly reports.
- Troubleshoots customer issues related to any integration issues.

**IST Management** – Network Analyst — 2018 - 2019

- Provided support for 400 clients across the nation handling technical difficulties with hardware and proprietary mailroom and package tracking software.
- Addressed 100+ tickets a month and provides follow-up to ensure excellent customer service and satisfaction.
- Managed implementations and installations of new software version updates and provides training to individuals and groups on changes.
- Maintained accurate inventory of hardware on hand to provide fast and complete service when required.
- Utilized SQL knowledge to address database issues within the software.
- Managed and implemented the replacement of a new ticketing system to replace the prior, in-house system.

**GNC, Pittsburgh** – Construction Project and Budget Supervisor — 2013 - 2017

- Developed and managed a homegrown Access database for 30+ users, creating reports, dashboards, and a graphical UI for project tracking and projections.
- Developed weekly and monthly reports and distributed them to various departments including Accounting, Real Estate, Marketing, VPs, and C-Suite management.
- Managed four Project Managers by storing project tracking information in a database and ran QC metrics against project milestones and key indicators.
- Oversight of two direct report employees who managed two arms of the department: legal, RFIs, cost summaries, and financial reporting.
- Developed yearly goals and met quarterly with direct reports to increase efficiency within the departments, empowering them to deliver consistently improving results.
- Assisted within other departments to further develop efficiencies that would cut back on double work and highly inefficient time management strategies.
- Ran bi-weekly construction picture meetings to verify work was completed by the general contractors to GNC's standards and specifications.
- Coordinated with outside vendors who managed GNC applications to create efficient workflows and automation for various company processes that were previously handled manually.

## Education & Certifications

- **Robert Morris University** – Bachelor's in Business Management

## LICENSEE DETAILS

*12:44:28 PM 9/6/2022*

### Licensee Information

| | |
|---|---|
| Name: | **DAVIS, MICHAEL THOMAS (Primary Name)**<br>**ADVANCED UTILITY SERVICES LLC (DBA Name)** |
| Main Address: | **7403 NORTON COURT**<br>**WILMINGTON North Carolina 28411** |
| County: | **OUT OF STATE** |
| License Location: | **6100 GETTY DRIVE SUITE X**<br>**NORTH LITTLE ROCK AR 72117** |
| County: | **OUT OF STATE** |

### License Information

| | |
|---|---|
| License Type: | **Certified Underground Utility and Excavation Contractor** |
| Rank: | **Cert Under** |
| License Number: | **CUC1225482** |
| Status: | **Delinquent,Active** |
| Licensure Date: | **04/19/2018** |
| Expires: | **08/31/2022** |

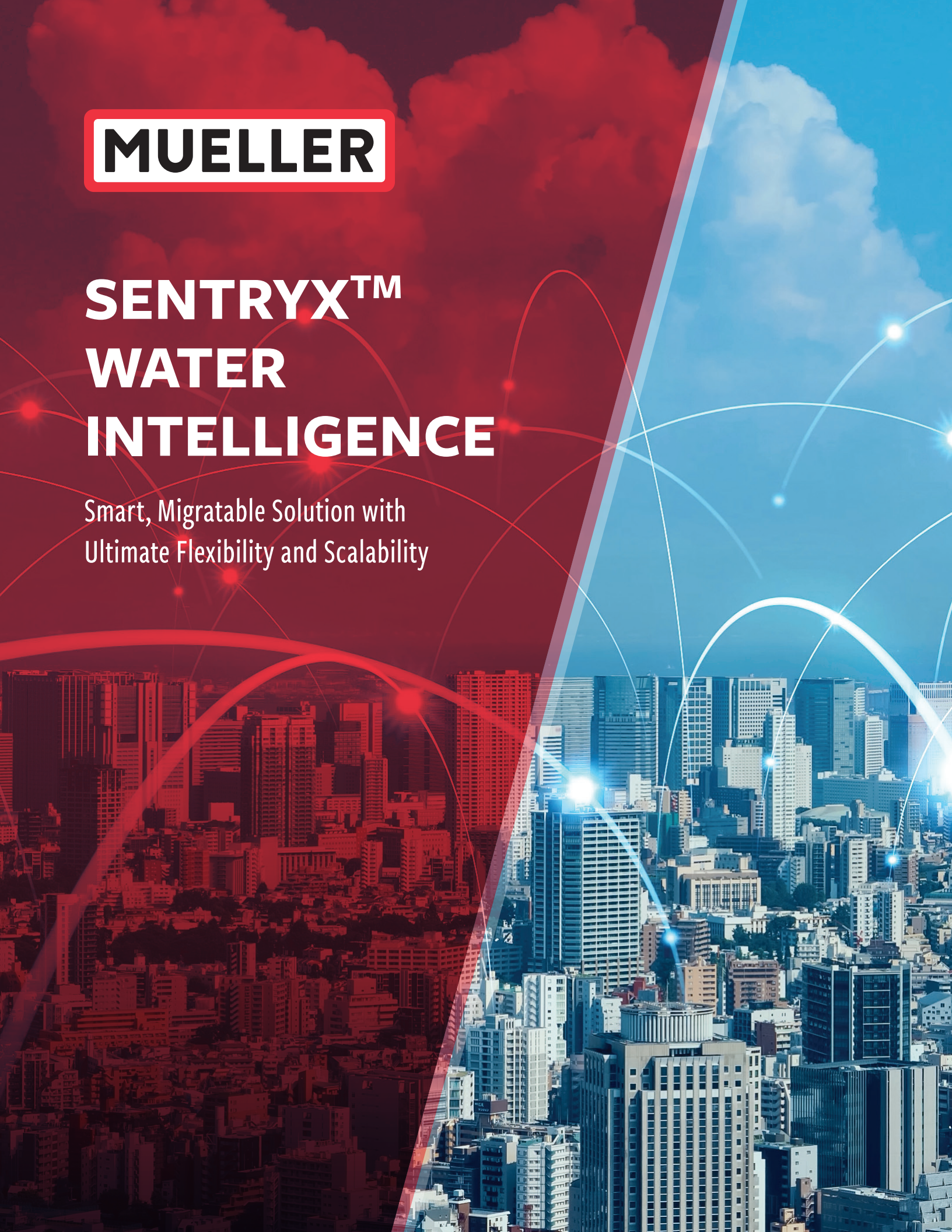
| **Special Qualifications** | **Qualification Effective** |
|---|---|
| **Construction Business** | **04/19/2018** |

### Alternate Names

MUELLER

# SENTRYX™ WATER INTELLIGENCE

Smart, Migratable Solution with
Ultimate Flexibility and Scalability

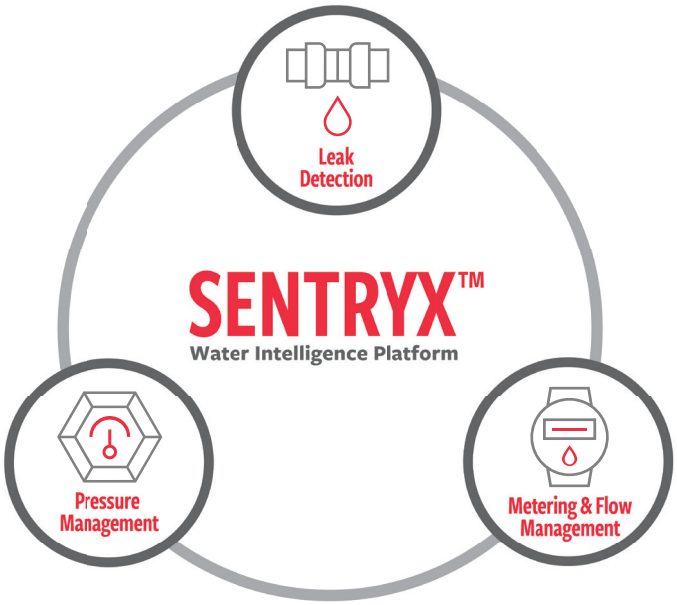


MUELLER

## SENTRYX™ WATER INTELLIGENCE PLATFORM AS A DIGITAL WATER NETWORK ENABLER

Understanding what digital transformation means to your utility in terms of which challenges to address and which initiatives to prioritize are a good starting point. When talking to water utilities, some of their biggest threats are:

- Cyberthreats: How can we enhance and monitor security to protect utilities and homeowners' data?
- Health of the water system: How can we analyze, compare site level consumption data, and observe trends to make data-driven decisions?
- Increasing operational cost, decreasing efficiency: How can we improve the distribution of information within the utility and make information easier to access?




## WHAT IS SENTRYX™ WATER INTELLIGENCE

Sentryx Water Intelligence is a digital services platform for water utilities to monitor, operate and monetize water distribution networks.

## WHY SENTRYX™

**Easy:** All your water network data integrated into one secure platform with intuitive dashboards

**Customer Centric:** Improve network visibility to prevent and manage issues before customer impact

**Sustainable:** Realize a resilient and more sustainable utility through platform insights and efficient operations

**Dynamic Implementation:** Bundle or independent services for metering, pressure monitoring and leak detection

## SENTRYX™ USE CASES

| Water Utility Business Challenges | How Sentryx Platform can help |
|---|---|
| Fragmented Data Silos, Multiple Software Applications | Utilities can get more efficient by having a single system to sign into, instead of having to switch between multiple systems.<br>Analysis can be performed using different types of real-time sources, allowing utilities to see the whole picture and make informed decisions. |
| Manual meter reading and billing inaccuracy lead to operational inefficiency and lower customer satisfaction | By removing intermediaries such as manual truck rolls and data entry, accurate meter data is available near real-time which decreases billing errors.<br>Sentryx algorithms can help accelerate the meter to cash cycle by reducing the time difference between water consumption and revenue generation. |
| Managing scalability and integration when supply network evolves | The Sentryx platform is customizable to a single user level; flexible and scalable on a module level.<br>A water utility can effortlessly add more water meter data points to its water metering module without having to reconfigure the entire platform architecture. |
| Evolving landscape of cyber threat | Data security is our top priority. Mueller has implemented stringent security measures to provide end-to-end protection on the user interface, and critical field devices and to utility IT data systems.<br>Additionally, leading companies in cyber-security such as Amazon Web Services serves as an added protection of the utility and homeowner's data. |

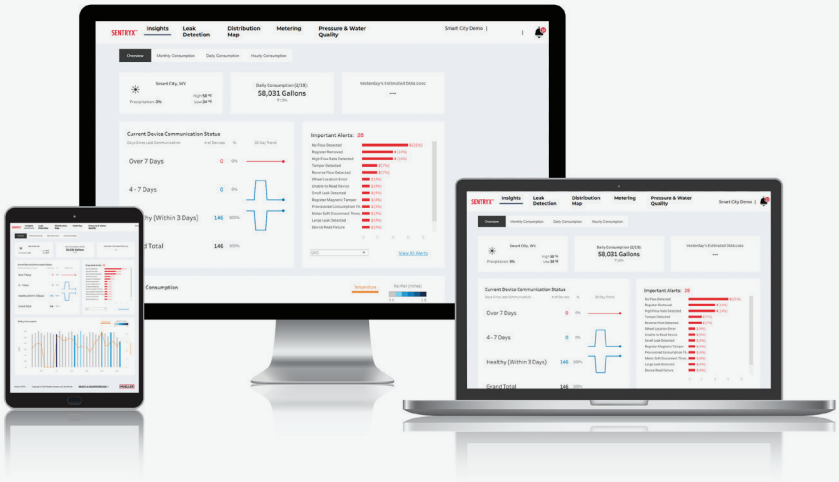
## ROUND-THE-CLOCK SUPPORT

Mueller Network Operations Center (NOC) provides supervision 24/7 to help monitor, manage and report on utilities' water infrastructure.

Sentryx contracts include service level agreements with NOC support, customizable to utility's needs. An alternative option to license its proprietary technology for utilities that wish to self-monitor is also available.

Four tiers of support are available:


- Phone support
- Live Monitoring
- Quality Assurance
- Engineering Support



This smart, migratable solution gives utilities the ultimate flexibility and scalability and allows advanced capabilities to be integrated to fixed networks or drive-by solutions, without replacing the entire system.

Are you ready to accelerate your network operational efficiency and billing accuracy? Call **1.800.423.1323** or visit **marketing.muellerwp.com/sentryx-metering**

***For more information about Mueller or to view our full line of water products, please visit muellersystems.com or call Mueller customer service at 1.800.423.1323.***



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MUELLER

# HbMAG Meter

Mueller SYSTEMS



**APPLICATIONS:** HbMAG Meter is an electromagnetic flow meter designed for use in the measurement of potable water in applications where a high degree of accuracy is required over a wide range of flow rates and conditions. Hotels, schools, factories, office buildings, apartment buildings, commercial properties and irrigation are all examples of installations where domestic and process water services may have widely varying flow rates and usage profiles. The Hersey HbMAG meter has advanced EMF measurement technology to provide a high degree of maintenance free accuracy over extended periods of deployment. Maximum continuous flow rates may be exceeded by as much as 50% for intermittent periods with virtually no pressure loss; permitting full pipe capacity measurement without damage to the meter.

**CONFORMANCE TO STANDARDS:** Hersey HbMAG meters have some of the widest flow ranges of any meter on the market. All Hersey HbMAG solid-state meters provide comparable performance, accuracy and pressure loss standards referenced in the latest editions of AWWA Standards C-701 for horizontal turbine meters and C-702 for compound meters. All 3" through 12" HbMAG meters are also available in an FM Approved variant for fire meter use.

**CONSTRUCTION:** The Hersey HbMAG consists of the epoxy coated outer main case; SST flow tube; EPDM liner; Hastelloy electrodes; and solid-state register. Main cases are made of epoxy coated steel with an EPDM liner. Electrodes are made from Hastelloy C 276. It is low maintenance, delivering long-term performance with minimal cost of ownership.

**REGISTER:** Permanently sealed LCD register with heat-treated glass lens to eliminate dirt, moisture infiltration and fogging. Displays volume of water measured, flow rate, reverse flow and low battery alarm. Additional communication outputs are available. All Hersey Models have electronic meter reading systems available for increased reading efficiency. (see Meter Reading Systems.)

**OPERATION:** The Hersey HbMAG is a microprocessor-based water meter with graphical display for optimum customer operation and information. The transmitter drives the magnetic field in the sensor, evaluates the flow signal from the sensor and calculates the volume of liquid passing through the meter. It delivers required information via the integrated solid-state register or communication interfaces as part of a system solution. The intelligent functionality, information and diagnostics ensure optimum meter performance and information to optimize water supply and billing. Water flows straight through an unobstructed body permitting high flow volumes with a virtually no head loss.

**MAINTENANCE:** The Hersey HbMAG is designed and manufactured to provide long service life with virtually no maintenance required.

**CONNECTIONS:** ANSI 150 standard end flanges

**3" Hersey HbMAG with Integral Register**

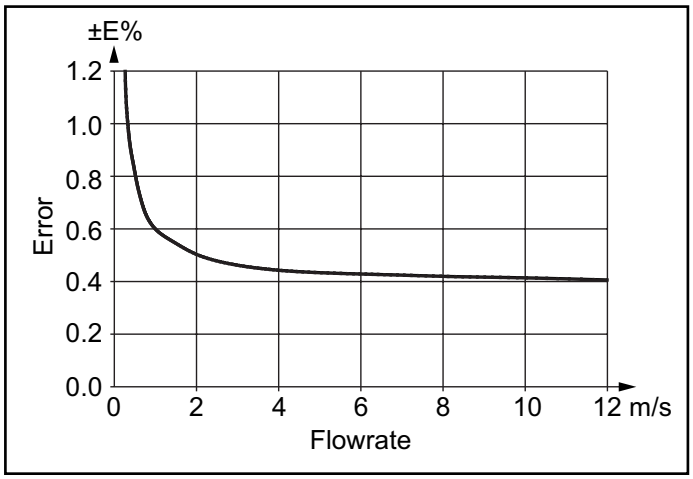
## Material and Specifications

| | |
|---|---|
| MODEL | HbMAG |
| SIZES | 3", 4", 6", 8" 10", 12 |
| Larger sizes are available. Call Mueller Systems customer care for options. | |
| STANDARDS | IP68/NEMA 6P, NSF-61, Optional FM approval for fire meter use |
| SERVICE | Measurement of flow in<br>BOTH forward and reverse directions |
| INSTALLATION | Horizontal or vertical with 5x pipe diameter of straight pipe (same size as meter) |
| OPERATING FLOW RANGE | See Charts on the following pages |
| ACCURACY | See Charts on the following pages |
| MAXIMUM WORKING PRESSURE | 175 PSI |
| TEMPERATURE RANGE | 33° F to 140° F water temperature |
| MEASURING ELEMENT | Time-varying magnetic field |
| SOLID STATE REGISTER | Permanently sealed IrDA: Standard integrated infrared communication interface with<br>Encoder interface, AMR/AMI RF Modules |
| BATTERY LIFE | 6 Years: Internal Battery Pack<br>10 Years: External Battery Pack |
| METER CONNECTIONS | ANSI class 150 standard end flanges |
| MATERIALS | Maincase – epoxy-coated steel<br>Electrodes – Hastelloy C276<br>Liner - EPDM |
| OPTIONS | AMR/AMI Reading Systems |

| NORMAL FLOW RANGES | | | | |
|---|---|---|---|---|
| Sizes” | Low Flow | Mid Flow | High Flow | Intermittent High Flow |
| 3" | .5 GPM | 2.75 GPM | 550 GPM | 825 GPM |
| 4” | .75 GPM | 4.5 GPM | 880 GPM | 1320 GPM |
| 6” | 1.5 GPM | 11.25 GPM | 2200 GPM | 3300 GPM |
| 8” | 2 GPM | 17.5 GPM | 3465 GPM | 5200 GPM |
| 10” | 8.75 GPM | 28 GPM | 5500 GPM | 8250 GPM |
| 12” | 15 GPM | 44 GPM | 8800 GPM | 13200 GPM |

| DIMENSIONS | | |
|---|---|---|
| Sizes” | LENGTH | WEIGHT |
| 3" | 7.9" | 34 lbs |
| 4” | 9.8" | 38 lbs |
| 6” | 11.8" | 63 lbs |
| 8” | 13.8" | 113 lbs |
| 10” | 17.7" | 160 lbs |
| 12” | 19.7" | 198 lbs |

| METER ACCURACY RANGE | |
|---|---|
| Low Flow | +/- 5% |
| Normal Flow Ranges | +/- 0.4% |




Standard calibration
E = ±0.4% of rate ±2 mm/s

Performance curves are typical only and NOT a guarantee of performance.

# Hersey HbMAG Flow Meters



## Overview

The Hersey HbMAG is a comprehensive meter which provides intelligent information and high performance measurement as well as the easy to install concept taking cost of ownership and customer service to a new level for a utility water meter.

## Benefits

Easy to install

- Compact or remote solutions with factory mounted cable and customer setting from factory
- IP68/NEMA 6P enclosure. Sensor can be buried
- Flexible power supply - internal or external battery pack or mains power supply with battery back-up

Superior measurement

- Down to 0.4% maximum uncertainty
- Bi-directional measurement

Long lasting performance/Low cost of Ownership

- No moving parts means less wear and tear
- 6 years maintenance-free operation in typical revenue applications
- Robust construction built for multiple applications

Intelligent information, easy to access

- Advanced information on site
- Data logger
- Advanced statistics and diagnostics
- Add-on communication modules

## Application

The Hersey HbMAG has been developed as a standalone water meter for applications within:

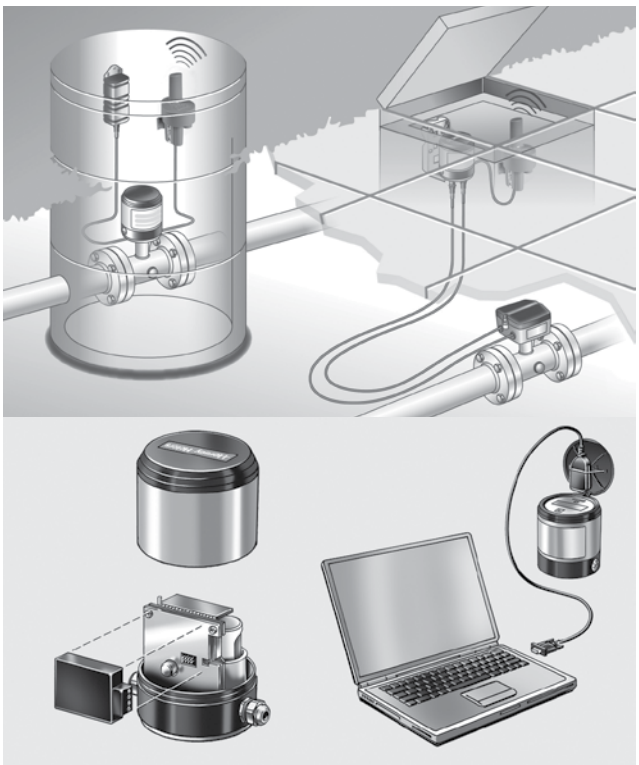
- Distribution networks
- Revenue and bulk metering
- Irrigation
- Fire Meter with optional FM Approval

## Design

The Hersey HbMAG is designed with a focus on minimized power consumption.

The product program consists of

- Sensor sizes from 3" to 48"
- Compact and remote installation in IP68/NEMA 6P enclosure and factory-mounted cable
- Hersey Flow Tool PC configuration softwares



Add-on communication module (left), PC-IrDA connection (right)

## Function

The Hersey HbMAG is a microprocessor-based water meter with graphical display and key for optimum customer operation and information both on site and remotely. The transmitter drives the magnetic field in the sensor, evaluates the flow signal from the sensor and calculates the volume passing through. It delivers the required information via the integrated Hersey encoder output as part of Mueller Systems AMR and AMI solutions. Its intelligent functionality, information and diagnostics ensure optimum meter performance and information to optimize water supply and billing.


The Hersey HbMAG with integral battery option provides 6 years battery operation in typical revenue applications.

| FEATURES / VERSION | Hersey HbMAG |
|---|---|
| Measuring frequency in battery power mode | 1/15, 1/30 or 1/60 Hz |
| Output HbMAG | 2 FW/RV/AI/CA (max. 50 Hz pulse rate) |
| Communication | Encoder |
| Data logger | Yes |

Information is accessible via the display whereas all information is accessible via the IrDA communication interface with Hersey software. Data and parameters are registered in a EEPROM. They can all be read, but changing the information demands a software password and a hardware key attached to the printed circuit board.

## Technical Specifications

### Meter

| | Hersey HbMAG |
|---|---|
| **Accuracy** | Standard calibration:<br>±0.4% of rate ±2 mm/s |
| **Media conductivity** | Clean water > 20 µs/cm |
| **Temperature** | |
| Ambient | -4 ... +140 °F (-20 ... +60 °C) |
| Media | 32 ... +158 °F (0 ... +70 °C) |
| Storage | -22 ... +158 °F (-40 ... +70 °C) |
| **Enclosure rating** | IP68/NEMA 6P; Cable glands mounted requires Sylgard potting kit to remain IP68/NEMA 6P, otherwise IP67/NEMA 4 is obtained;<br>Factory-mounted cable provides IP68/NEMA 6P |
| **Drinking water approvals** | • NSF/ANSI Standard 61 (cold water) USA |
| **Sensor version** | 3" … 48" |
| **Measuring principle** | Electromagnetic induction |
| **Excitation frequency** | |
| • Battery-powered | 3" - 6": 1/15 Hz<br>8" - 24": 1/30 Hz<br>28“ - 48“: 1/60 Hz |
| • Mains-powered | 3" - 6": 6.25 Hz<br>8" - 24": 3.125 Hz |
| **Flanges** | |
| ANSI 16.5 Class 150 lb | 3" - 24": 290 psi (20 bar) |
| AWWA C-207 | 28" - 48": PN 10 145 psi |
| Liner | EPDM |
| Electrode and grounding electrodes | Hastelloy C276 |
| Grounding straps | Grounding straps are premounted from the factory on each side of the sensor |

## Technical Specifications

### Transmitter

| | |
|---|---|
| **Installation** | Compact (integral) or Remote with factory-mounted cable 33' (10 m) |
| **Enclosure** | Stainless steel top housing (AISI 316) and coated brass bottom.<br>Remote wall mount bracket in stainless steel (AISI 304). |
| **Cable entries** | 2 x M20 (one gland for one cable of size 0.02 - 0.026 ft (6 - 8 mm)<br>is included in the standard delivery) |
| **Display** | Display with 8 digits for visual meter reading information.<br>Index, menu and status symbols for dedicated information |
| **Standard Flow Units** | Volume in Gallon and flow rate in GPM<br>Volume in CF and flow rate as GPM<br>Volume in m3 and flow rate in m3/h |
| **Optional display units**<br>(Available as an option in place of encoder output) | Volume: m3 x 100, l x 100, G x 100, G x 1000, MG, CF x 100, CF x 1000, AF, Al, kl<br>Flow: m3/min, m3/d, l/s, l/min, GPS, GPH, GPD, MGD, CFS, CFM, CFH |
| **Digital output** | 2 passive outputs (MOS), individual galvanically isolated<br>Maximum load ± 35 V DC, 50 mA short circuit protected |
| Output A function | Programmable as pulse volume – forward – reverse – forward/net – reverse/net |
| Output B function | Programmable as pulse volume (like output A), alarm |
| Output | Max. pulse rate of 50 Hz , pulse width of 5, 10, 50, 100, 500 ms |
| **Communication** | IrDA: Standard integrated infrared communication interface with<br>Hersey/Sensus Encoder Protocol for Hot Rod, Mi.Net,<br>Itron AMR/AMI Systems |
| **Power supply** | Auto detection of power source with display symbol for operation power. |
| Internal battery pack | 2 D-Cell 3.6 V/33 Ah |
| External battery pack | 4 D-Cell 3.6 V/66 Ah |
| **Mains power supply** | • 12 ... 24 V AC/DC (10 … 32 V) 2 VA<br>• 115 ... 230 V AC (85 … 264 V) 2 VA<br>The power supply has 9.8 ft (3 m) power cable for external connection to mains supply (without cable plug)<br>Both mains power supply systems are backed up by an internal D-Cell 3.6 V 16.5 Ah battery pack. |
| **Installation** | Integral (compact) or remote with factory mounted cable in 33' lengths with IP68/ NEMA 6P connectors. Connection is made at the transmitter bottom. |
| **Enclosure** | Stainless steel top housing (AISI 316) and coated brass bottom.<br>Remote wall mount bracket in stainless steel (AISI 304). |
| **Cable entries** | 2 x M20 (one gland for one cable of size 0.24 ... 0.31 " (6 … 8 mm) is included in the standard delivery) |

# Features

| | |
|---|---|
| **Time and date** | **Real time clock** |
| **Totalizer** | 2 totalizer: Forward, Reverse, Bidirectional netflow calculation and free selectable start value.<br>1 customer totalizer, following totalizer 1 setting and resetable via display key or software with logging of date and time |
| **Measurement** | |
| Low flow cut-off | 0.05% of high flow or free adjustable |
| Empty pipe detection | Symbolized in display |
| Data logger | Logging of 26 records: selectable as daily, weekly or monthly logging |
| **Alarm** | Active alarm is indicated on the display |
| Monitoring | Total hours an alarm has been active<br>Numbers of times the alarm has been activated<br>First time an alarm appears<br>Last time the alarm disappears |
| Fatal faults | Coil current – Fault in driving magnetic sensor field<br>Amplifier – Fault in signal circuit<br>Check sum – Fault in calculation or handling of data |
| Warning faults | Low Power – customer selectable battery alarm level or power drop out<br>Flow overflow – Flow in sensor exceeds intermittent high flow<br>Pulse overflow on output A and B – Selected pulse volume is too small compared to actual flow rate and max. output pulse rate.<br>Consumption – saved data logger consumption exceeds customer selected limit on high or low consumption<br>Empty pipe – no water in the pipe/sensor<br>Low impedance - measured electrode impedance below customer low impedance level<br>Flow limit – actual flow exceeds selected high flow limit |
| **Data protection** | All data stored in an EEPROM. Totalizers 1 and 2 are backed up every 10 min, statistics every hour and power consumption and temperature measurement every 4 hour.<br>Password protection of all parameters and hardware protection of calibration and revenue parameters. |
| **Battery power management** | Optimal battery information on remaining capacity.<br>Calculated capacity includes all consuming elements and available battery capacity is adjusted related to change in ambient temperature.<br>Numbers of power-ups<br>Date and time registered for first and last time power alarm. |
| **Diagnostics** | |
| Continuous self test including | Coil current to drive the magnetic field<br>Signal input circuit<br>Data calculation, handling and storing |
| Alarm statistics and logging for fault analyzing | Electrode impedance to check actual media contact<br>Flow simulation to check pulse and communication signal chain for correct scaling<br>Number of sensor measurements (excitations)<br>Transmitter temperature (battery capacity calculation)<br>Low impedance alarm for change in media<br>Flow alarm when defined high flow is exceeed<br>Verification mode for fast measure performance check |

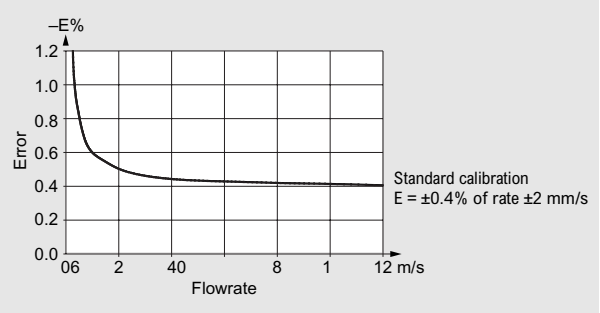
## Hersey HbMAG water meter uncertainty

To ensure continuous accurate measurement, flow meters must be calibrated. The calibration is conducted at flow facilities with traceable instruments referring directly to the physical unit of measurement according to the International System of Units (SI). Therefore, the calibration certificate ensures recognition of the test results worldwide, including the US (NIST traceability).

Mueller Systems can provide accredited calibration in the flow range from 0.0001 m3/h to 10 000 m³/h.

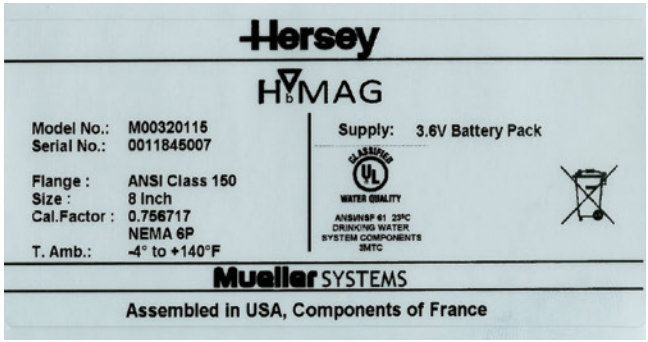
The accredited laboratories are recognized by ILAC MRA (International Laboratory Accreditation Corporation - Mutual Recognition Arrangement) ensuring international traceability and recognition of the test results worldwide.

The selected calibration determines the accuracy of the meter. A standard calibration results in max. ±0.4 % uncertainty. A calibration certificate is provided with every sensor and calibration data are stored in the meter unit.




Performance curves are typical only and no guarantee of performance.

The Label is placed on the side of the display housing. An example of the product label is shown below:



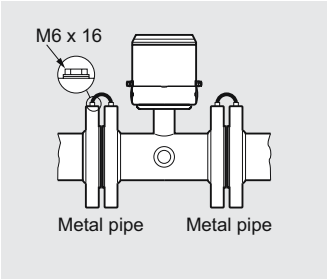

## Installation conditions

Please refer to “System information for Hersey HbMAG electromagnetic flow meters”.

Battery packs must be installed with the hanging bracket in upwards direction to reach maximum capacity.

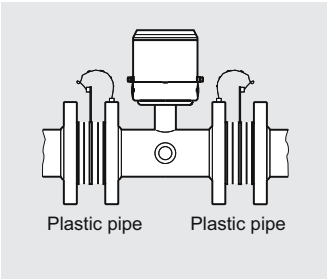
## Bonding and grounding

The sensor body must be grounded using grounding/bonding straps and/or grounding rings to protect the flow signal against stray electrical noise and/or lightning. This ensures that the noise is carried through the sensor body and a noise-free measuring area within the sensor body.




### Metal pipelines

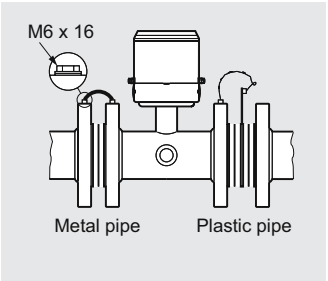
On metal pipelines, connect the straps to both flanges.




### Plastic pipelines

On plastic pipelines and lined metal pipes, optional grounding rings must be used at both ends.

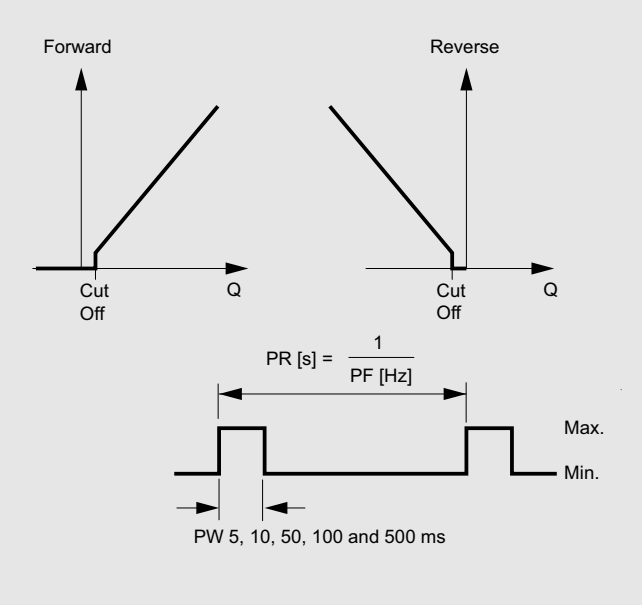
Grounding rings must be ordered separately see grounding ring kit



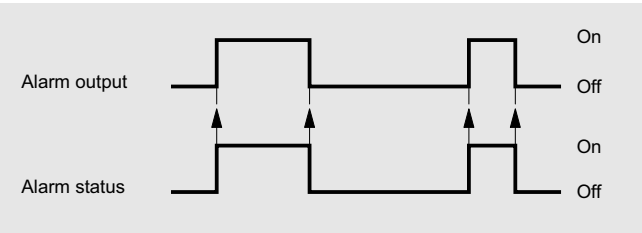

### Combination of metal and plastic pipelines

A combination of metal and plastic requires straps for metal pipeline and grounding rings for plastic pipeline.

## Output configuration HbMAG




Pulse volume: Output A/B configured as volume per pulse, the output delivers a pulse when the preset volume has passed the selected direction, calculated on forward/reverse or Net forward/reverse flow. The volume per pulse is freely scalable, from 0.0001 to 10 000 meter-unit per pulse. PR = pulse rate and PF = pulse frequency.

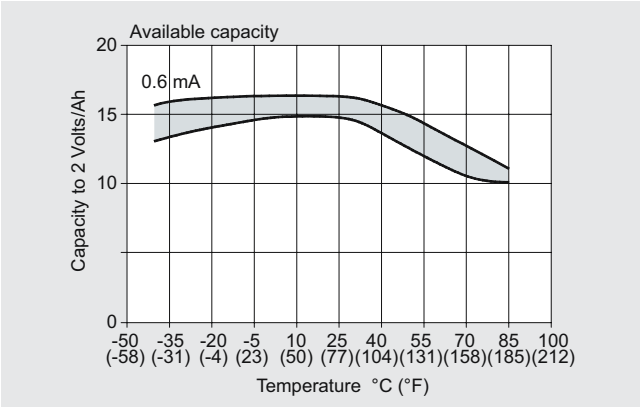



Alarm: The alarm will follow the internal alarm status.

## Battery operation time and calculation

The battery operation time depends on the connected battery pack as well as the operation condition of the meter.

HbMAG calculates the remaining capacity every 4 hours and includes all consuming elements. Calculation compensates for temperature influence on battery capacity (drawing).




The effect from other temperatures can be seen from the figure. A variation in temperature from 15 °C to 55 °C (59 to 131 °F) reduces the capacity by 17% in the table from 15 Ah to 12.5 Ah.

At typical revenue scenario of expected battery operation time can be seen in the table.

The measurement for calculating the rest capacity of the battery life time is only completed if the system has no active fatal faults or the empty pipe is active. Maximum battery specification is 10 years operation.

### Scenario - Revenue application

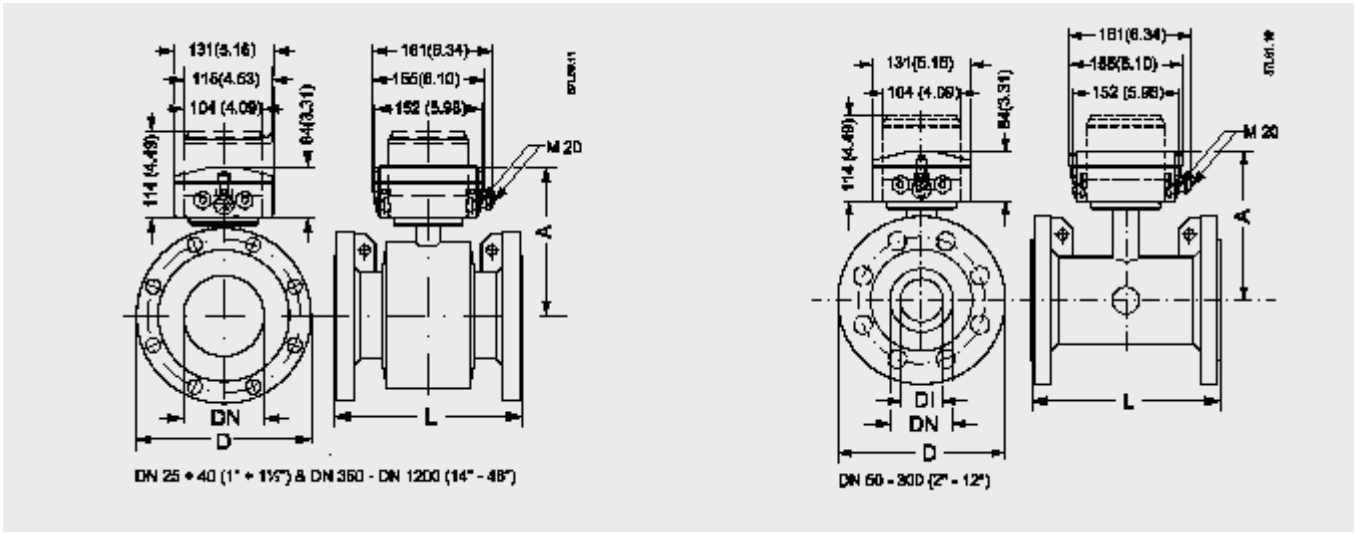
| | |
|---|---|
| Output A | Pulse rate max. 10 Hz |
| Output B | Alarm or call-up |
| Meter dialog | 1 hour per month |
| Add-com | None |
| Temperature profile | • 5% at 32 °F (0 °C)<br>• 80% at 59 °F (15 °C)<br>• 15% at 122 °F (50 °C) |

### Battery lifetime (subject to the assumptions mentioned above)

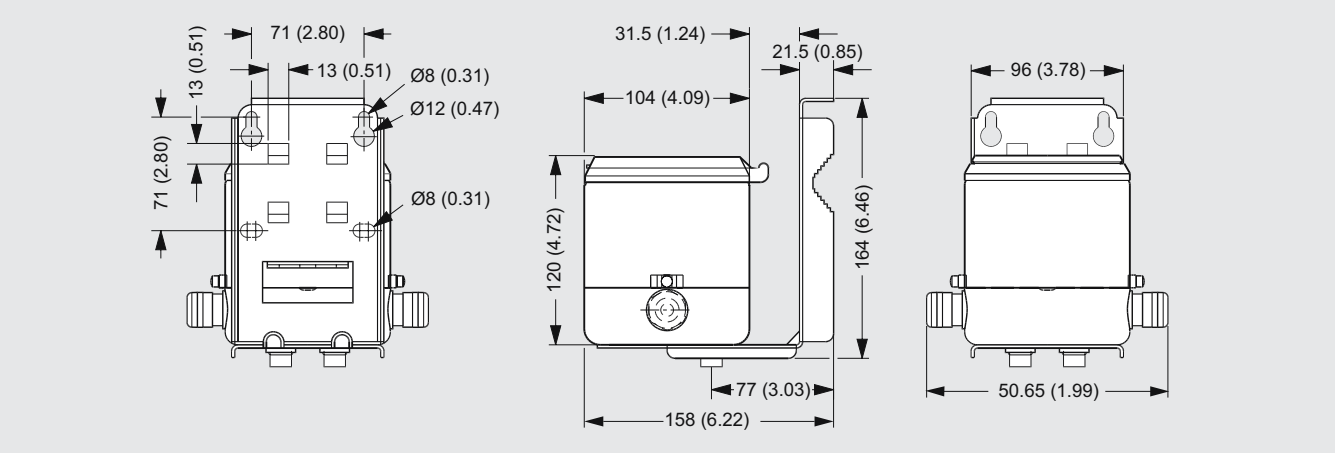
| Excitation frequency (24 h operation) | | 1/60 Hz | 1/30 Hz | 1/15 Hz | 1/5 Hz | 1.5625 Hz | 3.125 Hz | 6.25 Hz |
|---|---|---|---|---|---|---|---|---|
| Two D-Cell battery 33 Ah Internal battery pack | 3" - 8" | 8 years | 8 years | 6 years | 40 months | 8 months | 4 months | 2 months |
| | 10" - 24" | 8 years | 6 years | 4 years | 20 months | 4 months | 2 months | NA |
| | 28" - 48" | 6 years | 4 years | 2 years | 1 year | 2 months | NA | NA |
| Four D-Cell battery 66 Ah External battery pack | 3" - 8" | N/A | 10 years | 10 years | 80 months | 16 months | 8 months | 4 months |
| | 10" - 24" | N/A | 10 years | 10 years | 40 months | 8 months | 4 months | NA |
| | 28" ... 48" | 10 years | 8 years | 4 years | 2 years | 4 months | NA | NA |

External battery pack can be used as battery backup for mains power supply.

## Dimensional drawings

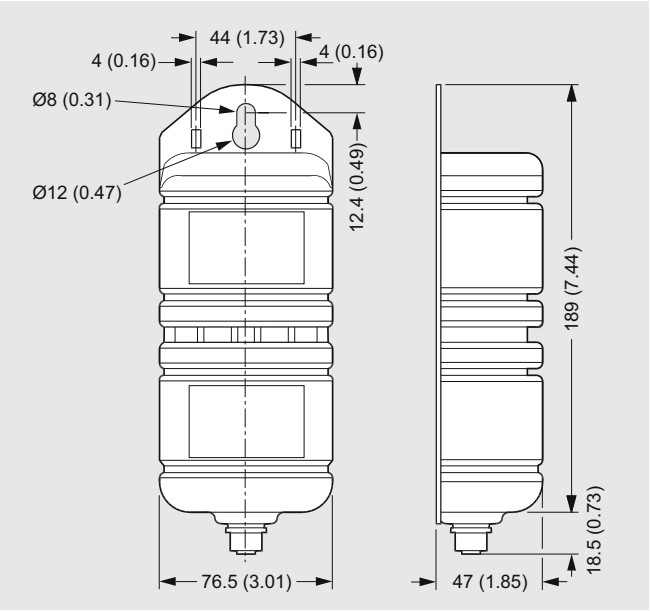


## Remote version




Dimensions in mm (inch), weight 3.5 kg (8 lbs)

## External battery pack

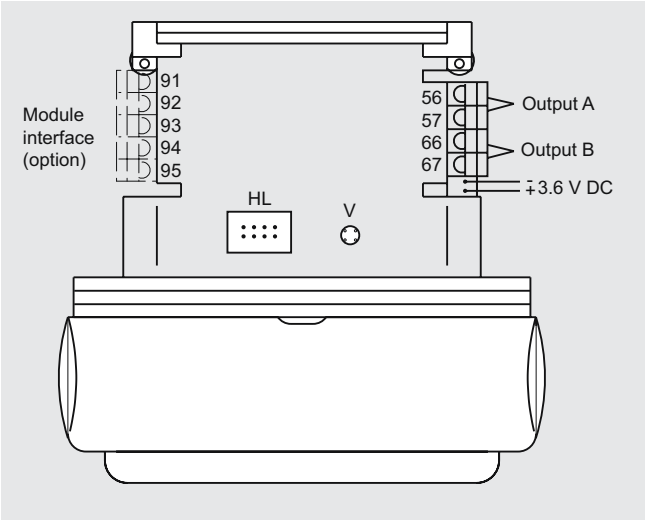



Dimensions in mm (inch), weight 2.0 kg (4.5 lbs)

Battery pack has to be mounted in upwards position to ensure maximum battery capacity.

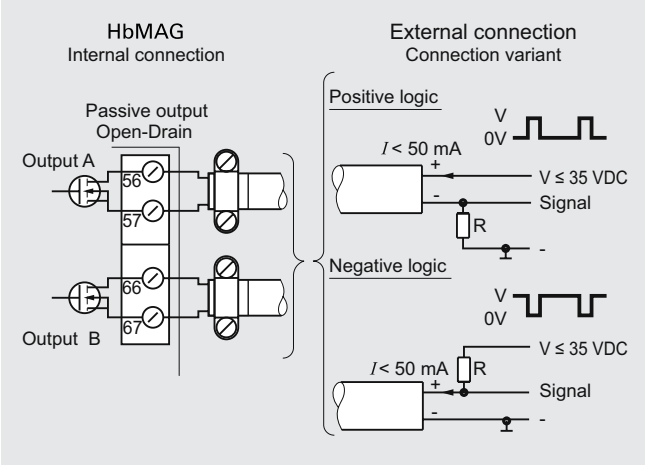
## Schematics

### Electrical installation and pulse output – Connection diagram




HL = Hardware lock key connection
V = Push button for verification mode

### Pulse wire connection




The pulse output can be configured as volume, alarm or call-up. The output can be connected as positive or negative logic.

R = pull up/down is selected in relation to the Vx power supply and with a max. current I of 50 mA.

Use shielded cable to avoid EMC problems. Make sure the shield is correctly mounted under the cable clamp (no pig tail).

# THROUGH THE LID ANTENNA (TTL-A)

## FEATURES

**Applications:** For use in metal pit or vault installations where a standard 1-¾″ or 1-⅞″ hole exists. The Mueller TTL-A provides a standardized method of installation and provides optimization of radio transmission out of the pits or vaults equipped with metal lids. The TTL-A provides a simple method of mounting current Mueller Mi.NET radio modules in an easily accessed installation location under the pit lid without additional hardware or tools.


**Compliance:** The TTL-A is compliant with the American Disabilities Act Section 4.5 and AASHTO H-20 Heavy Duty.

**Construction:** The TTL-A consists of three basic parts: TTL-A body, threaded nut, and a rubber washer. The design is made from both aluminum and polymer for optimum weight to strength ratio and minimal environmental impact.

**Installation:** The TTL-A threads into the top case of the Mi.NET Radio Module. Simply remove the Mi.NET module antenna cover by turning it counter clockwise and insert the TTL-A screwing it clockwise into the Mi.NET module after insertion through the lid. This permits the Radio Module to hang from the pit lid, optimizing the accessibility and performance of the device.


**Maintenance:** The Mueller Systems TTL-A is designed and manufactured to provide long service life with no maintenance required. In the event the exposed portion of the TTL-A is damaged, the entire assembly can be replaced quickly and easily in the field with no additional tools required.

# THROUGH THE LID ANTENNA (TTL-A)

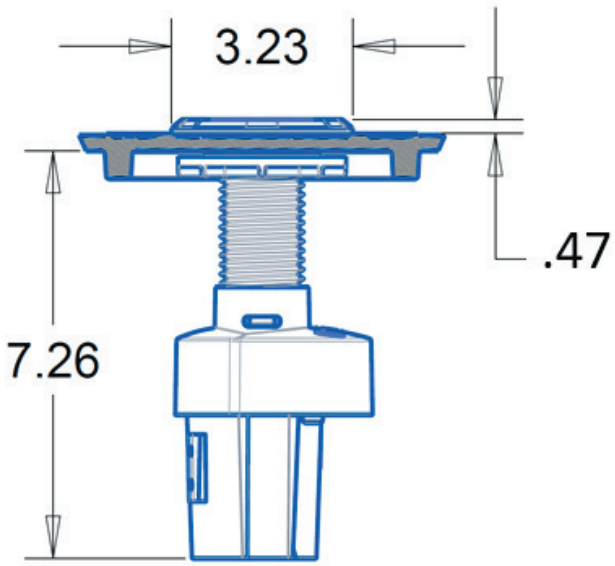
**Materials and Specifications:**

- MODEL NUMBER ..... MS-TTL-A
- COMPATIBILITY ..... Pit lids up to 2″ thick

All Mi.NET Radio Versions with Threaded Top Housing

(The TTL-A is not compatible with Mi.Net modules manufactured prior to June 15th, 2019)

- STANDARDS ..... Manufactured and tested to meet or exceed AASHTO H-20 Heavy Duty (25,000 lbs.) and ADA Section 4.5
- CONNECTION ..... Threaded connection to Mi.NET Radios via a 1-½-6 UNC Thread
- MATERIALS ..... TTL-A Body – Aluminum/Thermoplastic; Threaded Nut - Thermoplastic; Rubber Washer - Buna-N
- TEMPERATURE RANGE ..... Operating Temperature: -40°F to + 158°F (-40°C to + 70°C); Humidity: 0% - 100% condensing




***For more information about Mueller or to view our full line of water products, please visit muellersystems.com or call Mueller customer service at 1.800.423.1323.***



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MUELLER

# MUELLER ENCODER EIGHT (ME-8)

Mueller SYSTEMS



## Features

**APPLICATIONS:** The Mueller Encoder Eight register (ME-8) is available for use on current Mueller Systems positive displacement meters in 5/8" through 2" sizes. The Mueller Encoder Eight register provides granular data for use in the latest AMR and AMI applications while the eight wheel visual display provides visual verification that aids in the detection of leaks and backflow.

The Mueller Encoder Eight register provides eight digits of visual resolution and up to 8 digits of electronic resolution for outstanding granularity when used in conjunction with current Mueller Systems AMR and AMI systems. Granularity of data permits customers to capture maximum revenue and be proactive in leak detection and resource conservation. Mechanical meter technology and electromechanical register design provide a proven and time tested solution for water utility needs.

The display provides 5/16" high, color contrasted odometer wheels for easy visual verification of radio frequency transmissions or field testing. The unique, never duplicated ten digit serial number on the Mueller Encoder Eight register housing identifies it as the basis for all systems communication. The register face plate and housing provide visual information specific to the registration units, model, size, date of manufacture, and billing units, to provide verifiable and retrievable data in the event it is required.

**CONFORMANCE TO STANDARDS:** Mueller Encoder Eight register complies with AWWA requirements for odometer wheel height as well as the American Standard Code for Information Interchange or ASCII.

**CONSTRUCTION:** Mueller Systems utilizes a UV stable, molded enclosure and lid made of thermoplastic to permanently house the ME-8 register components. The heat treated, tempered glass lens resists years of punishment. A variety of wired AMR/AMI options as well as touch pads are available.

The Mueller Encoder Eight register is compatible with all bayonet style locking mechanisms offered on Mueller Systems positive displacement meters. The register is tamper protected by the unique Mueller Systems locking pin. The register can be replaced without removing the meter from the service line when required due to vandalism or damage.

**OPERATION:** The Mueller Encoder Eight register detects the rotation of the drive magnet incorporated into the meter measuring element of the positive displacement meter. Light tubes inside the register capture the true position of all eight odometer wheels eliminating the possibility of odometer wheel errors.

When interrogated by a Mueller Systems AMR/AMI device, the Mueller Encoder Eight register communicates the unique ten digit serial number and up to an eight digit electronic reading in ACSII format where it can be recorded and maintained within the reporting structure of the AMR/AMI system. In the event that field testing is required, the high resolution test wheel provides excellent test resolution for all 5/8" through 2" positive displacement meters.

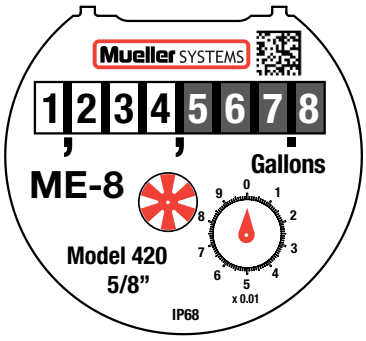

**Mueller Encoder Eight (ME-8)**

**MAINTENANCE:** The Mueller Encoder Eight register is designed and manufactured to provide a 20 year service life with virtually no maintenance required. Register lids are available as replacement components in the event of vandalism or the need for meter retrofits.

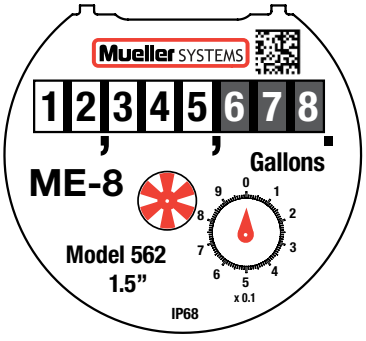
## Materials and Specifications

| | |
|---|---|
| MODEL | Mueller Encoder Eight Register (ME-8) |
| REGISTER TYPE | Absolute Encoder Register |
| SIZES | All 5/8" through 2" Positive Displacement Meters<br>All current 5/8" through 2" Positive Displacement Meters<br>Meter models 420, 435, 452 562, 572 |
| STANDARDS | Manufactured and tested to meet or exceed all applicable parts of ANSI/AWWA C707 Standard and the American Standard Code for Information Interchange (ASCII) |
| TEMPERATURE OPERATING RANGE | 32ºF (0ºC) to 158ºF (70ºC) |
| STORAGE TEMPERATURE RANGE | -4ºF (-20ºC) to 158ºF (70ºC) |
| CONNECTION OPTIONS | 5' or 25' Nicor Connector, 5' or 25' Itron In-Line Connector, 5' or 25' flying lead wire, 5' or 25' wired Hot Rod, or Mi.Node with factory potted connections |
| MATERIALS | Register housing and lid - thermoplastic;<br>Register lens – glass;<br>Display – 8 digit visual resolution and up to 8 digit electronic resolution with Mueller Systems AMR/AMI systems |
| AMR/AMI COMPATIBILITY | Mueller Systems Hot Rod AMR system, Mi.Net AMI system, and other AMR/AMI systems that can utilize the Mueller Systems standard encoder protocol output. Touch pad compatible. |

## METER FACE PLATE - GALLONS

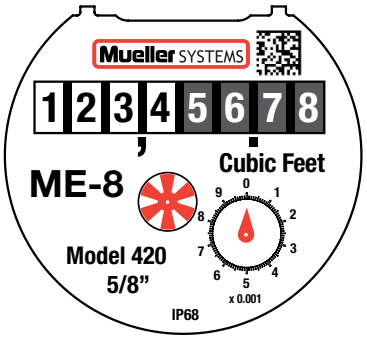



MODEL 420, 435, 452

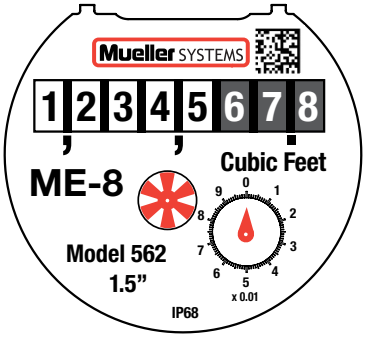



MODEL 562, 572

## METER FACE PLATE - CUBIC FEET

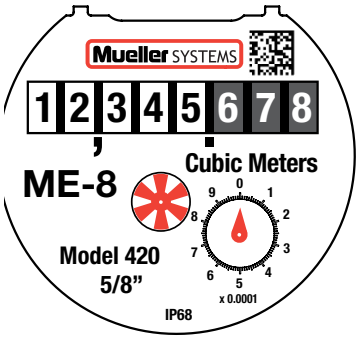



MODEL 420, 435, 452

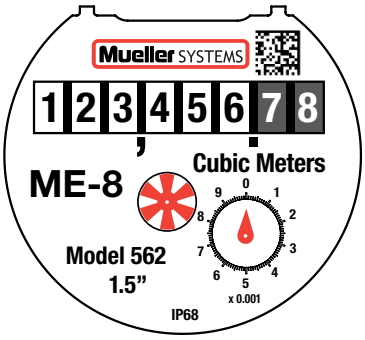



MODEL 562, 572

## METER FACE PLATE - CUBIC METERS




MODEL 420, 435, 452




MODEL 562, 572

All Mueller Systems ME-8 registers are shipped displaying zeros for all odometer wheel values. Examples here are provided for illustration only.

Mueller Systems always recommends ME-8 registers are programmed for 8 wheel electronic resolution for the best leak and back flow detection possible

MUELLER

# 420 SERIES BRONZE

## 420 Bronze PD Meter - Sizes 5/8" x 1/2" and 5/8" x 3/4"

## FEATURES

**Applications:** The Mueller® 420 bronze is a nutating disc style, positive displacement meter designed for residential and small commercial applications where water volumes are low and low flow sensitivity is important.

**Conformance to Standards:** All Mueller 420 bronze meters meet or exceed the latest revision of the AWWA C-700 Standard for positive displacement meters. Every 420 bronze no lead meter is compliant with the latest initiatives of NSF, ANSI and EPA standards.

**Construction:** Mueller 420 water meters consist of three basic parts: maincase; measuring chamber; and permanently sealed register. The maincase is made of bronze for long life. Direction of flow arrows and model are cast into each maincase for ease of identification. The bottom cover is epoxy-coated cast iron with a molded plastic liner separating it from the waterway. Optional bronze and polymer bottom covers are available. The measuring chambers are designed for reduced wear during operation. The measuring chamber, integral strainer, nutating disc and thrust roller are thermoplastic, which is dimensionally stable and will not corrode. The register housing and lid are available in your choice of plastic or bronze for standard visual read registers. The meter is designed so that the register can be replaced easily without removing the meter from the service line.

**Register:** The permanently sealed visual read register has a unique triple "L" seal and heat treated, glass lens to eliminate dirt, moisture infiltration and fogging. An integral tamper-proof locking feature is provided to resist tampering with the register. The totalizing register has a straight-reading odometer type display, a 360º test circle with center sweep hand and a low flow (leak) detector. Standard gearing is used, making registers interchangeable by size. The 420 bronze meter is available with all AMR and AMI options for increased reading efficiency.

**Operation:** Water flows through the meter's strainer where debris is screened out. The incoming water fills a known volume of the measuring chamber on one or the other side of a movable disc that separates the chamber into two sections. As water enters, it moves the disc (nutates), forcing a known volume of water out of the meter from the opposite side of the disc. The process repeats as the sections refill and empty in turn. The nutating action of the disc is coupled magnetically to the register to indicate the volume of water that passes through the meter.

**Maintenance:** The Mueller 420 positive displacement meter is designed and manufactured to provide long service life with virtually no maintenance required. Repair components available include complete chamber assemblies and bottom plate gaskets. All components can be accessed without removing the meter body from the service line for simplified maintenance.

**Connections:** Supplied with external straight pipe threads (NPSM) per ANSI B1.20.1

5/8" X 1/2" 420 BRONZE PD METER

## MATERIALS AND SPECIFICATIONS

| | |
|---|---|
| **Model** | 420 Bronze Meter |
| **Sizes** | 5/8" x 1/2", 5/8" x 3/4" |
| **Standards** | AWWA C-700, Most current NSF-61, ANSI, & EPA Initiatives |
| **Service** | Measurement of flow in forward direction only |
| **Installation** | Horizontal or Vertical |
| **Operating Flow Range** | See charts on the following pages |
| **Accuracy** | See charts on the following pages |
| **Maximum Working Pressure** | 150 psi |
| **Temperature Range** | 33º F to 100º F water temperature |
| **Measuring Element** | Nutating Disc PD Chamber |
| **Register Type** | Straight reading, permanently sealed, magnetic drive with low flow indicator and remote reading capability |
| **Meter Connections** | External straight pipe threads (NPSM) |
| **Materials** | Meter case – Bronze<br>Bolts – Stainless Steel<br>Measuring Element Chamber and Disc - Thermoplastic<br>Disc Pin - SST<br>Strainer - Thermoplastic |
| **Options** | AMR/AMI Reading Systems |

# 420 SERIES BRONZE

## 420 Bronze PD Meter - Sizes 5/8" x 1/2" and 5/8" x 3/4"

## METER REGISTRATION

| METER SIZE | INITIAL DIAL* | CAPACITY | INITIAL DIAL* | CAPACITY |
|---|---|---|---|---|
| 5/8" | 10 Gallons | 10 Million | 1 Cubic Feet | 1 Million |

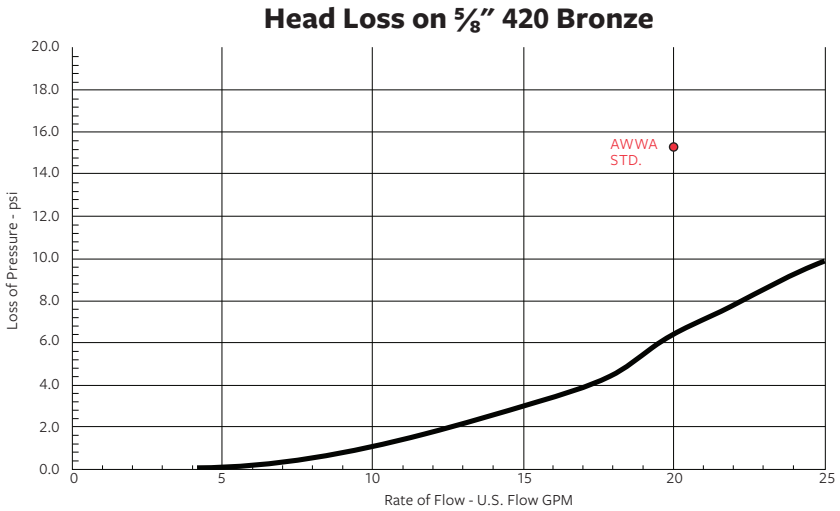
*Registration equal to one full revolution of the sweep hand.

## FLOW CHARACTERISTICS

| METER SIZE | TYPICAL LOW FLOW (95% MINIMUM) | TYPICAL OPERATING RANGE (100% ± 1.5%) | MAXIMUM CONTINUOUS OPERATION |
|---|---|---|---|
| 5/8" | 1/8 GPM | 1/2 to 20 GPM | 15 GPM |

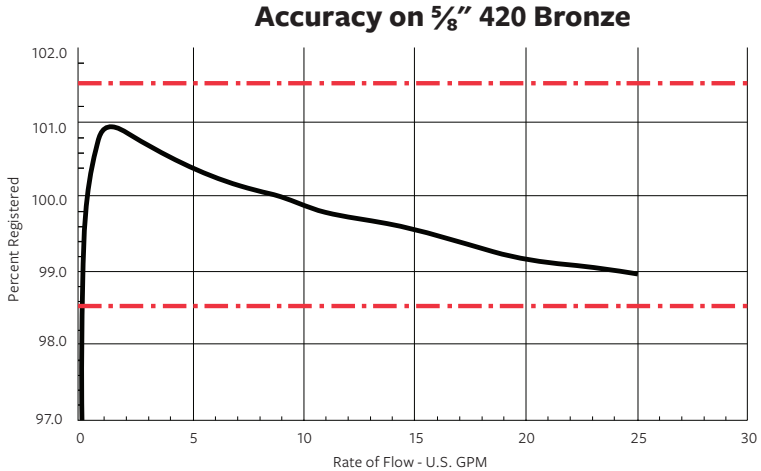
## PERFORMANCE

## HEAD LOSS




NOTE: Performance curves are typical only and NOT a guarantee of performance.

## ACCURACY



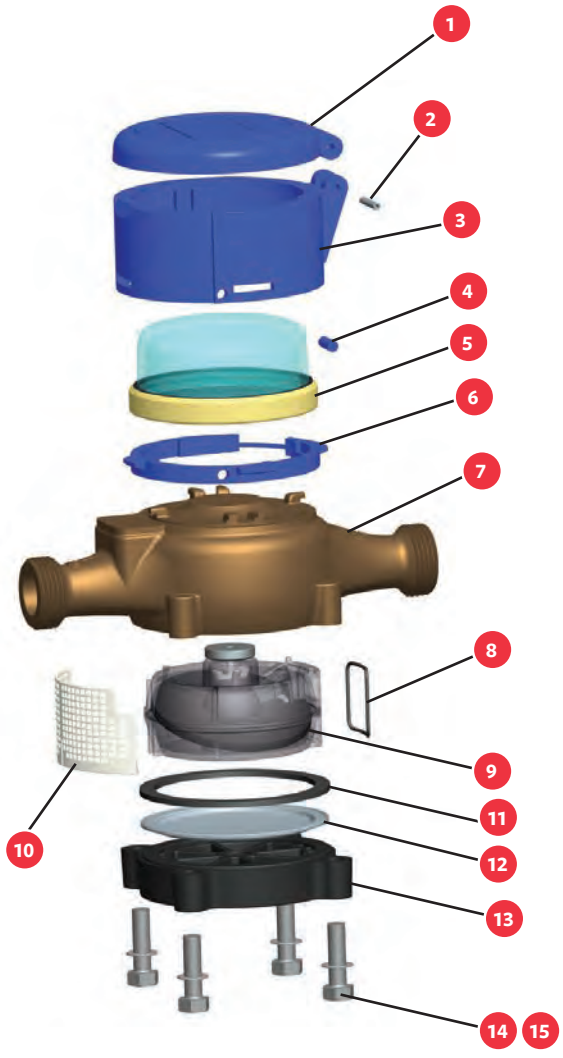

NOTE: Performance curves are typical only and NOT a guarantee of performance.

# 420 SERIES BRONZE

## 420 Bronze PD Meter - Sizes 5/8" x 1/2" and 5/8" x 3/4"

## MODEL 420 BRONZE METER ASSEMBLY COMPONENTS

| ITEM | PART # | DESCRIPTION | QTY |
|---|---|---|---|
| 1 | C5768 | Plastic Register Cover | 1 |
| | C5774 | Bronze Register Cover | |
| 2 | C5769 | Plastic Register Housing Base | 1 |
| | C5772 | Bronze Register Housing Base | |
| 3 | AS41122 | Plastic Lid Spirol Pin | 1 |
| | AS41123 | Bronze Lid Spirol Pin | |
| 4 | AS12658 | Blue Color Register Locking Pin | 1 |
| | AS126581 | Bronze Color Register Locking Pin | |
| 5 | D36981 | Model 420 Visual Register SG | 1 |
| | D36982 | Model 420 Visual Register CF | |
| | D36983 | Model 420 Visual Register CM | |
| 6 | C5770 | Register Housing Insert | 1 |
| 7 | D3680SI | 5/8" x 3/4" Model 420 Main Case | 1 |
| | D3681-1SI | 5/8" x 1/2" Model 420 Main Case | |
| 8 | A13120 | Model 420 Chamber O-Ring | 1 |
| 9 | D3635PO | Model 420 Chamber Assembly | 1 |
| 10 | C6681 | Model 420 Bronze Strainer Retainer | 1 |
| 11 | B8664 | Model 420 Bronze Gasket | 1 |
| 12 | B8665 | Model 420 Liner (Iron / Brz Only) | 1 |
| 13 | B8663 | Model 420 Iron Bottom Plate | 1 |
| | B8662 | Model 420 Bronze Bottom Plate | |
| | C6682 | Model 420 Polymer Bottom Plate | |
| 14 | 90026 | 5/16 - 18 x 7/8" Hex Bolt SS (Iron / Brz Btm) | 4 |
| | 90010 | 5/16 - 18 x 1 1/8" Hex Bolt SS (Plastic Btm) | |
| 15 | 90018 | 5/16 Flat Washer SS (Polymer Btm) | 4 |

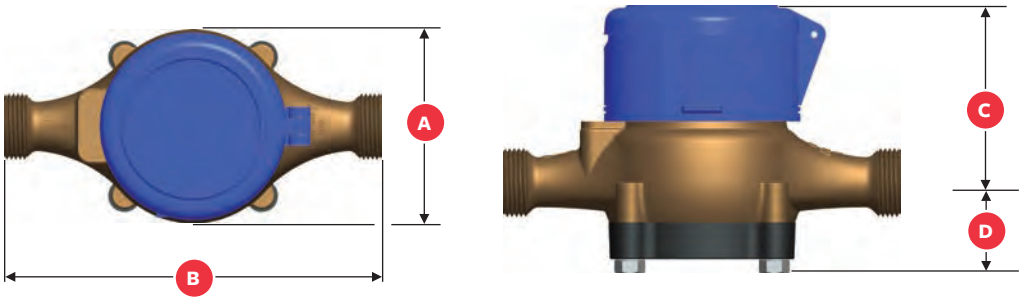


# DIMENSIONS, WEIGHTS AND PARTS

| METER SIZE | | 5/8″ | |
|---|---|---|---|
| MODEL | 420 BRONZE STANDARD REGISTER | 420 BRONZE SSR REGISTER | 420 BRONZE ME-8 REGISTER |
| | DIMENSION | | |
| **A** | 3.8125″ | 3.8125″ | 3.8125″ |
| **B** | 7.5″ | 7.5″ | 7.5″ |
| **C** | 3.3125 | 3″ | 3.5″ |
| **D** | 1.375″ | 1.375″ | 1.375″ |
| **Weight** | 3.7 | 3.7 | 3.7 |

Weights are in pounds are approximate.
Inlet and outlet ½″ or ¾″

# 420 BRONZE METER




***For more information about Mueller or to view our full line of water products, please visit muellersystems.com or call Mueller customer service at 1.800.423.1323.***



F 14206 10/20

# 420 Remote Disconnect*

## Bronze PD Disconnect Meter
## Sizes 5/8" X 3/4" and 5/8" X 1/2

*Pat. www.mwppat.com



## Features

**APPLICATIONS:** The **Hersey®** RDM is a nutating disk, positive displacement meter that incorporates a radio controlled valve in a 7-1/2" laying length. The unique meter design allows utilities to retrofit 5/8" RDM meters in existing services where there is a high incidence of customer service call volume pertaining to transient or delinquent accounts, where employee safety may be a concern, or where it is difficult to gain access to meters. By accessing the account information through the **Mi.Net™** AMI System User Interface screen, a radio frequency (RF) command can be initiated to turn on or off any service equipped with an RDM meter from any password protected computer authorized to access the utility site.

**CONFORMANCE TO STANDARDS:** All 5/8" X 3/4" **Hersey** Remote Disconnect Meters meet or exceed the latest revision of the AWWA C-700 Standard for positive displacement meters. Every 420 RDM no lead meter is compliant with the latest initiatives of NSF, ANSI and EPA standards. All electronic components utilized in the meter and RF transceiver design comply with applicable FCC, Part 15 standards and AWWA Standard C-707 for Encoded Remote Reading Systems.

**CONSTRUCTION: Hersey** 420 Residential Disconnect Meters consist of five basic parts: maincase; measuring chamber; permanently sealed register; pilot valve; and RF transceiver. The maincase is made of no lead bronze for long life. Direction of flow arrows, model, and NSF-61 designation are permanently cast into the body components. The RDM is available with a plastic bottom cover only. The measuring chambers are designed for reduced wear during operation. The top and bottom of the measuring chamber, strainer, nutating disc and thrust roller are dimensionally stable thermoplastic which will not corrode. The electronic register housing and lid, Mi.Node and pilot valve housing are all made from thermoplastic. The meter is designed so that the register and pilot valve replacement components can be serviced easily without removing the meter from the line and are protected by **Hersey**'s unique tamper resistent locking pin and tamper resistent screw.

**REGISTER:** The permanently sealed electronic register has a unique triple "L" seal and Grilimid lens to eliminate dirt, moisture infiltration and fogging. An integral tamper-proof locking feature is provided to resist tampering with the register. The totalizing register has a straight-reading odometer type display, a 360º test circle with center sweep hand and a low flow (leak) detector. Standard gearing is used, making registers interchangeable by size. The RDM is available with an integral or a remote mounted RF transceiver for optimal performance.

**OPERATION:** Water flows through dual strainers in the pilot valve assembly. Differential pressure provides the operating principal for the valve activation. Water flows through the meter's strainer where debris is screened out. The incoming water fills a known volume of the measuring chamber on one or the other side of a movable disc that separates the chamber into two sections. As water enters, it moves the disc (nutates), forcing a known volume of water out of the meter from the opposite side of the disc. The process repeats as the sections refill and empty in turn. The nutating action of the disc is coupled magnetically to the register to indicate the volume of water that passes through the meter.

The pilot valve can be actuated via the User Interface from any web enabled device with the proper log in and password. System screens indicate the position of the valve (open or closed) and record the date and time for all valve activations providing a permanent record of each account's history.

**5/8" x 3/4" Remote Disconnect Meter**

**MAINTENANCE:** The **Hersey** RDM meter is designed and manufactured to provide long service life with virtually no maintenance required. Repair components available include complete chamber assemblies and pilot valve repair kits when required. All components can be accessed without removing the meter from the service line for simplified maintenance.

**CONNECTIONS:** Supplied with external straight pipe threads (NPSM) per ANSI B1.20.1

## Materials and Specifications

| | |
|---|---|
| MODEL | (RDM) or Remote Disconnect Meter |
| SIZES | 5/8" X ½", 5/8" X ¾" |
| STANDARDS | AWWA C-700, Current NSF-61, ANSI, & EPA Initiatives |
| SERVICE | Measurement of flow in forward direction only |
| INSTALLATION | Horizontal |
| OPERATING FLOW RANGE | See Charts on the following pages |
| ACCURACY | See Charts on the following pages |
| MAXIMUM WORKING PRESSURE | 150 PSI |
| TEMPERATURE RANGE | 33º F to 100º F water temperature |
| MEASURING ELEMENT | Nutating Disc PD Chamber |
| WIRE LENGTH OPTIONS | INTEGRAL, 3', 15' |
| REGISTER TYPE | Straight reading, permanently sealed, magnetic drive with low flow indicator and remote reading capability |
| BATTERY LIFE | 20 Years |
| METER CONNECTIONS | External straight pipe threads (NPSM) |
| MATERIALS | Meter case – Bronze<br>Disconnect Valve – Pilot Type<br>Bolts – Stainless Steel<br>Measuring Element Chamber and Disc - Thermoplastic<br>Disc Pin - SST<br>Strainer - Thermoplastic |

# 420 Remote Disconnect*

Bronze PD Disconnect Meter
Sizes 5/8" X 3/4" and 5/8" X 1/2

*Pat. www.mwppat.com



## Meter Registration

| Meter Size | Initial Dial* | Capacity | Initial Dial* | Capacity |
|---|---|---|---|---|
| 5/8" | 10 Gallons | 10 Million | 1 Cubic Ft. | 1 Million |

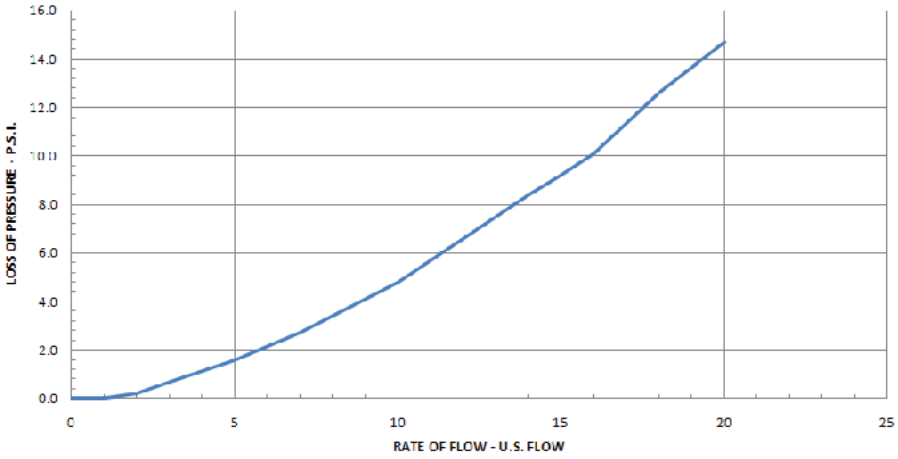
*Registration equal to one full revolution of the sweep hand.

## Flow Characteristics

| Meter Size | Typical Low Flow (95% Minimum | Typical Operating Range (100% ± 1.5%) | Maximum Continuous Operation |
|---|---|---|---|
| 5/8" | 1/8 GPM | 1/2 to 20 GPM | 15 GPM |

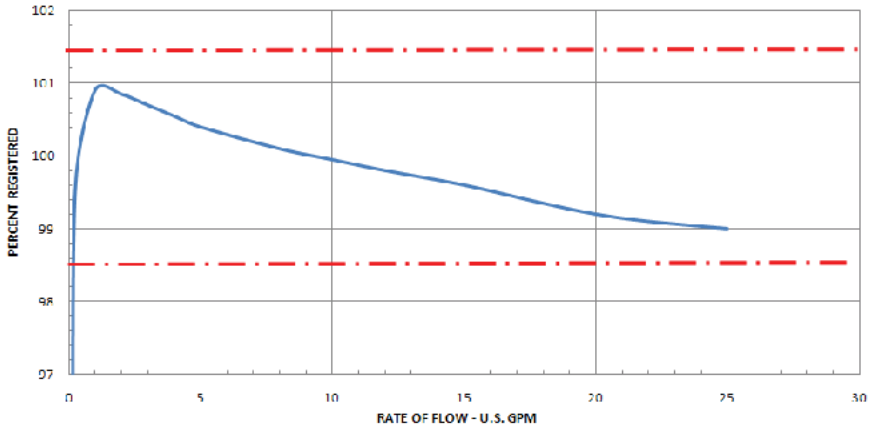
## Performance

### Head loss




NOTE: Performance curves are typical only and NOT a guarantee of performance.

### Accuracy




NOTE: Performance curves are typical only and NOT a guarantee of performance.

# 420 Remote Disconnect*

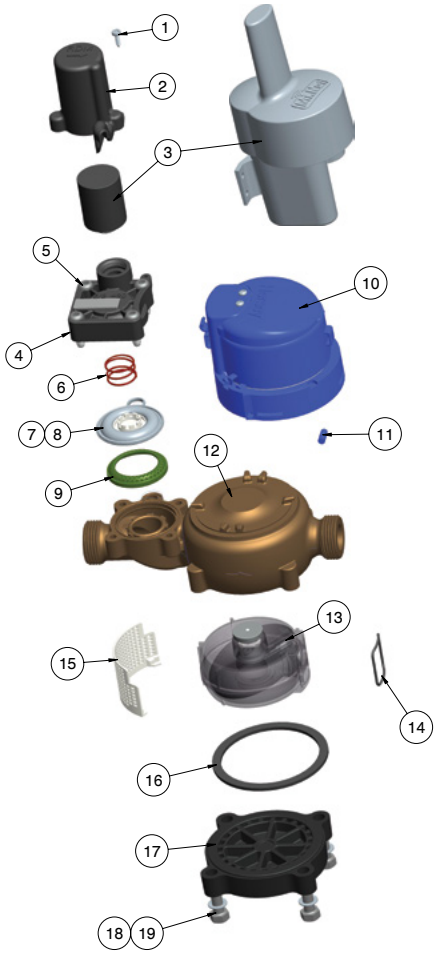
## Bronze PD Disconnect Meter

## Sizes 5/8" X 3/4" and 5/8" X 1/2

*Pat. www.mwppat.com



| MODEL 420 RDM BRONZE METER ASSEMBLY COMPONENTS | | | |
|---|---|---|---|
| ITEM | PART # | DESCRIPTION | QTY |
| 1 | BKPLTSCREW | #6 X 1/2" SELF TAPPING TRI-WING HEAD SS | 1 |
| 2 | C6680 | SOLENOID TAMPER COVER | 1 |
| 3 | MSW-RDM-XX | Mi.NODE RADIO WITH SOLENOID | 1 |
| 4 | C6679A | MODEL 420 RDM VALVE COVER WITH ORIFICE | 1 |
| 5 | 98411 | 1/4-20 X 1" BHCS SS | 4 |
| 6 | A13099 | MODEL 420 RDM VALVE SPRING SS | 1 |
| 7 | B8676 | MODEL 420 RDM DIAPHRAGM ASSEMBLY | 1 |
| 8 | B8676KIT | DIAPHRAGM REPLACEMENT KIT **(PARTS 6,7, & 9)** | - |
| 9 | B8684 | MODEL 420 RDM SUPPORT RING | 1 |
| 10 | **D36991XX** | MODEL 420 TRANSLATOR REGISTER SG | 1 |
| | **D36992XX** | MODEL 420 TRANSLATOR REGISTER CF | |
| | **D36993XX** | MODEL 420 TRANSLATOR REGISTER CM | |
| 11 | A12658 | REGISTER LOCKING PIN | 1 |
| 12 | D3688SI | 5/8" X 3/4" MODEL 420 RDM MAIN CASE | 1 |
| | **D2688-1SI** | 5/8" X 1/2" MODEL 420 RDM MAIN CASE | |
| 13 | **D3635PO** | MODEL 420 CHAMBER ASSEMBLY | 1 |
| 14 | **A13120** | MODEL 420 CHAMBER O-RING | 1 |
| 15 | C6681 | MODEL 420 BRONZE STRAINER RETAINER | 1 |
| 16 | B8664 | MODEL 420 BRONZE GASKET | 1 |
| 17 | C6682 | MODEL 420 PLASTIC BOTTOM PLATE | 1 |
| 18 | 90010 | 5/16-18 x 1-1/8" HEX BOLT SS | 4 |
| 19 | 90018 | 5/16 FLAT WASHER SS | 4 |



# 420 Remote Disconnect *

Bronze PD Disconnect Meter
Sizes 5/8" X 3/4" and 5/8" X 1/2

*Pat. www.mwppat.com

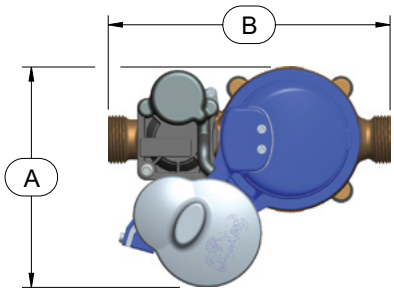


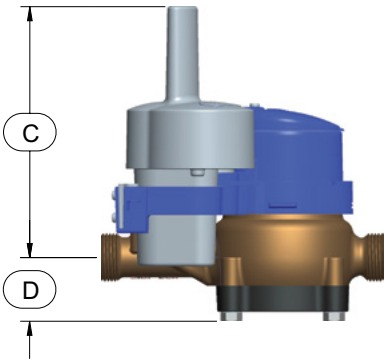
## Dimensions, Weights and Parts

| Meter Size | 5/8" | |
|---|---|---|
| Model | RDM INTEGRAL | RDM REMOTE |
| Dimension | | |
| A | 5.875" | 3.875" |
| B | 7.5" | 7.5" |
| C | 6.6875" | 4.1875" |
| D | 1.6875" | 1.6875" |
| Weight | 5.0 | 5.0 |

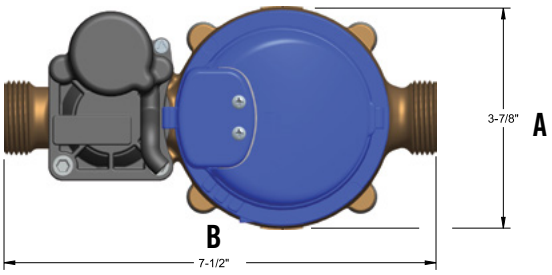
Weights are in pounds and are approximate.
Inlet and outlet 1/2" or 3/4"

### 420 RDM with Integral Mi.Node

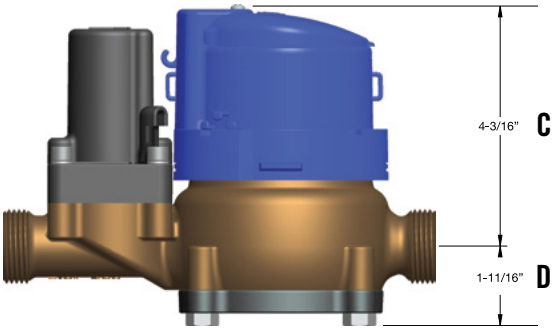



### 420 RDM with Remote Mi.Node




APPROXIMATE WEIGHT: 5 LBS.



MUELLER

# 452 SERIES

## Magnetic Drive Positive Displacement Disc Meters Size 1”

## FEATURES

**Applications:** Measurement of cold water for residential and small commercial applications where water volumes are low, and low flow sensitivity is important.

**Conformance to Standards:** Mueller 452 water meter complies with latest version of ANSI/AWWA Standard C700, NSF-61 372 and the Safe Water Drinking Act. Each meter is tested to ensure compliance.

**Construction:** Mueller 452 water meter consists of three basic parts: main case; measuring chamber; and permanently sealed register. The main case is made of bronze for long life. Direction of flow arrows and model are cast into each main case. The bottom cover is epoxy-coated cast iron with a molded plastic liner separating it from the waterway. Optional bronze bottom covers are available. The measuring chambers are large for reduced wear during operation. The measuring chamber, integral strainer, nutating disc are thermoplastic, which is dimensionally stable and will not corrode. The stainless steel thrust roller moves smoothly along a stainless steel wear plate to reduce friction and maintain accuracy. The register box and lid are available in plastic or bronze. The meter is designed so that the register can be replaced without removing the meter from the line.

**Register:** The permanently sealed register has a unique seal and heat-treated glass to eliminate dirt, moisture infiltration and lens fogging. An integral tamper-proof locking feature is provided to resist tampering with the register. The totalizing register has a straight-reading odometer type display, a 360º test circle with center sweep hand and a low flow (leak) detector or the option of a solid state LCD display. Standard gearing is used, making registers interchangeable by size. All Mueller meter Models have electronic meter reading systems available for increased reading efficiency (see Meter Reading Systems.)

**Operation:** Water flows through the meter’s strainer where debris is screened out. The incoming water fills a known volume of the measuring chamber on one or the other side of a movable disc that separates the chamber into two sections. As water enters, it moves the disc (nutates), forcing a known volume of water out of the meter from the opposite side of the disc. The process repeats as the sections refill and empty in turn. The nutating action of the disc is coupled magnetically to the register to indicate the volume of water that passes through the meter. The large capacity measuring chamber requires fewer nutations of the disc for each gallon measured, which helps to limit wear, extend the life of the meter, and reduce pressure loss.

**Maintenance:** The Mueller 452 water meter is designed and manufactured to provide long service life with virtually no maintenance required.

**Connections:** Supplied with external straight pipe threads (NPSM) per ANSI B1.20.1.


452 WITH SSR REGISTER

## MATERIALS AND SPECIFICATIONS

| | |
|---|---|
| **Model** | 452 |
| **Sizes** | 1″ x 1″ |
| **Standards** | Manufactured and tested to meet or exceed all applicable parts of ANSI/AWWA C700 Standard NSF-61 372 and the Safe Water Drinking Act |
| **Service** | Cold water measurement with flow in only one direction |
| **Operating Flow Range** | See chart on the following page |
| **Accuracy** | See chart on the following page |
| **Pressure Loss** | See chart on the following page |
| **Maximum Working Pressure** | 150 PSI |
| **Temperature Range** | 33º F to 100º F water temperature |
| **Measuring Element** | Nutating Disc |
| **Register Type** | Straight reading, permanently sealed, magnetic drive with low flow indicator. Remote reading units optional. |
| **Meter Connections** | 1″ external (NPSM) straight pipe threads per ANSI B1.20.1 |
| **Materials** | Meter case – No Lead Bronze; Bottom cover – cast iron ASTM A126 CL. B; Chamber top/ bottom – thermoplastic; Nutating disc – thermoplastic; Disc pin – stainless steel; Thrust roller – stainless steel; Wear plate – stainless steel; Coupling – Ceramic magnet; Strainer – thermoplastic; Coupling shaft – stainless steel ANSI B18; Top cover bolts – stainless steel ANSI B18; Bottom cover bolts – stainless steel ANSI B18; Register box and lid – thermoplastic. |
| **Options** | Bottom cover – bronze UNSC84400 ; Register box and lid – bronze UNSC85700; AMR/AMI Reading Systems |

# 452 SERIES

## Magnetic Drive Positive Displacement Disc Meters Size 1”

## METER REGISTRATION

| METER SIZE | INITIAL DIAL* | CAPACITY | INITIAL DIAL* | CAPACITY |
|---|---|---|---|---|
| 1″ | 10 Gallons | 10 Million | 1 Cubic Feet | 1 Million |

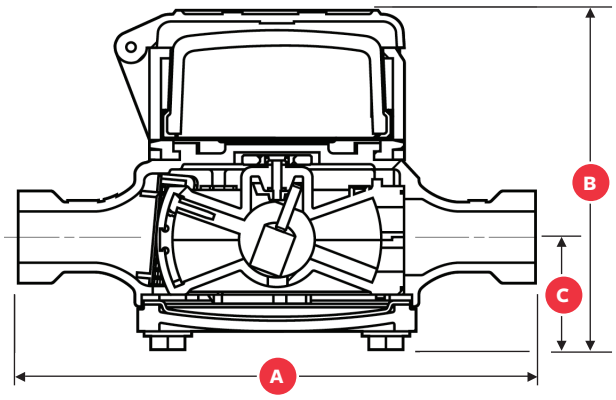
*Registration equal to one full revolution of the sweep hand.

## FLOW CHARACTERISTICS

| METER SIZE | TYPICAL LOW FLOW (95% MINIMUM) | TYPICAL OPERATING RANGE (100% ± 1.5%) | MAXIMUM CONTINUOUS OPERATION |
|---|---|---|---|
| 1″ | ¾ GPM | 2 to 20 GPM | 35 GPM |

**Note:** Performance curves are typical only and NOT a guarantee of performance.

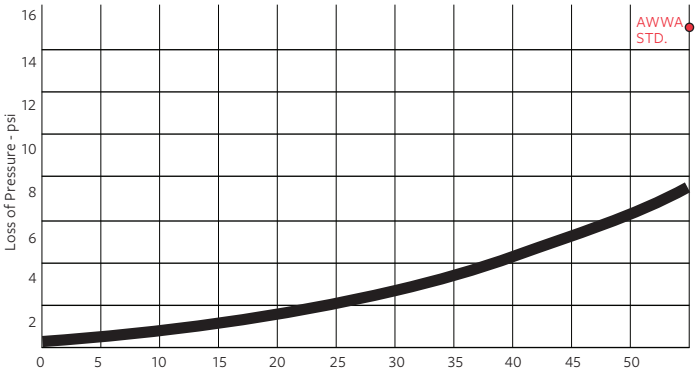
## DIMENSIONS AND WEIGHTS




| METER SIZE | 1″ |
|---|---|
| | ENDS EXTERNAL (NPSM) STRAIGHT PIPE THREADS |
| MODEL | 452 |
| DIMENSIONS | |
| A | 10 ¾″ |
| B Visual Reg | 5 ½″ |
| B SSR Reg | 5 ¼″ |
| B ME-8 Reg | 5 ¾″ |
| C | 2 ⅛″ |
| Width | 7.22″ |
| Inlet & Outlet | 1″ |
| Net Weight | 11 |

## PERFORMANCE

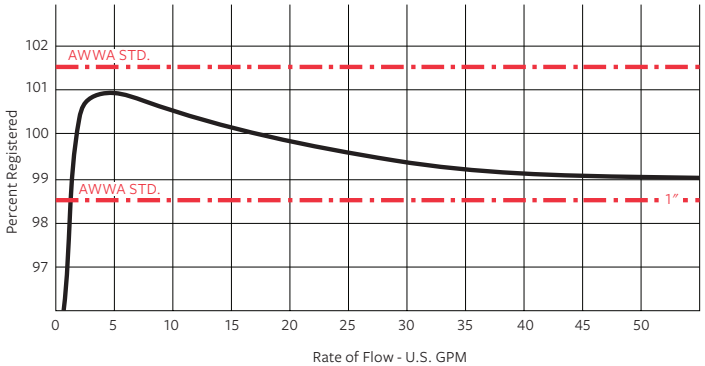
### HEAD LOSS - 1” (FIGURE 1)




Rate of Flow - U.S. Flow GPM

NOTE: Performance curves are typical only and NOT a guarantee of performance.

### ACCURACY - 1” (FIGURE 2)




Rate of Flow - U.S. GPM

# 452 SERIES

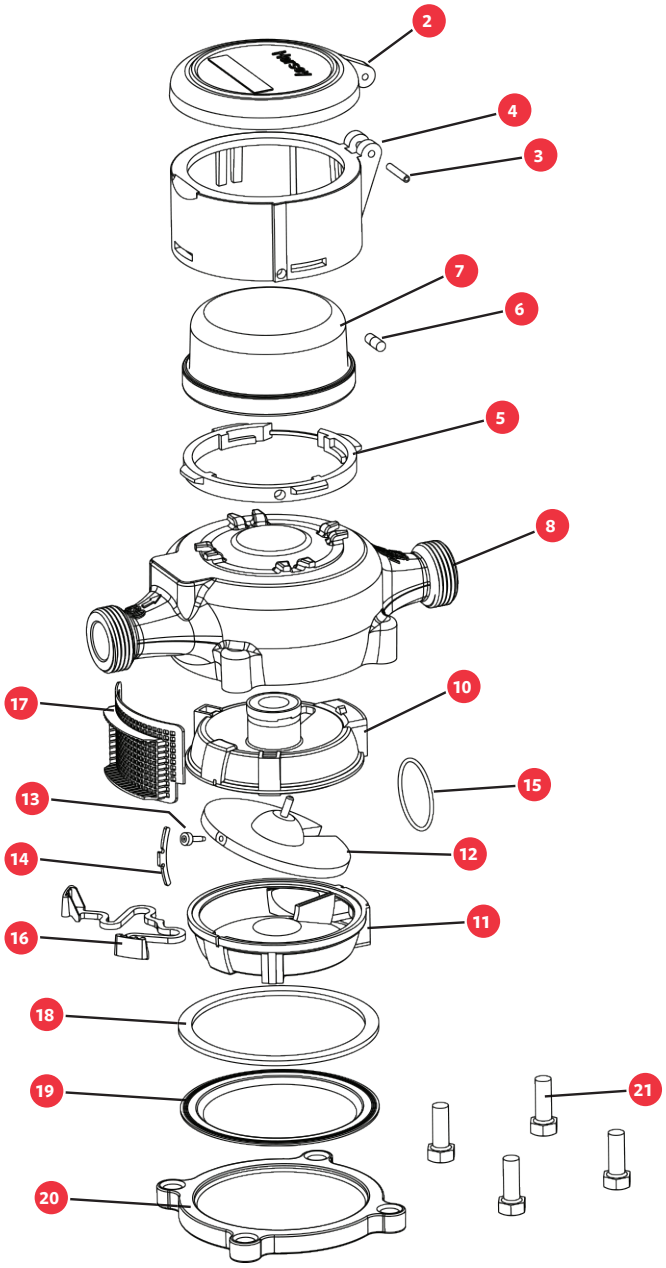
## Magnetic Drive Positive Displacement Disc Meters Size 1" Parts

| REF NO. | DESCRIPTION | MATERIAL | 1" MODEL 452 |
|---|---|---|---|
| 1 | Complete Register Housing Assembly Includes the following: | Plastic | B7856 |
| | | Bronze | B7857 |
| 2 | Register Cover | Plastic | C5768 |
| 3 | Spirol Pin | Plastic | AS41122 |
| | Spirol Pin | Bronze | AS41123 |
| 4 | Register Housing Base | Plastic | C5769 |
| 5 | Register Housing Insert | Plastic | C5770 |
| 6 | Register Locking Pin | Blue Color Plastic | A12658 |
| | Register Locking Pin | Brass Color Plastic | A126581 |
| 7 | Visual Register USG | Glass/Brass | D32565 |
| | Visual Register CF | Glass/Brass | D32566 |
| | Encoder Register USG* | Plastic/Brass | Call CS |
| | Encoder Register CF* | Plastic/Brass | Call CS |
| 8 | 1" Main Case 2006 and after | No Lead Bronze | D3589SI |
| 9 | Complete Chamer Assembly Includes following parts 10-16 | Plastic | C5692PO |
| 10 | Top Chamber Assembly | Plastic** | - |
| 11 | Bottom Chamber Assembly | Plastic** | - |
| 12 | Disc Assembly | Plastic/SST** | - |
| 13 | Thrust Roller | SST | |
| 14 | Wear Plate | SST | |
| 15 | Outlet Seal | Rubber | A130203 |
| 16 | Chamber Retainer | Plastic | C5466 |
| 17 | Strainer | Plastic | 51026P045 |
| 18 | Gasket | Rubber | C5489 |
| 19 | Liner | Plastic | C5506 |
| 20 | Bottom Cover 2006 and after | Cast Iron | B8623 |
| | Bottom Cover 2006 and after | Bronze | B8624 |
| 21 | Case Bolt 2006 and after | SST | 90010 (6) |

*Call Mueller Customer Service for appropriate Translator Register and AMR Device part number.
**Available only as part of item 9 – Complete Chamber Assembly.
**NOTE:** If more than one part is required per assembly, quantity is noted after part number (in parenthesis). The different top and bottom case requirements for the various flange configurations. Bolt quantities and sizes vary.

# 452 SERIES

## Magnetic Drive Positive Displacement Disc Meters Model 452

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MUELLER

# 500 SERIES D

## Magnetic Drive Positive Displacement Disc Meters Sizes 1 ½" & 2"

## FEATURES

**Applications:** Measurement of cold water for residential, commercial and industrial applications where water volumes are low, and low flow sensitivity is important.

**Conformance to Standards:** Mueller Series 500 D Water Meters comply with ANSI / AWWA Standard C700. Meters which are manufactured with the Nylon coated ductile iron maincase option meet the requirements of NSF Standard 61, Annex 372.
The meters provide a no lead solution. Each meter is tested to ensure compliance.

**Construction:** Mueller Series 500 D Water Meters consist of three basic parts: maincase; measuring chamber; and permanently sealed register. The maincase and topcase are made of Nylon coated ductile iron. The measuring chamber, nutating disc and strainer are made of thermoplastic, which is dimensionally stable and will not corrode. A test port in the body permits in-line testing. Register box and lid are available in plastic or bronze.

The meter is designed so that the register, measuring chamber and strainer can be replaced without removing the meter from the line.

**Register:** The permanently sealed register has a unique seal and heat-treated glass to eliminate dirt, moisture infiltration and lens fogging. An integral tamper-proof locking feature is provided to resist tampering with the register. The totalizing register has a straight-reading odometer type display, a 360º test circle with center sweep hand and a low flow (leak) detector. Standard gearing is used, making registers interchangeable by size.

All Mueller Meter Models have electronic meter reading systems available for increased reading efficiency (see Meter Reading Systems.)

**Operation:** Water flows through the meter's strainer where any debris that could adversely affect meter accuracy or free operation is screened out. As the water enters, it fills a known volume of the measuring chamber on one or the other side of a movable disc that separates the chamber into two sections. As water enters it moves the disc (nutates), forcing a known volume of water out of the meter from the opposite side of the disc.
The process repeats as the sections refill and empty in turn. The nutating action of the disc is coupled magnetically to the register to indicate the volume of water that passes through the meter. The large measuring chamber requires fewer nutations of the disc for each gallon measured, which helps to limit wear, reduce pressure loss and extend the life of the meter.

**Maintenance:** The Mueller Series 500 D Water Meters are designed and manufactured to provide long service life with virtually no maintenance required.

**Connections:** Available with integral two-bolt oval flanges.


572 D METER

## MATERIALS AND SPECIFICATIONS

| | |
|---|---|
| **Model Number** | 562 D and 572 D |
| **Sizes** | 1 ½" and 2" |
| **Standards** | Manufactured and tested to meet or exceed all applicable parts of ANSI / AWWA C700 Standard. Nylon coated ductile iron options meet requirements of NSF Standard 61, Annex G. |
| **Operating Flow Range** | Cold water measurement with flow in only one direction |
| **Accuracy** | See chart on following page |
| **Pressure Loss** | See chart on following page |
| **Maximum Working Pressure** | See chart on following page |
| **Temperature Range** | 150 psi |
| **Measuring Element** | 33ºF to 100ºF water temperature |
| **Disc Nutations (Per Gallon)** | Nutating disc |
| **Register Type** | 562 D: 6.47, 572 D: 3.92 |
| **Meter Connections** | Straight reading, permanently sealed, magnetic drive with low flow indicator. Remote reading units optional. |
| **Materials** | Maincase – Nylon coated ductile iron; Measuring Chamber – Thermoplastic; Magnets – ceramic; Strainer – Thermoplastic; Casing bolts – stainless steel ANSI B18; Register box and lid – thermoplastic. |
| **Options** | Meter case – Nylon coated ductile iron Register box and lid – bronze UNSC85700; AMR / AMI Reading Systems. |

# 500 SERIES D

## Magnetic Drive Positive Displacement Disc Meters Sizes 1 ½" & 2"

## METER REGISTRATION

| METER SIZE | INITIAL DIAL* | CAPACITY | INITIAL DIAL* | CAPACITY |
|---|---|---|---|---|
| 1 ½" | 100 Gallons | 100 Million | 10 Cubic Feet | 10 Million |
| 2" | 100 Gallons | 100 Million | 10 Cubic Feet | 10 Million |

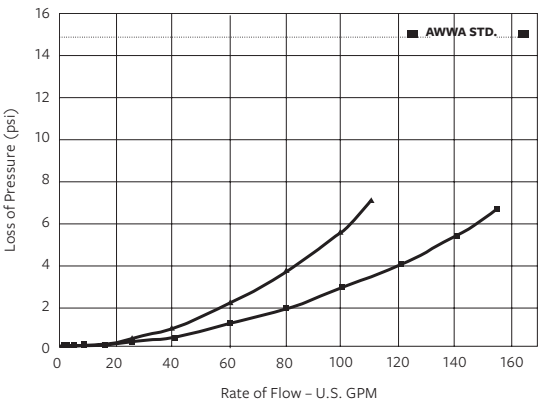
*Registration equal to one full revolution of the sweep hand.

## FLOW CHARACTERISTICS

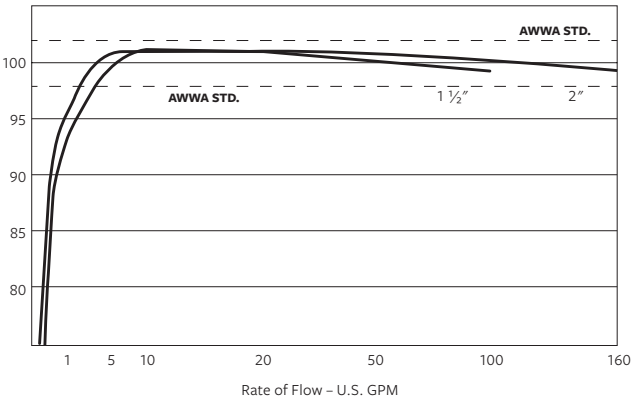
| METER SIZE | TYPICAL LOW FLOW (95% MINIMUM) | TYPICAL OPERATING RANGE (100% ± 1.5%) | MAXIMUM CONTINUOUS OPERATION |
|---|---|---|---|
| 1 ½" | 1 ½ GPM | 5 to 100 GPM | 50 |
| 2" | 2 GPM | 8 to 160 GPM | 80 |

## PERFORMANCE

**Head Loss - 1 ½" and 2"** (Figure 1)

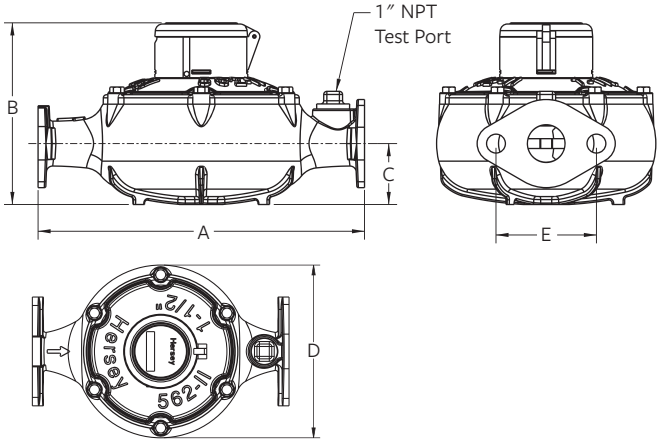



**ACCURACY – 1 ½" AND 2"** (Figure 2)




**Note:** Performance curves are typical only and NOT a guarantee of performance.

## DIMENSIONS AND WEIGHTS

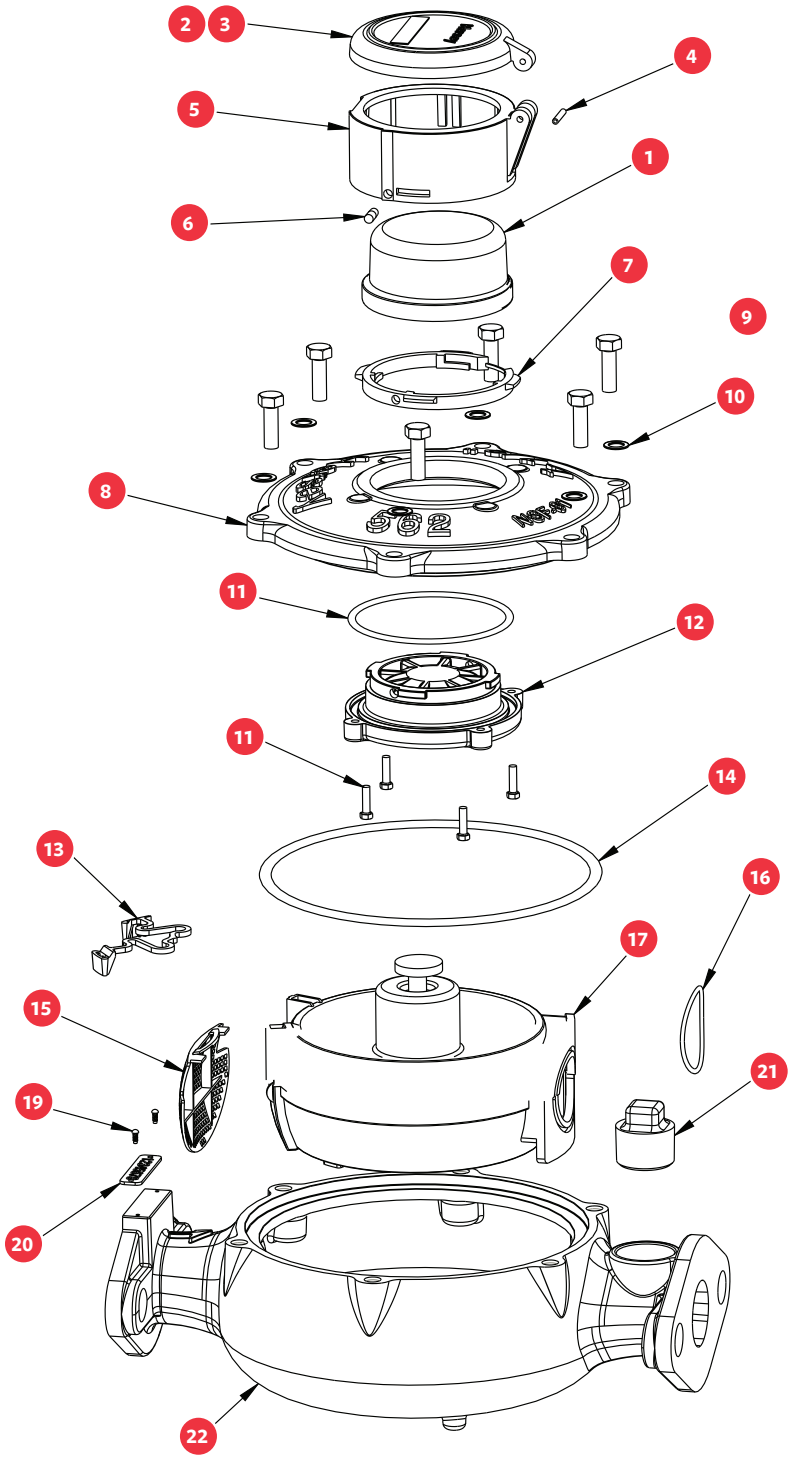



| METER SIZE | 1 ½" | 2" |
|---|---|---|
| ENDS | FLANGED | |
| MODEL | 562 D | 572 D |
| DIMENSION | | |
| **A** | 13" | 17" |
| **B** | | |
| **Visual Registration** | 7.250" | 8.125" |
| **SSR Registration** | 7" | 7" |
| **ME-Registration** | 7.750" | 7.750" |
| **C** | 2.437" | 3.00" |
| **D** | 8.750" | 10.437" |
| **E** | 4.00" | 4.50" |
| **Net weight** | 18 | 28 |

**Note:** Meter couplings are optional and must be ordered separately. Weights are in pounds and are approximate.

# 500 SERIES D

## Magnetic Drive Positive Displacement Disc Meters Sizes 1 ½" & 2"



# 500 SERIES D

## Magnetic Drive Positive Displacement Disc Meters Sizes 1 ½" & 2" Parts

| REF NO. | DESCRIPTION | MATERIAL | 562 1 ½" MODEL | 572 2" MODEL |
|---|---|---|---|---|
| 1 | Visual Register | US Gallons Glass / Brass | D357715 | D358115 |
| | | CF Glass / Brass | D357725 | D358125 |
| | Translator Register | US Gallons Plastic / Brass | D35791xxx | D35831xxx |
| | | CF Plastic / Brass | D35792xxx | D35832xxx |
| | Specify Electronic Reading Value 4, 5, or 6 Wheel | | | |
| 2 | Complete Register Housing Assembly Includes parts 3-7 | Plastic | B7856 | B7856 |
| | | Bronze | B7857 | B7857 |
| 3 | Register Cover | Plastic | C5768 | C5768 |
| | | Bronze | C5774 | C5774 |
| 4 | Spirol Pin | Plastic cover: SST | AS41122 | AS41122 |
| | | Bronze Cover: SST | AS41123 | AS41123 |
| 5 | Register Housing Base | Plastic | C5769 | C5769 |
| | | Bronze | C5772 | C5772 |
| 6 | Register Locking Pin | Blue Colored Plastic | A12658 | A12658 |
| | | Brass Colored Plastic | A126581 | A126581 |
| 7 | Register Housing Insert | Plastic | C5770 | C5770 |
| 8 | Top Case | Nylon Coated Ductile Iron | D3642C | D3646C |
| 9 | Case Bolts | SST | 90026 (qty 6) | 90010 (qty 8) |
| 10 | Washers | SST | 90018 (Qty 6) | 90018 (Qty 8) |
| 11 | Register Hub O-Ring | Rubber | 98313 | 98313 |
| 12 | Register Hub | Plastic | C6631 | C6631 |
| 13 | Socket Head Cap Screws | SST | 98157 (Qty 4) | 98157 (Qty 4) |
| 14 | O-Ring Case Seal | Rubber | 98314 | 98315 |
| 15 | Chamber Retainer | Plastic | C5466 | C5466 |
| 16 | O-Ring Chamber Seal | Rubber | A130204 | A130205 |
| 17 | Complete Chamber Assembly Includes parts 14, 15, 16 | | D3575 | D3576 |
| 18 | Strainer | Plastic | C6576 | C6577 |
| 19 | Type U Drive Screw | Plated | 98158 (Qty 2) | 98158 (Qty 2) |
| 20 | Serial Number ID Plate | | A13070 | A13070 |
| 21 | Test Plug | SST | 59013 | 59013 |
| 22 | Bottom Case | Nylon Coated Ductile Iron | D3644C | D3648C |

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MI.NET®

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# MI.NET® NODE

## Mi.Node LW Meter Interface Unit

## FEATURES

**Two Way Communications:** The Mueller Systems Mi.Node LW (LoRaWAN) meter interface unit provides a direct connection to all Mueller water meters equipped with an encoder register. The primary function of the Mi.Node is to provide full, two way communications between the LoRaWAN Network Provider and the smart meter.

**System Components:** Information retrieved from a water meter is stored temporarily within the Mi.Node unit's internal memory. As a default, the Mi.Node will transmit hourly meter data at a predetermined time once per day to network. On demand reads to the Mi.Node can been requested at any point in time and are typically delivered within seconds. This data is sent to a LoRa Gateway via an unlicensed radio frequency and then relayed to the Mi.Net host server for analysis and storage. Designed to provide features specifically needed to support low cost, secure bi-directional communications for IoT, including Smart City applications.

**Construction:** The Mi.Node unit incorporates multiple moisture barriers to eliminate concerns over moisture intrusion even in meter box environments. An o-ring sealed thermoplastic enclosure, coated electronic board and potting compound provide a watertight package that permits Mueller Systems to offer a 20 year warranty on the Mi.Node unit. A large lithium ion battery provides plenty of power over the life of the unit.

**Scalable and Upgradable:** The Mi.Node's functionality can be upgraded remotely. A firmware upgrade allows the Mi.Node to be upgraded autonomously. All system Mi.Node units can be scheduled for an upgrade at one time and the system will notify the user when the process is complete.

The Mi.Node seamlessly connects directly to the Mueller Remote Disconnect (RDM) meter for easy but secure actuation of the valve through the user interface.


## MATERIALS AND SPECIFICATIONS

| |
|---|
| Class B LoRaWAN compatible for fast response times, on-demand reads in seconds, not hours |
| Interfaces with water meters that output a protocol similar to the Mueller Systems Solid State Register |
| Logs and stores meter data in internal memory |
| RF antenna contained inside Mi.Node unit enclosure |
| FCC compliant |
| Mi.Node wire lengths To Mueller register 5′, 25′ |
| Power Output: 1W |
| Power Source″ D Cell Lithium Battery |
| Transmit Frequency 902 MHz – 928 MHz |
| Data Integrity Verified with every data message |
| Temperature Range: -40°F to + 158°F (-40°C to + 70°C) |
| Humidity: 0% - 100% condensing |
| Dimensions 6 ⅝″ high x 2 ¹⁵⁄₁₆″ wide x 3 ⅜″ deep |
| Automatically detects encoder meter type connected |
| No external power supply required for operation |
| Notifies the system of low battery level for preemptive maintenance |
| Tamper and leak notification |

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MUELLER

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| Automated Meter Reading (AMR) / Advanced Metering Infrastructure (AMI) Products | | |
|---|---|---|
| **Product** | **Description** | **Warranty Period** |
| AMR / AMI Software | These items of Software will perform in accordance with Mueller's published specifications for the duration of the Warranty Period. | One (1) year from date of shipment to Purchaser. |
| AMR / AMI Hardware –<br>unless otherwise expressly specified herein | During the Warranty Period, these Products will be free from defects in materials and workmanship. | One (1) year from date of shipment to Purchaser. |
| AMR / AMI Radio Modules –<br>AMI water module endpoints and AMR water module endpoints | During the Warranty Period, these Products will be free from defects in materials and workmanship. | Ten (10) years from date of shipment to Purchaser.<br>Additionally, the unit is covered by a prorated warranty for years eleven (11) through fifteen (15) at a fifty-percent (50%) discount, and years sixteen (16) through twenty (20) at a twenty-five-percent (25%) discount from the date of shipment to Purchaser. All discounts will be calculated on the then current published price of the original product. All prorated warranty discounts are to be used towards the purchase of replacement units. |
| Encoder Register Products, Wall Pads and Pit Pads. | During the Warranty Period, these Products will be free from defects in materials and workmanship. | Ten (10) years from date of shipment to Purchaser.<br>Additionally, the unit is covered by a prorated warranty for years eleven (11) through fifteen (15) at a fifty-percent (50%) discount, and years sixteen (16) through twenty (20) at a twenty-five-percent (25%) discount from the date of shipment to Purchaser. All discounts will be calculated on the then current published price of the original product. All prorated warranty discounts are to be used towards the purchase of replacement units. |
| **Water Metering Products** | | |
| **Product** | **Description** | **Warranty Period** |
| All Meter Products not otherwise specified herein | During the Warranty Period, these Products will be free from defects in materials and workmanship. | One (1) year from date of shipment to Purchaser. |
| Remote Disconnect Meters (RDM) valve and solenoid assembly | During the Warranty Period, these Products will be free from defects in materials and workmanship. | Five (5) year warranty or two-thousand (2,000) actuations of the valve, whichever comes first, from the date of shipment to Purchaser. |
| Bronze Maincases | During the Warranty Period, these Products will be free from defects in materials and workmanship. | Twenty-Five (25) years from date of shipment to Purchaser. |
| Composite Maincases | During the Warranty Period, these Products will be free from defects in materials and workmanship. | Fifteen (15) years from date of shipment to Purchaser. |
| Standard registers for the above listed mechanical meters | During the Warranty Period, these Products will be free from defects in materials and workmanship. | Ten (10) years from date of shipment to Purchaser. |
| Models 400 and 500 Series Meters | AWWA[1] New Meter Accuracy | 5/8" – Five (5) years from the date of shipment to Purchaser or the registration of 500,000 U.S. gallons, whichever comes first;<br>3/4" – Five (5) years from the date of shipment to Purchaser or the |

| | | |
|---|---|---|
| | | registration of 750,000 U.S. gallons, whichever comes first;<br>1" – Five (5) years from the date of shipment to Purchaser or the registration of 1,000,000 U.S. gallons, whichever comes first;<br>1-1/2" – Two (2) years from the date of shipment to Purchaser or the registration of 1,600,000 U.S. gallons, whichever comes first;<br>2" – Two (2) years from the date of shipment to Purchaser or the registration of 2,700,000 U.S. gallons, whichever comes first. |
| | AWWA Repaired Meter Accuracy (AWWA M6 Manual) | 5/8" – Fifteen (15) years from the date of shipment to Purchaser or the registration of 1,500,000 U.S. gallons, whichever comes first;<br>3/4" – Fifteen (15) years from the date of shipment to Purchaser or the registration of 2,250,000 U.S. gallons, whichever comes first;<br>1" – Fifteen (15) years from the date of shipment to Purchaser or the registration of 3,000,000 U.S. gallons, whichever comes first;<br>1-1/2" – Ten (10) years from the date of shipment to Purchaser or the registration of 5,000,000 U.S. gallons, whichever comes first;<br>2" – Ten (10) years from the date of shipment to Purchaser or the registration of 8,000,000 U.S. gallons, whichever comes first. |
| Model HbMAG electromagnetic cold water meters | During the Warranty Period, these Products will be free from defects in materials and workmanship. | Two (2) years from date of shipment to Purchaser. |
| Solid State Meters | During the Warranty Period (ten (10) years from date of shipment to Purchaser) these Products will meet or exceed accuracy of +/- 1.5% between the specified minimum flow rate to the specified maximum. Additionally, the unit is covered by a prorated warranty for years eleven (11) through fifteen (15) at a fifty-percent (50%) discount, and years sixteen (16) through twenty (20) at a twenty-five-percent (25%) discount from the date of shipment to Purchaser. All discounts will be calculated on the then current published price of the original product. All prorated warranty discounts are to be used towards the purchase of replacement units for the following sizes:<br>5/8" Meter — 0.1 gpm to 20 gpm<br>5/8" x ¾", ¾" Short, and ¾" Long Meter — 0.1 to 30 gpm<br>1" Meter — 0.4 to 55 gpm<br>1 ½" Meter — 0.25 to 100 gpm<br>2" Meter — 1.5 to 160 gpm | |

[1] American Water Works Association ("AWWA")

WaterSmart SOFTWARE
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## WATERSMART SOFTWARE-AS-A-SERVICE PROVISIONS

BACKGROUND: WATERSMART's customer engagement and data analytics services are to be provided primarily by utilization of WATERSMART's proprietary software hosted on WATERSMART's computer systems and accessed by authorized users over the Internet. This is a shared cost software utilization model which enables customers to achieve substantial cost savings versus commissioning custom development of software or licensing software for installation and maintenance on customers' computer systems. Companies like WATERSMART are commonly referred to as "SaaS" or "software-as-a-service" providers. Certain supplemental provisions which are customary within the SaaS sector and essential to enabling WATERSMART's SaaS service model and providing substantial cost savings for Utility, are set forth below and incorporated by reference in the Agreement.

A. WATERSMART's reservation of intellectual property rights

WATERSMART has created, acquired or otherwise currently has rights in, and may, in connection with the performance of this Agreement or otherwise develop, create, employ, provide, modify, acquire or otherwise obtain rights in various inventions, concepts, ideas, methods, methodologies, procedures, processes, know-how, techniques, models, templates, software, applications, documentation, user interfaces, screen and print designs, source code, object code, databases, algorithms, development framework repositories, system designs, processing techniques, tools, utilities, routines and other property or materials, including without limitation any and all subject matter protected or which may be protected under patent, copyright, mask work, trademark, trade secret, or other laws relating to intellectual property, whether existing now or in the future, whether statutory or common law, in any jurisdiction in the world ("WATERSMART IP"). Utility acknowledges that WATERSMART owns and shall own all intellectual property rights in and to deliverables hereunder, the WATERSMART IP and derivative works of WATERSMART IP (whether independently or jointly conceived), regardless of whether or not incorporated in any print or electronic Water Reports, Customer Portal, Utility Dashboard, or other software or deliverable provided to Utility by WATERSMART, and that Utility shall acquire no right or interest in the same.

Utility agrees to assign, and hereby does assign, any right, title and interest in any suggestions, enhancement requests, or other feedback provided by Utility relating to services offered by WATERSMART. If and to the extent any such assignment is ineffective, Utility hereby grants to WATERSMART a royalty-free, worldwide, irrevocable, perpetual license to use and incorporate into its services any such suggestions, enhancement requests, or other feedback provided by Utility.

Subject to the foregoing, authorized employees and customers of Utility may during the term of the Agreement access and use the WATERSMART SaaS services, print and electronic Water Reports, Customer Portal, Utility Dashboard, and other deliverables provided to Utility by WATERSMART, and applicable bill presentment and payment services for purposes of Utility's customer engagement program, customer billing, and for Utility's internal purposes, so long as Utility is current with respect to its financial and other obligations under the Agreement. Such authorization is limited to Utility's service territory and is non-exclusive, non-transferable, and non-sublicenseable. If Utility enters into an agreement with a third party contractor of WaterSmart related to bill payment services, the intellectual property provisions of such agreement shall apply with respect to intellectual property owned or controlled by such third party. Any rights not expressly granted herein are reserved by WATERSMART and its licensors.

B. Utility's cooperation in providing necessary inputs

Deliverables to be provided by WATERSMART via its proprietary software require certain data from Utility. Utility shall provide WATERSMART with those data, records, reports, approvals and other inputs identified for Utility to provide to WATERSMART. Utility shall ensure that such inputs are accurate and within Utility's legal rights to share with WATERSMART subject to the confidentiality and other applicable provisions of the Agreement. Time is of the essence, and Utility shall provide its inputs within the timeframes specified for Utility. If bill payment services are included, Utility shall cooperate with WATERSMART and its applicable third

party partner(s) in timely providing the data, records, reports, approvals and other inputs requested for such services. WATERSMART shall not be responsible for delays outside WATERSMART's control, and deadlines for WATERSMART's performance shall be adjusted, if necessary, to accommodate delays by Utility.

C. Confidentiality and WATERSMART's use of aggregated data

All data, documents and other information received or accessed by one party ("Receiver") from the other party or its end users (collectively, "Discloser") for performance of this Agreement, including without limitation personally identifiable information and financial information, are deemed confidential. Such information shall not be used or disclosed by the Receiver without the prior written consent of the Discloser or owner (which may include without limitation consent by end users to share any information with additional users they authorize), except to the Receiver's employees and contractors on a need-to-know basis for performance of this Agreement with appropriate confidentiality protections. For this purpose, protected confidential information shall not include (i) information that, at the time of disclosure, is publicly available or generally known or available to third parties, or information that later becomes publicly available or generally known or available to third parties through no act or omission by the Receiver; (ii) information that the Receiver can demonstrate was in its possession prior to receipt from the Discloser; (iii) information received by the Receiver from a third party who, to the Receiver's knowledge and reasonable belief, did not acquire such information on a confidential basis from the Discloser; (iv) information the Receiver can demonstrate was independently developed by it or a third party; or (v) information that the Receiver is legally required or compelled by a court to disclose.

The foregoing confidentiality obligations are subject to the following clarification of the parties' rights and obligations with respect to aggregated and anonymous data. Utility hereby gives its permission to WATERSMART to use and disclose on an anonymous and/or aggregated basis (excluding any personally identifiable information) any data pertaining to Utility end customers and their water consumption, including without limitation derivative data and data combined with the data of other utilities, for purposes of project evaluation and any research, product development, marketing, or other legitimate business purposes. This Section C shall survive any termination or expiration of the Agreement.

Each party shall post and comply with its applicable privacy policy.

D. Software corrections and third party acts; limitation of liability for SaaS services

In the event that WATERSMART's services fail to meet specifications or other requirements, Utility shall promptly notify WATERSMART and WATERSMART shall promptly correct any defect or substitute services, software, or products to achieve the functionality and benefits originally specified. If WATERSMART promptly makes such correction or substitution, WATERSMART shall have no further liability with respect to said defect(s), notwithstanding any other provision of the Agreement. All warranties not expressly stated in the Agreement are disclaimed. Utility understands that Utility's use of WATERSMART's services provided online may be interrupted by circumstances beyond WATERSMART's control involving third parties, including without limitation computer, telecommunications, network, Internet service provider or hosting facility failures or delays involving hardware, software, networks, or power systems not within WATERSMART's possession or direct control, and network intrusions or denial of service attacks (collectively, "Third Party Acts"). WATERSMART shall not be responsible or otherwise liable for any Third Party Acts, including, without limitation, any delays, failures, or security breaches and damages resulting from or due to any Third Party Acts, provided that WATERSMART has exercised due care. However, in the case of any Third Party Act which will delay or prevent WATERSMART from providing online services to Utility, WATERSMART will promptly notify Utility and assist in mitigating any impact. Neither party will be liable to the other, under any claim relating to this Agreement, for any indirect, incidental, exemplary, special, reliance or consequential damages, including loss of profits or loss of data, even if advised of the possibility of these damages. Under no circumstances or event shall WATERSMART's total cumulative liability for losses or damages of any kind arising under or relating to this Agreement and under any theory (contract, tort, defense and indemnity, or otherwise), exceed (i) the fees received by WATERSMART for the services that give rise to the liability in the twelve months preceding the accrual of such liability, or (ii) available insurance proceeds from WATERSMART's carriers, whichever is higher. If Utility enters into an agreement with a third party contractor of WaterSmart related to bill payment services which specifies a lower limit of liability with respect to such services, the same limit shall apply to WATERSMART's liability (if any) with respect to such services. The

foregoing limited remedy and limitation of liability provisions shall apply notwithstanding any conflicting provisions or any failure of essential purpose with respect to a limited remedy or limitation of liability, and shall survive any termination or expiration of the Agreement. Utility acknowledges that pricing for WATERSMART's services would be substantially higher without the aforementioned limitations.

E. Technology and services infrastructure vendors WATERSMART as a SaaS provider utilizes the secure cloud hosting platform of a third party industry leader in cloud computing with state-of-the art security to host the data of all WATERSMART customers. WATERSMART utilizes a reputable third party vendor to perform printing and mailing services when included within the scope of WATERSMART's work. For bill payment services, including credit card, debit card, and ACH payments and authentication, WATERSMART works with leading edge, reputable third party vendors specializing in such functions. Since the referenced cloud hosting platform, printing and mailing vendors, bill payment services providers, and certain other vendors performing similar or related functions, are integral components of WATERSMART's technology and services infrastructure used across its pertinent customer base and are not specific to Utility and services under this Agreement, Utility acknowledges that such utilization or collaboration is not considered subcontracting of WATERSMART's services under this Agreement.

If Utility elects to make bill payment services available to its end customers, the pertinent end users and Utility assume all risks associated with such services, and no indemnity provisions in favor of Utility shall apply to such services, except in the event of WATERSMART's willful misconduct. In the absence of willful misconduct by WATERSMART, Utility's sole remedies related to bill payment services shall be from the independent third party provider of such services in accordance with any contract between Utility and such provider. If Utility enters into an agreement with any third party contractor of WATERSMART for any other services ancillary or related to the services provided by WATERSMART during the term of this Agreement, Utility shall first seek and exhaust all remedies from such third party contractor prior to seeking any remedy from WATERSMART with respect to such services.

With respect to all bill payment services, as well as any services provided by independent third party contractors not in contract with WATERSMART, including without limitation any such services which at Utility's request or direction are integrated by WATERSMART into its electronic interfaces for Utility, WATERSMART shall not be responsible for services provided by such third parties. In furtherance of the foregoing, Utility shall hold harmless, defend and indemnify WATERSMART and its officers, directors, employees, contractors, representatives and volunteers from and against all claims, damages, losses and expenses, including without limitation any statutory damages, penalties, and attorney's fees, arising out of or relating to such third party services, except in the event of WATERSMART's willful misconduct.

F. Compliance With Laws WaterSmart shall comply with all federal, state and local laws, regulations, regulatory rulings, and ordinances as may be applicable to the performance of its services under this Agreement. Utility shall comply with all federal, state and local laws, regulations, regulatory rulings, and ordinances related to this Agreement, and shall have sole responsibility for securing any necessary regulatory approvals, if any, for this Agreement and/or the services hereunder.

Utility shall be responsible for obtaining from its end customers any consents and providing any notices, if any are legally required, for the services to be provided by WaterSmart hereunder, as well as any bill payment or other third party services elected by Utility.

G. Extended Messaging Services If Utility elects to utilize WATERSMART's leak alert or group messenger services, certain supplemental legal terms shall apply. These supplemental terms ("Extended Messaging Terms") are set forth below and shall prevail in the event of any conflict or inconsistency. For avoidance of doubt, the Extended Messaging Terms apply to all WATERSMART services involving automated phone calls (conventional and mobile), pre-recorded messages, text messages, and other such bulk communications (including emails outside of WATERSMART's core customer engagement offerings) (collectively, "Extended Messaging Services").

1. Utility shall be solely responsible for the content of any messages or communications to end customers which Utility initiates or authorizes in connection with the Extended Messaging Services, as well as Utility's selection of any vehicle (ie., conventional phone, mobile phone, text, email) for such messages or communications. WATERSMART shall have no responsibility or liability of any kind with respect to

messages or communications initiated or authorized by Utility or its representatives. In furtherance of the foregoing, Utility shall hold harmless, defend and indemnify WATERSMART and its officers, directors, employees, contractors, representatives and volunteers from and against all claims, damages, losses and expenses including without limitation any statutory damages, penalties, and attorney's fees, arising out of or relating to the Extended Messaging Services or any breach by Utility of the Agreement including without limitation these Extended Messaging Terms, except in the event of WATERSMART's willful misconduct. For avoidance of doubt, if the Agreement has other indemnity provisions in favor of Utility such provisions shall not apply to the Extended Messaging Services, except in the event of WATERSMART's willful misconduct.

2. If Utility elects to make available to its end customers Extended Messaging Services offered by WATERSMART to alert end users of potential leaks or high water usage, the pertinent end users and Utility assume all risks associated with such alerts, and no indemnity provisions in favor of Utility shall apply to such risks (including without limitation any liability claims for failure to alert or inaccurate alerts), except in the event of WATERSMART's willful misconduct.
3. With respect to Extended Messaging Services, WATERSMART's role is limited to delivering via its technology platform Utility's communications through vehicles selected by Utility; accordingly, compliance with applicable laws (which may vary by state and locale) is strictly Utility's responsibility with respect to Extended Messaging Services notwithstanding any provision to the contrary.

4. Utility is encouraged to consult legal counsel of its own with respect to this Agreement and in reference to Federal Communications Commission Declaratory Ruling FCC 16-88 (released August 4, 2016), any Extended Messaging Services, and compliance with applicable federal, state and local laws, regulations and regulatory rulings, and ordinances. Utility shall not rely on WATERSMART or WATERSMART's representatives for legal advice or guidance concerning the content or appropriate vehicles (i.e., conventional phone, mobile phone, text, email) for communications with Utility end customers.

In order to provide the Extended Messaging Services at efficient cost and with optimal levels of security and reliability, WATERSMART may utilize one or more third party communications technology and communications services providers. Since such providers are utilized across WATERSMART's pertinent customer base and are not specific to Utility and service choices by Utility under the Agreement, Utility acknowledges that such utilization is not considered subcontracting of WATERSMART's services under the Agreement

**MUELLER SYSTEMS**
**MASTER AGREEMENT**

THIS MASTER AGREEMENT (this "**Agreement**") is entered into this _____ day of _____ _____ _____ between MUELLER SYSTEMS, LLC, a Delaware limited liability corporation having its principal offices at 10210 Statesville Blvd, Cleveland, North Carolina 27013 (referred to in this Agreement as "**Mueller Systems**" or "**Provider**"), and _____ (referred to in this Agreement as "**Customer**"). This Agreement governs the sale by Provider and the purchase by Customer for its own use and not for resale of, as applicable, Equipment, Software, Documentation and other items related to advanced metrology infrastructure systems. In the event of any conflict or inconsistency between the terms and conditions of this Agreement and terms and conditions of any other agreement or document, the terms and conditions of this Agreement shall govern and control and the conflicting or inconsistent terms and conditions are hereby rejected. In consideration of the mutual obligations set forth in this Agreement, Customer and Mueller Systems agree as follows:

1. **DEFINITIONS**.

a. "**Content**" means the information developed or legally acquired by Customer which may be used in connection with or accessed by any module of the Software.

b. "**Documentation**" means the user guides, reference manuals, and installation materials provided by Provider to Customer related to the Software and Equipment.

c. "**Equipment**" means the components, devices, products, equipment and related items provided by Provider identified in Appendix A.

d. "**Services**" means activities related to deployment and installation services, repair services, hosting services and technical support/maintenance services as provided by Mueller Systems and as identified in Appendix B.

e. "**Software**" means the object code versions of Mueller Systems' software identified in Appendix A, together with all subsequent authorized updates, replacements, modifications or enhancements.

2. **SOFTWARE**

a. Software on Equipment License. For Equipment purchased by Customer from Mueller Systems, Mueller Systems hereby grants Customer a limited, non-exclusive, non-sublicensable, non-transferable, perpetual, irrevocable license to use and execute the Software embedded in the Equipment for its internal business purposes in connection with such Equipment ("Firmware").

b. Online Software Access. Subject to the terms of this Agreement and the payment of the fees specified in Section 6a herein, Mueller Systems grants to Customer, for its internal business purposes and during the term of this agreement, a limited, non-exclusive, non-sublicensable, non-transferable right to access and use and make available to Customer's utility users, as applicable, and/or employees the online, hosted Software specified herein.

c. Restrictions. Except as specifically and expressly permitted in writing by Mueller Systems, Customer shall not (i) violate any restriction set forth in this Agreement; (ii) modify, translate, de-compile, reverse compile, disassemble, or create or attempt to create, by reverse engineering or otherwise, the source code from the object code of the Software; (iii) adapt the Software in any way for use to create a derivative work; (iv) include or combine the Software in or with any other software; or (v) use the Software to provide processing services to third parties or on a service bureau basis. Except as expressly permitted in this Agreement, Customer may not copy the Software other than to make one machine readable copy for disaster recovery or archival purposes. Customer may only make copies of Documentation as reasonably necessary for the use contemplated herein and with proper inclusion of Mueller Systems' copyright notices.

d. Ownership. This Agreement does not grant to Customer any ownership interest in the Software or Documentation. Customer has a license to use the Software and Documentation as provided in this Agreement. Customer hereby agrees and acknowledges that Mueller Systems owns all right, title, and interest in the Software and Documentation, and Customer will not

contest those rights or engage in any conduct contrary to those rights. Any copy, modification, revision, enhancement, adaptation, translation, or derivative work of or created from the Software and Documentation made by or at the direction of Customer shall be owned solely and exclusively by Mueller Systems, as shall all patent rights, copyrights, trade secret rights, trademark rights and all other proprietary rights, worldwide.

e. Reservation. Mueller Systems reserves all rights not specifically granted under this Agreement.

3. **EQUIPMENT** In consideration of the fees set forth in Appendix D of this Agreement, Mueller Systems will provide the Equipment identified in Appendix A.

4. **SERVICES** In consideration of the fees set forth in Appendix D of this Agreement, Mueller Systems will provide the Services identified in Appendix B.

5. **CONFIDENTIALITY** The Software, Equipment and Documentation, including any ideas, concepts, know-how and technology contained therein, shall be considered the proprietary and confidential information of Mueller Systems and, as such, shall be subject to the confidentiality provisions of this Agreement. If a separate, written non-disclosure agreement exists between Mueller Systems and Customer, such agreement will control and will apply according to its terms and conditions to all confidential information the parties exchange with each other. If no separate, written non-disclosure agreement exists between Mueller Systems and Customer, the terms listed in Appendix C will apply to the confidential information the parties exchange with each other.

6. **FEES AND PAYMENT**

a. Software Fees. Customer shall pay the Software fees set forth in Appendix D of this Agreement.

b. Equipment Fees. Customer shall pay the Equipment fees set forth in Appendix D of this Agreement. Title to the Equipment, except the Software and Documentation that are subject to licenses provided in this Agreement, passes from Mueller Systems to Customer when Mueller Systems ships the Equipment.

c. Service Fees. Customer shall pay the Service fees set forth in Appendix D of this Agreement.

d. Taxes. All prices and fees are in U.S. dollars unless otherwise specified. All amounts payable under this Agreement are exclusive of all sales, use, value-added, excise, property, withholding, and other taxes and duties. Customer will pay all taxes and duties assessed by any authority in connection with this Agreement and with Customer's performance hereunder. Customer will promptly reimburse Mueller Systems for any and all taxes or duties that Mueller Systems may be required to pay in connection with this Agreement or its performance. This provision does not apply to taxes based on Mueller Systems' income, or any taxes for which Customer is exempt, provided Customer has furnished Mueller Systems with a valid tax exemption certificate.

e. Payment. Unless provided otherwise herein, Customer agrees to pay all amounts specified in Appendix D or otherwise due under this Agreement within thirty (30) days after the date of invoice. Past due amounts will shall bear interest from the due date until paid at a rate of (i) one and one-half percent (1.5%) per month or (ii) the maximum rate permitted by law, whichever is less. All payments made under this Agreement shall be nonrefundable, except as specifically provided otherwise in this Agreement.

7. **TERM; TERMINATION**

a. Term. The term of this Agreement is one (1) year commencing upon the date of this Agreement. This Agreement will automatically renew for subsequent, successive one (1) year periods at the then-current Mueller Systems prices unless either party gives the other party written notice of its intent to not renew at least thirty (30) days prior to the expiration of the then current term. Mueller Systems may increase support fees at any time on thirty (30) days prior notice to Customer. Within such thirty (30) days, Customer may terminate the Agreement by providing written notice to Mueller Systems.

b. Termination for Breach. If either party breaches this Agreement, and such breach is not cured within ten (10) days of the breach, after receiving written notice, the non-breaching party may terminate this Agreement, including all

licenses provided herein, effective upon written notice to the other party. The breaching party agrees that if it breaches this Agreement, the non-breaching party will be entitled to injunctive or similar equitable relief and that the breaching party will not argue in any proceeding that its breach will not cause irreparable harm to the non-breaching party or that the non-breaching party can be adequately compensated for any such harm by any remedies other than by injunctive relief.

c. Effect of Termination. Termination of this Agreement shall have the effect designated in Appendix B.

d. Non-Exclusive Remedy. Termination of this Agreement or any license granted hereunder shall not limit the remedies otherwise available to either party, including injunctive relief.

e. Survival. Unless otherwise stated herein, any provision that, by its nature or terms, is intended to survive the expiration or termination of this Agreement, will survive.

8. **LIMITED WARRANTIES; REMEDIES**

a. Software. Subject to the exclusions herein, including those in Appendix A, Mueller Systems warrants that commencing from the date of shipment or provision to Customer and continuing for the period set forth in Appendix A (the "**Warranty Period**"), (i) the media on which the Software is furnished will be free of defects in materials and workmanship under normal use; and (ii) the Software will perform substantially in conformance with the applicable Documentation provided to Customer by Mueller Systems. Mueller Systems does not warrant that the Software will operate in combinations with other software, except as specified in the Documentation, that the Software will meet the Customer's requirements or that the operation of the Software will be uninterrupted or error-free. Customer assumes responsibility for taking adequate precautions against damages which could be caused by defects, interruptions or malfunctions in the Software or the hardware on which it is installed. Mueller Systems' entire obligation and Customer's exclusive remedy with respect to the Software warranties set forth above shall be, at Mueller Systems' option, to either (x) repair or replace any Software containing an error or condition which is reported by Customer in writing to Mueller Systems which causes the Software not to conform with the warranty set forth herein; or (y) refund a pro-rated amount paid by Customer to Mueller Systems and terminate this Agreement and all licenses provided herein.

b. Services. Mueller Systems warrants that all services provided by it to Customer under this Agreement shall be performed in a workmanlike manner. Mueller Systems' entire obligation and Customer's exclusive remedy with respect to the Service warranties set forth above shall be the re-performance of the applicable non-conforming Service.

c. Equipment. Subject to the exclusions herein, including those in Appendix A, Mueller Systems warrants to Customer that the Equipment will comply with provided specifications for the periods specified in Appendix A. Claims under this Section will be considered if submitted to Mueller Systems within sixty (60) days following the discovery of any noncompliant Equipment covered by this Agreement and provided Mueller Systems or its agents are permitted a commercially reasonable opportunity to examine and analyze the Equipment claimed to be noncompliant. Mueller Systems' entire obligation and Customer's exclusive remedy with respect to the Equipment warranties set forth herein, at Mueller Systems' option, is repair or replacement of any Equipment found noncompliant, subject to the terms and conditions herein, during the applicable warranty period after such Equipment is properly packaged and returned prepaid to Mueller Systems' designated service center.

d. Costs. Any and all costs associated with uninstalling and shipping noncompliant Equipment and Software and installing replacement Equipment and Software will be the responsibility of Customer.

e. Exclusions. The warranties provided by Mueller Systems shall not apply to Equipment and/or Software which: (i) have been altered, except with the express written consent, permission or instruction of Mueller Systems, (ii) have been used in conjunction with another product resulting in the defect, except for those third party products specifically approved by Mueller Systems, (iii) were other than the most current version of the Software (but only to the extent that any failure of the Software would have been avoided by the use of the most current version), (iv) have been damaged by improper environment, abuse, misuse, accident, negligence,

act of God, excessive operating conditions, or unauthorized attachments or modifications, (v) have not been properly installed and operated in accordance with the Documentation, or as otherwise instructed by Mueller Systems, or (vi) any other exclusion set forth in any Appendix hereto.

f. DISCLAIMERS. TO THE EXTENT PERMITTED BY APPLICABLE LAW, THE WARRANTIES AND REMEDIES STATED ABOVE ARE EXCLUSIVE AND NO OTHER WARRANTIES OR REMEDIES EXPRESS, IMPLIED OR STATUTORY, APPLY TO THE DOCUMENTATION, THE SOFTWARE, THE EQUIPMENT OR ANY SERVICES TO BE PROVIDED BY MUELLER SYSTEMS UNDER THIS AGREEMENT, INCLUDING BUT NOT LIMITED TO WARRANTIES OR CONDITIONS OF TITLE, NON-INFRINGEMENT, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, QUALITY OR PERFORMANCE, AND ANY IMPLIED WARRANTY ARISING FROM COURSE OF PERFORMANCE, COURSE OF DEALING OR USAGE OF TRADE, ALL OF WHICH MUELLER SYSTEMS EXPRESSLY DISCLAIMS.

9. **INDEMNIFICATION.** Mueller Systems will indemnify and defend Customer from any third party claim that the Software and Equipment infringe on another person's or company's patent, copyright or other intellectual property right as specified in this Section. This indemnity does not cover and specifically excludes (a) intellectual property rights recognized in countries and jurisdictions other than the United States, and (b) claims relating to infringement of intellectual property rights by a third party's products and software. Mueller Systems has no obligation under this Section for any claim to the extent it results from or arises out of Customer's modification of the Equipment or Software or from any combination, operation or use of the Software or Equipment with other third party products or services. Mueller Systems' duty to indemnify under this Section is contingent upon Mueller Systems receiving prompt notice of a claim and Mueller Systems' right to solely control resolution of a claim. Customer's sole remedy for an indemnified claim under this Section is as follows: Mueller Systems will, at its expense and in its discretion either (a) resolve the claim in a way that permits Customer's continued ownership and use of the affected Software and Equipment, (b) provide a comparable, non-infringing replacement at no cost to Customer, or (c) accept return of the Software and Equipment, provide a reasonable depreciated refund and terminate this Agreement and all licenses herein. This Section is the exclusive statement of Mueller Systems' liability and responsibility for indemnifying Customer for infringement of intellectual property rights

10. **LIMITATION OF LIABILITY.**

a. MUELLER SYSTEMS' MAXIMUM LIABILITY HEREUNDER IS EXPRESSLY LIMITED TO THE TOTAL AMOUNT PAID FOR THE SOFTWARE, SERVICES, AND EQUIPMENT IN THE IMMEDIATELY PRECEDING TWELVE (12) MONTHS AND WILL UNDER NO CIRCUMSTANCE EXCEED THE AMOUNT PAID BY CUSTOMER IN THE IMMEDIATELY PRECEDING TWELVE (12) MONTHS FOR THE SOFTWARE, SERVICES AND EQUIPMENT PROVIDED BY MUELLER SYSTEMS UNDER THIS AGREEMENT. Some states do not allow the limitation and/or exclusion of liability for incidental or consequential damages, so the above limitation may not apply.

b. The provisions of this Agreement allocate the risks between Customer and Mueller Systems. Mueller Systems' pricing reflects this allocation of risk and the limitations of liability specified herein.

11. **NOTICE.** All notices required to be given hereunder shall be in writing. Notice shall be considered delivered and effective upon receipt when sent by registered or certified mail, return receipt requested, addressed to the parties as set forth above. Either party, upon written notice, may change any name or address to which future notice shall be sent.

12. **GENERAL.** The Software will not be exported or re-exported in violation of any export provisions of the United States or any other applicable jurisdiction. The rights and obligations of this Agreement are personal rights granted to the Customer only. The Customer may not transfer or assign any of the rights or obligations granted under this Agreement to any other person or legal entity. Any such purported transfer or assignment shall be null and void. Mueller Systems will be free of liability to the Customer where Mueller Systems is prevented

from executing its obligations under this Agreement in whole or in part due to force majeure, such as earthquake, typhoon, flood, fire, and war or any other unforeseen and uncontrollable. Any modification or amendment to any of the provisions of this Agreement will be in writing and signed by an authorized officer of each party. This Agreement does not create or imply any relationship in agency or partnership between the parties. Headings are inserted for the convenience of the parties only and are not to be considered when interpreting this Agreement. The validity of this Agreement and the rights, obligations, and relationship of the parties resulting from same will be interpreted and determined in accordance with the law of the State of Delaware, and applicable federal law, without regard to its choice of law provisions. The parties specifically exclude from application to the Agreement the United Nations Convention on Contracts for the International Sale of Goods and the Uniform Computer Information Transactions Act. If any provision of this Agreement is contrary to and in violation of any applicable law, such provision will be considered null and void to the extent that it is contrary to such law, but all other provisions will remain in effect. The waiver or failure of either party to exercise any right herein shall not be deemed a waiver of any further right hereunder. This Agreement constitutes the entire agreement between the parties with respect to the subject matter hereof and supersedes all other prior and contemporary agreements, understandings, and commitments between the parties regarding the subject matter of this Agreement.

*[Signatures Appear on the Following Page]*

**EACH PARTY ACKNOWLEDGES THAT IT HAS READ THIS AGREEMENT, UNDERSTANDS IT, AND AGREES TO BE BOUND BY ITS TERMS AND CONDITIONS.**

Mueller Systems

By:_____

Name (Print or Type)

Title

Customer

By:_____

Name (Print or Type)

Title

# Product Warranty Statement

1. **Limited Warranty**. Mueller Systems, LLC ("Mueller") warrants that, for the duration of the Warranty Period (defined below): (a) each product purchased from Mueller ("Product") will be free from defects in materials and workmanship under normal use, installation and service conditions; (b) the media on which any Software is furnished will be free of defects in materials and workmanship under normal use; and (c) any such Software will substantially conform to the applicable published Mueller functional specifications for such Software. Products will have a warranty period of the greater of (i) one (1) year from date of shipment or (ii) the applicable warranty period for a specific Product stated below in Section 6 ("Warranty Period").

2. **Exclusive Remedy**. Mueller will, at its option, either repair or replace a Product that is in breach of the foregoing warranty during the Warranty Period if Purchaser reports the breach to Mueller within sixty (60) days after Purchaser discovers the breach. At Mueller's request, Purchaser will ship the allegedly defective Product to a repair facility designated by Mueller at Purchaser's expense and risk. If Mueller, in its sole discretion, determines that the Product breached the applicable warranty, Mueller will ship the repaired or replaced Product to Purchaser at Mueller's expense and risk. If Mueller determines that it is unable to repair or replace such Product, it will, at Mueller's sole discretion provide a cash or credit refund to Purchaser. If Mueller repairs or replaces any such defective Product, the Warranty Period for the repaired or replaced Product will continue for the longer of (y) thirty (30) days, or (z) the remainder of the original Warranty Period. Mueller's warranty is subject to exclusions, as set forth in Section 3. This Section 2 sets forth Mueller's entire liability, and the Purchaser's exclusive remedy, for any alleged breach of warranty for any Products.

3. **Exclusions**. Mueller has no obligation under this Product Warranty Statement if (a) a Product has been subject to misuse, neglect or accident or has been damaged through abuse, alternation, installation or application inconsistent with AWWA guidelines or Mueller specifications, including but not limited to Mueller propagation studies, failure to follow Mueller's operation or maintenance instructions or negligence in transportation, handling, or storage, or repaired by anyone other than Mueller or its authorized personnel, (b) with respect to software, there has been a change to the software's operating environment not made or authorized by Mueller or if Purchaser fails to install any correction or enhancement provided by Mueller, or if a virus is introduced through no fault of Mueller, or (c) if any Product fails to satisfy the applicable warranty as a result of any force majeure event. Mueller's Product Return process can be found at www.muellersystemsreturns.com .

4. **Important Disclaimer**. EXCEPT AS EXPRESSLY SET FORTH HEREIN, MUELLER DISCLAIMS ALL OTHER EXPRESS OR IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE AND NON-INFRINGEMENT AND WARRANTIES ARISING FROM A COURSE OF DEALING, USAGE OR TRADE PRACTICE. TO THE EXTENT ANY IMPLIED WARRANTY CANNOT BE EXCLUDED, SUCH WARRANTY IS LIMITED IN DURATION TO THE EXPRESS WARRANTY PERIOD.

5. **Limitation on Liability**. Mueller has no liability with respect to damage or destruction of property or the personal injury or death of persons resulting from defects in Products or from improper installation, use, maintenance or operation of any Products. In all cases, Mueller's liability shall not exceed the total amount paid by Purchaser to Mueller under this Order.

6. **Product Warranties**. The following provisions in this Section 6 modify the limited warranty in Section 1 with respect to the specific Products identified below:

# City of South Daytona (FL) - Mi.Net LoRaWAN Propagation Study

## Study Details

### Available Information

- Private Communication Towers available in the service area
- 5,568 Water Meters (100% Plastic Lids)

### Estimated Infrastructure Requirements

- Two (2) LoRaWAN Gateways (on Towers)

### Assumptions

- 5,407 meter locations were able to be geocoded for this study. Additional meter locations provided after this study may require additional infrastructure.
- Study assumes water meters mounted under plastic pit lids. Nodes must be mounted through the lid with a Mueller TTLH adapter.
- Areas with low signal strength may require additional infrastructure.
- Assets proposed for infrastructure locations will require a site survey to determine any nearby assets/locations viable for infrastructure placement. After site survey, if there are no viable assets, study will need revision.
- Study assumes an average ambient RF noise floor at or below –125dBm within the LoRaWAN operational frequency band. An RF spectrum analysis may be completed during the site survey. High in-band noise may require additional network infrastructure.
- EveryNet is the LoRaWAN network provider

### Performance Goals

- RF Coverage of installed base of meter/modules to be at 100%
- Read rate of at least 98.5% over a 3-day window of the installed base of active meter/modules subject to a EAP.

Note:

This RF propagation study was conducted using the available information and assumptions stated in this document. Quantities and infrastructure locations are subject to change after detailed site survey following award.

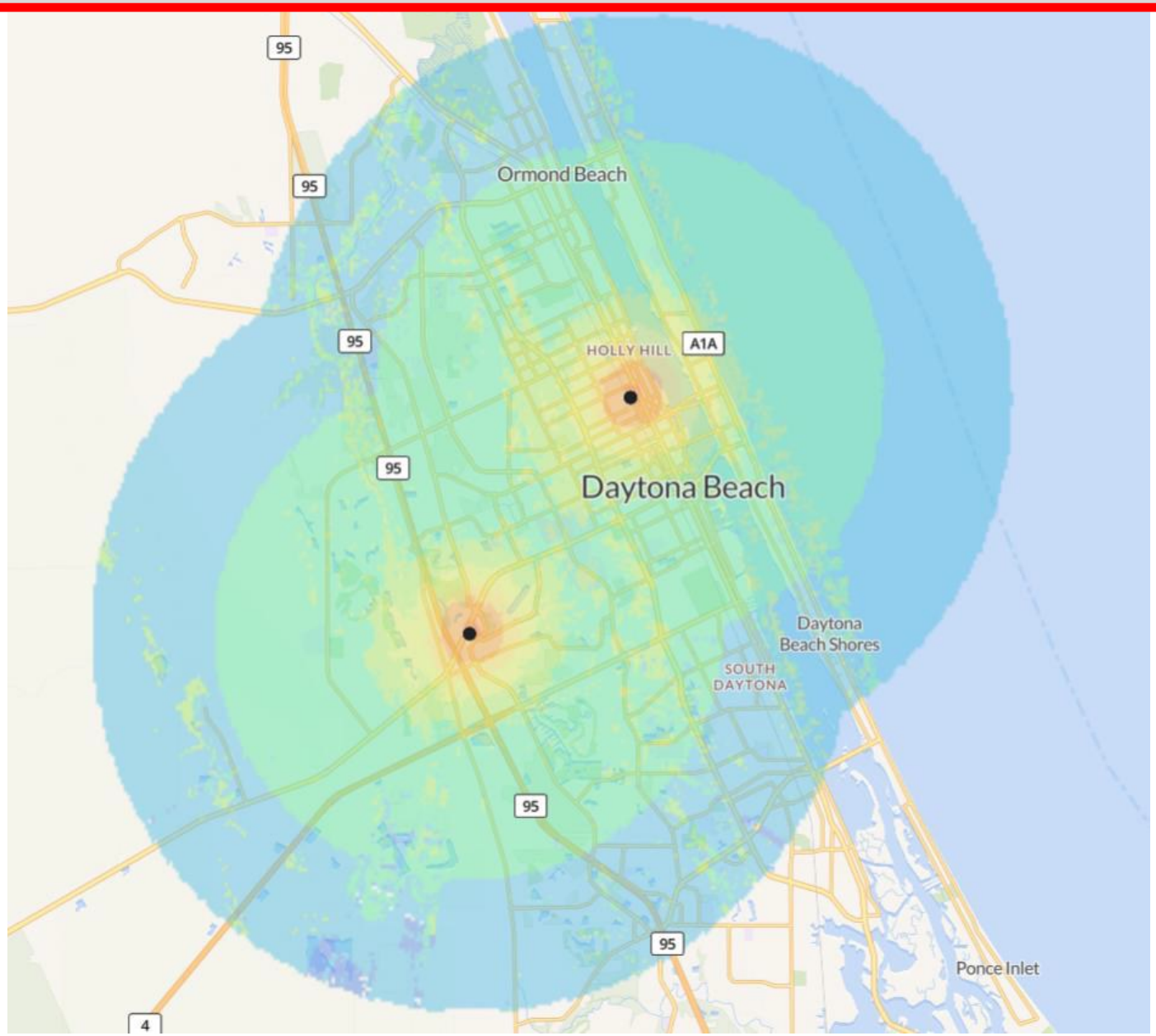
Mueller SYSTEMS

# City of South Daytona (FL) - Mi.Net LoRaWAN Propagation Study

## Estimated Service Area and Meter locations

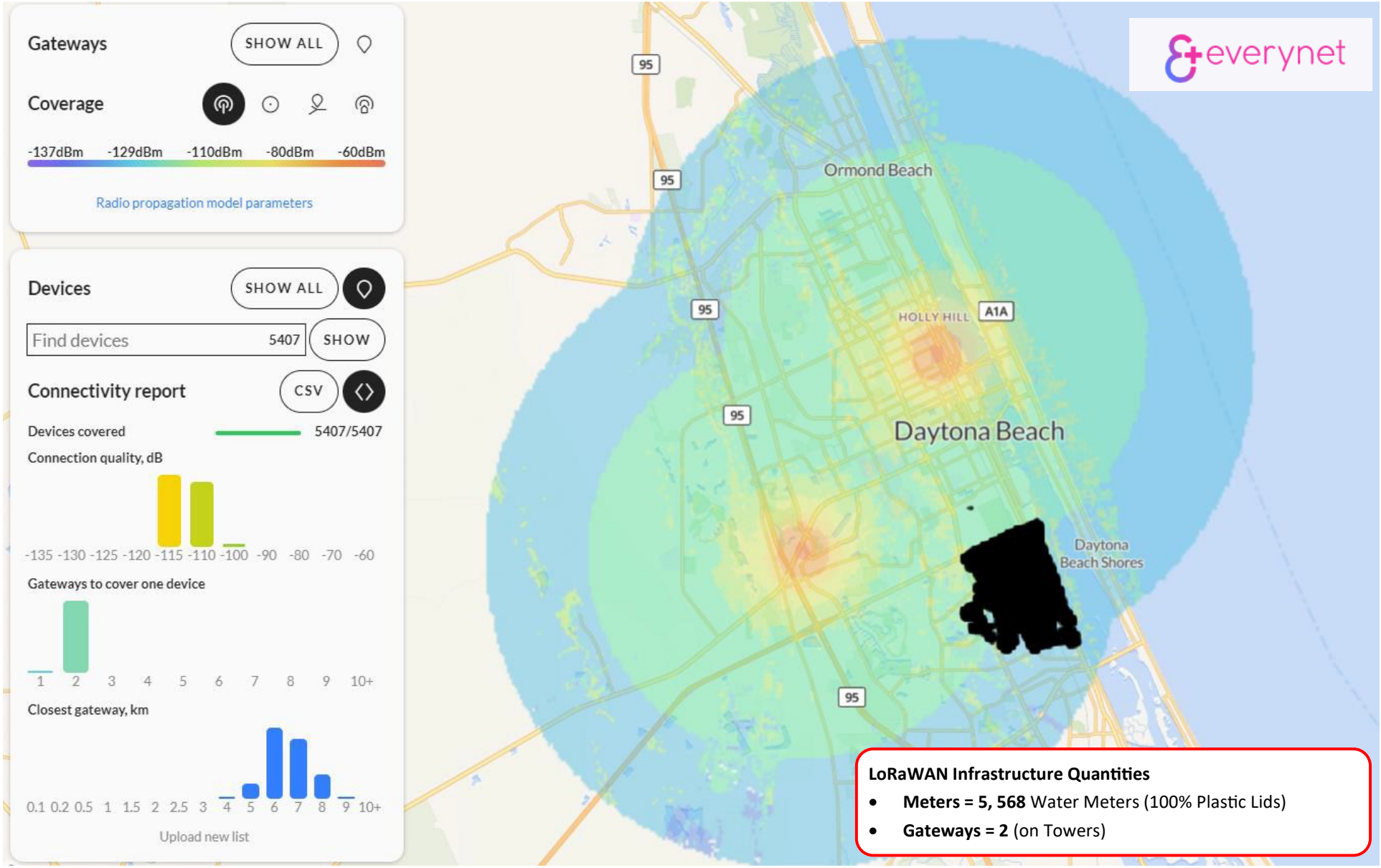
# City of South Daytona (FL) - Mi.Net LoRaWAN Propagation Study

## LoRaWAN Gateway Locations



# City of South Daytona (FL) - Mi.Net LoRaWAN Propagation Study

## Estimated RF Analysis Coverage



# City of South Daytona (FL) - Mi.Net LoRaWAN Propagation Study

## Customer Signature Approval

**Customer Approval**

By: _____
Authorized Signature

_____
Name (Print or Type)

_____
Title

Mi.Net
Mueller Infrastructure Network